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**RECONCEPTUALISING CEMETERY PLANNING IN SOUTH AFRICA:
ASSESSING THE POTENTIALS FOR APPROACHES INFORMED BY
SOCIAL-ECOLOGICAL RESILIENCE PRINCIPLES**

Doctor of Philosophy

A thesis submitted to the Faculty of Engineering and the Built Environment, University of the Witwatersrand, Johannesburg, in fulfilment of the requirements for the degree of Doctor of Philosophy

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Declaration

I declare that this thesis is my own unaided work. It is being submitted to the Degree of Doctor of Philosophy to the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination to any other University.



9th day of October year 2017

Abstract

Cemeteries consume vast amounts of land and contest with other land uses deemed more urgent; yet they are rarely addressed in international policy dialogues. They are generally not viewed as part of the open-space system and are mostly mono-functional. Resilience thinking has become an important discourse influencing the way in which urban policy and planning is conceptualised. There is potential to use these ideas to further develop the new approaches to cemetery provision, which are influenced by the application of sustainability concepts, and see them as part of green infrastructure. However, resilience thinking needs to go beyond technical solutions to consider local institutional and socio-cultural contexts that affect their application.

South African apartheid policies facilitated segregation that resulted in unsustainable approaches to cemetery planning and provision. New approaches that engage sustainability perspectives are being explored. This research explores the experience of implementing these approaches in the Johannesburg context, and what it might mean to reconceptualise cemetery planning further through a social-ecological resilience lens. This is achieved by establishing the relationship of cemeteries to social-ecological systems; investigating how the current design and provision of cemeteries can be reconceptualised in the context of resilience thinking; understanding whether newer cemetery planning approaches and designs adequately meet needs of users, and whether they would be willing to accept new ways of interment, and identifying barriers that would prevent the uptake of approaches that are consistent with resilience thinking.

The study employs a case-study methodology focusing on a primary case - Waterval Cemetery, to understand the applicability of resilience thinking in cemetery planning in South Africa. Through engagements with key respondents in the municipality, interviews and focus groups with cemetery users, it seeks diverse participants' perceptions of newer cemetery planning approaches, and alternatives to conventional burial. A secondary case examines Diepsloot Memorial Park, which integrates more innovative elements. Results show that the application of resilience in cemetery planning requires a strong understanding of local socio-cultural contexts. Although the idea of cemeteries contributing to the

resilience of cities is conceivable, it could take longer for transformation to happen and for innovative ideas to be fully accepted.

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Acronyms

CIDD	Capital Infrastructure Development Department
CIT	Central Islamic Trust
CoGTA	Cooperative Governance and Traditional Affairs
CoJ	City of Johannesburg
CPTED	Crime Prevention Through Environmental Design
CRL Commission	Commission for the Promotion and Protection of the Rights of Cultural, Religious and Linguistic Communities
DMP	Diepsloot Memorial Park
DSDM	Development Services Delivery Model
DTA	Department of Traditional Affairs
EIAs	Environmental Impact Assessments
EPWP	Expanded Public Works Programme
FBO	Faith-Based Organisation
GCRO	Gauteng City Region Observatory
GDARD	Gauteng Department of Agriculture and Rural Development
GIS	Geographic Information System
GPCoGTA	Gauteng Provincial Cooperative Governance and Traditional Affairs Department
IDP	Integrated Development Plan
JCPZ	Johannesburg City Parks and Zoo
JMOSS	Johannesburg Metropolitan Open Space System
NDP	National Development Plan
NEMA	National Environmental Management Act
NLA	New Landscape Architects
NPO	Non-Profit Organisation
RRYH	Rabie Ridge Youth House
SACC	South African Council of Churches
SALGA	South African Local Government Association
SAPS	South African Police Service
SDFs	Spatial Development Frameworks
SHEQ	Safety, Health, Environment and Quality
SPLUMA	The Spatial Planning and Land Use Management Act 16 of 2013
StatsSA	Statistics South Africa
THO	Traditional Healers Organisation
UK	United Kingdom
USA	United States of America

Chapter 1: Introduction

1.1 Introduction

South African cemeteries were developed along religious and racial lines in the colonial and apartheid¹ eras (Christopher, 1995). In the nineteenth century, sections within cemeteries were allocated according to religion. This continued into the twentieth century, and at the peak of apartheid, due to the imposition of segregationist laws, cemeteries were classified by race and ethnicity. This translated into cemeteries in affluent suburbs being properly planned, whereas those in previously-disadvantaged areas were not (Personal Communication: Cemeteries and Crematoria Manager, Moloi, 2014). In the latter, land was randomly identified and burial commenced soon thereafter, without much consideration for environmental suitability, space efficiency and cultural and religious factors (*ibid*). The provision of cemeteries is a local government responsibility, as stipulated in Schedule 5, Section 155(6)(a) and (7) of the Constitution of South Africa. However, currently, municipalities are stretched in terms of financial and land resources for the development, provision and maintenance of cemeteries (Dambudzo, 2012). Most available land, which is suitable for cemetery development, is owned by the provincial government², while some lies in private hands. This means that it is difficult and costly to access, as municipalities have to purchase it, conduct relevant investigations to assess suitability, and only then develop it for interment.

To meet current and future cemetery demand, the City of Johannesburg (CoJ), through the Johannesburg City Parks and Zoo (JCPZ)³, is exploring new approaches to cemetery planning and provision. Like most South African cities, the CoJ faces diverse challenges pertaining to the design, provision, management and use of cemeteries. Cemeteries are land-consuming and mostly promote a single-use design. This leads to land being utilised in an inadequate and unsustainable manner. Current governance and legislative processes also have implications for the provision and management of these facilities.

Diverse cemetery planning and provision challenges in the CoJ have triggered the need to deliver better cemetery planning, provision and management practices; and in response to

¹ An overview of apartheid and its effects, that prevail until today, will be given in upcoming sections.

² The middle-tier of government concerned with everything that happens at a provincial scale.

³ An entity mandated with provision and maintenance of recreational parks and cemeteries in the CoJ.

the diminishing land resources, various alternatives to conventional burial. Due to these challenges, and the fact that cemeteries compete with other land uses deemed as urgent, the CoJ is exploring new approaches that are influenced by green infrastructure perspectives, involving designing cemeteries that form part of the city's green lungs⁴. Some of the approaches are also in response to the spatial imbalances inherited from the apartheid era, and experienced across the city's settlements, particularly between the affluent northern suburbs and the previously-disadvantaged areas in the south.

To address some of the cemetery provision challenges faced by urban municipalities, some academics in the global north have conducted studies that discuss how cemeteries can be viewed as part of the urban green infrastructure, and how this linkage can contribute to urban sustainability (Uslu *et al.*, 2009), without making a specific link to resilience. For instance, in linking cemeteries and sustainability, Uslu *et al.*, (2009) advocate for the planning and maintenance of cemeteries in ways that are sensitive to surrounding urban landscapes. Ahern (2013) argues that the resilience theory advances the discourse on urban sustainability, and further identifies critical strategies (e.g. building and managing for urban connectivity, designing for multi-functionality and biodiversity protection), required to build the resilience capacity of urban spaces. In this case, links are made between resilience with other open spaces, and not with cemeteries. Because these studies were undertaken in countries with very different social and institutional contexts, it is important to assess whether the approaches stimulated by these studies are useful in the South African context, which displays a rich social and cultural diversity.

Some of the resilience perspectives have been investigated in the South African context, and have over the years been centred on, for instance, accelerating sustainable water management practices (Le Maitre and O'Farrell, 2008), and mainstreaming biodiversity into land-use planning (Schäffler, and Swilling, 2012). However, links have not been made in the context of cemetery planning. For example, although sustainability ideas promote compaction and densification as ways to reduce urban sprawl, these have not been empirically explored in the context of cemetery planning, especially in the South African context.

⁴ A space in an urban area meant to provide a healthy environment, for instance, by replenishing the air with oxygen.

Due to the growing use of resilience in international discourses and policy in South Africa, this research explores how cemeteries can be designed and managed through a social-ecological resilience approach. The social-ecological resilience definition adopted in this research is the ability of social-ecological systems “to absorb biophysical disturbances (e.g. flooding) and socio-economic changes (e.g. population increases), to retain essential structures, processes and feedbacks,” (Adger *et al.*, 2005: 1 036), whilst maintaining the capacity to learn, innovate and adapt to change (Folke *et al.*, 2010). Some of the resilience principles that are consistent with sustainability ideas in relation to cemeteries explore planning and land-use patterns that are not harmful to the environment; and connected open spaces that collectively act as green lungs in urban environments. However, a resilience approach expands on those ideas and nurtures mixed uses that are compatible, and those that ensure the adequate use of space that encourages building up and into the earth. Because the idea is to address constraints caused by diminishing land resources, and thus encourage space-efficiency, these designs identify and support innovative designs that reduce the wasteful consumption of land resources. The compatible uses also emphasize designs that are sensitive to families’ grieving processes.

This research thus engages newer approaches to cemetery planning and provision, that are adopted in the latest innovative models in the CoJ. The exploration is conducted through employing qualitative research methods and through the use of case studies. Waterval Cemetery is a primary case study, the focus on which aims to understand the application of green infrastructure and social-ecological resilience ideas, particularly in the context of Johannesburg. There are, however, limits to these new approaches that look at cemeteries beyond their common design and function of burial. These include institutional and social constraints that are worth exploring locally, due to constrained governance capacities and resources, and the diversity of cultures and religions that requires contextually-sensitive solutions.

Waterval Cemetery is located in Midrand⁵, and was a response to the burial space demand from areas, such as Alexandra⁶. The cemetery is an example of the innovative way the JCPZ⁷

⁵ Midrand is centrally located in the Gauteng province. It forms part of Region A of the City of Johannesburg (Figure 5.1 in chapter 5 shows all the seven regions of CoJ).

⁶ Alexandra was developed in 1912 and falls in Region E of the City of Johannesburg Metropolitan Municipality (COJMM). COJMM has seven regions (A–G).

is designing future cemeteries, and considers them part of the green infrastructure that can benefit both the living and the dead. Unlike the old cemeteries that allowed large tombstones, only headstones can be erected at this cemetery. It is important to realise whether the application of resilience principles within the design of this cemetery was a spontaneous or strategic initiative by the CoJ. Using Waterval Cemetery, it is important to understand the application of the green infrastructure perspective in the context of South Africa, and what the CoJ has done – or failed to do – to achieve its integration at the cemetery, and what the constraints were. Two sites that use Waterval Cemetery for burial purposes were investigated. These are the townships of Alexandra and Rabie Ridge. The choice of study sites made this research worth conducting because of their substantial size in terms of population; their historical marginalisation, and cultures of what people will and will not accept.

Since the development of Waterval Cemetery, the CoJ has moved beyond the provision of cemeteries that integrate green infrastructure elements. This is explored in the secondary case study, which investigates the Diepsloot Memorial Park (DMP) as another modern cemetery in Johannesburg. DMP is located in Diepsloot Township⁸, and promotes burial across the racial and income divide. The cemetery has integrated more modern elements within its design. Beyond the green infrastructure elements, some of the innovative features include blending burial with recreation, and the use of flat-ground plaques instead of full-body memorials or headstones. In understanding this context, the study's unique contribution highlights South Africa's social and cultural complexities in planning, managing and using cemeteries beyond their common function. The DMP study is discussed in depth in Appendix A.

South Africa and, in particular, the CoJ is characterised by inequality and a lot of diversity. This makes it a rich context for looking at the above-mentioned cemetery planning and provision challenges. The following section sets the scene for of this context and will be followed by a detailed background that links the concepts of social-ecological resilience,

⁷ JCPZ is responsible for the provision and maintenance of cemeteries in the CoJ.

⁸ Diepsloot Township was established in 1995. It falls in Region A of the City of Johannesburg Metropolitan Municipality (COJMM). The township has a mix of formal and informal settlements and is demarcated into two wards: 95 and 112 in the north of Johannesburg.

green infrastructure and cemetery planning. The section after that looks at the prevailing conundrum of cemetery planning and provision in South African cities.

1.2 The South African urban context and Johannesburg

South Africa's spatial structure was shaped by its apartheid history, which influenced both its social and political landscape. Apartheid was essentially based on two major pieces of legislation, namely the 1950 Population Registration and Group Areas Acts, which ensured the strict separation of racial groupings and controlled influx to White areas (Meyer, 2014). This control guaranteed that inner cities and suburbs were allocated to Whites, and other groups were shifted to the periphery, forcing the poor to the outskirts (Pernegger and Godehart, 2007). As such, the long apartheid history divided South African cities spatially and institutionally, such that local government was also fragmented.

The apartheid era brought with it extreme spatial imbalances between the residential location of the poor, and areas of economic opportunity. These inequalities were "aggravated by the highly uneven level of public services and transport infrastructure designed to limit interaction between the core, semi-periphery, and periphery of the city," (Schensul and Heller, 2010: 4). These areas developed without many employment opportunities, hence most people from townships⁹ found employment in areas designated for Whites only (*ibid*). Few townships (e.g. Alexandra) were located close to White areas (e.g. Sandton), and were separated by physical barriers, fences and walls (Findley and Ogbu 2011). Getting to work often involved hours of costly commuting (Turok and Watson, 2001), a challenge still experienced by many today, as Johannesburg still struggles with the car-oriented sprawl caused by the spatial imbalances inherited from apartheid.

After 1994, South Africa became a constitutional democracy with a three-tier system of government (national, provincial and local levels of government). There are three types of municipalities – metropolitan, local and district municipalities. The fragmented and racially-based local governments were amalgamated to enable more redistributive and effective governance. Post-1994, a developmental local government was established with the objective to attain and maximise growth and development (Meyer, 2014). Local government

⁹ A township is an underdeveloped residential area that was previously reserved for non-Whites (Blacks, Coloureds and Indians) during apartheid rule.

is the sphere of government closest to the people. In the post-apartheid era, it has been empowered to be progressive, and this is done through rebuilding local communities, the provision of basic services and amenities, and cultivating local economic development. Cemeteries are part of the basic services provided by local municipalities.

The CoJ is situated in the Gauteng province, one of the nine provinces of South Africa (see Figure 1.1 for the orientation of the CoJ). It covers an area of 1 645 km² of the country's 1 219 690 km² (Stats SA Census 2011). It is the economic hub of South Africa. Growing at a rate of 3.18% per annum since 1996, its population currently stands at approximately 4.5 million, and is predominantly young (Stats SA Census 2011). Johannesburg forms part of the Gauteng City Region¹⁰ and is a large metropolitan consolidated municipality. It is ethnically diverse and attracts people, both from other provinces and internationally, who are in search of employment opportunities and a better quality of life. Most municipalities include both rural and urban areas, however, the CoJ does not have large rural tracts. Although the CoJ does not have rural nodes, it is highly affected by rural in-migration, which the Gauteng Provincial Government remains committed to bridging through promotion of equitable development across the province and rural peri-urban areas (Tibane and Lentsoane, 2016). This is also in an effort to overcome the urban–rural divide.

The legacy of apartheid planning policies is evident in a highly fragmented and unequal system of public infrastructure and community facilities (e.g. open spaces), and endures today. The physical gaps, and social and spatial inequalities between the former White areas and 'townships', where Black people were forced to live under apartheid remain visible, as townships are still characterised by increasing population growth, high poverty and unemployment, poor infrastructure, lack of green spaces and low investment in commercial development. The ecological disparities of apartheid in Johannesburg were also spatially constructed between the affluent northern suburbs and previously-disadvantaged townships in the south. These are less commonly discussed than the socio-economic and racial divisions that are well documented. The ecological imbalances are seen in fragmented patches of green infrastructure elements, such as trees and grasses across the CoJ. Areas in the north are well-endowed with these elements, whereas the south remains barren.

¹⁰ The GCR is anchored by three large metros of Johannesburg, Tshwane and Ekurhuleni, with the economic footprint that extends beyond the borders of Gauteng province into three other provinces, Limpopo, Mpumalanga and the North West (Wray, 2010).

Cemeteries are one land use that reflects the country's spatial imbalances inherited from the apartheid era. Interventions to redress these ecological inequalities include the establishment of recreation parks, and efforts to integrate green infrastructure elements (e.g. trees, flowers) in any open land managed by the JCPZ.

Diverse interventions have been implemented to rectify the highly fragmented and unequal system of public infrastructure that continues to sustain inequalities. Normative post-apartheid policies that were introduced after 1994 have encouraged spatial transformation, including integration, compaction and densification, although development in practice has often gone in different directions (e.g. Todes, 2012a, 2012b; Harrison and Todes, 2013). For instance, state-funded housing projects continue to marginalise people into undesirable locations on the urban periphery; and despite racial integration in middle- to higher-income urban suburbs, the poor majority continue to be poorly-located in areas with insufficient access to opportunities and services.

The diversity of the CoJ in terms of demographics, size, cultural diversity, economies, and geographical and historical contexts, make this region a rich case for furthering the understanding of urban resilience and its application.

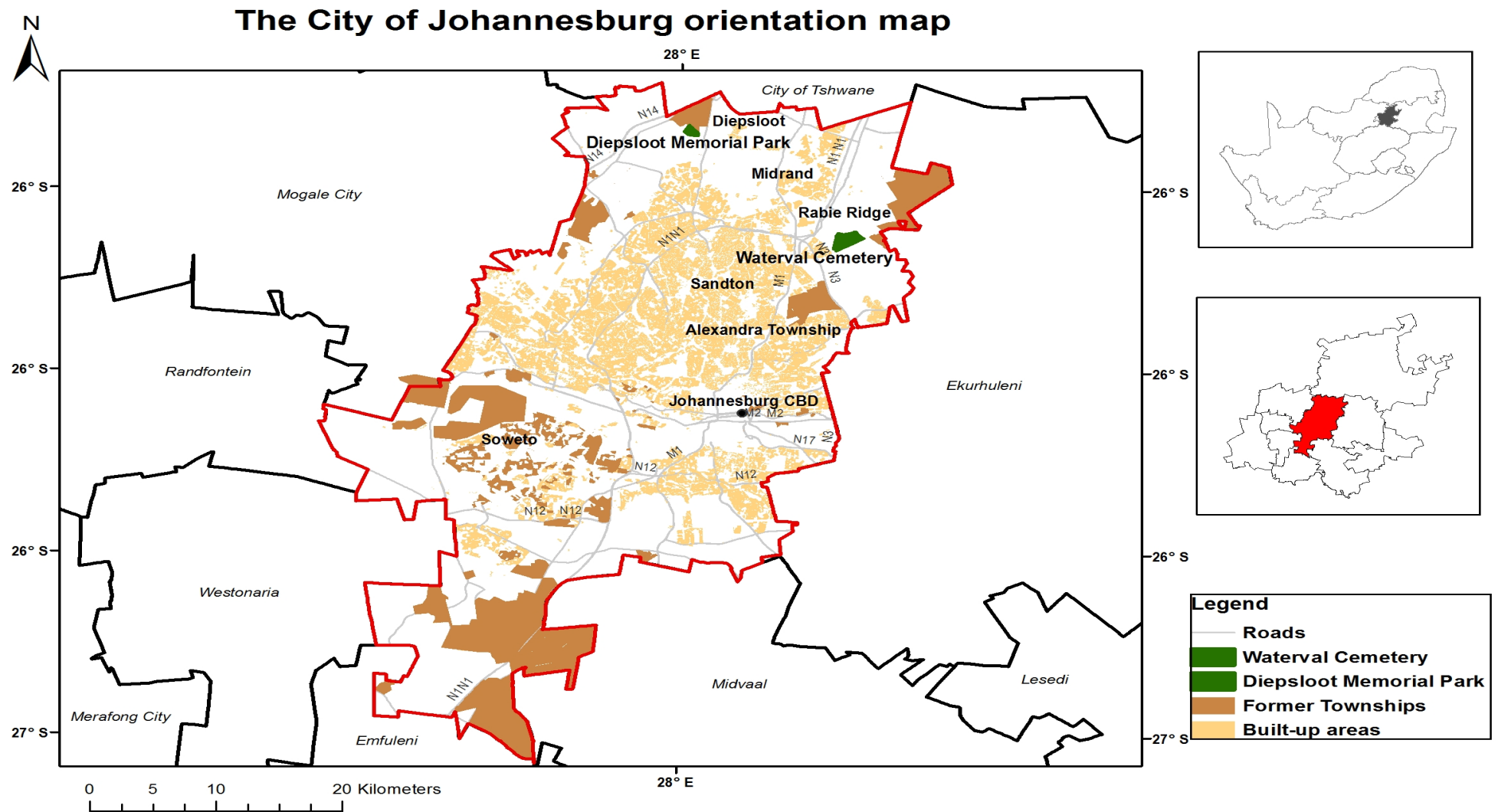


Figure 1.1: The City of Johannesburg orientation map

Source: Author's formulation, 2015

1.3 Background

Increasing concentrations of people, poverty, and demand on basic social services may pose threats to the resilience of cities, in terms of the strain placed on the built environment, as well as pressure on the natural infrastructure. To respond to socio-economic and environmental challenges, resilience supports relationships between governance, the natural and built environments, and social networks (Chelleri *et al.*, 2012). The social-ecological system calls for a harmonious and interlinked relationship between natural resources, the built environment and society in striving for resilience. One way of encouraging this harmony involves designing and managing the natural infrastructure in a way that it also plays multiple social-ecological roles to complement man-made structures. In this way, different parts of the social-ecological system plan for and respond to diverse demographic, economic and environmental stresses and changes, whilst contributing to resilience of cities (Chelleri *et al.*, 2012).

Emphasizing the resilience of urban systems and how it is linked to global and local social-ecological changes improves an understanding of how “changes in urban systems feedback to impact resilience at multiple scales,” (McPhearson *et al.*, 2015: 153). For instance, in South African cities, urbanisation and rapid population growth put pressure on the already over-stretched inadequate infrastructure, basic services and ecosystems, which in turn weaken the resilience of the urban environment, as well as the socio-ecological system (Resilience Alliance, 2007). Most of the current infrastructure was erected during the apartheid era, and not for as many people as there presently are. With time, many people have moved to cities in search of better opportunities. However, the bulk infrastructure is not well maintained and thus remains strained and unable to cope with the growing numbers. As hubs of economic growth, cities provide diverse opportunities for investment, development and efforts towards sustainability. Still, growing environmental change, including land-use transformation driven by population expansion and development, regional climate change, and mounting pressure on existing biodiversity, pose an ever-increasing threat to ecosystem services upon which urban residents rely (McPhearson *et al.*, 2014).

Apart from other open spaces, cemeteries can form part of the green infrastructure and can

help to provide diverse ecosystem system services, which could be of benefit to communities (Basmajian and Coutts, 2010) (Figure 1.1). Cemeteries take up prime land in some urban areas, and sometimes they are the only green spaces available. Cemeteries can provide vital social ecosystem services, although their ability to maintain key resources, such as soil and biodiversity, which are vital for sustaining life and enhancing resilience can be questioned. This is because of the pollutants they introduce into the earth. However, they are under the radar when it comes to planning and other developmental issues. Although cemeteries do not take priority in international and political discourses, and are not talked about much in planning circles, they can still be strategically designed so that they play more social-ecological functions. For example, they can be designed to perform some of the functions of the built environment. And this could help reduce costly requirements of erecting traditional infrastructure. Integrating green infrastructure elements and the use of permeable surfaces instead of impervious materials could help reduce the likelihood of failing storm water drainage and flooding (Ahern, 2013), whilst also contributing to resilience.

Cemeteries commonly offer cultural services in terms of spiritual, religious, educational benefits to communities (e.g. awareness about the history and heritage of a place), and connection of the past and present worlds. When viewed as part of the green infrastructure, cemeteries provide services to both the living and the dead. First of all, when integrated within their designs, the green infrastructure improves the aesthetics of cemeteries. These aesthetics could encourage and improve use of cemeteries. Secondly, some cultures believe that the dead are aware of their surroundings (Moloi, pers. comm, 2014). Hence, being buried in a green cemetery dignifies both the dead and the living.

Improving public open-space facilities and infrastructure with the intention of enhancing the quality of ecosystems, and the quality of life of concentrated populations, is crucial to achieving a resilient system. As cities prepare for diverse challenges that come with urbanisation, they need to strengthen both their built and green infrastructure. The study thus stresses the function of the cemetery landscape as both gray¹¹ and green infrastructure, as it plays a larger role than that of a place for body disposal alone.

¹¹ In this thesis, gray infrastructure refers to the built environment.

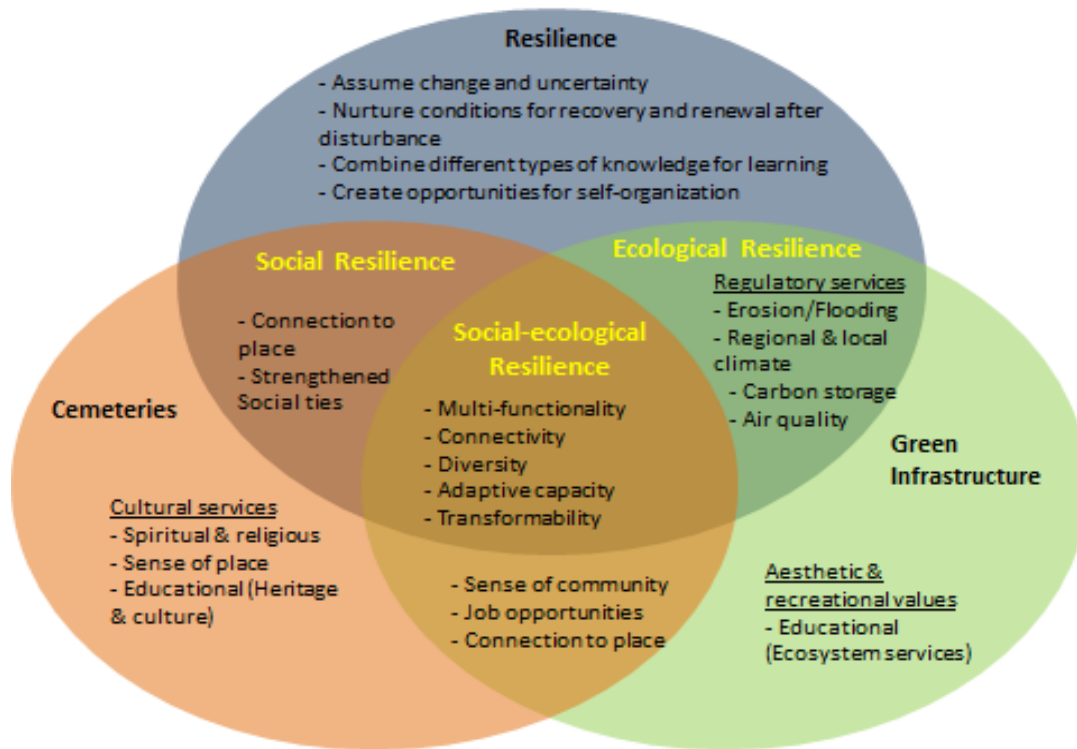


Figure 1.2: Linking the concepts of resilience, green infrastructure and cemeteries
Source: Author's formulation, 2013

An important body of academic literature discusses the role of strategic planning in reinforcing cities' resilience (Ahern, 2013; McPhearson *et al.*, 2015). However, very little academic work links land-use planning and urban resilience (Ahern, 2007; Hansen and Pauleit, 2014). In recent years, researchers (e.g. landscape ecologists) have undertaken reviews on the impact of green infrastructure on human health and wellbeing, and urban nature (Tzoulas *et al.*, 2007; Cilliers and Cilliers, 2015). Although research has been done that investigates the contribution of different land uses to urban sustainability and resilience, rarely do these studies explore resilience in the context of cemetery planning.

The following section briefly engages literature on international trends marking the cemetery provision industry, and is followed by a discussion of the South African cemetery landscape.

1.3.1 International trends in provisioning of burial space

"In the mid-nineteenth century, the growing death rates required an all-inclusive management of increasing number of corpses in the United States of America," (Walter, 2005: 174). And this led to businesses, municipalities and churches working towards the

same goal of identifying ways to control and organise funerals to address the demand arising from disposal of human remains.

Currently, the funeral industry in the US is highly commercialised, whereas it is municipally-run in France and Italy; in Sweden, it is controlled by the church while in Germany, municipalities work together with state-funded churches (Walter, 2005). In London, burial takes place in large municipal and private cemeteries, even though religious authorities, for instance, the Roman Catholic, Jewish and Muslim faiths, do provide such facilities (Dolphin and Searles, 1997). Strategic principles for burial provision in London seem to be governed by cultural, religious, socio-economic and environmental values in response to the prevailing scarcity of land for grave provision. This strategic response is framed by indicators, such as choice, which emphasizes an individual's basic right to choose how their body should be disposed of; cost, which highlights that disposing of the dead should be affordable to allow a decent commemoration of the deceased, and proximity, which affords the bereaved the ability to visit graves or memorial places without having to travel long distances or incur great financial cost (Dolphin and Searles, 1997). These indicators are important in the South African context as well. The following section delves into South Africa's challenges with cemetery planning.

1.3.2 The prevailing conundrum of burial in urban South Africa

The socio-political history of racial segregation in South Africa is reflected in its cemeteries. Although cemeteries are no longer developed along religious and racial lines, the colonial and apartheid eras reflect the imposition of segregationist laws still observable in the country's planning landscape. Local municipalities are primary developers and providers of burial spaces in South Africa. Although the South African cemetery landscape is currently dominated by local municipalities with a few companies running private cemeteries, the funeral services industry (e.g. burial services and policies) is highly commercialised. Provision of burial land is guided by availability of funds and land in the CoJ (Moloi, pers. comm, 2014). Concerns to ensure good access to cemeteries could be influenced by siting and location. However, this could be difficult as most available and suitable land is located far from settlements.

In the last 20 years or so, South Africa has experienced rapid urbanisation and an increase in

deaths resulting from pandemics, such as HIV/AIDS. This has led to the need for new ways of disposing of human remains. In South Africa, the bulk of the population are Christians¹², whose preferred mode of interment is burial. However, the downside to conventional burial is that it requires a considerable amount of land. At a Local Government Summit hosted by the South African Local Government Association (SALGA) in Pretoria on 21 February 2012, and attended by various municipalities¹³, a few challenges regarding the planning and provision of urban cemeteries were raised.

Firstly, most urban municipalities confirmed that there is a crisis in the allocation of land for development of cemeteries due to land scarcity. Secondly, municipalities concurred that cemeteries are often located on prime land that could be used for other competing uses, such as the establishment of housing or for agricultural development. They emphasized the urgent need to provide land for future cemetery development. Due to scarce land for further development, other land uses deemed as urgent and productive may encroach on public open space (Asomani-Boateng, 2002; Mougeot, 2006; Dambudzo, 2012).

In mid-2012, SALGA further conducted a survey, involving the same urban municipalities that had participated in the above-mentioned summit, to categorise cemetery provision challenges. The results from the survey were then published at the 2012 National Seminar on Urban Cemeteries. The results highlighted that:

- many municipalities across South Africa are confronted with a severe predicament of insufficient suitable land for future cemetery development and cost implications thereof;
- due to land scarcity, most cities have to battle with illegal cemeteries, which lack adequate geotechnical and environmental assessment approvals;
- the delay and failure to identify new land for cemetery development compounds the problem of expansion of unmanaged informal cemeteries, as experienced in the cities of Tshwane and Johannesburg;
- most land is either privately or provincially owned, and this makes the search and

¹² The 2011 census did not include questions on religion, hence 2001 figures are used. Different religious beliefs (from the 2001 Census statistics) were as follows: Protestant 36.6% (Zionist Christian 11.1%, Pentecostal/Charismatic 8.2%, Methodist 6.8%, Dutch Reformed 6.7%, Anglican 3.8%), Catholic 7.1%, Muslim 1.5%, other Christian 36%, other 2.3%, unspecified 1.4%, none 15.1%.

¹³ These included Tzaneen, Nelson Mandela Bay, Buffalo City, Mangaung, Ekurhuleni, Cities of Johannesburg, Tshwane and Cape Town and eThekweni Metro.

development of new cemeteries even more costly; and,

- due to lengthy procedures and assessments, cemetery development tends to be a long process, from project conception to implementation (Dambudzo, 2012).

The results show that 80% of municipalities reported that land for cemetery development is in short supply, as it is rather prioritised for developmental needs, such as housing (Figure 1.2). It reveals that the most suitable land is privately owned and thus too costly to purchase. Another striking problem is that illegal and informal cemeteries are becoming prevalent (Figure 1.3). Johannesburg expects the reality of illegal gravesites to be more than currently evident, as the number increases each year (Personal Communication: Specialist: Horticulture, Buff, 2013). Figure 1.3 indicates that in eight municipalities, an average of 15% of cemeteries is on environmentally unsuitable land. This is mostly caused by informal settlement dwellers who avoid paying tariffs for burial, whilst others cannot afford transport costs to formal cemeteries or for the remains (of those who are migrants in the city) to be repatriated home for burial. Although not included in the graphs, the results also showed a discrepancy between registered deaths and actual burials; for example, in the eThekweni municipality, where only 8 000 deaths had been reported, 12 000 bodies had been buried (Dambudzo, 2012).

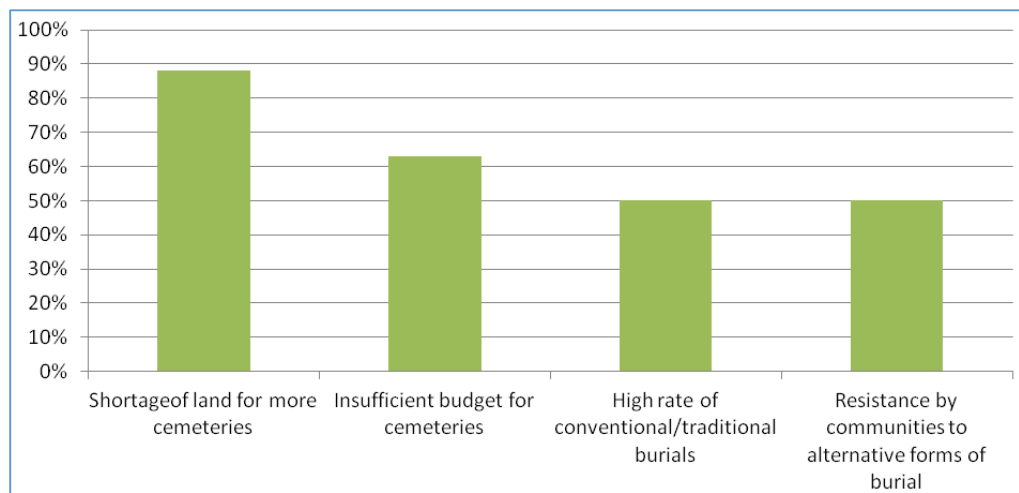


Figure 1.3: Percentage of above-mentioned municipalities in response to problems they are faced with, which relate to urban cemetery development

Source: Dambudzo (2012)

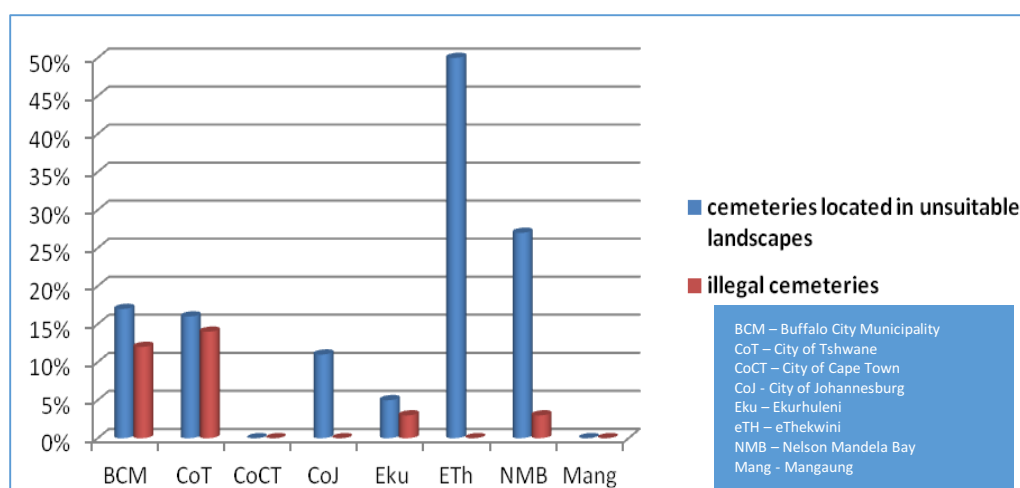


Figure 1.4: Percentage of cemeteries in Buffalo City, Tshwane, Cape Town, Johannesburg, Ekurhuleni, eThekweni, Nelson Mandela Bay and Mangaung, located on environmentally unsuitable land and the percentage of those illegal cemeteries

Source: Dambudzo, 2012

The JCPZ provides large cemeteries at a regional scale in an attempt to avoid incurring high maintenance and management costs that would be caused by having many smaller cemeteries (Buff, pers. comm, 2013). Because Waterval Cemetery is used by many households located far from it, one can argue that some of these regional cemeteries are not very accessible to communities. This is a problem during burial and for people who want to visit their loved ones regularly (sometimes with the aim of performing cultural rituals or just to maintain the upkeep around the gravesite).

The problem of access can also increase the cost of travel, making it more difficult for family and friends to visit the gravesite and perform cultural rituals. Some Black¹⁴ African cultures have a strong belief that not visiting the deceased is problematic. It could raise issues of abandonment and leave the family exposed to danger as they deeply believe that the dead would not be keen to protect them from harm. This lack of visitation makes it impossible for the living to have a safe and good quality of life.

Focusing on the spatial inequalities inherited from apartheid, most cemeteries found in affluent areas in the north have integrated green elements in their designs, whereas in the south they are bare. Recently the CoJ has tried to redress the ecological imbalance between the affluent northern suburbs and the residential “townships” reserved for Black people under apartheid in the south. The JCPZ is also faced with lack of environmentally-suitable

¹⁴ Black in the text implies Black African.

land (as some is rocky or has high water tables) to allocate for cemetery development. This has meant that old cemeteries, which are sometimes closer to communities, are being used for secondary burials,¹⁵ (Buff, pers. comm, 2013). For example, Braamfontein Cemetery in Johannesburg has reached full capacity but is presently being used for secondary burials (*ibid*). However, this is contested by some families with deep-rooted cultural beliefs (Moloi, pers. comm, 2014).

The argument here is that, during ceremonies when cultural rituals must be performed for a particular dead person, it could be impossible to find the spirit of the dead person (still in the grave and not exhumed), because one or two more people are buried on top of him or her (that is, the spirit of the person on top overpowers the ones below). The belief is that this could potentially restrict access to, and communication with, the particular ancestor's spirit. However, as highlighted in the previously-discussed SALGA summit, in Durban, most families from the Zulu culture have agreed to bury people of the same family (the same surname, the same clan) in one grave, to avoid miscommunication with ancestors from other families. This practice is slowly being adopted in other urban cemeteries across the country.

The scarcity of land, either from it being too costly to purchase or due to environmental unsuitability, is cause for the CoJ to encourage communities to find and recommend alternatives to interment (Moloi, pers. comm, 2014). Although the City does not do this actively, they have over the years expected funeral parlours and religious and cultural leaders to bring awareness to communities concerning available alternatives, such as cremation (Buff, pers. comm, 2013). However, some cultures and religions do not have enough information about what alternatives exist and how they work, hence their resistance (*ibid*). For instance, cremation and the use of fire to dispose of the dead is seen as destructive, by most Afrikaners and by many African cultures (Masango, 2005). In response to the prevailing land-scarcity challenge, this study explores diverse stakeholders' perceptions of alternatives, such as cremation, and whether they are open to adopting them. Chapter 3 discusses cremation as one of the alternative approaches that can be practised in response to the current cemetery planning conundrum. In this case, an

¹⁵ A burial whereby a body is interred in the grave previously used to bury one or more people (mostly two in South Africa).

innovation is something that might be new to a group of people, even though it may be so not for other groups.

The JCPZ has recently identified cemeteries at which mausoleums¹⁶ will be built, another alternative to conventional burial. This is seen as one of the space-saving alternatives that do not use fire. The expectation is that mausoleums will not be resisted as cremation has been. The following section briefly provides a problem statement.

1.4 Problem statement

Interment of a dead body gives the burial place some form of relevance and identification, which in return connects people to that environment and community (Harker, 2012). When considering urban green spaces as “embodiments of personal and cultural identity and history,” (Hester 2006: 364 cited in Basmajian and Coutts, 2010) people have a sense of ownership and thus become interested in ensuring that the land is well taken care of with the intention to improve the well-being of the community and surrounding ecosystems. This study explores the relevance of social-ecological resilience ideas in reconceptualising cemetery planning in South Africa, with a focus on the CoJ. To improve the potential quality of the cemetery landscape so that it contributes to the overall resilience of the urban environment, this exploration brings together the possibility of seeing cemeteries as a form of green infrastructure, and their prospective contribution to social-ecological resilience. This involves understanding the cemetery as a space that promotes inclusion, improves the ecological functioning of surrounding environments, and fosters safety and security. This enables an understanding of institutional and social barriers constraining this thinking.

This research highlights the problems associated with current cemetery planning practices that do not strategically plan for multiple functions within cemeteries. The land-consuming nature of cemeteries does not ensure an efficient provision and use of space. Their failure to provide services beyond their distinct role of body disposal implies that even after they have reached capacity, they will remain gray and barren spaces that will not benefit the living. Because the JCPZ provides cemeteries at a regional scale to cut down on maintenance and managements costs, cemeteries become inaccessible for communities located further from them. Due to their sensitive nature, being located far away may not be an issue for

¹⁶ Mausoleum: An above-ground building enclosing the burial chamber of deceased people or remains of many individuals.

some. However, it increases urban sprawl, particularly if there are uses that can be paired with them.

The system of cemetery provision therefore remains undermined on a variety of fronts by challenges, such as land scarcity; their ability to provide a mix of social-ecological services beyond burial of the dead; the segregation of cemeteries from other physical and cultural landscapes; the spatial challenges of diverse rituals and cultural practices; population increase, and municipal fiscal constraints affecting the development of new cemeteries. Most of these problems lead to even more challenges, which, although perceived as solutions, create more difficulties for municipalities, such as an increase in illegal burial sites and resistance toward secondary burials by some cultures. It then becomes important to explore perceptions of these solutions and the social constraints leading to their resistance.

Governance and legislative processes also have implications for the current provision of cemeteries. For instance, lack of municipal finance implies that the City cannot budget adequately for the maintenance of existing and the development of new cemeteries. Although cemeteries can potentially form part of a bigger green network, no policy framework or strategy is in existence that assists decision-making in their provision, and as part of the green infrastructure (CoJ, 2009: 86). Understanding challenges to cemetery provisioning and management through a resilience lens can help policy and decision-makers to address these problems by providing more ecosystem services beyond existing cultural and educational uses.

1.5 Research question

The following research question informed the research process, and required the study to identify and specify the features that make up cemeteries, which are designed to contribute to resilience. This research asks: considering the existing cemetery planning approaches and processes, is the current cemetery provision consistent with resilience principles, and what constraints would prevent the uptake of new body disposal methods and more resilient approaches to cemetery provision and management?

1.5.1 Research sub-questions

- What systems and processes underpin the current way of designing, providing and managing cemeteries?

- What are the implications of current forms of cemetery provision for urban resilience?
- How can cemeteries be designed, provisioned and managed in a way that contributes to the building of social-ecological resilience?
- What are communities' and religious groups' perceptions of current and alternative burial options?
- What are stakeholders' (e.g. government, local governments, special interest groups, communities and religious groups') perceptions of the old and newer approaches to cemetery design, provisioning and management that could potentially contribute to resilience?
- What institutional and social barriers constrain the planning, design, provision and management of cemeteries in ways that are more consistent with resilience principles?

1.6 Theoretical position

In addition to the concept of cemetery planning, this research builds on two key bodies of literature to inform the approach to social-ecological resilience; first, from literature on the dynamics of social-ecological systems (e.g. Holling, 1973, 2001; Holling and Gunderson, 2002; Janssen, 2002; Westley, 2002), and second, from the practice of exploring the concept of urban green infrastructure as one way to strengthen resilience (Ahern, 2007; Mell, 2008; Hansen and Pauleit, 2014). Resilience thinking and green infrastructure have become an important discourse influencing the way urban policy and planning is conceptualized. These ideas show the potential to develop even further the new approaches to cemetery planning and provision, hence the choice of body of literature that shapes this research. The literature explores fields of urban resilience; sustainable land usage; burial space in the city; international and local trends in current and new ways of cemetery provision, and international literature on the debates on green infrastructure and cemetery planning. These concepts are critical in thinking about the shift towards new approaches and models to cemetery planning and provision, perceptions of and potential barriers constraining this mindset change.

1.6.1 Resilience thinking

Resilience thinking was first pioneered by Holling (1973) who applied it within ecology to, "describe the ability of an ecosystem to absorb and adapt to change and maintain its existing state of functioning," (Maguire and Cartwright, 2008: 3). In the late 1980s, the

concept of resilience was then employed to analyse the complex relations between the environment and people (Maguire and Cartwright, 2008). Resilience has been described as the ability of a system to adapt and transform while going through change (Walker *et al.*, 2004). This definition acknowledges the non-equilibrium view of resilience.

When applied to urban systems, resilient cities should be able to foresee changes and create opportunities to adapt to new circumstances (such as population growth, resource scarcity, environmental degradation) (Olazabal, 2012). There is a growing interest in applying resilience thinking in scholarly and policy dialogues around urban planning (Bristow, 2010). The resilience approach to urban planning assumes that the future will include a major element of surprise, and that urban systems must be designed and operated in ways that accommodate sudden and unanticipated changes (Sheltair Group, 2003). This compels urban planners to adjust and advance their forward planning systems, methods and processes in planning for unforeseen stresses, such as environmental degradation and increasing population growth, which are likely to put strain on existing infrastructure and public facilities.

Although countless resilience definitions are in use, this study views the best applicable in urban planning as social-ecological resilience. The social-ecological resilience definition seems more suitable in an urban planning context, where differing scales of the urban environment (e.g. the city, neighbourhood, or metropolitan area) remain in the system, and the disturbance may be any number of internal or external stresses and shocks (Hopkins, 2008: 54). Existing challenges facing the urban systems are caused by complex social and cultural dynamics, together with human actions imposed on the already vulnerable natural environments. This research looks at resilience from a normative perspective. However, there are components of the system that can show negative resilience, such as the dominant system of cemetery provision inherited from the apartheid era. This system has persisted even though it may not be sustainable (see Chapter 3).

Social-ecological systems are structures that emphasize a balance within them in which the natural environment is not viewed separately from human beings, but are rather dependent on each other. Most studies have focused only on investigating processes within the social sphere, viewing “the ecosystem as a ‘black box’ and assuming that if the social system

performs adaptively or is well organized institutionally,” it will also manage the natural resource base in a sustainable manner (Folke, 2006: 260). When analysed only through the social dimension, people and society can show the capacity to survive change and adjust to new transformations (Folke, 2006; Stockholm Resilience Centre, 2007). However, “such an adaptation may be to the detriment of changes in the capacity of ecosystems to sustain the adaptation,” (Severi *et al.*, 2010: 414), and may “generate traps and breakpoints in the resilience of a social-ecological system,” (Folke, 2006: 260). In the same way, paying attention to, “the ecological side only for decision-making purposes for resilience, and in the longer-term sustainability, could cause narrow and wrong conclusions,” (Folke, 2006: 260). This study emphasizes the inter-connectedness of social-ecological systems that go beyond the disjointedness of the social and ecological dimensions of systems.

The increasing impact and mark caused by human beings on the global environment demonstrates the urgency to develop ecological and social systems not in isolation (Folke *et al.*, 2010). This study emphasizes that ecological systems, society and people are entrenched in these integrated systems with urban development depending on the capacity of the biosphere to sustain it (Odum, 1989a).

1.6.2 The role of green infrastructure in resilience

Social-ecological systems have sub-systems within them, which can be broadly viewed as part of a green infrastructure (Anderies *et al.*, 2004). Green infrastructure is defined as a web of “green spaces and water systems that supports various environmental, social and economic values and services to urban communities,” (Ely and Pitman, 2012: 155). This network is composed of parks and reserves, backyards and gardens, wetlands, farms and orchards, roof gardens, sports fields, and even includes cemeteries (*ibid*). This web provides ecosystem services, which include “provisioning, regulating, cultural and supporting services that apply at a range of scales from the global to the local,” (Millennium Ecosystem Assessment, 2005; Ely and Pitman, 2012: 4).

Examples of these ecosystem services include moderating environmental conditions and quality, aesthetic and psychological benefits, contributing to the mitigation of climate change and the sustainable management of the local urban water cycle. Public open spaces can provide an ecological function through providing habitat reserves when they reach

capacity (CoJ, 2009: 86). Ecosystems influence human wellbeing through the provision of cultural services, such as scenic landscapes. Within ecosystems, changes brought about by pollution, depletion and extinction of reserves can have negative impacts on the human experience (Ely and Pitman, 2012).

The role played by urban green spaces in providing local ecosystem services, forms a huge part of urban resilience thinking. However, governance structures fail to acknowledge the benefits provided by ecosystem services to people and the environment when planning for urban green spaces (Schäffler and Swilling, 2012). As such, green infrastructure is mostly viewed as mono-functional¹⁷, and mostly as a luxury, instead of having other social and ecological functions (*ibid*). Schäffler and Swilling (2012) emphasize the importance of integrating both the built and green infrastructure in rapidly-expanding cities that can enhance or be an alternative to the traditional man-made infrastructure by improving its use and productivity in already over-stretched systems.

According to Turok *et al.* (2011), the environmental aspect of urban resilience denotes the capability of the built systems of the cities to endure environmental change and hazards, such as global warming, flooding and water scarcity. For instance, designing public facilities like cemeteries to accommodate changing conditions, such as urbanisation pressures and current or future environmental challenges, by reducing soil erosion and flooding can help safeguard areas that are overcrowded and located in floodplains. Resilience supports the notion of multiplicity, hence such spaces need to encourage multiple uses and adaptability to changing environmental conditions and needs of communities. These social facilities can be designed as quality spaces that augment the features of highly dense settlements that already lack recreational spaces.

1.6.3 Viewing cemeteries as a form of green infrastructure

Cemeteries and other places of interment have the potential to enhance the natural setting of urban areas. This can be achieved through, “promoting designs that are multi-functional, which could potentially enhance the green infrastructure within urban areas,” (Basmajian and Coutts, 2010: 315). “In places where land is at a premium, cemeteries are ‘like undiscovered urban parks’ and therefore must be re-valued by being re-designed,” (Uslu,

¹⁷ Designed to provide only one function.

2010: 1 046). Integrating green elements within cemeteries could help to normalise death and provide therapeutic benefits to the grieving as well (Uslu, 2010). If green infrastructure principles are integrated in their planning, cemeteries could also function as ecological patches and corridors that could support habitat conservation (Harker, 2012). Otherwise developing them at a more regional scale, which is currently the norm in cities like Johannesburg, requires careful consideration of how they are connected with other urban green spaces to contribute to the rich biodiversity.

1.6.4 Exploring the potential for cemeteries to promote resilience

When examining the issue of death in South Africa, a plurality of religious and social backgrounds must be considered. The social dimension of urban resilience therefore requires local governance structures to offer support through the provision of resources in anticipating future threats, responding positively and adapting to change through learning and innovation; and also through consultation and use of local knowledge. For instance, the dilemma of municipalities running out of land for future burial calls for participation of affected communities, consulting with them to realise various possible and available solutions for all. Integrating the green infrastructure rich in ecosystem goods and services in all-inclusive plans (Uslu, 2010) could ensure that cemetery planning is integrated in the mainstream of local planning. Municipalities can thus increase cities' resilience by planning and managing cemeteries as urban spaces that contribute to the social-ecological functioning of larger urban systems.

One way of building resilience in a community is through the planning, design, provision and management of cemeteries, and ensuring they are accessible to the community. However, due to developmental needs, other land uses such, as housing may take first preference over their provisioning, thus requiring that the already limited space be used efficiently. This can be achieved through combining mixed uses and complementary functions so as to cut down on having to provide different spaces for differing needs. Applying this approach could entail integrating other basic facilities within existing cemeteries. Hence this study investigates people's perceptions of incorporating such facilities within cemeteries and the impact such a shift would have.

Previously, cemeteries were found outside cities mostly due to hygienic reasons. However,

in recent times and in some places, they have remained within urban settlement areas and are now interwoven into these settled areas (Uslu *et al.*, 2009). They link the past and the present, where in different cultures, the living can visit the deceased with the goal of being closer to them or to perform family rituals. These visits keep links between generations alive. Mourning is a kind of resilience in that because death leaves a huge gap in people's lives, mourning and related rituals can help reconstruct relationships with the absence of the deceased (Cymbalista, pers. comm., 2013). Mourning also reconnects the surviving people after a gap has been left, where in most cases the deceased could have been the only connection between family and other community members (*ibid*). The theoretical position will be explored in detail in chapter two.

1.7 Contribution to new knowledge

This study integrates principles of resilience and green infrastructure to understand how positive resilience can be strengthened through the planning and provision of cemeteries, which form an important part of the urban system's built and green assets.

On the one extreme, Redman (2014) notices how many cities have sustainability plans, but have not specifically addressed urban resilience, or if they have, they often use sustainability and resilience interchangeably. This speaks to how the concept of resilience is complex, and how like sustainability, diverse fields seem to have adopted and applied it without much clarity. On the other extreme, the integration of green infrastructure elements for non-disaster resilience within urban areas has received little attention (McPhearson *et al.*, 2015). Most studies on green infrastructure thinking have investigated the function of the landscape in ensuring the social-ecological sustainability of places (Ahern, 2007), arguing that creative landscape management can use green infrastructure to meet different ecological, economic and social needs (Mell, 2008).

With regard to addressing global risks (e.g. climate change mitigation), green infrastructures have been explored as resilient landscapes that support a multitude of ecological, economic and social functions without compromising the sustainability of a resource base (Mell *et al.*, 2009). Fleischhauer (2008: 273) investigated the problem of addressing risks from a spatial planning standpoint by considering "the role spatial planning can play in mitigating multi-hazards by influencing urban structures and thus strengthening urban resilience". This study

adopts a holistic approach, which requires engaging diverse stakeholders to address not just acute shocks (e.g. floods) but chronic stresses (e.g. population expansion) that weaken the fabric of a city.

Most studies conducted in South Africa address the environmental and health impact of cemeteries (May, 2010; Jonker and Olivier, 2012), and its effects on the chemistry of groundwater resources (Żychowski, 2012; Dippenaar, 2014). Cemeteries are sensitive spaces that are difficult to integrate within the urban form and fabric, but few studies address the challenges of cemetery planning in South Africa. They also consume vast amounts of land, thereby competing with other uses that are viewed as urgent.

The most recent study by Dippenaar (2014) is aimed at quantifying the environmental risk posed by cemeteries and further developing guidelines for new and already-existing burial grounds. Like most published works, this study by Dippenaar focuses on the technical aspects of cemetery development, and in this case their potential to pollute the surrounding landscape. Most studies lack the social and cultural nuances that give a well-rounded view to the understanding of cemetery planning and development. For instance, the adequate integration of green infrastructure elements in the cemetery's design requires some technical expertise of their dynamics and those of the built infrastructure, and how the two can co-exist. However, this thesis identifies and examines the social and cultural complexities related to the planning and use of cemeteries. The diverse cultures and attached complexities make this an interesting study and contribute to the knowledge surrounding how these spaces are perceived and used.

Both the global north and south seem to be facing similar cemetery planning challenges, particularly regarding the diminishing land resources and the high cost of developing new and maintaining old cemeteries. Both contexts still very much consider cemeteries as sacred spaces filled with emotion, hence it could pose a challenge for some countries to open up to innovative interment methods, such as recycling and cremation. For some in the first world, these methods have become acceptable. For example, it is common for Germans to recycle and reuse the same grave after several years, and most of the British choose cremation; this is evidenced by the fact that 75% of all people who died in 2014 were cremated (The Cremation Society of Great Britain, 2016). These methods are still fairly new in some African

countries. This could emanate from the deeply-entrenched beliefs, the fear and respect given to the dead, and the lack of understanding of how these methods work. However, even with their willingness to adopt newer interment methods, some countries in the global north still continue to struggle with disappearing land for cemetery development. The shift toward innovative methods of interment shows potential for how the cemetery landscape will change. Acceptance of newer methods could be seen in the future in the conversion from burial to innovative and alternative forms of interment, which will lead to the reduction of space for the dead to release land for the living. These shifts that support efficient land use might increase secular beliefs and thus accelerate commemorative rituals, such as online memorialisation.

This study builds on the research by Uslu *et al.* (2009) and Dippenaar (2014). Dippenaar (2014) shows that contrary to previous assumptions, cemeteries present high environmental risks (e.g. seepage), particularly when proper geotechnical investigations are not conducted prior to cemetery development and expansion. This research assesses the potential of suitably planned and sited cemeteries to play social-ecological functions in urban systems. In this way, the study looks beyond the technical implications of improperly siting a cemetery. The study introduces the fact that cemeteries are more than places of disposal and broadly looks at cemeteries beyond their function of burial and shows that there is potential to view them as social spaces that encourage life, that can benefit both the dead and the living. Uslu *et al.* (2009) emphasize that cemeteries can sometimes constitute organic links connecting urban areas and ecological corridors within and in the vicinity of urban areas, and that they form a very important use for urban settlements. When they are designed and managed as passive recreational and green areas, and sited in suitable environmental conditions (e.g. not close to water sources, appropriate soil types), they can become important tools for assessing urban sustainability, and could potentially be socially accepted because of their contribution to the ecosystem services.

As cities grow, the green infrastructure that provides essential resources becomes highly strained and threatened. Another noteworthy study analysed the provision of ecosystem services in the CoJ (Schäffler and Swilling, 2012). The study looked at incorporating the idea of total economic valuation, as a possible method to demonstrate the feasibility of green infrastructure as a strategic planning framework. This would elevate ecosystem services to

traditional infrastructure categories, included in sustainability transitions (Schäffler and Swilling, 2012; Schäffler *et al.*, 2013). Not all benefits realised from open spaces, and in this case cemeteries, can be economically valued. Monetary value cannot be attached to some qualities, such as the space being able to provide a sense of belonging. It is from this perspective that the current research highlights the importance of designing spaces that improve the quality of life of users.

This is the first empirical study that applies social-ecological resilience ideas to adequate cemetery planning practices in the context of South Africa. Research has been conducted, particularly in the global north, which focuses on planning cemeteries as part of the urban conservation areas. Exploring the potential for cemeteries to be viewed as part of the green infrastructure and as more than just places of body interment contributes towards the study's objective. The existing literature on perceiving green infrastructure as multi-functional (e.g. Lovell and Taylor, 2013; Basmajian and Coutts, 2010; Mell, 2009) provides a useful secondary resource. Lack of research into considering cemeteries as a form of green infrastructure in South Africa that could contribute to strengthening resilience, necessitates a more empirical approach to the study.

Whereas sustainability is aimed at a desirable outcome in advance, resilience is the ability of a system to act and can have unpredictable results (Redman, 2012); as such, resilience is constantly evolving. Sustainability and green infrastructure seem to be the common approaches in the current thinking on extending the future use of land and improving the cemetery's ambience. Hence, it is possible to view cemeteries as part of the green infrastructure in order to attain environmental sustainability. However, resilience adds a new perspective for cemetery planning beyond just the environmental. It sees cemeteries in a holistic view that considers the different functional components (social, economic, political, demographic and environmental), so that the system is able to cope with stress, as well as change and learn in order to function adequately.

Because resilience is not an equilibrium state, but rather a process, changing over time, it cannot be assessed and applied in a mechanical way. It looks beyond the future capability of these spaces, and in relation to cemetery planning, identifies designs that are sensitive to people's emotional welfare, which remain critical to how people perceive and use the

cemetery space. It expands on these by highlighting methods that show adaptability to growing burial needs, that emphasize sensitivity to families' grieving processes, and that also facilitate social cohesion.

While some studies have investigated the role of cemeteries in increasing urban sustainability, the application of social-ecological resilience ideas to previous and newer approaches to cemetery planning in the South African context form part of the study's contribution to new knowledge. As a developing country, it is important to explore the contribution that new forms of cemetery planning could potentially make in South Africa, taking into consideration contextual challenges, such as population growth, whilst reflecting on the local social and institutional challenges facing cemeteries. This study examines the planning of cemeteries as part of the urban green infrastructure, which can be designed in a manner that also complements the functioning of man-made infrastructure.

This study examines the theory and conclusions stimulated by the studies discussed above, with particular attention to the development of cemeteries as part of the green infrastructure; this is through investigating whether it would be possible to adopt what appears in theory to be resilience-promoting cemeteries together with alternative forms of interment. Furthermore, the study looks at what institutional and social barriers exist that could prevent the integration of resilience principles, and new ways of body disposal within the design, provision and management of cemeteries. Referring to the South African context, coupled with prevailing socio-cultural dynamics, this study helps determine whether users of these spaces would be receptive to new ways that could potentially contribute to the sustainable and adequate use of land and thus foster resilience. Using a local case study as a 'cutting edge' example, the study looks at what principles of resilience have been incorporated in the cemetery's design and management. It is also important to determine what the responses to the implementation of the new approaches are likely to be.

Cultural beliefs prevent dialogues on how cemeteries can be proactively designed and used for other social-ecological functions. This is problematic, considering that death is inevitable and that interment in some form will remain a need (Basmajian and Coutts, 2010). This study contributes to the understanding of socio-cultural difficulties constraining the design

and use of cemeteries beyond their distinct function of burial. It highlights the importance of understanding social and institutional contexts when expanding the functioning of cemeteries. In the global south, the institutional context is commonly characterised by a lack of resources and capacity, in terms of management, whereas the social perspective involves different stakeholders' perceptions, which are mostly influenced by diverse cultural principles. The study therefore assesses the ability and applicability of resilience to encourage integrated land-use planning in a context-specific landscape, and with a particular focus on South Africa.

This study also touches upon why non-resilient forms of cemetery provision are dominant in South Africa. In doing so, the research sheds light on the implications of diverse cultural aspects and perceptions of different stakeholders in cemetery planning, design, provision, management and use. It is this rich social and cultural dimension that makes South Africa an interesting and valuable case. For instance, authors such as McClymont (2016), have investigated how cemetery staff and users perceive mourners' use of the space and how the judgements they make are influenced by their social convictions. It is believed that the cultural and religious diversity perspective makes a significant contribution to cemetery planning and provision globally.

1.8 Research design

This study uses case study research to explore knowledge, experiences and perceptions of Waterval Cemetery from key respondents and participants. Semi-structured interviews and focus groups were conducted to draw this information. The focus was on a single case, and strengthened by the Diepsloot Memorial Park study, with the prospect that the analysis and findings will provide an in-depth understanding of the diverse issues that came to the surface throughout the research. The data collection in case study research is usually comprehensive, because of various sources of information used. Hence the Waterval and Diepsloot cases use as many sources as are relevant to the studies.

1.9 Introduction to the case studies

1.9.1 Waterval Cemetery as a case study

The concept of Waterval Cemetery supports a natural environment approach, which integrates water-efficient plants that require low maintenance (JCPZ, 2006), thereby defying

the provision of typical gray-looking cemeteries found all over the city, and the country. The model thus introduces the City's thinking going forward, which incorporates the greening of urban cemeteries and could thus contribute towards the building of resilience. Waterval Cemetery therefore allows an assessment of how far the City has gone towards applying resilience practices; which criteria has been incorporated, and which has not.

1.9.2 Diepsloot Memorial Park as an additional case study

This research also draws upon data collected at the Diepsloot Memorial Park (DMP) for a parallel project that was undertaken by Leuta (2016) for the Department of Planning, Monitoring and Evaluation in the Presidency, which resulted in a peer-reviewed book chapter (see Appendix A). Although this case was not the focus of this research, its findings proved important in understanding perceptions of newer approaches to cemetery planning and development. The project identified and investigated the DMP as a translation of innovation in addressing urban development challenges and looked at the reasons for the cemetery's poor uptake. The study investigated users' perceptions of the cemetery, and assessed their impacts on the area (Diepsloot), where it is located. The DMP study is used as a secondary case because, firstly, it was anchored on a different theoretical framework, and secondly, although some of its findings may be relevant for this research, its aims were different. These are the reasons why empirical coverage on the DMP study is limited.

Although the study was anchored on the diffusion of innovations framework, it is included because its findings build on and strengthen findings of the current study. They give a somewhat different perspective in terms of how the cemetery was received by the community, and discuss reasons that may have led to the way it was viewed. DMP is a modern cemetery that shows a shift from the previous way of designing cemeteries to the newest approach that integrates burial space with recreation. As part of the thesis, the University of the Witwatersrand allows inclusion of submitted publications, which can be either book chapters or journal articles.

Although the two studies were anchored in different theoretical frameworks, they have correlated outcomes, particularly looking at the innovative elements incorporated in both cemeteries' designs. Because DMP has gone further than the Waterval case in integrating aspects that are completely new to users, it is important to include results from the study to

explore barriers that could constrain the uptake of models that could potentially contribute to the system's resilience and long-term sustainability. Including the case in this research also shows how difficult it may be to change the system and people's mindsets toward old resilient cemetery models that encourage unsustainable use of resources.

1.10 Brief chapter overviews

Following this introductory chapter will be two chapters that focus on the literature review, which will anchor the research in previous related work. The first literature review (Chapter 2) focuses on the origins and evolution of the resilience concept, and discusses some of the challenges encountered when defining and applying it. Definitions and current debates on the two frames of social-ecological resilience and green infrastructure are discussed, in particular resilience's disposition to complement or replace sustainability. The chapter discusses if and how these two frames can be merged in their application to promote sustainable and adequately used social-ecological systems. The social dimensions of resilience are addressed, particularly in relation to some of the associated concepts, such as the sense of belonging. Due to the nuances in the political landscape and power dynamics that make it difficult to address deep social divisions in society, it remains a challenge to explore such concepts.

Chapter 3 then looks at cemeteries and how they are understood in society, and the challenges concerning their planning and development. The chapter discusses how cemeteries can be considered as part of the green infrastructure, and how this can lead to their potential to nurture the social-ecological resilience of urban environments. Chapter 3 also examines some international trends in the provision of innovative cemeteries, and looks at elements that have been incorporated that make them significant. The innovative case studies on cemetery planning, which have successfully incorporated mixed uses in their designs to ensure adequate use of space (whilst benefitting both the living and the dead), are reviewed.

Chapter 4 discusses the methods employed to address the research questions. These include different research instruments used in the data collection processes. Qualitative data was collected from engagements with diverse stakeholders through interviews, focus groups and questionnaires. Spatial data was also collected to map the context of case

studies and the qualities that would help determine the suitability of Waterval Cemetery (e.g. distance from water sources). More data was collected in the form of observation and photographs in order to examine how the cemeteries are used and managed. Some of the challenges encountered during data collection are discussed. Apart from the types of data collected, Chapter 4 also discusses the methods of analysis. Because this research engages with somewhat sensitive issues, the chapter ends by discussing processes undertaken to ensure that ethical issues were taken into account, and therefore addressed as required by the University of the Witwatersrand Ethics Committee.

Chapter 5 reports on findings from engagements with key respondents, and other organisations that have a stake in cemetery planning, management and use. These findings are discussed in relation to the resilience literature framing the study. The legislative and policy framework and gaps are discussed systematically. A summary is given of the extent to which resilience principles have been incorporated at Waterval Cemetery and which were not. The chapter touches upon the fact that the JCPZ has expansively incorporated these principles within DMP as a way of exploring and trying new ways of planning and providing cemeteries. Institutional constraints to implementing a more resilience-oriented approach are highlighted and explanations given as to why they are in place.

Chapter 6 reports on the findings from engagements with cemetery users. These results show that participants were not involved in the planning of Waterval Cemetery, from conceptualisation until implementation. Cemetery users' perceptions are discussed concerning the integration of innovative elements within the cemetery's design. These design features include green infrastructure elements and other uses compatible with the functioning of the cemetery. Perceptions of cemetery users toward alternatives to traditional burial, the overall functionality and management of the cemetery, are also examined. Socio-cultural barriers toward the design and uptake of practices that promote resilience of social-ecological systems are also studied.

Chapter 7 is the analysis of findings that were presented in Chapter 6 and makes reference to results of the book chapter in Appendix A. The chapter embraces the complexity of how cemeteries are viewed and used, and hence goes beyond the technical solutions and alternatives to burial. The chapter also engages other scholars' work so as to come to an

understanding of what the findings might mean for having cemeteries that contribute to the resilience of urban environments. While resilience might be taken in a normative context within this research, it becomes clear that some systems, such as apartheid, might have contributed towards the resilience of older approaches to cemetery provision as people have come to identify with them and thus interweaved their cultures with them. And this shows how aspects of these systems might have entangled history with people's cultures, thus making it even more difficult to shift toward newer approaches that promote and contribute to resilience.

Chapter 8 then follows, and discusses, conclusions from the two studies and whether or not both Waterval Cemetery and DMP have successfully incorporated resilience principles in their design and management. This chapter further discusses whether the integration of these contributes to the general resilience of the CoJ and how. The chapter discusses implications of social-ecological resilience theory for policy and the possibility to generalise the conclusions in other cases. This chapter examines the significance of conclusions drawn through the summary of contributions, and gives suggestions for future research.

Chapter 2: The conceptual relationship between social-ecological resilience and green infrastructure frameworks

2.1 Introduction

Social-ecological resilience brings people and the natural environment together so that they are understood as systems dependent on each other (Folke *et al.*, 2010). The social systems affect the natural environment and the natural environment impacts the social systems as well. The increasing impact of human beings on the global environment is a constant reminder of how illogical it would be to continue to conceive of ecological and social systems in isolation (Folke *et al.*, 2010). Hence scientists endorse the natural environment, cities and society as interconnected, cooperative components of a larger social-ecological system (Ernstson *et al.*, 2010). This study therefore assumes that ecological systems, society and people are entrenched in these integrated systems with urban development depending on the capacity of the biosphere to sustain it (Odum, 1989a).

This chapter explains the concept of resilience by understanding how it was conceptualised, its application, and brings to the fore factors that can impede its realisation in urban areas. Some of the concept's current critiques are discussed. The chapter also discusses the need to view urban environments as social-ecological systems and how resilience can be stimulated within these systems. Green infrastructure is identified as part of the social-ecological system and its conceptual relationship with the social-ecological resilience framework is explored. This relationship is meant to distinguish whether the two are distinct conceptual trajectories or whether they can be aligned in any way. Resilience principles applicable in social-ecological systems, mainly within this study, are indicated and discussed. Both the social-ecological resilience and green infrastructure frameworks are merged for this research because they involve interactions between humans and the natural environment. Although there are debates about how resilience thinking and social science are irreconcilable, this study views these as opportunities rather than barriers. It encourages scholars in these fields to take up the challenge of identifying contextual and beneficial ways of applying the frameworks. The chapter ends with a summary of how green infrastructure elements are viewed within the context of social-ecological resilience framework.

2.2 Understanding resilience and its application

Resilience was first applied by physical scientists to denote the ability of a spring to bounce back and the characteristics that described the strength of materials and their resistance to external shocks (Davoudi, 2012). Even though resilience emerged from a stream of ecology addressing ecosystem dynamics in the early 1970s (Folke, 2006) where Holling (1973) made a distinction between engineering and ecological resilience, the term 'resilience' has since been applied broadly across disciplines and with many differing definitions (Obrist *et al.*, 2010). From early on, it emphasized the need for human actions to form a key role in understanding the ability of ecosystems to generate ecosystem goods and services (Folke, 2006). However, the concept has been used in other fields as well. For instance, it has been used in psychology to determine the capability of patients to overcome adverse conditions; in economics to establish a system's capacity to return to a fixed equilibrium following a shock, and in engineering to look at the ability of physical objects to retain elasticity without breaking (Sheltair Group, 2003). Resilience is commonly applied to emergency and disaster planning through an understanding that change is inevitable and that predicting the occurrence of future events can be unreliable (Davies, 2015). However, this attitude is entrenched in the principles of resilience that urban environments must build stronger systems that will withstand these unforeseen shocks, which are likely to bring about unexpected change (*ibid*).

The resilience approach to urban planning assumes that the future will include a major element of surprise, and that urban systems must be designed and operated in ways that accommodate sudden and unanticipated changes (Sheltair Group, 2003). This compels urban planners to adjust and advance their forward planning systems, methods and processes in planning for uncertainty. However, most of these uses of the concept of resilience do not encapsulate all the relevant dimensions that are critical in planning, such as planning across different scales and also planning for the combined natural, built and social environments.

Resilience is not a tangible item that institutions and people aspire to have but, it defines "characteristics that enable people to cope with ever-changing negative stresses, [to] prevent and mitigate them, adjust to them, adapt and thrive," (Hillier and Castillo, 2013: 8). It is important to note that resilience cannot always be viewed as positive, as it may prove

very difficult to transform a resilient system from its current state into a more desirable one (Folke, 2006; Gunderson and Holling, 2002; Walker *et al.*, 2004). For instance, a community might be characterised by self-reinforcing poverty traps for decades without steps being taken to break the cycle. However, being accustomed to living under daily harsh circumstances and hardships does not make the community resilient, but may instead make it incapable of adjusting to positive change.

Researchers who adopt a resilience thinking perspective tend to emphasize the need for change to cope with the complexity and uncertainty of social and ecological systems (Simonsen *et al.*, 2015). This includes an emphasis on continuing learning, evaluation and adaptation (Holling *et al.*, 2002; Biggs *et al.*, 2010). Due to their complex social and environmental driving forces, urban systems constantly self-organise differently in response to internal and external factors and fluctuations (Wilkinson, 2011). Sapirstein (2006) has argued that resilient systems encompass four main components: response, self-organisation, learning and adaptation. Because resilience is an outcome of developing those four components, they require voluntary involvement from all parties involved. Resilience should thus be understood as more than an area's response to internal or external disruption, but as society's flexibility and ability to adjust during slow and abrupt fluctuations, and also its ability to take advantage of the positives and opportunities brought about by the change (Resilience Alliance, 2007).

Efforts have been made to apply resilience to social systems. The elements of response, self-organisation, learning and adaptation can be applied to social units, including individuals, families, communities and organisations (Sapirstein, 2006; Wilkinson, 2012). Although there have been attempts to better integrate the concept of resilience in social sciences' literature, the social elements of the perspective are not robust, and are significantly lacking in the area of institutional dynamics, change and governance (Griffith *et al.*, 2010). In addition, the application of resilience thinking to social systems seems to be lacking in academic and popular literature. It is a great opportunity to adopt some of the concepts and principles of resilience thinking in this research, and find ways of applying them to the social context.

Not all the concepts of ecological resilience need to be forcefully adopted in the social

realm. Even though the two contexts (social and ecological) are intertwined, just by being parts of social-ecological systems, they also differ in many respects. This calls for assessments of social resilience that take into account all relevant indicators. However, this assessment should not employ the ecological indicators mechanically, but should apply them in appropriate contexts. Many concepts and types of resilience are crucial when defining and addressing the issue of resilience at different scales. For instance, a resilient ecosystem as defined retains the same function, structure, feedbacks and identity in the face of stress or disturbance (Brand and Jax, 2007). Adger (2000: 349) uses “social resilience to highlight the fact that it has economic, spatial and social dimensions, and thus requires interdisciplinary understanding and analysis at various scales,” which differs essentially from ecological resilience by having the added ability of human beings to expect change and thus put up appropriate strategies for the future (Moberg and Galaz, 2005). This does not suggest that the social regime must retain its identity, but rather, it implies that a shift in identity may be desirable if it will lead to a better outcome. This challenges the older view that resilience compels a system to go back to the same structure and function. Instead, it should be seen as enabling continuous change.

2.3 Some impediments to resilience

“A disturbance which causes change has different consequences for different communities, which show different degrees of resilience to change,” (Maquire and Cartwright, 2008: 3). A resilient community responds to stress and adopts positive opportunities brought by the change whilst maintaining its principal functions in spite of those stresses (*ibid*). According to Resilience Alliance (2007), almost all of the world’s future population growth is predicted to take place in cities and their urban landscapes. And most of the growth is projected to occur in the developing countries of Africa and Asia (*ibid*). Urban populations grow by natural increase, rural-to-urban migration, and incorporation of surrounding rural areas (Resilience Alliance, 2007). The speed of this growth can be related to levels of social and economic development.

“In the developing world, populations are growing faster than the cities’ economies can manage, thereby expanding persistent problems of inequality, poverty, unemployment and underemployment, inadequate infrastructure and housing, inadequate basic services as well as degradation of ecosystem services,” (Resilience

Alliance, 2007: 13).

These problems undermine social-ecological systems, as well as the resilience of urban areas. On the one hand, cities are hubs of economic growth that offer opportunities for sustainability. On the other hand, they face many social and ecological challenges, such as disease, natural disasters, and terrorist attacks. These challenges and many other social disturbances further highlight the need for urban systems to cope with unexpected shocks. In an effort to sustain development, the capacity of ecosystems is gradually tested (Folke *et al.*, 1997).

Inequalities and divergences inherited from the apartheid era confront South African cities. These imbalances are spatially entrenched and include, for instance, limited access to basic and social services (Le Roux and Van Huyssteen, 2010: 20). This is a clear sign that past urban policies and decisions made years back have determined the structure of current urban patterns (Resilience Alliance, 2007). And in return, in an attempt to alter policies from the past, current decisions and policies will shape future cities. “While there is much that is uncertain about the urban future, history shows that some urbanisation pathways are more desirable than others,” (Resilience Alliance, 2007: 8).

The resilience of cities results from “their relationships with ecosystems, social networks, governance structures and infrastructure systems that can plan for and respond to diverse changes,” (Chelleri *et al.*, 2012: 21). The vulnerability of cities exposes them to an even greater risk of unanticipated shock (ICSU, 2002). When resilience declines, smaller shocks that gradually occur are what cause the system to go into crisis mode to cause system crises or chaos (*ibid*). Because this process increases over time, the system will shift to a critical state. Hence building resilience is of particular importance in areas often impacted by human beings. It is these same areas (e.g. cities, agricultural land) that people value highly, both economically and aesthetically, and upon which society often depends.

2.4 Current debates in resilience

New theories on the subject of resilience, such as social-ecological resilience offer ways of understanding how communities and their environment interact, and how they can successfully work together to construct cities and communities that are more resilient. Although some authors view resilience thinking as at a more exploratory stage than a

theory, and based on a relatively small number of empirical case studies (Griffith *et al.*, 2010), the concept has found itself in international policy discourses and its use seems to be growing widely. It is however contested due to its varied applications. In this section the critique of resilience thinking is limited to challenges faced in its definition; its popularity and employability in contexts it does not apply, and its application, specifically in the social context. The discussion further brings to the fore dialogues that make a differentiation between resilience and sustainability as a developmental goal.

The resilience concept seems to be growing due to its significance in international forums and in dialogues among various fields, agencies, organisations and diverse community groups (Seeliger and Turok, 2014). Although resilience has made significant strands in policy, it remains difficult to apply. It has had to go through levels of transformation, mainly in its definition and application (*ibid*). Just like any concept that enters the development discourse, it has had its fair share of being questioned and risk of dilution, and therefore has to prove its effectiveness relative to other development agendas. Due to its popularity in various fields, resilience is said to be in distinct danger of “fuzziness caused by its malleability”, as it has different meanings in diverse fields (Christopherson *et al.*, 2010; Davoudi, 2012). As applied to different contexts, the many different definitions of resilience do not allow a shared understanding of how resilience should be measured and assessed (Brand and Jax, 2007). Resilience is currently addressed in various fields, such as ecology, engineering, psychology and planning. Because resilience is founded on ecological principles, its use remains questioned in the social arena.

Ideally, dimensions important for cities to improve their resilience encompass the natural environment and built infrastructure, the economy and society, health and wellbeing, and effective leadership. However, practically the social is not strongly emphasized. The social dimension covers the highly debated concepts, such as social capital, cohesion and inclusion. Although these are discussed in international dialogues, they prove difficult to realise.

Both the concept of resilience and its measurement are still debated in ecology and social science, and the relationship between the ecological and social resilience concepts is still being explored (Adger, 2000; Davidson, 2010). It “weakly integrates and appropriates the

social science theory and methodologies and oversimplifies complex problems to incorporate complex social phenomena,” (Christensen (2008) in Atwell *et al.*, (2008: 2)). Most literature shows that quantitative indicators are generally used for the measurement and assessment of resilience and particularly within disaster-prone and rural areas. Resilience in the social realm is still often viewed through an ecological lens. However, it is important to conceive the two types of resilience differently (Adger, 2000). It is critical to emphasize that ecological and social resilience can complement and not replace each other (*ibid*). Ongoing discourses can find ways of distinguishing social-ecological systems from other ecological systems. Although some organisations, such as the Resilience Alliance, define social-ecological systems as interweaved with humans and nature, the understanding of how these are interweaved needs to continue to advance (du Plessis, 2008).

Resilience is not necessarily always desirable. Some system structures that decrease the various social services provided by a state for the benefit of its citizens can be highly resistant to change. Being resistant to change implies that the social systems are not able to self-organise and allow learning. Resilience as an ecological concept is focused on the capacity of a social-ecological system to persist, and does not guarantee that the system will persist in a desirable form. What is resilient is therefore not always socially desirable, and what is socially desirable is not always resilient (Adger, 2000; Chapin *et al.*, 2006). Defining what is desirable in both ecological and social systems can be perceived as being loaded with value judgements. What is desirable and who decides, are among the questions that need addressing if the concept of resilience is to make inroads in the social sciences.

Resilience theory is said to deal insufficiently with the social perspective of the social-ecological system (Adger, 2006; Janssen and Ostrom, 2006). Defining what is positive in the social context is tied to normative judgements. Translating resilience to society relates to power and politics over what the desired outcome is and for whom resilience is being promoted (Wilkinson, 2012). This is not easy and requires thorough understanding and engagement with evolving social practices, the power dynamics and political landscape, which may be nuanced. Resilience ideologies thus become weak as social theories as they do not seem to address the conflicts and deep social divisions in society. These concepts do not sufficiently look at the social dynamics, hence this study shows that these social and institutional elements play a key role in whether and how these ideas can be put in place.

Although the diversity of insights and discoveries of many research groups that are underway in relation to resilience are almost impossible to grasp (Folke, 2006: 262), the resilience lens is useful for making suggestions about broad categories of investment, such as in the capacity to learn, adapt, and transform without being too specific about what this actually means in practice (how much it costs, who pays, who benefits, etc.). Thus, although resilience thinking provides heuristics for living in a complex world, its system-level nature limits its usefulness in solid decision analysis, at least in its current state of development (Anderies *et al.*, 2012).

Critical questions have arisen as to whether resilience is the new “sustainability” (Davoudi, 2012; Porter and Davoudi, 2012), which influence current clashes between man’s needs and demands to survive, and the environment to produce and supply resources to sustain those needs for infinity (Juniper, 2011). Sustainability arose as an attempt to find a balance between efforts to reduce poverty while meeting pressing environmental goals, whereas resilience deals with known shocks and those that are impossible to predict (*ibid*). The apprehension exists that resilience will take the same path as sustainability.

Sustainability has been used in diverse disciplines, political and international discourses thereby encouraging the fuzziness of how the concept is used and the difficulty in implementing diverse sustainability goals. Because the interpretation of resilience can be applied in diverse fields and for different uses, the current prediction is that its application will remain fuzzy when trying to successfully address urban challenges in reshaping the future. This can be avoided by differentiating the two concepts through well thought out definitions and assessments. According to Elmqvist (2013), both resilience and sustainability have various meanings and the development of additional meanings does not equate to their insignificance. However, these meanings can lead to some vagueness that will only dilute their implications and importance (*ibid*). Due to the many definitions and interpretations, understanding the meaning of these concepts and their application can potentially be difficult. This could make their use in policy and practice challenging (Elmqvist, 2013).

Whilst sustainability promotes long-term efficient consumption of resources, resilience introduces ideas of networks, self-organisation and survival. In terms of sustainability,

adaptation implies constant exposure to risk and change, whereas in resilience theory, it means abrupt instability that leads to disasters and the response of affected areas either through salvaging what is left or through restoration (Stumpp, 2012). Whereas sustainability emphasizes planning for possible futures, resilience tries to prepare for the unpredictable, for both the present and the future. For instance, studies have shown that integrating resilience measures can result in ecological rewards and improved sustainability (Fisher *et al.*, 2012: 8), hence the need to efficiently preserve and sustain urban settings as good quality environments. However, further investigation is needed to better understand the integrated nature of urban space, how its users benefit from it, how its natural environments are better protected, and how it can be made less vulnerable to diverse hazards and threats that pose risks to it.

“If sustainability is about returning a sense of balance to our world so that future generations can meet future needs, resilience is about helping future generations manage in what is assumed will become an increasingly imbalanced world,” (Zimmerman, 2012: <http://foreignpolicyblogs.com/2012/11/10/sustainability-v-resilience/>).

According to Redman, (2014: 6) “it has been often suggested that for cities to be sustainable they must be resilient”. Whilst sustainability is a state society and the urban systems strive to achieve, resilience can be understood as the process towards achieving such a status. And in that case society relies on the systems it has created to maintain their functionality.

Although this study does not support arguments that resilience will replace sustainability, it concurs that the resilience concept will instead expand political and pragmatic discourses on current and future environmental issues that sustainability may have not fully responded to over the years. It is understood that the two concepts are complementary, because their objectives ensure that current and future societies are protected and provided for. To some extent, societies have begun to slowly understand that human beings are dependent on natural resources for their livelihood, and that efficient use of these natural reserves is critical to ensure their continued survival. Hence, the social-ecological systems and resilience approaches considered within this study restore the critical relationship between humans and the environment as the basis for future planning.

Debates related to resilience have brought a much better perspective and better opportunities to influence the development agenda. However, the ability for resilience to transform the framing of planning problems and interventions still lacks (Porter and Davoudi, 2012: 329). Turok *et al.* (2011) strongly advise against overstretching and diluting the concept of resilience to the point where it will lose its usefulness and thus mean anything and everything. On the one hand, the key is to keep sustainability alive and not lose sight of the progress it has made over the past two decades. It is also important to emphasize how humanity is part of nature rather than only a user of it, and to avoid falling into a trap where current discourses deal with how to survive the consequences of damage “man” has caused and further exchange ideas on how man can anticipate, prepare for, and manage crises (Turok *et al.*, 2011). On the other hand, what is most important is for society to grab the opportunity that comes with every new concept that enters the urban/development discourse (which happens to be resilience at the current stage) and to fully understand its potential to transform the urban landscape and its developmental challenges.

2.5 Social-ecological resilience

Social-ecological systems are complex, in that they are diverse and made up of multiple interconnected elements, and adaptive, in that they have the capacity to change and learn from experience (du Plessis, 2008: 5). Adaptive systems are flexible in that they adjust their functioning to their changing environment and spontaneously self-organise to adjust and enhance the functioning of the system. They require a shift in processes and behaviours that embrace change, experimentation, creativity and innovation. Change is thus important as it encourages efficient urban structures, flexible institutions, and coherence between different norms and values (du Plessis, 2008: 5). The system’s ability to deal with change depends on resilience, adaptability, transformability, connectivity, diversity and the understanding of social-ecological systems as complex adaptive systems (*ibid*).

Rooted in complex systems thinking, a social-ecological system perspective acknowledges that social and biophysical systems are interlinked and interdependent and should be treated as such (Berkes *et al.*, 2003; Walker and Salt, 2006). The approach emphasizes that social-ecological systems are complex adaptive systems, in which change is neither predictable nor linear (Walker and Salt, 2006). As such, responses to interventions are not

wholly predictable and cannot be understood by isolating variables or examining a particular interaction (*ibid*). A central factor in dealing with social-ecological systems is that they are characterised by cross-scale interactions, both temporal and spatial, and the same is applicable to their governance, because decisions taken at one place in the past and in the present can affect people currently or in the future living elsewhere (Zurlini *et al.*, 2008).

Social-ecological systems and resilience thinking approaches call for a fundamental change to the way ecosystems are understood and managed (Folke, 2006). Factors that affect the resilience of the urban system include, for instance, pollution, endangered and degraded ecosystems that lead to biodiversity loss, lack of accountability and inflexible institutions, inability to learn from past experiences, methods that focus on maximised production and unsustainable consumption patterns, and unequal access to services and unequal distribution of benefits amongst residents. Adopting a social-ecological system perspective involves a shift from the conventional efficiency-focused, top-down approach that seeks to achieve an “optimal” state to one that recognises complex interactions across scales and the existence of multiple stable states in nature (Holling and Gunderson, 2002; Resilience Alliance, 2007; Gunderson *et al.*, 2010).

As understood, social-ecological systems are those structures that emphasize a balance within them in which the natural environment is not viewed separately from human beings, as both are mutually dependent. Social systems have the ability to cope with slow and abrupt change, and can adapt if assessed only through social principles (Folke, 2006). However, the natural systems may not be able to cope with such an adaptation and this may imply that the resilience of the social-ecological system is compromised (*ibid*). In the same way, concentrating on the ecological side only as a basis for planning for resilience and in the longer-term “decision-making for sustainability” could lead to biased assumptions and decisions (Folke, 2006: 260). Hence this study puts emphasis on the interconnectedness of social-ecological systems, which go beyond the disjointedness of the social and ecological dimensions of systems.

Urban areas are complex unique systems continuously fluctuating, and are used to adjusting to some form of disruption and change (Norman, 2012: 6). These systems rarely become defunct because change, whether social, political or economic, is inevitable within them

(Nel, 2009). Some systems have been noted to function well in the face of adversity, as they show the ability to recover and transform into different forms (Norman, 2012). Nevertheless, an area's resilience is dependent upon the ability of actors within the system to work together during times of disturbance and change (*ibid*). Therefore, diverse sectors (e.g. commercial, public and voluntary) all have a role to play in promoting resilience; and it is relationships between these sectors that can ultimately determine a community's resilience (Norman, 2012).

The strength and quality of relationships between the system's different sectors have a crucial part to play. Weak networks between actors ultimately compromise the system's resilience, whereas stronger ones imply a system has the opportunity to pool together its resources in times of stress (Narayan, 1999). Diverse state-owned institutions necessitate that "the state and civil society come together to build trust and social cohesion, support collective resilience-building and strengthen accountability," (Hillier and Castillo, 2013: 18). Different structures, such as government and other non-state institutions cannot individually create an area's resilience. However, through responsible and accountable government structures, and through public engagement, they can contribute towards strong resilience (Hillier and Castillo, 2013).

A resilience approach suggests that certain key characteristics can be adopted in urban environments. Most definitions of resilience, social-ecological resilience included, emphasize that a system has the capacity to absorb disturbance and therefore retain the same function. Because cities undergo change, they need to be able to adapt to different circumstances and to also transform themselves to a new state. Thus, when studied through the social-ecological systems frame, resilience integrates notions of adaptation, learning and self-organisation to assist in the running of a system. According to Anderies *et al.*, (2004), robustness implies a desired system's characteristics can still be maintained despite fluctuations in the behaviour of its parts or environment. However, adaptability to change is a key focus for governing for social-ecological resilience in complex adaptive systems facing uncertainty and not knowing how processes will unfold (Wilkinson, 2012).

"Social-ecological systems are subject to constant pressures and change that affect their ability to provide services required for continued human well-being" (du Plessis, 2009: 325).

Viewing green infrastructure as part of the social-ecological system, and therefore investing in it, can help contribute to social-ecological resilience. This can be realised by helping cities improve their ecosystem services and thus promote access, connectivity, multi-functionality (Mell, 2008, 2010), and meet challenges of urban development and human needs.

2.6 Green infrastructure as a part of social-ecological systems

Cities have begun to incorporate an ecosystem approach, which means that development of a city resilience strategy requires the “integrated management of land, water and living resources that promotes conservation and resource use in an equitable and sustainable way,” (CBD, 2004: 6). Ecosystems are susceptible to the impacts of rapid urbanisation, increasing population growth and environmental change/climate change within and around cities. Ecosystems, and by extension social-ecological systems such as cities, are multi-scalar. Green infrastructure forms part of a social-ecological system and can be understood as “a network of green spaces and water systems that deliver multiple environmental, social and economic goods and services to urban areas” (Ely and Pitman, 2014: 3). It is composed of “parks, gardens, waterways and wetlands, streets and transport corridors, pathways and greenways, farms and orchards, sports fields and cemeteries,” (*ibid*).

A variety of physical and human factors affect the quality of life of the social-ecological system (Nowak and Noble, 2001; Nowak, 2010). People are an integral part of this social-ecological system hence ecosystem services are crucial to human health and wellbeing. For instance, picturesque landscapes improve the psychological wellbeing of people, whilst pollution negatively affects the health of urban residents. Green infrastructure is a city’s alternative infrastructure and provides ecosystem services at no cost to the public. These services include supporting biodiversity, regulating the quality of drinking water supplies, and protection of air quality. In contrast, built-up infrastructures are costly to build and sustain, whereas natural ecosystems can be managed in a flexible way that accommodates multiple purposes.

Green infrastructure is viewed globally through the ecosystem services it provides that conserve and support both the natural and social environments. Green infrastructure can be distinguished from the engineered physical environment through its ability to have multiple functions and promote spatial connectivity (Ely and Pitman, 2014). Green infrastructure

delivers multiple benefits from the urban space it occupies, compared to single purpose man-made bulk infrastructure. Green infrastructure also links and connects green areas of differing size, which deliver goods and services for people and the environment. This it does through increasing public use, improving the urban ecosystem wellbeing and offsetting habitat fragmentation (Ely and Pitman, 2014). Taking green infrastructure's multi-functionality potential, promotion of landscape connectivity, spatial distribution in a defined space, improves the efficient functioning of urban spaces (Mell, 2008).

The presence of green infrastructure elements also instills social cohesion, as it is in these spaces where people show collective identity. The design, building and upkeep of green infrastructure thus require innovative ways of thinking about how it can be integrated into urban environments so that all its benefits are realised (Ely and Pitman, 2014). Hence, it is imperative that all role players understand the need to design and develop it in a sustainable way, recognise its capabilities, benefits and provide adequate upkeep (*ibid*).

Taking green infrastructure as part of the social-ecological system raises the question of whether it is an important dimension of city planning and promoting key aspects of urban resilience. In this regard, developing countries are critical cases to investigate, as they face great developmental challenges and have the least resources in which to invest. It is in these contexts that low-cost solutions that deliver multiple benefits to strengthen resilience for local communities are of significance. For instance, in some US cities, climate adaptation has been a driver to incorporating green infrastructure, whereas in some European countries, such as Sweden, green infrastructure has been embedded within development and not necessarily in response to climate change, although the benefits of this integration were later observed (Vandergert *et al.*, 2012).

Integrating green infrastructure across service delivery and strategic planning is an important challenge for providing places that work for people in both the long and short term; hence, further research is needed to explore how a focus on green infrastructure can help deliver resilient urban planning and management. In South Africa for instance, resilience is being adopted as a clear and pragmatic policy goal as observed from national and provincial development plans. However, it is still not clear how this is reflected and implemented on the ground. It becomes important for developing countries to bridge this

gap, not forgetting the social contextualities that shape the resilience policy and how it is adopted.

2.7 The conceptual relationship between green infrastructure and resilience

According to Grant (2010), a movement is slowly taking off, which promotes the embedding of green infrastructure into spatial planning with the objective to view it as part of the broader infrastructure in the urban setting. Land is prized in cities, hence the quality of ecological spaces is critical in responding to urban challenges, instead of them being viewed as ready for development (*ibid*). The capability of these ecological spaces to provide multiple functions simultaneously and thus optimise these functions requires strategic planning and management. Combining the built-up areas with the green infrastructure is critical to support the resilience of urban environments. For instance, increasing urban green spaces reduces runoff, increases natural infiltration, and controls flooding (Vandergert *et al.*, 2012). The use of green elements instead of impervious surfaces (which do not allow for the permeability of water) increases interception levels.

Including green infrastructure in planning and funding processes is important for urban environments to continue to develop. “At a policy level, planning needs to incorporate green infrastructure to ensure that benefits are optimized in the long-term” (Grant, 2010: 23). Pre-emptive planning on a range of scales, which supports the use of natural capital, could take preference over emergency planning. This planning could involve the support of decision-makers, developers and planning authorities (Grant, 2010). Although there are claims that involving communities in the design and management of green infrastructure could instil a sense of ownership (Hester 2006: 364 cited in Basmajian and Coutts, 2010), other benefits that can be appreciated include the possible reduction of management costs from, for example, vandalism in the long term.

Ideally, the design, development and operation of urban spaces should be based on principles that are both sustainable and resilient. This as a starting point lays a basis for resilient management and operation of these spaces. One way of building resilience in a community is through the planning, design, provision and management of green open spaces and ensuring their adequate use and accessibility to the community. However, due to developmental needs, other land uses (e.g. housing) may take first preference over the

provisioning of open spaces. This requires the efficient use of the already limited space. Theoretically, this can be achieved through allocating spaces that have complementary roles to cut down on having to provide individual spaces for different needs. However, this research questions whether this is socially possible.

2.8 Properties of resilience in social-ecological systems

The urban green can be considered as green infrastructure providing ecosystem services that contribute to the quality of urban life (Turok *et al.*, 2011). These assets are said to be often undervalued in city planning processes as their benefits are difficult to convert into monetary values (*ibid*). However, attempting to value these assets in economic terms fails to notice their ability to support human life and make city environments liveable (*ibid*). According to Turok *et al.* (2011), the environmental aspect of urban resilience refers to the ability of the built systems within cities to survive environmental change and hazards, such as global warming, flooding and water scarcity. For instance, because some townships are overcrowded and located in flood plains, the response could entail designing public facilities that accommodate changing conditions, such as urbanisation pressures and current/future environmental challenges, which include erosion and flooding. Resilience supports the notion of multiplicity hence the multi-functionality and adaptability of such spaces could be reinforced to the changing needs of communities. These social facilities can be designed as quality spaces that augment the features of highly dense settlements, which already lack the built infrastructure and green spaces (as inherited from historical planning approaches).

Resilience and green infrastructure frameworks have overlapping conceptual trajectories. Some of the shared principles include diversity and multiplicity within, and connectivity of, social-ecological systems. Incorporating green infrastructure encourages multi-functionality, promotion of landscape connectivity, spatial distribution in a defined space, and accessibility of services (Mell, 2008), so as to contribute to their resilience. The integration of the green infrastructure thus improves development and use of urban spaces. Due to its quality and accessibility, green infrastructure strengthens the collective identity of communities and instils social cohesion and a sense of belonging within a community (Peters *et al.*, 2010). When people have a sense of belonging, they tend to increase their interaction with others (*ibid*). Investigating a range of projects that incorporated different types of green infrastructure to meet national indicators and other targets in the United

Kingdom (UK), May (2010) established that users tend to enjoy spaces that have integrated green infrastructure elements, and in return help to take care of them; in that way this shows a sense of ownership (Hester 2006: 364 cited in Basmajian and Coutts, 2010). When applied to cemeteries, this thinking could work in areas where community members are responsible for the upkeep of cemeteries. In areas where the local municipality takes responsibility, community members could find ways of contributing to the maintenance to improve, for instance, the ambiance of the cemetery.

In this study, the green infrastructure framework is meshed with the social-ecological resilience theory in the reconsideration of cemetery planning. The study views cemeteries as part of the green infrastructure that is able to provide social and ecological services to urban environments. This chapter employs principles of interconnected frames of green infrastructure and resilience to explore how cemetery planning can be reimagined. Some of these principles are positioned under the broad category of adaptive capacity and include adaptive governance that engages diverse actors and organisations; learning and experimentation; leadership, and the importance of having multiple functions and diverse roles, connected actors and resources and their ability to contribute towards resilience. Laws, effective planning instruments and efficient governance processes act as elements that facilitate and foster the presence of these principles. The system's self-organising and transformability properties, which determine the system's future trajectory after disruption, are also discussed.

2.8.1 Adaptive capacity

Social-ecological systems are characterised by adaptability. In a social-ecological system with high adaptability, the actors have the capacity to reorganise the system within desired states, in response to changing conditions and disturbance events (Folke *et al.*, 2005: 444). In a social-ecological system, the ability of people to build resilience through shared action describes the concept of adaptability (Walker *et al.*, 2004). A social-ecological system's susceptibility to risk and disturbance causes loss of its resilience, and this leads to loss of its adaptive capacity as well (Folke, 2006). Thus, the more adaptive capacity within a system, the greater the likelihood that the system will be resilient in the face of stress (Engle, 2011). "Adaptability in resilience implies adaptive capacity to respond within the social domain, and cope with change in an informed manner" (Folke, 2006: 262). Thus, in addressing the

interactions of slow and rapid change, it is important to understand and effectively manage the dynamic forces that drive ecosystems and the causes of social-ecological resilience. Beyond adaptive governance, adaptive capacity includes qualities of diversity, multi-functionality, spatial distribution and accessibility, and connectivity where rigid connections of institutions and a low capacity to explore alternatives impair adaptive capacity of social-ecological systems.

2.8.1.1 Adaptive governance

Adaptive capacity shows the system's ability to prepare for and adjust to stress, while facilitating the most desirable outcome (Berman *et al.*, 2012). Adaptation requires effective structures that will lessen negative impacts on the system, whilst taking advantage of opportunities that will ensue. Resilience scholars identify governance and institutions as critical variables affecting adaptive capacity (Engle, 2011). Adaptive governance looks beyond adaptive management of ecosystems as it encompasses institutions through which decisions are made through shared power and collective action (Folke *et al.*, 2005).

“Adaptive governance of ecosystems generally involves polycentric institutional arrangements, which are nested quasi-autonomous decision-making units operating at multiple scales and involve local, as well as higher, organizational levels and aim at finding a balance between decentralized and centralized control” (Folke *et al.*, 2005: 449).

Research on adaptive governance of social-ecological systems shows that the management of ecosystems and landscapes is complex to apprehend and implement and, therefore, cannot easily be subject to planning and control by a central organisation, such as a national government (Folke *et al.*, 2005: 459). However, the conditions creating the opportunities for adaptive co-management to self-organise, such as enabling legislation, flexible institutions, and recognition of bridging organisations, are good candidates for governmental actions, which can be carefully tested and evaluated. Institutional interaction across organisational levels increases the diversity of response options and can deal more appropriately with uncertainty and change. Furthermore, polycentric arrangements may be of significance in responding to ecosystem dynamics at different scales (Simonsen *et al.*, 2015). The ability to use institutions effectively, at organisational levels appropriate to the ecological scale, has

been referred to as scale-matching or institutional fit (Folke *et al.*, 2005).

Most governance perspectives have been developed as a critique of monocentric governance, through which the state is the centre of political authority and exerts control over society, the economy and resources (Termeer *et al.*, 2010). The state mostly has a three-level system (e.g. national government, provinces and municipalities), decides upon policy goals and implements them largely through top-down approaches (*ibid*). Through the hierarchical governance mechanisms, lower level governance systems are restricted by higher level governments. Adaptive governance stresses effective participation, a degree of autonomy and accountability, and forging partnerships that will think creatively about solving resource problems. Having polycentric governance means having informal governance systems, which do not have legal power, but are able to influence policy and decision-making.

Because accountability is spread across several organisational levels, “these multi-level networks can stimulate collaboration, build trust, provide information, and encourage the development of common perspectives on policy issues,” (Folke *et al.*, 2005: 449). The disadvantage with a decentralised system is that negotiation can prolong and thus delay decision-making and coordinated actions; whereas in a highly centralised system, decisions can be reached rapidly and with tight coordination. The slow and long decision processes in decentralised systems can culminate in high-quality decisions and solutions (Scheffer *et al.*, 2003). However, although collective action is essential, the many vested interests of involved parties can delay recognition of the problem and thus the processes and decisions to change the status quo. Although adaptive governance is said to be human- and institutional-centred, it is critiqued to be too decentralised and too dominated by local interests (Iverson, 2011).

[2.8.1.1.1 Self-organisation](#)

The system’s ability to self-organise creates a system’s adaptive capacity that allows it to endure and cope with fluctuations (Folke, 2006). Self-organisation implies that a system is able to return to its previous state or change to a new state and be self-sustaining even after a disruption (Nel, 2009: 25 In: Ball, 2004: 298; Ward, 2001: 86). Regime shifts between states in ecosystems increasingly result from human actions that inhibit resilience

(Gunderson, 2000). Varied stresses, such as soil erosion, increased frequency and intensity of storms, have shifted ecosystem states into less desirable ones (Folke, 2006: 257). Less desirable denotes the inability of ecosystems to provide ecosystem services for societal development (*ibid*). When all those impacts are pooled together, social-ecological systems become more susceptible to fluctuations that could have formerly had no significant impact (Folke, 2006).

“Most pre-industrial cities were not formally planned, but developed in response to the needs of the time as have western economies from pre-industrial craft-based economies to modern industrialisation” (Nel, 2009: 28). For example, informal settlements are evolving responses to the prevalent socio-economic circumstances in countries such as South Africa. It is imperative to understand that actors cannot be forced to adopt formal processes when addressing the issue of informality as one of challenges facing the urban space. However, city authorities, planners and policy-makers play the role of making societies aware of different and new prospects, propose correct guiding principles, whilst encouraging new systems and practices that improve the wellbeing of society at large (Nel, 2009). In this way social-ecological systems are understood to have the quality to potentially self-organise. Non-resilient social-ecological systems are vulnerable to external change, whereas a resilient system may even make use of disturbances as opportunities to transform into more desired states (Folke *et al.*, 2005: 459).

A system’s ability to self-organise is a consequence of adaptive processes that relate to its ability to tolerate and cope with change (Folke, 2006: 259). The dynamics after a disturbance are said to be dependent on the system’s self-organising capacity, which draws from across the temporal and spatial scales of the system in question. According to Folke (2006), this is the reason the resilience of social-ecological systems encompasses the ideas of adaptation, learning and self-organisation over and above the ability to continue functioning after a disruption.

[2.8.1.1.2 Collective capacity](#)

As mentioned earlier, cities that have the capacity to adjust to a new state after a disturbance, have actors that have an in-built and adaptable characteristic. In a social-ecological system, these imply that people have the capacity to collectively manage

resilience. Because the two concepts (resilience and adaptability) cannot be viewed in isolation, in a social-ecological system, adaptability is the collective capacity of the human actors in the system to manage resilience (Walker *et al.*, 2004). Collaborative capacity involves the ability of managers to work collectively to guarantee a functional system (Kerner and Thomas, 2014: 688). It ensures that leaders within a system either secure or possess competencies that would otherwise be too challenging if directed to an individual. The leaders ensure coordinated engagements between actors and roles for the system to function. Leaders within a system thus safeguard a shared understanding of the objectives of collaboration.

The social aspect of urban resilience looks at the capability of urban systems to integrate with outside communities and test whether diverse communities are able to interact and build trusting relationships that appreciate the creative potential of cultural diversity in multi-ethnic places (Turok *et al.*, 2011). Social sources of resilience, such as social capital (including trust and social networks), and social memory (including experience for dealing with change), are essential for the capacity of social-ecological systems to adapt to and shape change (Folke, 2006: 261).

However, concepts such as social capital have been critiqued. The biggest critique of social capital is that it does not appreciate the dynamics of power and conflict, particularly with deep social divisions and differences in society. For example, social capital favours those in powerful positions and does not consider those in lower ranks (Navarro, 2002). One of the critiques is that the concept is difficult to define (e.g. whether it is really a capital or not) and measure. It has been applied in academia and international development programmes. For instance, there are many definitions of social capital provided by various scholars in diverse fields. These definitions encompass a range of scales through which social capital is imagined to operate. These include, the private space, the group and the societal settings. To avoid confusion, it becomes important to specify which terrain one is focusing on.

Authors such as Watson (2016) bring to the fore the importance of questioning the universalising of the global-north concepts to the rest of the world. She argues that it is imperative to recognise the importance of the local context as new perspectives challenge conventional planning ideas, although some degree of generalisation will still exist. The

importance of context and place draws upon other social science concepts that deal with issues of power, social conflict, race, informality and environmental change (although these are difficult to translate into tangible outputs, particularly in resilience thinking). Even more difficult to legitimise and transform are social norms and practices, particularly when drawing on abstract concepts and theories such as resilience. Watson (2016) writes on the role of institutions and planners in shaping planning practice. However, she argues that when planning processes (e.g. collaborative communication) are inclusive and power differences between stakeholders are defused, then the outcome should be valid. Resilience thinking ideas can draw on these arguments and therefore take them further in observing the importance of celebrating diversity and thus neutralising power imbalances to reach encompassing outcomes.

2.8.1.1.3 The importance of leadership and trust

Living with change is a common and an inevitable human phenomenon, but if change becomes more rapid and wide-ranging, the adaptive capacity of livelihood systems can be overstressed (Obrist *et al.*, 2010). This idea emphasizes the need to retain flexibility in the face of unpredictable change, including in relation to the ecological systems needed to sustain development. Social capital is said to play a key function in the innovation process, where its function is featured in learning, communication and building relations based on trust and the sharing of common goals (Haynes, 2009). Trust is said to be the basis of social institutions and thus makes it easier for leaders to influence and for different networks to work together.

Leadership paves a way for effective collaboration, creativity, innovation and flexibility to shape change. Leaders possess key functions for adaptive governance, such as building trust, managing conflict, compiling and generating knowledge, and rallying support for change (Folke *et al.*, 2005: 451). Strong leadership is imperative as it implies the ability of system managers to motivate, mobilise and provide direction in response to disruptions, as well as the ability to assume responsibility and act (Kerner and Thomas, 2014: 683). Leadership is said to be foundational to the development and maintenance of all resilience attributes (*ibid*) as it shows attentiveness in achieving resilience in human-managed systems.

To survive shock, absorb it and adapt to it, sustaining and restoring natural systems is a crucial requirement. Thus, in a nutshell, a central key to adaptability is to retain the ability to function in the face of change, and to maintain the ability to cope in the face of resource scarcity and ecosystem decline. The social dimension of urban resilience therefore requires local governance structures to offer support through the provision of resources in anticipating future threats; responding positively and adapting to change through learning and innovation, and also through consultation and engagement with communities. Disturbance prompts learning and knowledge creation, and gives way to innovative management approaches, which give opportunity to further learn how to adapt to change.

2.8.1.1.4 Knowledge, learning and experimentation

Adaptive capacity shows the ability of actors within the social-ecological system to learn from past experiences, adjust their responses to changing external and internal processes, and to continue functioning. Possessing learning capacity shows the capacity to obtain, through training, experience or observation, the knowledge, skills and capabilities needed to ensure system functionality (Kerner and Thomas, 2014: 682). Learning capacity can be “supported by structured and intentional efforts as well as by unplanned and circumstantial events,” (*ibid*). Because knowledge of a system is always incomplete, resilience is facilitated through continuous learning and experimentation. Actors within social-ecological systems have the ability to learn from circumstances and challenges with which they are faced. Gunderson (2000) emphasizes the need for learning and flexibility in the social scheme of things when dealing with alternative and unclear interpretations of ecosystem change. However, a lot of gaps still need filling in order to understand the social dimension for coping with internal and external stresses in resource and ecosystem dynamics, including organisational and institutional flexibility.

Social-ecological systems are continuously developing, hence the relentless need to improve current knowledge to allow adaptation to changing circumstances and management methods. According to Biggs *et al.* (2012) learning happens at different levels, which contributes differently to enhancing resilience. Continuous learning is important to respond to the uncertainty and unpredictable change that characterise social-ecological systems. Hence, there is “a continuous need to improve existing knowledge to allow adaptation to change in social-ecological systems, as well as to retain ecosystem services during times

change,” (Biggs *et al.*, 2012: 435).

However, complete knowledge of the social-ecological systems can never be reached, hence adaptive management and adaptive governance acknowledge that change is inevitable. The two approaches promote continual learning as a vital process towards effective decision-making. “Adaptive management promotes learning by doing, through testing out alternative management approaches” (Simonsen *et al.*, 2015: 12). On the one hand, these alternative management approaches promote novelty and seek the testing and implementation of innovative theories and techniques. It is important to explore and understand how these innovative ideas are diffused and adopted through different communication channels. This understanding can be achieved through applying different frameworks; for instance, the diffusion of innovations theory that is concerned with how innovations, defined as ideas or practices that are perceived as new, are spread (Rogers, 2003).

On the other hand, learning is promoted through adaptive co-management, where knowledge is shared between diverse role players, such as between communities and policy-makers. Learning is further promoted through knowledge sharing across different scales and institutions. This strengthens organisational ideals and cross-scale collaboration. “Learning and experimentation through adaptive and collaborative management thus remain an important mechanism for building resilience in social-ecological systems,” (Simonsen *et al.*, 2015: 13). When developing solutions, learning and experimentation are vital as they acknowledge different types and sources of knowledge. This in turn shows the eagerness and preparedness to experiment and take risks (Simonsen *et al.*, 2015). Resilience thus allows adaptive capacity to facilitate a balance between sustainability and continuing development.

2.8.1.2 Diversity

The functioning and resilience of social-ecological systems depends on how diverse these systems are. One of the most important lessons in understanding social-ecological systems is through appreciating the fact that change is needed and that the state of equilibrium could mean the end of existence (Nel, 2009). As a result, a minimum level of growth and change within a city is crucial for its continuity. This has major ramifications for the manner

in which cities are managed, as attempting to view a city as a stable, orderly place disregards the fundamental processes that create and maintain it (Nel, 2009). Those could include the flows and interactions between agents (*ibid*). Seeing the city as stable would mean that authorities try to control most external aspects of the city, its form, functions (land uses), densities, connectivity and even the aesthetics (Nel, 2009: 28). This control could fail to take into consideration the rich diversity of the city and thus shift a city from its dynamic state of multiplicity to the “lifeless” state of stability (*ibid*). Thus, land use management systems must always anticipate the unexpected and be flexible to include new functions and a wider range of uses in any one area or zone.

Diversity thus implies moving away from single-service spaces with the intention of providing a broader range of benefits for a wider target population. A strategy that could be used to contribute towards resilience includes incorporating green infrastructure elements within both built environments and open spaces. Combining the built environment with the natural areas to help them efficiently respond to urban development challenges could improve their efficiency, unlike when the two are employed individually. Urban infrastructure systems, whether gray or green, are very sensitive to climate and resource demands, but can hopefully provide long-lived investments when designed with the goal of resilience in mind.

Beyond the diversification of land use, diversity also implies the diversity of actors who work collaboratively to govern social-ecological systems. “The diversity of actors, species, institutions, or management activities promotes a system’s robustness and enhances its probability to survive when facing external disturbances,” (Phi, 2011: 46). A system’s adaptive capacity is dependent on a variety of actors performing the same or overlapping functions; for instance, the diversity of institutions that help govern a system and put systems in place that help absorb disturbances, spur innovation, produce collective knowledge and reorganise.

2.8.1.3 Multi-functionality

Mell (2008) argues that multi-functionality ensures that landscapes create a better quality of life, place and environment; that multi-functional spaces can possibly lead to access to multiple economic, ecological and social benefits. In comparison with the traditional single

purpose infrastructure, green infrastructure as supported by ecosystem services provides a multiplicity of functions from the urban space it occupies (Wolf, 2003). Although introducing multi-functionality could be aimed at reducing the likelihood of contesting land-uses, in reality, some could be difficult to combine due to the socio-cultural implications they carry.

To remain efficient and robust, social-ecological systems show the capability to cater for multiple functions within them, while meeting a diversity of demands and providing many services (Palomo *et al.*, 2014). This is, however, questionable as not all functions are complementary. Hence, taking into consideration social and cultural contextualities of a system, these need to be compatible. Gray infrastructure is mono-functional whilst, due to its multi-functional nature, green infrastructure contributes to the wider environmental, social and economic context in urban settings (Naumann and McKenna, 2011a). This implies that it can contribute to a wider range of national, regional and local policies. It is important to note however, that planning and adding new functions to the already-existing built infrastructure (which could have possibly substituted natural areas and functions) could pose a spatial challenge. Regardless of the strong need to build cities' resilience, replacing the built systems with green spaces can pose a difficult challenge. Although green infrastructure should, where possible, aspire to be multi-functional, it is notable that in some cases it can be an important "mono-functional" resource (e.g. providing a refuge for wildlife to which public access is restricted) (Ahern, 2007).

Vital properties, such as diversity, efficiency, adaptability and cohesion are useful in designing systems with inherent resilience (Fiksel, 2006). Resilience supports the notion of multiplicity, hence such spaces need to be multi-functional and adaptable to the changing needs of communities (da Silva *et al.*, 2012). Introducing more functions and alternatives to the system increases its efficiency (*ibid*). Matthews and Selman (2006) argue that multi-functionality has aided the move away from single-use spaces with the intention to provide a broader range of benefits for a wider target population. Ahern (2007) further maintains that it is these benefits that are mutually reinforcing and can be enhanced by the connectivity of these assets. Mixing uses raises a very important consideration of compatibility as some functions can conflict, mostly when paired with sensitive uses, such as interment. This consideration requires that perceptions of users of an urban environment are taken into account. Being sensitive to societal cultures could improve acceptance of

efforts to mix compatible uses, bearing in mind that resistance can still occur.

2.8.1.4 Connectivity

Social-ecological systems endorse the importance of connectivity, and thus interactions and feedbacks are among the most critical features of a system (Folke *et al.*, 2005). Connectivity looks at the exchange of resources and information to ensure sustained system functioning (Kerner and Thomas, 2014: 682). In urban environments, while connectivity links green assets, features and resources in order to reduce the chance of fragmented spaces (Ahern, 2007; Ely and Pitman, 2014), built-up systems, such as roads, cause the greatest barrier to connectivity and are the primary contributor to fragmentation (Forman *et al.*, 2003). Connectivity plays the role of linking people and spaces to create functional spaces across different scales. In green infrastructure frameworks, connectivity implies the linkages between ecological, economic and social influences across different scales (Mell, 2008; 2010).

“While connectivity may help avoid system failure by allowing stresses to be spread over several systems, it may also hasten an even larger collapse as the demands of one failing system can overwhelm others from which it draws support; as such, it may be desirable to have connective links that can be decoupled, isolating threatening disturbances and preventing larger failures,” (Kerner and Thomas, 2014: 688).

Green infrastructure delivers ecosystem services across spatial boundaries at diverse landscape scales. Green spaces could potentially offer larger benefits because of the spatial diversity of accessible landscape features that offer a broader choice (Barbosa *et al.*, 2007). In ensuring that these spaces are accessible to surrounding communities, the ability of both ecological and human populations to move freely through these systems is very important. However, in contrast, one may question the sustainability of increased access.

While connectivity within groups is important, it is the links between groups that enable the flow of goods and ideas (Nel, 2009: 28). However, the magnitude of this connectivity needs to be ample enough to allow the system’s functioning and not too much that more chaos could result, or vulnerability could increase (Batty *et al.*, 2004, In: Nel, 2009). For instance, within a community, over-dependence within social networks could imply that people

cannot either stand on their own or that members of those networks are marginalised even further. Hence these networks get over-stretched and cannot cope with the stresses.

The natural and built environments are important factors that contribute to a community's resilience, which is also dependent upon relationships between members of the community, between organisations, and particularly between the local economy and the private and public sectors. Resilience of a community thus depends on the nature of relationships between various groups, such as local authorities, volunteers, community- and faith-based groups, and also intensely affects the wellbeing of the community and its ability to boost constructive social and ecological change.

2.8.2 Transformability

In resilience work, transformability is the capacity of people to create a fundamentally new social-ecological system when ecological, political, social, or economic conditions make the existing system untenable (Walker *et al.*, 2004; In Folke, 2006). If a shift into a “bad” state has occurred or is inevitable, or the current state is no longer desirable, then the only option is transformation (Walker *et al.*, 2004: 5). As a result, transformability means the capacity to transform into a different kind of system; a new way of living and making a living thereby changing the state variables, and often the scale, that define the system (*ibid*).

The resilience approach relates to a system's ability to persist through development during times of change, and how to experiment and innovate, and transform into new desirable structures (Folke, 2006: 259). In the midst of expected and unknown disturbance, there is difficulty in maintaining the resilience of a desired state, and building a capacity of transformability, should it be needed. This apprehension raises the question of how communities maintain their capability to deal with unexpected challenges. Determinants of transformability include preparedness to change; capacity to change, and options for change (Walker, 2012). Social-ecological systems have the ability to transform into states different from what they previously were by enhancing their capacity to learn to live with and shape change, and even find ways to transform into more desirable directions.

2.9 Conclusion

This chapter discussed the meaning of resilience and emergence of social-ecological resilience as it emphasizes the relationship between people and their ability to plan for

change, and the natural and built environments. In discussing these relationships, reference was made to properties of resilience, which include for instance, the social-ecological system's adaptive capacity, self-organising and transformability abilities after crisis; and the multi-functionality, diversity, connectivity of actors and spatial distribution and accessibility of resources in contributing to the urban system's general resilience. Important critiques of resilience thinking were discussed as they have an impact on the successful application of the concept in policy and practice. The chapter further recognised the conceptual relationship between resilience and green infrastructure.

The following chapter takes cemeteries as case studies. It explores cemeteries as forms of land use and their role in society. It looks at the design, management and use of cemeteries as components of the green infrastructure that potentially possess multiple and diverse functions and how these can contribute towards resilience. International trends of contemporary cemetery planning approaches are studied. Then from the international cases, the discussion draws out and highlights attributes that place cemeteries in a position to contribute to resilience.

Chapter 3: Cemeteries as forms of land use and their ability to contribute to social-ecological resilience

3.1 Introduction

Often a cemetery is the only relic left from early settlements, and as such is a critical link with the past (Uslu, 2010). Cemeteries play many roles in society, and these include religious and sacred, cultural and psychological functions. They offer the possibility of memorialising the deceased. They provide quiet places to honour and celebrate the deceased, whether it is of a most personal nature, or on a local, regional or even national scale (King *et al.*, 2004). Besides being symbolic and very highly-invested places, as they show the history of a community, cemeteries also act as the gate that connects the past and the present, and the community itself (*ibid*). An area's history contained in graves and cemeteries can potentially increase its wealth in terms of heritage and tourism (Moloi, pers. comm, 2014). The allocation of a grave to remaining family members offers a sense of ownership and the power to control what happens on that particular plot (*ibid*).

Cemeteries have physical properties that differentiate them from other places of interment. They mostly have an established perimeter in the form of a fence, a high wall or a hedge. The fencing gives the cemetery a sense of respect and dignity. It also provides privacy for the grieving as they need to be protected from inappropriate activities and behaviour, which are subject to regulations (e.g. prohibiting active sports) (Moloi, pers. comm, 2014). It is this boundary that in most cases excludes use by those who do not have loved ones buried there. However, these boundaries are commonly flouted by those who vandalise gravestones and the infrastructure found in these facilities.

According to most popular articles (e.g. SAPA, 2010; Ndlovu, 2010; Moreosele, 2011), urban cemeteries are filling up without room to expand, particularly due to diminishing land resources. This scarcity is caused by land that is environmentally unsuitable for burial, and because most of the available land is privately or provincially owned. Because they consume vast amounts of land and contest for space with other land uses, cemeteries can be designed and managed so as to contribute to urban resilience. For instance, innovative designs that are space-efficient, adaptable to growing burial needs, and sensitive to families'

grieving processes. Beyond responding to space constraints, and without increasing acreage, some of the innovative designs could focus on greening to increase the social-ecological functioning of these spaces. Having mixed uses integrated within the cemetery space ensures the adequate use of space and increases the accessibility of different services in terms of cost and time. This in turn reduces the effects of urban sprawl. Connecting these spaces with other green open spaces improves the biodiversity within them whilst also increasing their use as habitats for other species.

Because of land scarcity and contesting uses, innovative approaches to the disposal of human remains can have broader benefits, such as new methods and models that are environmentally-sensitive, are consistent with diverse cultural practices, and facilitate social cohesion. In so doing, they make the city more resilient and less susceptible to chronic stresses. The inevitable pressures on cemeteries are therefore an opportunity to nurture resilience of urban environments.

This chapter focuses on understanding cemeteries and their role in society, challenges regarding their development and planning, how they can be understood from a green infrastructure viewpoint, and how this perspective can potentially contribute towards the social-ecological resilience of urban spaces. The chapter also looks at cemeteries from a resilience perspective. That means making them accessible to users; connecting them with other urban green open spaces; and seeing them as places that could potentially provide additional uses beyond the common burial function (although sustainability advocates could argue that reaping multiple benefits is unsustainable). They could also be designed in ways that provide psychological benefits to users. Examples are given that show international trends towards new approaches to cemetery planning. These showcase models that have incorporated multiple and diversified uses within already existing cemeteries. Their ability to contribute to resilience is discussed.

3.2 Understanding cemeteries

The word cemetery is a derivative of the Latin term “sleeping space” (Uslu, 2010). Cemeteries are used for the dignified disposal of human remains in the form of a body or ashes from cremation, as guided by municipal by-laws. The reasons accompanying the establishment of cemeteries change with time. While these included concerns over hygiene

compromising the public's health, there was eventually a shift to protect and provide privacy to the deceased and those left behind (Rugg, 2000). In most of Europe, cemeteries were established for hygiene purposes and to relieve churchyards from overcrowding (Murray, 2003). They acted as spaces for the disposal of human remains, offered comfort to the mourning, and brought awareness and education to visitors about the lives of those buried there (*ibid*). Cemeteries thus provided a haven of spirituality and dignity. Further, they became spaces that reverberated the religious, socio-cultural and historical meanings of the community (Murray, 2003).

According to Gusman and Vargas (2011), cemeteries are important as they contain information about people's outlook on death, culture, religion and society. Graves are private plots where relatives mark and transform the grave into something familiar. This familiarity and the different activities (e.g. cleaning the gravestone, changing, arranging and watering flowers) give relatives comfort. In this process families might start talking to the deceased as though they were still alive. They update the deceased about the family's challenges, achievements, and even go so far as asking for protection and advice. As much as visiting the deceased's grave may give comfort to relatives, it can also be viewed as a social duty that others do not support. Some people may hold the view that communicating with the deceased does not only have to be done within a cemetery.

3.2.1 Places rich in history linking the dead and the living

Historically, cemeteries are seen as a window into the past (Salisbury, 2002). They give opportunity to connect people to the past, and due to the memories they hold, they create a strong sense of place within them (Dow and Wyche, 2009). Visiting cemeteries, specifically the graves by, for instance, family and friends, keeps connections between the living and the dead alive (Francis *et al.*, 2000). These connections give a sense of meaning to these spaces as visitors become emotionally, spiritually and culturally attached to them. In turn, these attachments could potentially lead to visitors of these spaces taking ownership and thus taking care of them (Uslu, 2010). Further, unlocking the diverse qualities of these spaces stimulates people's sense of connection and thus triggers the need to own them. However, the likelihood of this happening is limited, particularly in areas where municipalities are responsible for the upkeep.

Cemeteries are spaces that show the rich heritage of areas, spaces that can offer insight into the space of both the dead and the living, and spaces that offer a modicum of peace and serenity to those who visit them. For instance, the tombstone or plaque engravings contain details of the deceased's and particulars of those remaining behind. According to Dow and Wyche (2009), exposing people to the wealth of history found in cemeteries ignites the urgency to view them as spaces for learning. Previously, it was customary in most African cultures to bury the deceased with food, clothing, utensils and tools the deceased would need in the afterlife (Ademiluka, 2009). These items were part of the deceased's everyday life whilst still alive, and it was believed that they would need all these for their wellbeing into the future. This practice shows that in the afterlife, the dead were expected to lead the same life they had experienced on earth. Although the place of burial has always been significant, the respect shown toward the body and the method of burial too have been afforded appropriate respect (Ademiluka, 2009). For instance, treating the corpse with dignity has always been motivated by the African desire to live a good life. This, it was believed also meant the deceased would be accepted by the ancestors in the afterlife.

In the past, the deceased's social position and status could be determined from the positioning and arrangement of their body, together with the belongings with which they were buried (Ademiluka, 2009). Although this has changed with time, the information engraved on different types of gravestones remains similar. In diverse African cultures, it was believed that the more distinguished the funeral and burial ceremonies, the more acceptance the deceased would be accorded in the world of the ancestors (Ademiluka, 2009). A study conducted by Case *et al.* (2008) in South Africa analyzed funeral arrangements between 2003 and 2005, and found that Black African households spent close to a year's income for an adult's funeral. The study established that the spending was in response to social pressure to uphold the family's social status. Those who could not afford burials consistent with social expectations, were forced to borrow money to pay for funerals. This still happens and will be discussed in depth in upcoming chapters.

Ademiluka (2009) emphasizes that funeral and mourning practices show that mostly Africans (e.g. some Nigerian cultures) place a high value on human life and play an important role in the preservation of African culture and history through emphasizing the day-to-day traditional norms and practices. He further argues that ancestor veneration is

different from worship, and that instead of condemning African funeral rites, Christians should rather be afforded opportunities to “commemorate the good deeds of their ancestors”, as these rites help give Africans a sense of unity and cohesion (Ademiluka, 2009: 19).

According to Miller and Rivera (2006), cemeteries facilitate a relationship between the living and the dead, and a growing interaction through different religious and cultural activities conducted by the deceased’s families. For example, as in most African cultures, many eastern Europeans travel long distances to visit graves of the deceased (Bouchard, 2004). Some of the activities conducted during these visits include rituals performed on special days that have significance, such as Easter for Christians and rituals on the deceased’s birthdays. Different relatives and families therefore show reverence in different ways. At the same time, cemeteries reflect “a given society’s religious structures, cultural differences and social orderings, as well as the changes in these matters over time,” (Petersson, 2004: 7).

3.2.2 Religious and cultural spaces

As a type of social facility, cemeteries form a huge part of the urban environment and can be attributed to public open spaces which capture society’s history, whilst portraying interesting architectural and stimulating cultural sights (Uslu, 2010). Considering cemeteries as types of landfills has been debated since the 1950s, mainly because of the risk they pose to the environment (Fiedler *et al.*, 2012: 90), especially through underground water resources (Zychowski, 2012). Although some research has noted that cemeteries have been regarded as distinctive types of landfills (Üçisik and Rushbrook, 1998: 8), this is an unfortunate way of looking at them because to their users, these spaces offer more than just places of disposal. One important aspect is that the bereaved view cemeteries as spaces that house the deceased who will eternally play significant roles in the bereaved’s lives even though they may now be in a different form (Moonen, 2009; Coutts *et al.*, 2011).

Cemeteries represent spaces of mourning and remembrance and it is within them that various ritual mourning practices take form. For example, the erection of headstones, the placing of flowers and the burning of traditional incense at the gravesite reunites the living with the dead and shows respect and love. In her study, Woodthorpe (2010) argues that a

cemetery provides a platform (at the gravesite) for a problematic intersection between its private (grief) and public (mourning) uses. These range from the aesthetic and psychological value attached to memorialisation, to the importance of the relationship between the living and the dead, partly played out in the physical location of the deceased person's remains (*ibid*). Although graves and monuments can be of significance to families and communities, not all religions place significance on places of interment. For example, Hindus cremate their dead and therefore do not place any attachment to monuments (Christopher, 1995). Furthermore, while Muslims bury their dead, they place less emphasis on their graves when compared to Christians (*ibid*).

Mourning is a kind of resilience in that because death leaves a huge break in people's lives, mourning and related rituals help reconstruct relationships in the absence of the deceased (Cymbalista, pers. comm, 2013). Mourning also reconnects the surviving people after a gap has been left, where in some cases the deceased was the connection between family and community members (*ibid*). It has been indicated that where the community lacks a close connection with the cemetery, then that particular cemetery is prone to losing its cultural significance (Sloane, 1991; Rugg, 1998).

Cemeteries can be viewed as embodiments of personal and cultural identity and history (Hester 2006: 364). Hence users could be encouraged to take care of them in order to improve their community and surrounding landscapes, particularly when they form part of the fabric of the community. Such efforts also have the potential to bring community members together for a common cause (Harker, 2012). Burying the dead fills a place where they are buried with a sense of importance. It is this sense of significance that creates a strong bond between the community and the environment. Communities thus show the linkage and connection between the environment and death through different practices.

3.2.3 Recreational and educational spaces

Apart from the historical information they hold, cemeteries are interesting spaces that encompass both the natural and built environments. Uslu *et al.* (2009) emphasize that cemeteries can sometimes constitute organic links connecting urban areas and ecological corridors within, and in the vicinity of, urban areas; hence they constitute a very important use for urban settlements. This is a critical function to be explored later in the chapter.

Cemeteries provide valuable open space, especially in dense urban neighbourhoods (Anderson and West, 2006). In the western world, cemeteries have been noted to encourage recreational and educational use of their grounds by maintaining an extensive and well-labelled collections of plants and trees, for hikers, cyclists, photographers, and bird watchers, and by organising walking tours and outdoor events, such as music concerts (Uslu, 2010). These ideas and uses are fairly new in the African context, with the exception of some cemetery sections (heroes' acres) being used for educational purposes.

Cemeteries are places that tend to show people where they are likely to end up in the future. They can be viewed as a reminder to the living that no one is immortal and that everyone will one day die. This study therefore prefers to focus on cemeteries as places where the disposal of bodies occurs, either as bodies or remains from the cremation process.

3.3 The establishment of cemeteries

Because they contain detailed elements within them, cemeteries tend to be spaces where the living offer an expression of who they are as a society (Francaviglia, 1971). Segregation in death used to reflect real life in America (*ibid*: 506). This could be observed from Blacks occupying peripheral graves and on some occasions being denied admission into a cemetery (Francaviglia, 1971). In South Africa, death mirrors historical segregation practices. While religion determined the place of burial in the nineteenth century, race and ethnicity became the determining factors in the twentieth century, as enforced by the-then apartheid laws (Christopher, 1995). During colonial times, graves were allocated to each religious denomination within the same cemetery. It was after the advent of apartheid that different races were allocated separate cemeteries. Although cemeteries are no longer established along racial and religious lines, class seems to be the primary determinant of where families choose to bury their deceased.

According to Bennett and Davies (2015), the location of cemeteries is determined by land values, its availability and the success of required assessments. The land's spiritual value or cultural connection only comes when the space is already functioning as a burial place (*ibid*). Eventually though, people's discernments and value of cemeteries will affect how they are integrated within urban planning. Engagements with users, particularly communities,

underpin the long-term needs of this land use, whether as a unimodal interment facility, a mix of both burial and recreation or a sacred space that enables an assembly of the spiritual and cultural interpretation.

The establishment of new cemeteries and the extension of old ones can be a complex process though (Basmajian *et al.*, 2010; Dippenaar, 2014). This process can be affected by several factors, which include among others, the cost and availability of suitable land that will influence the cemetery's location; regulatory and compliance obligations concerning development and management, and public resistance and opposition (*ibid*). Although people expect to have a place to inter their dead, the difficulty lies in where these places should be located.

Investigating the surrounding environment of a proposed cemetery development leads to suitable siting and management of cemeteries, which in turn reduces their risk of pollution. Dippenaar (2014) argues that increased risk emanating from poor cemetery location is due to poor land-use planning. He further advocates that any detection of pollution should be administered by strict environmental regulations. The required investigations and geotechnical assessments leading to a cemetery development will be discussed in the upcoming sections.

3.4 Cemeteries as a unique form of land use

The current patterns and provision of social facilities and public infrastructure is influenced by a number of aspects, including historical settlement and development patterns, and current governmental philosophies (Green and Argue, 2012). Due to the distinctive role they play, cemeteries pose public issues, particularly for authorities mandated with their development and management. First and foremost, their unique and sensitive function makes cemeteries in essence eternal, unlike most other land uses (Leuta and Green, 2011). Whilst in South Africa graves can be used for secondary burial where bodies are interred on top of one another, in the UK, for example, gravesites are leased to families for 50–100 years (Basmajian and Coutts, 2010). Secondly, when built or extended, cemeteries evoke feelings of displeasure and annoyance (especially if not well-maintained), and also aggravate discomfort of nearby communities (due to a constant reminder of one's mortality). Thirdly, burial can produce both positive and negative environmental impacts (Basmajian *et al.*,

2010). Last but not least, should death rates increase in the coming years, it will be more difficult for communities to accommodate the disposal of human remains, especially if their first preference is conventional burial (*ibid*). For these reasons, a variety of options will have to be sought to allocate and manage spaces needed for disposal of human remains.

Cemeteries show what is important to cultures, and reflect larger cultural trends (Veit and Nonestied, 2008). They are thus a critical part of a community, physically and psychologically. Municipal cemeteries cover large areas in most cities (Uslu, 2010), hence there is a great deal of potential to develop the role of cemeteries as open spaces. It has been indicated that previously, cemeteries were located outside cities; however, in recent times and in some places, they have remained within urban settlement areas and have become intertwined with settled areas (Uslu *et al.*, 2009). This is different in areas where municipalities purposely choose to locate cemeteries on the urban periphery. However, in due time and with increasing urbanisation, development will continue to encroach on these.

Interesting characteristics of communities have always been visible within cemeteries. For instance, in many countries the location of burial has often been based on ethnicity, religious conviction, and societal status (Uslu, 2010). However, for municipalities, identifying a place with the most appropriate environmental and geotechnical features with the suitable size for a cemetery is the most critical issue. When defining the cemetery size, it is important to take into account the projected population growth, future death rates and the size of the land identified for development of a cemetery of an area (Uslu, 2010). However, with urgent need for places of interment, the importance of factoring some of these in the planning, can be overlooked. As the population grows the need for expanding the land available for further burial becomes a continuing challenge.

3.5 Planning of cemeteries

In South Africa, the cemetery planning and provision landscape is characterised by a diversity of challenges that imply that other land uses take preference, particularly at a strategic level. For instance, cemeteries in previously disadvantaged areas are poorly planned; they are not designed to respond to the local demand, hence they are not socially integrated within areas in which they are located (Moloi, pers. comm, 2014). The increasing pressure on urban land makes cemeteries compete spatially with other land uses. This

competition calls for identification of land uses that could be integrated within them in order to extend their function beyond burial. However, this can complicate cemetery planning processes as they would have to consider other uses that come with different dynamics. The development of new and the expansion of old cemeteries can be a contentious land use issue because of the stigma with which it is associated. The lack of support from local authorities can further strengthen the contestations between cemeteries and other land uses and make this development a difficult exercise.

3.5.1 Land use plans and zoning ordinances

Different actors have vested interests in new cemetery locations, their design and management, as well as potential future expansions. As in South Africa, the primary concern however, is that case studies that detail the process of cemetery planning and expansion are non-existent internationally (Klaufus, 2016). Hence the current South African processes follow an unplanned process.

Through land use plans and zoning regulations, local governments are able to control the location of new and the expansion of old cemeteries and their management (Basmajian and Coutts, 2010). Further, through land use plans, planners are able to project future burial demand using the community's age structure, mobility statistics, and current interment types. The plans are able to project the number of deaths, identify available burial space, and propose future burial space siting (Klaufus, 2016). Zoning ordinances help local governments to control and standardise the location of cemeteries. Planners are able to encourage that they be changed in order to make new developments and expansions more acceptable. When broader options are incorporated within existing burial places, zoning ordinances can be amended and improved to integrate the new methods. Even though municipalities in the global north are guided by land use and zoning regulations on where to locate new cemeteries and to expand the old ones (Basmajian and Coutts, 2010), these also include environmental regulations in South Africa.

Cemetery development and management are very complex, and this is mainly because these spaces are very dynamic due to their function and the deep beliefs and sentiments held towards them. Although different interest groups and institutions (e.g. planners, politicians, undertakers, and religious congregations) have vested interests in the supply and

location of new cemeteries, people are mostly concerned about what they view as basic needs. The only time they think of cemeteries is when faced with death. Hence planners of these spaces are left with a challenging task of having to prioritise the design, location and provision of cemeteries on their own. Different countries follow different processes in planning for cemeteries. It is worth looking into if and how these are followed in South Africa, with the focus on the City of Johannesburg (CoJ). These ideas will be dealt with in chapter five.

3.5.2 Environmental regulations

Cemeteries have been an ignored land use, yet they consume vast amounts of land that could be used for other land uses as well. Cemeteries have historically been located on the urban periphery in order to limit environmental and health implications (Bennett and Davies, 2015). The lower land values at the urban fringe made land acquisition for cemetery development more viable (Basmajian and Coutts, 2010). However, with time, these cemeteries have become surrounded by growing development, especially residential and supporting infrastructure (*ibid*).

Environmental regulations encourage the development of environmentally suitable cemeteries, which takes into account the land's water resources, geotechnical characteristics, soils and biodiversity (Basmajian and Coutts, 2010), whilst reducing the negative environmental impact and discouraging unnecessary consumption of land. According to Dippenaar (2014), investigations conducted before a cemetery establishment are twofold. In South Africa, these include the geotechnical aspects focused on the steadiness and workability of the landscape, and the environmental, hydrological and hygienic properties focused on the ground's potential pollution of surrounding water sources (*ibid*).

The unsystematic siting of cemeteries can no longer be practised as it poses health risks to surrounding communities. The selected site must meet certain conditions before it is developed into a functioning cemetery. This means multiple investigations and assessments are conducted to ensure that a site is suitable for a cemetery establishment. Examples of factors considered include the distance to drainage features and water abstraction points; subsoil permeability; position of water tables; stability of grave walls; ease of excavation

(Hall and Hanbury, 1990). Geological considerations include the underlying rock, groundwater conditions and surface water, soil type, structure, density, permeability and moisture content (Dippenaar, 2014: 1 108). It is also important to establish if there is any underlying bedrock and to determine the degree of weathering (Fisher, 1992).

Observed from the design of most cemeteries, careful consideration also goes into the siting of the main entrance to the cemetery. The entrance gives the cemetery a sense of arrival to a special place. The availability of a different exit also shows considerable thought has gone into easing movement in and out of the cemetery. The road infrastructure improves movement and this can be seen from the regimented road network. The main roads allow access into the cemetery from entry to departure. According to Karanja (2015), the design of all roads should allow expected traffic volumes at a speed of 24 km/hr. The primary and secondary roads, and service drives, all encompass a system that provides access to burial sections, and at times individual graves.

3.5.3 Public participation and intergovernmental coordination

In planning where future burials will happen, and adequately managing the already existing cemeteries, planners could engage the public and use intergovernmental coordination (Basmajian and Coutts, 2010). Including cemeteries within comprehensive and revitalisation plans – and in diverse community conversations – could encourage acceptance of cemeteries socially, as well as spaces that play other ecological functions. For example, this can be ensured by making burial practices part of public space provision and providing environmental conservation programmes that aim to mitigate environmental impacts while protecting fragile natural resources. The significance and acceptance of cemeteries as ecological spaces could also help boost economic development by encouraging adjacent local governments to work together to create regional burial plans that distribute costs and benefits fairly. This may be important, particularly for regional cemeteries that attract users from adjacent municipalities, who then choose to bury at these locations due to proximity. Given diminishing land resources, this becomes a challenge as the municipality runs out of burial space at a faster rate for its residents. Reaching capacity at a faster rate becomes a challenge considering that the development of cemeteries is restricted due to fiscal constraints.

Even though cemeteries do not seem to be on the priority list of required development, they occupy productive land in their physicality and hold a critical position in communities' hearts (Moloi, pers. comm, 2014). The position they hold requires that communities take part in the planning processes. In this way, communities are able to influence their design and functionality, and in turn increase their use. Engaging communities in these processes could make it easier for municipalities to integrate multiple and diverse uses within these spaces.

Integrating green elements will ensure that cemeteries contribute towards the green infrastructure of urban environments (Basmajian and Coutts, 2010; Harker, 2012). This idea will be deliberated in upcoming sections. Because of advances they have made, it would be important for South Africa to learn from western countries how they incorporate public death spaces as part of the community system. This learning should however, take into consideration South Africa's social context in order to make an important contribution.

3.6 Challenges facing cemetery planning and management

According to Lehrer (1974), the main challenge facing cemetery development is that much of the land is prime urban property. Once land has been reserved and used for burial, it is difficult to use it for something else due to the legal implications (Leuta and Green, 2011). Rezoning and required public participation processes limit the functioning of cemeteries once they have reached capacity (*ibid*). Cemeteries are also characterised by diverse problems including for instance pollution, crime, segregation in terms of religion and social class, a diverse mix of traditions, and issues of inclusion within the city boundaries. Due to the cultural connotations they encompass, the development and maintenance of cemeteries remain a public interest. However, many government systems show evidence of failure to deal strategically with this civic requirement.

3.6.1 Planning guidelines

Limited academic literature focuses on the subject and challenges of planning for efficient disposal of human remains (Basmajian and Coutts, 2010). The taboo and cultural uneasiness toward publicly discussing death and burial restrains dialogues in identifying other important functions that cemeteries could be used for. However, because mortality is certain, and disposal of the dead is an inescapable exercise unlike other land uses that are

planned for, there is need for sustainable ways to dispose of the human remains when the time comes (Basmajian *et al.*, 2010).

Many models exist and scenarios have been done that project the magnitude and scope of different development activities and their impact (Nelson, 2004). Yet not enough data and information exists about how mortality will impact land use and how municipalities should project future demands for burial space. For instance, in the United States of America (USA), no standardised information exists to guide planners to understand the magnitude and implications of future demand for cemetery space (Basmajian and Coutts, 2010: 7). The main guidelines given in the South African Cemeteries and Crematoria By-laws deal with the day-to-day running of the cemetery, standards for gravestones, activities allowed, and stipulate responsibilities of different stakeholders within cemeteries. Managing environmentally-sensitive cemeteries is quite a new approach, hence more work still lies ahead in countries like South Africa, where most research conducted relates to the potential pollution threat and impact of cemeteries on groundwater resources (Jonker and Olivier, 2012).

Development of future interment space presents diverse challenges because “planning for the disposal of the dead is often overlooked as a planning function, but the permanence of allocating land to cemetery use makes it critical to long-range land-use planning” (Coutts *et al.*, 2011: 3). Kong (1999) and Coutts *et al.* (2011) highlight that although the bulk of the work around burial spaces deals mostly with their cultural significance, places of burial are seldom studied through a spatial lens. They further point out that very little directive exists in guiding planners to come up with indicators that will help project cemetery land-use requirements.

Planning for burial is an intricate exercise with major implications as it is expected to be perpetual by most. Coutts *et al.* (2011) argue that death and cremation rates, burial of migrants and the availability of land for cemetery development are the most important factors that determine where cemeteries should be sited. However, it is imperative to also factor in future migration projections, which can be highly influenced by the area’s current and future economic status, the age structure of its inhabitants and to some extent their awareness of other modes of interment.

3.6.2 Migration and mobility projections

Undertaking future demand projections for burial spaces, seems to be difficult for planners (Coutts *et al.*, 2011: 21). Coutts *et al.* (2011) argue that projecting future needs is further made difficult by the fact that there is no guarantee that all people living and ageing in an area will die and be buried there. Due to population mobility, it is difficult to project the number and rate of death in urban areas (Zelinsky, 1971) because individuals' movement patterns differ during the course of their life. For instance, the economically-active population moves quite a lot in search of better employment opportunities and livelihoods (Coutts *et al.*, 2011). This indicates that people's movements vary, particularly at different stages in their lives.

According to Basmajian and Coutts (2010: 9), "people's movement rates fluctuate between ages five and 64, and peak between ages 18 and 30." Over the age of 65, mobility rates drop as people leave the labour force (He and Schachter, 2003). These constant levels of population movement continue to make it difficult for authorities to project future mortality and needs for burial land. This implies that predicting death and interment, particularly amongst people with high mobility could potentially lead to either over or under projections for future burial land needs. In planning for future cemeteries, "under-projections of land use needs can occur when people who do not live in one locality expect to be buried there. Over-projections occur when people who live in one location decide to be buried elsewhere," (Coutts *et al.*, 2011: 12). An existing example can be seen by people purchasing graves close to their deceased's early on in preparation for their own burial, but then being buried in a different place at a later stage. Such sustained levels of population movement have made it, and continue to make it, difficult to predict mortality and the associated capacity needed to accommodate human remains. Reassessing the projections occasionally could permit planners to capture changing trends and their influence on capacity (Coutts *et al.*, 2011: 16). These challenges can also be addressed creatively by incorporating other uses within cemeteries, as will be considered in coming sections.

Although future migration may be difficult to establish, planners can make small context-specific adjustments (Coutts *et al.*, 2011: 22). Planning therefore promotes an adequate use of resources. It is in this light that Uslu (2010: 1 044) argues that preventive planning is more sustainable than crisis planning, and that countries that are faced with the issue of land

scarcity for cemetery development could reconsider their current methods of body disposal. In projecting and planning for burial demand, it is also critical to take into consideration requirements for storage and scattering of cremains¹⁸ (Coutts *et al.*, 2011).

3.6.3 Death spaces as a contested resource

Land for cemetery development is difficult to find and once it has been developed, its management and maintenance tend to be very costly. This could be the reality of most cities in the near future. Most land uses, such as housing and other development deemed as crucial for an area's socio-economic wellbeing, compete for the already-limited land. For instance, ancestral Himba graves in Namibia were contested places between the state and the local society, where the state developmental plans dictated that a hydroelectric dam be constructed, while local society emphasized the symbolic and religious meanings of the graves as focal points of identity, expressions of relationships with the land, and features central to the practice of religious beliefs and rituals (Kong, 1999). This shows a good example of land uses competing for land where a dam is meant to address a community's social and economic challenges by overlooking the cultural and psychological needs, which could be equally important.

3.6.4 Cemeteries pose a pollution threat

According to Dippenaar (2014), cultural beliefs and needs are commonly considered at the expense of environmental implications of poorly siting a cemetery. Although cemeteries are said to pose a pollution threat to underground and aboveground water resources (Fisher, 1992; CSIR, 2000; Dippenaar, 2014), the pollution potential usually goes unnoticed. Hence, the need to conduct thorough technical evaluation. To reduce the likelihood of pollution, the CSIR recommends that as a general rule, cemeteries must be sited 30 to 50m away from boreholes for domestic use. This recommendation must however be considered alongside site-specific contexts. Jonker and Olivier (2012) acknowledge that little attention has been given to the pollution risk of cemeteries in South Africa. Although some research has been undertaken that showed that the highest contamination originated from minerals released from the remains, little attention has been paid to the harmful toxic substances released from the minerals used in making coffins.

¹⁸ Remains from cremated bodies.

Although policies on cemetery and funeral management may exist in many countries, the lack of norms and standards guiding the planning of cemeteries provokes challenges in their future development to meet the growing demand. Although many countries lack norms and standards that help govern the location of cemeteries (Fisher, 1992), most are starting to recognise the potential scale and severity of pollution these social facilities have on surrounding environments. The siting of cemeteries may have been influenced by the need to make them accessible for cultural and religious reasons. This thinking needs to shift due to the lack of knowledge and awareness surrounding their siting and the potential risks they pose.

Research has been conducted to investigate the negative impact of cemeteries on the environment. Some of the research looked at the improper location of cemeteries, and the lack of provisions against the movement and permeation of chemicals (Fisher and Croukamp, 1993). Although cremation is believed not to be as harmful to the environment when compared to conventional burial, it still releases some harmful chemicals, such as carbon monoxide and heavy metals into the atmosphere (Harker, 2012). However, cremated remains are said to be neutral and sterile, hence when buried, they cannot release any harmful elements to their surrounding environment (Platoni, 2008).

3.6.5 Location of new developments and expansion of old cemeteries

Lehrer (1974) supports the location of cemeteries within easy commuting distance for communities. However, these facilities can be regarded as a nuisance to the city, because they are large consumers of public land and at times attract crime because they are not well maintained. Most people are hesitant to reside next to them due to psychological fears they may arouse. With increasing movement into cities, municipalities are left with difficult decisions of how to use cemeteries to connect old residents (who have loved ones in the cemeteries) with newcomers – some of whom may never bury within these grounds (Lehrer, 1974).

One task believed to be more problematic than siting a newly proposed cemetery is dealing with already established cemeteries. The likelihood is that when these were first developed, they were sited on the city outskirts (Lehrer, 1974). However, with growing development, they may become part of the city's inner core (*ibid*). This may increase their value, especially

for commercial and residential use. Further, these cemeteries may face poor maintenance and may eventually be abandoned, and may thus depress the surrounding areas.

As much as cemeteries can be viewed as beneficial community amenities that deserve protection, they can also meet resistance from the public, particularly when new developments or expansion to old ones are proposed. Klaufus (2016) gives several reasons for this resistance. These include cemeteries being viewed as a constant reminder of mortality, the fear that they depreciate property values, and the belief that in their lifetime, cemeteries will continue to become a nuisance, especially given the increased traffic and noise levels in areas surrounding the cemeteries (*ibid*).

3.6.6 Budgetary constraints

Cemeteries deplete financial resources of local governments and thus operate under constrained budgets. Once they reach capacity, they can no longer raise any revenue, yet their eternal maintenance and upkeep of infrastructure continue. Insufficient budgetary surplus implies that local governments are restricted to build a capital reserve that could be directed toward maintenance of infrastructure and potential expansion of the cemetery. This applies particularly in cases where the allocated budget is shared between developing new cemeteries, expanding old ones and maintaining both active and passive ones. To be able to attain things critical for the cemetery's operations, it is important for local governments to prioritise their needs. In doing so, they need projections of future interment, land and infrastructure demand. This could take into account different alternatives consumers would be willing to accept as well.

When cemeteries run out of space, they lose the revenue that comes from new burials. Maintenance costs could be significantly reduced through factoring adaptable elements within the design of the cemetery. For instance, upfront investments in the sustainable design of roadways could involve paving fewer roads, the use of permeable elements instead of asphalt, and planting native grasses that require less mowing and reduce grounds-keeping bills (Clark, 2015).

The above challenges require that the function of cemeteries is adapted to serve the living as well. This can be achieved through innovative designs and management practices that encourage their adequate use. Planning cemeteries as an element of urban green

infrastructure increases their functionality and their ability to contribute to the social-ecological resilience of urban environments. Strategic planning and management can see cemeteries facilitate environmental preservation, economic development and competing demands for land.

The following section explores innovative ideas and principles that can be combined with the function of interment, and alternatives to burial that help address cemetery planning and management challenges.

3.7 Innovative ideas that nurture urban resilience

Resilience emphasizes multiplicity and diversity of land uses within a space, and connectivity of land uses to reduce development challenges, such as urban sprawl (da Silva *et al.*, 2012). Combining uses within cemeteries, whether those related to interment or those compatible according to people's cultural practices, and connecting them with other green open spaces improves efficiency and use. Increasing interment options, (e.g. mausoleums, crematoria) and diversifying functions (e.g. integration of other social facilities (e.g. recreation spaces)) of the space implies that the land is adequately designed to encapsulate a variety of uses and thus is efficiently utilised as communities are encouraged to do their activities within one space.

Through integrating green infrastructure, the lifespan of cemeteries can be expanded (Basmajian and Coutts, 2010). This means that once they reach capacity, and visitation to individual graves decreases, other benefits can continue being recognised. For instance, the strategic integration of green infrastructure elements within these spaces can ensure that they play ecological functions. These elements improve the appearance of cemeteries and could expand their use. It is their serenity that could potentially attract the bereaved to choose them for burial, whilst also visiting for longer than they may have previously.

Cemeteries contribute to the sustainable use of land resources through models such as the eco-cemetery or other natural burial methods, which prohibit embalming, biodegradable coffins and integration of indigenous flora and fauna instead of manicured grass. This serves as a starting point for building resilience, which extends this idea even further in several ways. For instance, cemeteries contribute to the resilience of urban spaces by building up. The idea of building up means creating vertical cemeteries that do not increase acreage;

stacking coffins in mausoleums, while addressing space constraints and urban sprawl, and building down into the earth to encourage designs that are space-efficient, adaptable to growing burial needs and sensitive to families' grieving processes. Such designs introduce methods that are not harmful to the environment whilst facilitating social cohesion. These innovative and alternative practices address the social and spiritual needs of the community, as well as environmental and practical imperatives of the City.

Because cemeteries that contain innovative designs and alternatives to traditional burial cannot be blindly replicated from other areas, it is important to understand the context of policies and other social perspectives to ensure their successful uptake. Although authorities could gain knowledge and learn from successful cases about what works and what does not, the most important undertaking is to contextualise the solutions. And it is also through experimentation that they increase their options. Not forcing users to choose one solution, and instead providing them with an array of choices, builds trust. This not only shows the municipalities' ability to learn to live with change, but it also demonstrates their willingness to transform and diversify their options towards more desirable directions.

The integration of innovation within cemeteries and burial options requires ongoing communication and coordination processes at all stages of planning. Davies and Bennett (2016) argue that solutions to cemetery planning should be underpinned by appropriate up-to-date evidence and delivered through integrated plans. And that these plans should follow inclusive processes that are reflective of past experience and incorporate consultations with users (*ibid*). The plans can be enforced, and with changing urban trends, regularly updated. Several innovative responses linked to resilience addressing diverse cemetery planning and management challenges are discussed below.

3.7.1 Integrating multiple and diversified functions require community approval

Due to land being at a premium in urban landscapes, the single-use approach to cemetery design could be abandoned in favour of the multiple-use approach, where diverse and multiple uses can be integrated within urban cemeteries. The current dominant design of cemeteries as mono-functional spaces does not encourage people who do not have loved ones buried there to use these spaces. This challenge becomes worse when the cemetery is located far from the community (Moloi, pers. comm, 2014). Although it is common to

support the placing of land uses within close proximity to residential areas, it remains questionable whether this thinking can work for cemeteries. They could serve as reminders of mortality, and therefore make people in full view of them, uncomfortable. This was established by Tudor *et al.* (2013), who identified three major problems associated with people perceiving cemeteries as incompatible with residential areas. These are urban landscape deterioration, health impacts, and management issues that raise challenges of crime and the attraction of homeless people and beggars. However, their acceptance could possibly change depending on their attractive design that could completely change the ambiance. Enhancing functionality could be seen as valuable by communities and could go a long way in changing deep-rooted cultures and beliefs, and easing the discomforts of those resisting the shift to diversify cemeteries. Hence, on top of providing diverse methods of body disposal, the sharing and clustering within cemeteries could potentially be successful.

The South African Human Settlements Planning and Design Report (commonly known as the Red Book) identified the degree of compatibility among various public facilities when related to one another (CSIR, 2000). Describing the degrees of compatibility, the Red Book showed that cemeteries have a neutral relationship with clinics, hospitals and religious centres. This means there are no obvious linkages or interrelationships among these facilities; their location together would have no benefits or disadvantages. Cemeteries were also noted as incompatible with all other social facilities, which include for instance, recreational facilities, educational facilities, administrative facilities and some cultural facilities, such as libraries and community centres (CSIR, 2000). Incompatibility implies that the facilities are unsuitable to be located close to or adjoining one another as their uses are contradictory (*ibid*). These views may be shifting as the need to integrate recreation within cemeteries seems to be changing. And perhaps this mind shift can be adopted with other land uses as well.

It is, however, important to seek the communities' approval before the diverse uses are introduced. Involving the community early on in the planning processes and allowing them a voice and also getting their buy-in in deciding which new uses to integrate within a cemetery could improve community support and therefore avoid future resistance. When communities are made aware of the opportunities that exist, only then can policy makers and planners make these a reality.

Transparency during public planning processes can help with conflict resolution, particularly during cemetery development or expansion, or when introducing alternatives to traditional burial (Coutts *et al.*, 2011: 24). Reducing the likelihood of resistance requires that the responsibility of educating communities about the benefits of increasing uses and diversity within cemeteries is not to be left with the authorities responsible for the provision of these spaces alone. Improving acceptance can start with investigating models that have successfully integrated multiplicity and diversity within spaces of interment employed in other countries. However, because of different contexts, these can be treated as a learning exercise instead of being adopted as they are. Having identified the best alternative potential, then the public's perceptions and cultural beliefs can be taken into account through design intervention in order to implement an adequately-planned burial space. The site thus becomes both a resting place for the deceased and a place for the living (Uslu, 2010: 1 052).

3.7.2 Alternatives to traditional burial

The design of a cemetery affects its capacity (Coutts *et al.*, 2011: 13). Although features such as roads, paths, and other structures used in the landscape design, which depend on the individual size and design of each cemetery, make cemeteries useable and visitable, they do however take up a significant amount of area that could have potentially been utilised for more burials (Coutts *et al.*, 2011). Although graves can be recovered after a rotation interment period, the increasing population growth and death also increase demand for new graves, and hence the need for more innovative and alternative methods to traditional burial.

3.7.2.1 Cremation

Cremation was widely practised in ancient India and was described as a purification process in which burning the body cleansed the soul, preparing it for rebirth (Prothero, 2001: 6). While the mourning culture of those who bury their dead is centred on the grave, those who opt for cremation prefer to store the remains in urns, or to have them scattered in gardens or the deceased's places of choice. According to Petersson (2004), cremation was practised by, among others, artists, writers and the cultural elite in ancient history.

Due to the land-consuming nature and negative environmental effects of traditional

cemeteries, cremation has seen steady growth in American cities (Stewart, 2008). Although cremation is understood to be greener than traditional cemeteries, it does however come with an environmental impact because it consumes a tremendous amount of energy. Because death has become highly priced, cremation is more affordable when compared to normal burial. And this is due to the high-priced extravagant funerals afforded to the deceased in some cultures. In some countries, such as the United States of America (USA), cremation has been growing gradually since 1963, and it is expected to continue to grow because people no longer need cemeteries to mourn their loved ones (Stewart, 2008). For example, there is a growing trend in social media, where interactive obituary websites provide platforms for people to grieve.

Because of the high cremation rates, the UK is said to have delayed challenges related to land shortages. Although cremation seems to be increasing, there are religions that only allow remains to be buried. While the Jewish and Muslim prohibit cremation, Hindus and Buddhists are traditionally cremated. Resistance from Christians has somehow relaxed over the years, as customs change and people are becoming more secular. For example, previously the Catholic Church prohibited cremation but this changed in the 1960s (Stewart, 2008).

For Hindu migrants in countries such as South Africa, cremation represented a significant moment where migrants would recall and reclaim their ancestral past, while the soul of the deceased was freed from the cremated body and began a journey of reincarnation (Prothero, 2001: 6). As argued by Dennie (2003: 179) “apart from Hindus, Whites make up a huge percentage of those who practise cremation in South Africa.” According to Dennie (2003), Whites were being cremated in the Hindu crematorium as early as 1923, and probably before then. Just like in most African cultures, most White South Africans previously saw cremation as a violation to the body and an obstruction to the resurrection of the dead (*ibid*) (as written in the Book of Revelation). The understanding was that the body could not be resurrected if it had been destroyed by fire. Although cremation became accepted by some Whites, other ethnic groupings showed resistance and instead continued to practise traditional burial (Dennie, 2003).

As much as White South Africans warmed to the idea of cremation, the Afrikaner

community rejected this method of disposal (Dennie, 2003). Their rejection was centred on ideals of the Dutch Reformed Church. In addition, Catholics also opposed this disposal method, arguing that Jesus Christ was buried, and he was hence able to rise from the grave. It was understood that burial would allow the resurrection of the body with the Second Coming of Christ. Cremation remained a spiritual predicament as it threatened the salvation of souls (Dennie, 2003). Furthermore, Anglicans did not oppose cremation, and based their arguments on the fact that with the Second Coming, only the soul would be resurrected. This distinction between the body and the soul legitimised the destruction of the body, since only the soul would be saved.

Over time, those open to cremation argued that this method of body disposal should be judged on its scientific advantages and financial benefits, and not on religious significance (Dennie, 2003). Cremation became more than just a question of identifying the most hygienic method of disposal; it became a spiritual choice, which,

“compelled a reflection on the meaning of death, the value of the human body, and the meaning of life itself, precisely the kinds of issues usually addressed through specific set of mourning and mortuary practices,” (Dennie, 2003: 179).

These are important debates, particularly with increasing shortages in land that require identification of alternatives to traditional burial.

3.7.2.2 Above-ground burials

It is important to note that other methods of body disposal, such as interment in mausoleums can increase capacity within a cemetery or any type of burial ground, especially if introduced to cultures and religions not in favour of methods such as cremation. Establishing above-ground interment, such as mausoleums and columbaria¹⁹ can promote an efficient use of space and thus revive a cemetery’s ability to generate revenue (Moloi, pers. comm, 2014) particularly in cemeteries where below-ground burial is impossible due to environmental unsuitability (e.g. high water tables, rocky ground, etc.). These can also be erected in cemeteries that previously allowed underground burial. Burial in these facilities had to be stopped due to changing environmental conditions such as

¹⁹ A wall where cremation remains are stored in small niches.

increased water tables as water is trapped and cannot flow down-stream. The level of water tables increases due to developments (e.g. residential and commercial) that have in time surrounded these facilities. Erecting above-ground facilities means that the space that was previously allocated to burial can still be utilised without being abandoned. Adopting this form of interment method might be easier for some because the body remains intact during disposal, unlike during cremation, where it is destroyed by flames. This method might be easier on the mind to some. Providing differing interment spaces also expands people's choices.

3.7.3 Designs that improve efficiency and use of cemeteries

If the system of cemetery planning and provision is reaching its limits in terms of land resources, the over-reliance on conventional burial over the years means that it is time to be proactive and identify other ways of interment that will not require the same land resources. These several different methods of interment mean that different cultures have a broad choice. In a way, the system is efficient because it replicates and completes the same task (human remains disposal) more effectively. In this case, efficiency allows for expansion that maximises resources. Efficiency can also be experienced if the newly-introduced alternatives are cost-efficient when compared to older methods of interment. However, the system could require and use up many resources in order to come up with diverse solutions. The system will not be as flexible as it is when few resources were used. Resilience then becomes a trade-off. This is because resilience requires that the system performs with modest resource consumption (Fiksel, 2006). Thus, finding the appropriate balance is key, and it will rarely be totally efficient or entirely resilient.

3.7.3.1 Accessibility of cemeteries to mourners

There is not much scholarly work on accessibility contributing to a viable system that enhances its resilience. Most research focuses on how service delivery enhances resilience of, for example, healthcare systems. Due to their different nature, replication of results from these could be difficult. However, it is clear that critical stresses, such as high population growth, an ageing population, growing urban unemployment, transport and access to infrastructure, are important to consider in planning for a resilient system; because of their ability to affect future use and capacities.

Diverse policies necessitate “departments to improve access to services, develop access standards for services and remove barriers that affect access,” (Green and Argue, 2012: 5). As part of the basic public facilities, and to adhere to these standards, it is very important that cemeteries are located in accessible areas (Alfa and Reza, 2012: 977). According to Moonen (2009), in most cases municipalities develop cemeteries in areas accessible by car only, hence integrating them into the urban form and fabric becomes difficult.

Proximity of a cemetery can affect its use. Salisbury (2002) notes that, psychologically, families of the deceased want loved ones to be buried closer to them. It is this closeness that will affect the funeral cost and commuting costs once the deceased has been buried. Although they can be viewed as insignificant, these costs do add to the emotional wellbeing of mourners. Because death requires an adjustment to deal with the loss and with the attendant change, the cemetery helps the family cope with the different stages of grief (Salisbury, 2002). The cemetery thus becomes an important part of the healing process, in the psychological and physical sense. Hence its proximity remains critical to the bereaved and could improve the use of cemeteries. However, locating them closer to communities depends on the availability of suitable land.

3.7.3.2 Connectivity

Besides holding a substantial spatial trajectory, cemeteries are an important part of the urban system. Designing them as part of the broader urban system, especially with a network of different public spaces, will ensure linkages facilitate complementary functions that can increase user experience, perception and movement. Planning and designing them within the context of surrounding land uses promotes the restructuring of existing spaces and increases interdependency. This can further create social cohesion and promote urban resilience and sustainability.

3.7.3.3 Increasing density within the cemetery

Because cemeteries tend to consume large tracts of land, maximising grave use is an important consideration. This is observed worldwide through grave reuse and multiple burials in one grave. According to Christopher (1995), cemeteries reach capacity rapidly due to the lower densities and an inadequate design that does not allow mixed use. He believes some elements that reduce density within South African cemeteries include decorative

gardens, hedges and trees, which were mostly included in previously affluent cemeteries. However, these can be integrated within sections that are not suitable for burying. In this way they do not consume the already insufficient space that could be used for intensive burial. And it will not be necessary to reduce the green elements because they will already be incorporated in other sections of the cemetery.

3.7.4 Designing cemeteries that function as part of the urban green infrastructure

Conventional and newer cemetery designs can improve the surrounding natural environment through advancing their ecological and social benefit. Apart from providing alternatives to conventional burial, cities could ensure that they design spaces that promote resilience and thus contribute to sustainability. For instance, if cemeteries are designed to incorporate green elements, they increase the land's capability to perform other ecological functions, such as allowing the infiltration of rain water, which slows down runoff (Alfa and Reza, 2012), which in turn reduces erosion and the likelihood of flooding. They can help address some microclimatic issues, such as reducing urban heat islands and also acting as carbon sinks depending on their size (Livesley *et al.*, 2016). The greenery will thus help contribute to cooling temperatures whilst intercepting airborne particulates.

Comprehensive design and management strategies incorporating green infrastructure elements within cemeteries can reduce the likelihood of them becoming an irritation, especially to surrounding communities. As argued by this research, these elements can provide ecological functions, which could potentially increase an urban area's green assets and also improve its aesthetics and the community's health benefits (Uslu *et al.*, 2009). For instance, trees planted over a century ago in Braamfontein Cemetery in the CoJ act as a buffer against the traffic noise from the M1 highway in Johannesburg (Marshall, 2014). The trees also provide some shade for visitors or families that are there to carry out a subsequent or second burial.

3.8 Challenges with integrating diversity and multiplicity

To ensure their sustainability, cities allow high mobility and high consumption of resources (Tudor *et al.*, 2013). Although multi-functionality and diversity are advocated within cemeteries, they too come with their own set of challenges. Despite the fact that conflicts may arise from facilities encroaching on land that has already been planned for other

services, conflicts can also arise from incompatible land uses. Being informed about the compatibility of land uses can provide a helpful guide for planners and local authorities to manage an integrated cemetery.

Fenced and patrolled cemeteries already fall prey to vandalism and other criminal activities. Increasing usage within these spaces could curtail the chances of crime. However, due to easy access, they could also increase the occurrence of illegal activities, which would probably not occur if the cemetery had security, and was closed out for uncontrolled public use. Another concern with increasing access and usability within cemeteries concerns the lack of privacy that could be experienced by those visiting graves of loved ones. Hence careful consideration of the design and the types of uses to be integrated is of utmost importance. Multiple-use and diversified cemeteries in most of the global north do not cause conflicts, as they are common. For instance, Pinnaroo Cemetery in Perth, Australia, due to its peaceful atmosphere, is used for passive recreation where people go to relax.

Although other world cities advocate for cemeteries being used alternatively as recreational spaces, this might be met with resistance, particularly in countries such as South Africa, where cemeteries are still viewed conventionally. People's perceptions therefore play a huge role in determining the use of cemeteries beyond their original function. It is important for authorities to engage with the public (those living in proximity to cemeteries and those with loved ones buried there), regarding the integration of multiple uses (and types) within these.

The public is in a better position to decide which uses would be beneficial, without impinging on their cultural and religious beliefs. For instance, if the public believes a cemetery is sacred and should be a quiet place, it would be inconsiderate to integrate active sports within it. However, such perceptions may change as the surrounding culture and beliefs change. Perceptions of the public are important as they could easily influence whether a facility is used or not. And in turn, the general environment and infrastructure could also impact on how a facility is used. For example, having benches within a cemetery could attract more passers-by to visit and spend a quiet moment, whereas a bushy area within a cemetery could deter people from visiting due to safety concerns. This indicates how vital it is to consider potential users' perceptions in the design and layout of a facility.

“There is a need for detailed case studies that explore how the design of burial grounds can be transformed to better integrate the landscapes of death and interment into present communities and research that explores how ordinances can be rewritten to permit the introduction of alternative methods of disposal,” (Basmajian and Coutts, 2010: 2).

Hence, it is important to understand whether the conceptual frames of green infrastructure and resilience can address this question. Designs that accommodate multiple and diverse uses and green spaces can increase usability by the community and simultaneously contribute to a community’s wellbeing.

While urban planners and providers of burial spaces face a growing demand for land for disposal of human remains, cities are also in need of open spaces to improve the quality of life of communities living in high-density areas. Although groundbreaking solutions are being realised, these challenges are heightened by diverse institutional practices and socio-cultural customs that could hamper their uptake. Although the uptake may be slow, diverse solutions to the wastefulness and under-utilisation of urban cemeteries are being recognised. The growing demands for urban open space could eventually realise the full potential of cemeteries and ways of making them a valuable part of the urban ecosystem. Whether modifying existing cemeteries to accommodate additional uses or adopting policies that encourage alternatives to burial, authorities will have to deal with the deeply entrenched cultural and religious beliefs and practices. Hence in a culturally diverse country like South Africa, substantial public negotiation is crucial.

The following section explores innovative international trends that have been combined with the function of interment to address different countries’ urban development challenges.

3.9 Different international systems that show how cemeteries can be resilient

Most countries worldwide locate uses that relate to human body disposal in one cemetery, whilst some have started incorporating multiple features within their cemeteries. Although most cemeteries provide services such as burial, cremation facilities, mausoleums, chapels and memorial gardens within them, some of them have started embarking on a shift towards integrating other facilities that would be deemed as unconventional within

cemeteries. In the global north, cemeteries have long been developed with the objective of emulating parks so that they improve the overall environmental quality, are serene and peaceful spaces used for worship (Uslu, 2010: 1 044). Apart from being designed to look like parks that offer passive activities, some host a rich diversity of birds and plant life and encourage bird watching, hiking, cycling and photography within their grounds (*ibid*). Due to the beautiful landscapes they possess, others even go to the extent of hosting events, such as weddings, car shows and music concerts. Although this is a new doctrine in Africa, some cemeteries can incorporate passive recreational use within them until users are comfortable with this shift.

This section presents a few international examples that show how cemeteries can contribute towards the resilience of surrounding urban spaces.

Pinnaroo Memorial Park – Perth, Australia

A good example of different, integrated uses within a cemetery is the Pinnaroo Memorial Park in Australia. Besides the different human disposal functions and memorial gardens, it has a café within its grounds, where people can enjoy coffee in a beautiful garden overlooking the cemetery after visiting the gravesites (Pinnaroo Memorial Park, <http://www.mcb.wa.gov.au/OurCemeteries/Pinnaroo.aspx>). This café is not only open to cemetery visitors but to the general public seven days a week. Moreover, Pinnaroo Memorial Park has a lounge that can be used for an after-funeral catering service. Another interesting feature of the cemetery is the freely-roaming kangaroos that visitors feed and with which they interact. Facilities within this cemetery were built using local materials, such as limestone and jarrah hardwood, and only flat plaques are allowed at the gravesites. In each grave, up to three burials are permitted and the fourth can be cremains (Pinnaroo Memorial Park, <http://www.mcb.wa.gov.au/OurCemeteries/Pinnaroo.aspx>). The cemetery's design responds to the greening and densification of innovative cemeteries.



Figures 3.1 and 3.2: 70-seat Pinnaroo Café and lounge at Pinnaroo Memorial Park
Source: Pinnaroo Memorial Park, <http://www.mcb.wa.gov.au/OurCemeteries/Pinnaroo.aspx>



Figures 3.3 and 3.4: Flat natural stone plaques and kangaroos roaming in the cemetery
Source: Pinnaroo Memorial Park, <http://www.mcb.wa.gov.au/OurCemeteries/Pinnaroo.aspx>

Spring Grove Cemetery – Ohio, United States of America

Another example is the second largest cemetery in the USA, the Spring Grove Cemetery, recognised as a National Historic Landmark (The Spring Grove Family, 2012: <http://www.springgrove.org/>). This cemetery operates as an arboretum, which attracts students, education programmes and events that cultivate public interest. It is involved in studies and projects on horticulture. In addition, due to its beautiful architecture and serene gardens, the cemetery hosts interesting and unexpected events (e.g. weddings and car shows), attracts photographers, birdwatchers, fun-walks and runs. The cemetery plays a huge role in emphasizing multiplicity, diversity and social cohesion.



Figures 3.5 and 3.6: A car show and wedding photography at the Spring Grove Cemetery
 Source: The Spring Grove Family, 2012: <http://www.springgrove.org/>

al-Suyuti cemetery – Cairo, Egypt

A very eccentric example, which shows the use of a cemetery beyond its distinct function of body disposal is the al-Suyuti cemetery in Egypt. This cemetery has mausoleums, and houses shrines of religious figures. Within the cemetery, residential areas can be found, and these include overnight stays by families who visit the deceased, and apartments for people who permanently stay within the cemetery's compounds (al-Ibrashy: Suyuti Research Project, 2011). These residents make a living from burial activities (*ibid*). This cemetery's rich architecture and urban history have attracted studies that have researched its history and documented its remains and activities that take place within it (al-Ibrashy: Suyuti Research Project, 2011).

One interesting feature is the visitors' belief that the cemetery cures certain types of disease and fulfils people's wishes. It is imperative to also note that the cemetery has been and is currently being documented in several academic works looking at the architecture of its monuments, the surrounding urban fabric and its historical development over time (al-Ibrashy: Suyuti Research Project, 2011). The studies conducted within the cemetery feed into the universal understanding of the implications of the cemetery's multi-functionality on history, art, religion and the social-economic standing of the region (*ibid*).



Figures 3.7, 3.8 and 3.9: Shrines and residential compounds at the al-Suyuti cemetery in Egypt

Source: al-Ibrashy: *Suyuti Research Project: A Getty Collaborative Project 2011*:

<http://www.suyuti.net/>

Glasnevin Cemetery – Ireland

Glasnevin Cemetery in Ireland is a non-profit organisation with all its proceeds directed towards the cemetery's upkeep (Glasnevin Trust: <http://www.glasnevintrust.ie/visit-glasnevin/botanic-gardens/>). The cemetery is recognised as a National Botanic Garden, which holds a scientific collection of flora and fauna and hosts leisure, recreational and educational activities, such as courses in gardening (*ibid*). The cemetery holds daily tours, where life stories of the buried, key historical and literary figures who helped shape Ireland's past and present are told and shared with visitors; and it is at their museum where visitors are able to learn about their genealogy and family history (Glasnevin Trust: <http://www.glasnevintrust.ie/visit-glasnevin/botanic-gardens/>). The cemetery runs a 70-seat restaurant and an online store, which sells flowers and a wide range of products including books, stationery and jewellery, all inspired by Ireland's heritage (*ibid*).



Figures 3.10 and 3.11: The botanical garden and 70-seat Tower Café

Source: Glasnevin Trust: <http://www.glasnevintrust.ie/visit-glasnevin/botanic-gardens/>



Figures: 3.12 and 3.13: The Glasnevin Museum

Source: Glasnevin Trust: <http://www.glasnevintrust.ie/visit-glasnevin/botanic-gardens/>

Other cemeteries around the globe remain tourist-attraction spaces that have visitors' centres or exhibition spaces, or host ticketed tours and allow picnics, hiking, cycling, theatre and orchestral performances within their grounds. Cemeteries have also been viewed as tourist destinations in developed countries; however, this thought-provoking trend of setting up restaurants and retail stores within cemetery compounds is relatively new, but is growing. This not only increases the accessibility of burial spaces as public spaces, but also improves the physical connection between the living and non-living.

3.10 Conclusion

This chapter began with giving a brief overview of the historical establishment of cemeteries, and explaining the different purposes and functions these spaces provide. Further, cemeteries were studied as a unique form of land use. Some of the challenges that restrain the efficient planning and management of cemeteries were explored. It is important to consider the relative permanence of cemeteries, given the identified cemetery planning challenges in the midst of shrinking land resources.

The chapter identified and discussed some of the innovative responses to the discussed cemetery planning challenges. These innovative ideas are meant to make cemeteries a valuable part of the urban environment. Hence there is a shift towards integrating green infrastructure elements within these spaces. This integration allows the roles of the built and natural infrastructure to be complementary. The green elements also help in maintaining a dignified environment. This environment dignifies the cemetery landscape. Also, the accessibility of cemeteries – like other basic services – has been identified as a

requirement for sustainable and resilient urban spaces. This reduces the chances of people travelling long distances to access interment places. Hence the requirement to plan for cemeteries in relation to the surrounding context. The chapter showed that connecting cemeteries to other public open spaces has an overarching benefit reaped by both nature and humans. Apart from the rich biodiversity from these connected spaces, species living within these spaces also thrive. It is this richness that leads to sustainable ecosystem services that human beings are able to depend and survive on.

Innovation is cultivated when the growing land scarcity grows, and people are forced to adopt novel interment practices. The most common alternative to burial is cremation. And although it seems to be growing, this growth is happening at a relatively slow rate because of the fears instilled by most people's cultural beliefs. Slow shifts in cultural beliefs imply that the uptake of cremation will also be very slow. Inability for users to adopt cremation thus calls for more options, such as mausoleums. These can be erected in both spaces that are environmentally suitable for cemetery development and those that are not, thus giving municipalities the opportunity to fully utilise space that would have otherwise been abandoned. The strategic planning of cemeteries can also lead to adequate use of space. For instance, giving allowance for increased density and compactness means that additional space is available for more graves.

Furthermore, although the sustainable land use of cemeteries has become a pressing need, the requirement for their physicality could diminish due to the use of digital spaces for memorialisation. The chapter examined some principles that could be essential for the founding of resilient cemeteries, particularly in the event of cities finding strategies that will mitigate, for instance, the depletion of land resources directed toward the provision of burial space. The chapter concluded by exploring international examples that show how cemeteries can contribute to the social-ecological resilience of urban environments.

Chapter 4: Research methodology

4.1 Introduction

This study was aimed at establishing diverse stakeholders' perceptions of old and current approaches to cemetery planning and provision; their views and willingness to adopt alternatives to conventional burial, and, using Waterval Cemetery as a case, evaluating which resilience principles have been incorporated in its design and management practices. The intent of the study was to also determine barriers that could potentially constrain the uptake of new cemetery planning and interment approaches. This chapter explains the different techniques used in addressing the above objectives. Its purpose is to discuss the research design, which describes the design of questions and research instruments used in collecting the data, justify the selection of instruments used, delimit the population and sample selection, and discuss the techniques used for the analysis. All these will give a narrative of the overall approach used to address the research question.

The chapter also gives an overview of methods followed for the Diepsloot Memorial Park (DMP) study. The study investigated community members' perceptions toward the memorial park's design and management systems and uses, and further explored the general public's view of newer cemetery designs, especially those that have incorporated recreation within the function of burial. This chapter offers insight into the research methods and design for this research.

4.2 Research design

This study employed qualitative research methods by exploring participants' experiences in the urban social-ecological system. It was guided by explicit methodological principles for defining problems and collating, analysing and reporting evidence systematically so as to make sense of the diverse views. These include, for example, rigorous data collection and analysis; employing a qualitative approach (e.g. case study), and ethical practices (Creswell, 2007). Qualitative research methods refer to a range of "data collection and analytic techniques which seek to discover how the social world is interpreted, understood, experienced, produced or constituted," (Steinhauser and Barroso, 2009: 725). These techniques use words rather than numbers to describe findings, assuming a dynamic reality,

and emphasizing seeing the world through the eyes of another (*ibid*). The primary investigator thus becomes the primary instrument of data collection.

Although qualitative research methods have been accused of being soft and highly subject to researcher bias and lacking in generalisability, the instruments used, data collected and rigorous methods of analysis, improve the quality of the research. The purpose of qualitative research methods is to expand conceptual understanding and explain the phenomenon of interest. The goal is therefore not to count frequency, but rather to achieve comprehensiveness through “sampling participants from various settings, roles, experience and outcomes,” (Steinhauser and Barroso, 2009: 727). Instead of a predetermined sample size, qualitative data collection continues until saturation is reached and no new information is emerging. In this case, saturation point was reached once participants’ responses were similar.

Qualitative data could be categorised into four basic types of information. These include observations, interviews, documents and audiovisual materials. This data can be collected through different approaches. For example, a case study is an empirical investigation used in research to comprehensively explore a current occurrence within its real-life context (Yin, 2009). As indicated by Poteete *et al.* (2010), a case study method can make a significant contribution to the understanding of complex relationships, such as interactions between people and the environment. According to Yin (1993) there are three types of case studies and these are exploratory, explanatory and descriptive. In addition to those, Stake (1995) identified three more – intrinsic, instrumental and collective. Importantly, case studies are mostly selective, and focus on one or two issues that are essential to understanding the system being studied.

This study was exploratory in nature. Instead of using existing data, primary data was collected. It was exploratory, in the sense that it aimed at contributing to new knowledge, and confirmatory in that it helped answer the research question through empirical evidence. Case studies are a valuable way to undertake exploratory research (Poteete *et al.*, 2010) and investigate “how” and “why” research questions (Yin, 2009). While they require a great deal of time to ensure exhaustive analysis, short, intensive engagements can be effective in accumulating sufficient data for analysis to gain theoretical insight (Duminy *et*

al., 2014). Case study research has been criticised for several reasons including that it is impossible to generalise from a single case hence it is sometimes asserted that case studies must be used in the exploratory stages of research (Flyvbjerg, 2006). Proponents of case study research disagree with this viewpoint as they argue this type of research is known for its usefulness in developing new understanding and knowledge, particularly in the context of novel institutional arrangements and understudied organisations (Mukhija, 2010: 418).

According to Creswell (2007), qualitative research is important because it gives detailed insight into complex issues through talking directly to people and allowing them to share their stories, as guided by existing literature. Thus a single case can illuminate an issue so as to learn something new through formal generalisation. Although sometimes knowledge cannot be generalised, that does not deter it from “entering into the collective process of knowledge accumulation in a given field or in society,” (Flyvbjerg, 2006: 228). Creswell (2007) further shows that through qualitative research, individuals are empowered, as it diminishes the power relationships that often exist between a researcher and study participants. Qualitative research is also conducted when the theory employed does not adequately address the intricacies of the subject under study (Creswell, 2007: 40).

As the description of the case evolves, the data collection process can include detailing the case’s history, the narrative of occurrences or even an interpretation of the case’s daily activities (Creswell, 2007). After this detailed description, the researcher might identify and analyse key issues, so as to concentrate on understanding the complexity of the case. Where multiple cases are studied, a logical strategy is finding issues within each case, and then examining a common thread that cuts across the cases (Yin, 2003). This process ends in an exhaustive analysis enriched by the case’s contextual setting (Merriam, 1988; Yin, 2003). A site is chosen as a case study with clear boundaries, such as Waterval Cemetery in this study. Hence it is important for the researcher to have contextual material available to describe the setting for the case.

Using a matrix allows a display of complex and rich information gathered from the case (Creswell, 2007). The information sources for this study are presented in a matrix to show the multiple forms of data collection, subsequently appreciating the complexity of the selected case (See Table 4.1).

Table 4.1: Sources of information collected to provide an in-depth understanding of the Waterval Cemetery case

Organization interviews	In-depth interviews	Focus groups	Observation	Audio-visual materials
Johannesburg City Parks and Zoo (JCPZ)	Local Ward Councillors	Traditional healers	Cemetery appearance and maintenance	Photographs
Gauteng Department of Agriculture and Rural Development	Church leaders	Youth group (with a religious affiliation)	Use	Spatial maps
South African Local Government Association (SALGA)	Funeral undertakers	Youth group (non-denominational)	Green elements	
Commission for the Promotion and Protection of the Rights of Cultural, Religious and Linguistic Communities (CRL Commission)	Community members	Rastafarians	Infrastructure/amenities	
South African Police Service (SAPS)	Two representatives from two police stations		Proximity to users and the likelihood of criminal activities	

Figure 4.1 shows the data collection cycle. Selecting Waterval Cemetery as a case gave an understanding of decisions and elements that were integrated in the cemetery design, which made it different from other older cemeteries, and the implications of choosing such designs. Waterval Cemetery was visited at different intervals to observe its use and to take photographs that would depict and document its upkeep.

Semi-structured interviews were conducted to allow for in-depth engagements, which resulted in comprehensive responses from participants (see figure 4.2 for diverse stakeholders engaged). These took place from April to December 2014, with multiple stakeholders either as key respondents, some of which included organisations that have conducted research pertaining to cemetery planning and provisioning, either from a policy or a human rights perspective. Semi-structured interviews were also conducted with diverse

cemetery users (e.g. church leaders, funeral undertakers, households). Focus groups were conducted to draw upon respondents' perceptions, attitudes, feelings, beliefs, and experiences (Robinson, 1999), and due to the study's sensitive nature, the members were able to share their experiences while supporting one another. The numbers of interviewees will be discussed in later sections.

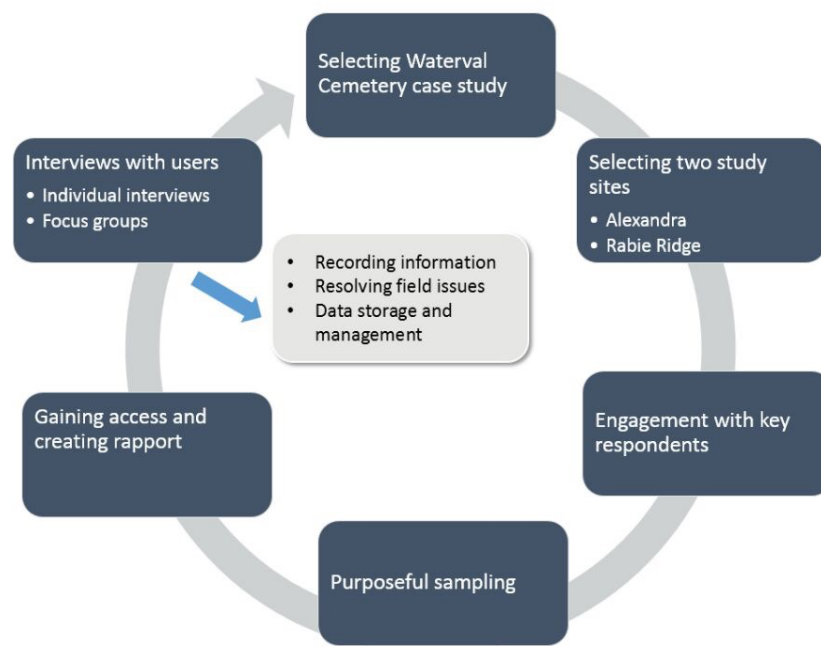


Figure 4.1: Data collection cycle

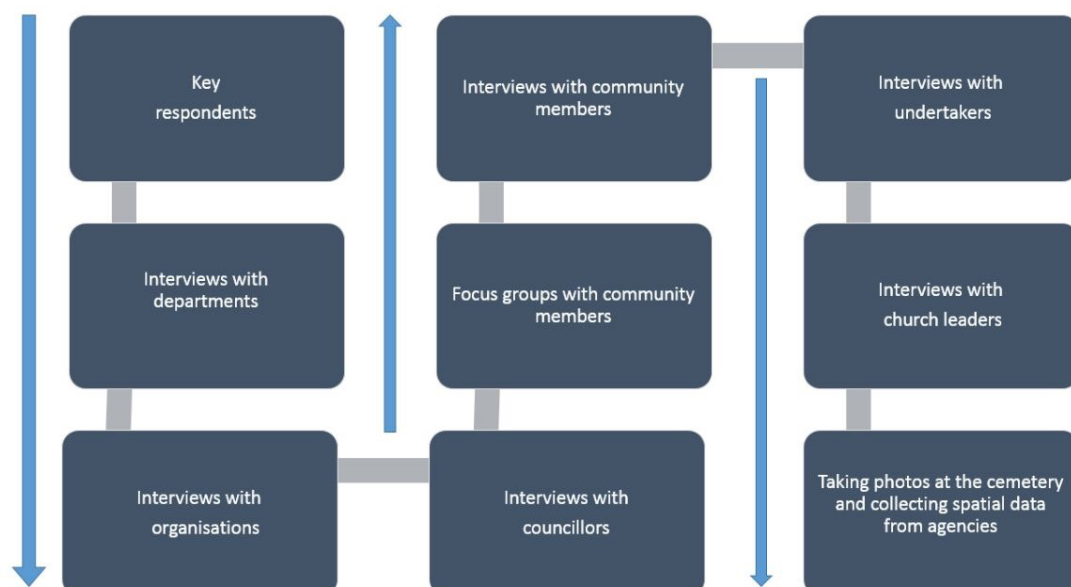


Figure 4.2: Data collection activities

4.3 Procedures

Questions were designed using themes that were deemed relevant, some of which were developed from resilience and green infrastructure frameworks. These were then reviewed and amended before the fieldwork commenced. During the fieldwork, more questions were posed to participants as the need arose, and as more noteworthy discussions developed. A list of questions can be found in Appendix E.

The data collection process started with locating sites to study (Figure 4.1). Waterval Cemetery was chosen because it shows one of the City's latest, forward-thinking endeavours towards integrating green infrastructure practices within the design and management of cemeteries. Of the 35 cemeteries falling within the jurisdiction of the City of Johannesburg (CoJ), only nine are operational and still used for burial, as they have not reached full capacity. Of those nine, Waterval Cemetery was selected as a case due to being one of the most recent and innovative establishments. Due to the previous unequal distribution of green space in the CoJ, Waterval Cemetery makes for a valuable case because it responds to the unequal distribution of green spaces between the affluent and the previously disadvantaged people. Communities selected for investigation, which make use of Waterval Cemetery, are those in the low-income bracket and include Alexandra and Rabie Ridge.

These were selected given their size and historical marginalisation. There are many spatial disparities between these previously-disadvantaged townships and the affluent northern suburbs. And the social practices between the two divides show a picture of which innovative interventions the different communities are open to. While Alexandra is characterised mostly by Black Africans, Rabie Ridge is home to a predominantly Coloured population. A large number of participants from these communities are Christians, some of whom still follow traditional practices. Only a few are Muslims. Although in the CoJ there are many more religions that could make a significant contribution to this research, the study focused on religions predominantly found in these townships. It was important to access households that had experienced death in the last five years. The five-year perimeter was chosen because their loss was not too recent, but their memories of funeral preparations and visits to the cemetery would still be sufficiently vivid. Due to the sensitivity of the study, and the likelihood of struggling to find participants, a snowball sampling

technique was employed. In the case of community participants, church leaders approached members of their congregations who had lost loved ones in the last five years. The church leaders introduced the study to the members and asked for volunteers. Church leaders were contacted after several days in order to collect contact information of potential participants.

All interviews lasted between forty minutes to over an hour and a half, whilst focus groups were between an hour and a half and two hours. Notes were taken during all interviews and focus groups, and almost all engagements were audio-recorded. At the end of each interview, respondents were again asked if they had any questions. After each interview, the experience of the interview, the general tone of the discussion, and key themes that emerged were documented. Authors such as Longhurst (2010) view this as a form of data analysis in itself. Notes about the experience in the lengthy process of finding and inviting respondents to be part of the study, and convincing church elders to allow interviews to be conducted with their congregants, were also taken. Transcribing the discussions was in itself an opportunity to engage with the data and to fully understand the different dynamics, which could have been missed during the conversations.

4.4 Research methodology

This section is centred on the different research instruments utilised to collect data and challenges experienced during the fieldwork. It explains the sample selection and describes the techniques used in analysing the data. It is divided into five phases. These include: engagements with key informants and departments involved in the planning, provisioning and managing of cemeteries; interviews with organisations advocating for the provision and use of cemeteries as a policy and a human right; interviews with and investigator-administered questionnaires distributed to cemetery users; direct observations and photography, and the spatial mapping exercises.

4.4.1 Research instruments

The interview is used to inquire into ideas and perceptions of interviewees about the phenomenon being researched (Hofstee, 2006). Interviews conducted to source information from participants were semi-structured. This approach ensures that the same structure is followed when collecting information from different subjects (Hofstee, 2006). Unlike a more conversational style, the structure offers some focus and flexibility of probing for more

information. The significant point about semi-structured interviews is that although the informant can have some predetermined order of questions, they allow both the interviewer and interviewee some flexibility to probe for details as thought-provoking facts arise (Harrell and Bradley, 2009). Hence the method of interviewing followed allowed open responses from participants.

Semi-structured interviews were conducted to encourage two-way communication between the researcher and study participants (Harrell and Bradley, 2009). Although asking follow-up questions can help enrich the data, it is time-consuming and creates complexity with data analysis (*ibid*). Semi-structured interviews were chosen because they gave an opportunity to create a comfortable environment for an interviewee to be open about the topic at hand. The interviewer also had the chance to ask follow-up questions for clarification.

According to Noland (2012), sensitive studies involve research topics that participants may feel uncomfortable discussing. These may include topics viewed as taboo in society, for instance, topics loaded with feelings of guilt, grief, and those that are experienced in people's private spaces. Dickinson-Swift *et al.* (2008) argue that some areas of personal life may be more emotional, than private. These would include for instance, research that investigates death-related topics, which would be emotionally challenging for both the participants and the researcher. Most published work that focuses on death-related matters and the impact of cemeteries seems to focus on the archaeological, spatial and environmental implications of these spaces. It is hoped that the wide-ranging research instruments used in data collection and analysis employed in this study will contribute toward a methodology that can be used in future sensitive studies.

Table 4.2 below shows a breakdown of the research instruments employed in collecting data for the study. In total, sixty-three semi-structured interviews were held.

Table 4.2: Research instruments used to collect qualitative data

Research instruments	Group	Number of participants
WATERVAL CEMETERY		
Key respondent interviews	Johannesburg City Parks and Zoo (JCPZ)	4

	Newtown Landscape Architects (NLA) Architects (representative developers)	1
	Gauteng Department of Agriculture and Rural Development	1
	South African Local Government Association (SALGA)	1
	Cultural, Religious and Linguistic (CRL) Commission	1
	South African Police Service (SAPS)	2
Community interviews	Local ward Councillors	2
	Church leaders	13
	Funeral undertakers	7
	Households	31
Focus groups	Traditional healers	5
	Youth (no religious denomination)	5
	Youth (religious denomination)	5
	Rastafarians	3

4.4.1.1 Phase A – Key respondent interviews with City of Johannesburg departments and their consultants

Four interviews were conducted with officials from the Johannesburg City Parks and Zoo (JCPZ), the entity responsible for the planning, provisioning and management of cemeteries. The JCPZ is responsible for development and maintenance of open spaces, cemeteries and conserved areas in the CoJ. These officials represented Technical Support and Training, Cemeteries and Crematoria Department, the Capital Infrastructure Development Department (CIDD) and the Environmental Protection Department. CIDD is a sub-branch to the operations department of the JCPZ, and is mandated with the planning and development of capital infrastructure projects for parks, cemeteries, nurseries and the

Johannesburg Zoo. CIDD is also required to study burial trends to help determine the demand for future cemetery development. The Environmental Protection Department is responsible for reviewing internal and external Environmental Impact Assessments (EIAs) and approval of site developments. These officials were interviewed separately to understand systems and processes that led to the development of cemeteries, and Waterval Cemetery in particular; to establish their perceptions of old and newer approaches to cemetery design, provision and management, and to determine institutional barriers that constrain the development of cemeteries that could contribute to urban resilience, and those that limit the uptake of alternatives to conventional burial.

Interviews with the officials were also intended to establish how cemeteries are financed, how this affects their provisioning, as well as what other processes underpin the way they are provided. The interviews examined what the City's plans were regarding existing cemeteries, in terms of integrating resilience principles within them; to realise what options of interment were offered at Waterval Cemetery; to discover what potential uses the City could integrate into existing and future cemeteries, and to ascertain the potential institutional barriers that constrained rethinking the provision and management of cemeteries.

An official that directly deals with managing Waterval Cemetery was interviewed to find out whether there was potential for these spaces to be used beyond their current distinctive function of interment. He was interviewed so as to determine why the City had opted to provide cemeteries at a regional instead of a local scale, and to establish why cemeteries that do not conform to resilience ideas are dominant in the city. The interview further established whether illegal burials were a reality, how significant they are in the city, and how they are being addressed. Furthermore, the research explored if and how current cemetery design and management practices influenced causes of criminal activities, and also how perceptions of crime influenced the design and management of cemeteries. The researcher explored the implications of the cemetery's design on its use. In doing so, it was imperative to know whether the JCPZ involved other stakeholders, such as religious groups, communities and funeral parlours in the planning, designing and running of cemeteries. In the midst of varied cemetery planning challenges, such as diminishing land for future cemetery development, it was essential to understand what factors influenced the provision

of cemeteries. A list of guiding questions the researcher asked the City can be found in Appendix C.

The initial plan was to interview key city departments that could potentially have a stake in the planning of current and newer cemeteries. And those would be structures whose operations directly or indirectly affect those of the JCPZ and the Department of Environmental Planning and Management. However, discussions with the JCPZ proved that there would be no need to request these departments to participate in the study because they are not involved in the planning and management of cemeteries in the CoJ. These departments included the Johannesburg Roads Agency, and the Departments of Health, Environmental and Water Affairs.

The Department of Environmental Planning and Management is responsible for policy and strategy on the planning and management of green resources, and has to oversee that the JCPZ observes the formulated sustainable development strategies. It was important to interview a representative from the department so as to understand its role in the planning and management of cemeteries, and Waterval Cemetery in particular, and their view of newer approaches towards cemetery provision (as they relate to policy and the department's mandate). From this interview, the researcher aimed to get an understanding of whether cemeteries are included in the City's long-term planning; how cemeteries are conceptualised and managed in the city; what features of urbanisation are factored into this process, and whether and how concepts such as resilience and green infrastructure influence the provision and management of cemeteries.

An interview was conducted with the Environmental Quality Specialist from the Gauteng Department of Agriculture and Rural Development (GDARD), which ensures that environmental and atmospheric standards are adhered to during development and operation of any place of interment in the city. The aim was to understand GDARD's role in the planning and operation of cemeteries, and to establish how it ensures that the JCPZ adheres to the correct standards. As part of the key informants, an architect who formed part of the team of developers who developed Waterval, was interviewed. Employed as landscape architects, his firm was responsible for overseeing the environmental compliance at the site. In his twenty years' experience developing cemeteries, Waterval Cemetery was

the biggest cemetery development the representative had worked on. This interview was conducted to establish the firm's involvement, and processes and decisions that went into the development of Waterval Cemetery.

4.4.1.2 Phase B – Interviews with key respondents that have a stake in cemetery planning and policy

The initial plan was to interview representatives from the National Department of Traditional Affairs (DTA) and from the Gauteng Provincial Cooperative Governance and Traditional Affairs Department (GPCoGTA). The DTA is mandated with facilitating communication with stakeholders that own land (e.g. privately or at provincial), with the aim that this communication will lead to the release of land to municipalities for purposes such as the development of cemeteries. The GPCoGTA has a role of coordinating and supporting the cultural and religious communities in the exercise of their rights to freedom of religion, belief and culture at the community level. The provincial CoGTA departments are mandated with implementing and monitoring traditional affairs programmes, policies, and frameworks, as provided for by their provincial legislation in line with national legislation²⁰. However, as the data collection processes progressed, the researcher established that the most relevant organisations to interview were the South African Local Government Association (SALGA), the Cultural, Religious and Linguistic (CRL) Commission, and the Traditional Leaders of South Africa as they were more accessible and dealt directly with the issues addressed in the study.

The official from SALGA was interviewed to determine the implications of the shortage of cemetery planning policy, and to get an understanding of the results of the previous studies the organisation had conducted that investigated challenges of cemetery planning in South African municipalities. She was in a position to discuss the research the organisation had undertaken as it relates to challenges of cemetery planning in urban municipalities, and how it viewed solutions to these.

The CRL Commission and the Traditional Leaders of South Africa emphasized the need to acquire more land for traditional burial in order to prevent violation of individuals' constitutional right to observe cultural practices and rituals. The CRL Commission advocates

²⁰ Department of Traditional Affairs. General functions for Traditional Affairs, p. 14. <http://www.info.gov.za/aboutgovt/tradlead.htm>

for people's cultural, religious and linguistic rights. It was important to get the views of this institution as it has in the past engaged on issues surrounding people's interment choice as a right to practice their cultural beliefs. Hence, a representative from the Commission was interviewed to understand the Commission's role in the provisioning of cemeteries; whether communities' needs for burial land were met, and their views on the promotion of alternatives to traditional ways of body disposal. A list of guiding questions asked to these groups can be found in Appendix E.

Two officials from the SAPS were interviewed to understand crime occurrences; their perception of security; safety issues of old versus newer cemeteries; the existence of illegal cemeteries, and whether and how perceptions of crime influenced the design and management of cemeteries.

These included a Captain based at Sebenza Police Station, situated in Edenvale, northeast of Johannesburg, and a Colonel from Bramley Police Station, responsible for cemeteries in Alexandra. Waterval Cemetery falls under the jurisdiction of the Sebenza Police Station. Interviews with the SAPS representatives were aimed at finding out whether illegal cemeteries were existent in the city; their magnitude, and how these were being addressed. Allegedly, significant crime activities occur in cemeteries. The research thus explored how the current and future design and management of these spaces could potentially influence the causes and frequency of these criminal activities and communities' sense of safety when in these spaces.

4.4.1.3 Phase C – Interviews with cemetery users

The third phase of research involved identifying and questioning users of Waterval Cemetery. Standardised, semi-structured interviews were conducted with ward councillors, church leaders, funeral undertakers and households from the selected communities. The interviews were standardised so that they would enable the interviewing process to move swiftly, and to ease the analysis process.

Local ward councillors were used to gain entry into the communities. They were approached first, as gatekeepers within Alexandra and Rabie Ridge. Engagements included introducing the study and alerting them that more meetings would be held with community members in both localities. They were interviewed to establish their views on cemetery planning

challenges, keeping in mind that as political leaders, they were aware of challenges facing communities on the ground. Therefore, they acted as mediators between government and the people. Some of the biases could be minimized, though not entirely removed. To do so, multiple sources were identified for participants. Apart from the local ward councillors, representatives from different religious groupings were also asked to nominate potential participants for individual interviews. By contrast youth organisations and the Traditional Healers Organisation were approached to help identify participants for focus groups. Following engagements with local ward councillors, church leaders, funeral undertakers and community members were interviewed to find out their perceptions of Waterval Cemetery as a newer way of cemetery provision and management; perceptions of alternatives to conventional burial and whether they are in line with the communities' cultural and religious beliefs; the openness to having more uses integrated in the already existing cemeteries, and what they saw as potential social and institutional barriers to the uptake of the new approaches.

Representatives from different religious groups were interviewed. These religious groups included the Muslim Judicial Council²¹ and other affiliations under the South African Council of Churches²², which also helped to identify more groups at the community level. In total, thirteen leaders from diverse churches were engaged. The researcher aimed to find out from them whether their members' needs for interment space were being met, and what alternatives to conventional burial they would opt for in the midst of diminishing land resources for cemetery development. Seven leaders of churches in Alexandra, and five in Rabie Ridge, participated in the study. A list showing different types of churches was drawn to select a denomination from each type (for example, mainline²³, Pentecostal, non-Trinitarian, charismatic and African Initiated/Indigenous Churches – AICs²⁴).

²¹ "The Muslim Judicial Council (S.A) [MJC] is a non-profit organisation (NPO) or a faith-based organisation (FBO), which was established in 1945" http://www.mjc.org.za/index.php?option=com_content&view=article&id=104&Itemid=21.

²² "The SACC works for the moral reconstruction in South Africa, focusing on issues of justice, reconciliation, integrity of creation and the eradication of poverty and contributing towards the empowerment of all who are spiritually, socially and economically marginalised," <http://www.sacc.org.za/>.

²³ In this study, mainline churches refer to older churches, which stem from Historic Churches of the West (e.g. Catholic, Anglican, Presbyterian, Methodist, Baptist Churches, etc.) (Ayegboyin and Ishola, 1997).

²⁴ AICs were founded in Africa by Africans and primarily for Africans, and are independent from Mission control (e.g. Ethiopian, Zionist, Pentecostal, etc.) (Ayegboyin and Ishola, 1997). According to Oosthuizen, in 2000 there were over 6 000 denominations classified as AICs, with approximately 11 million members in South Africa, and thus representing 30% of the total African population, and 40% of its total Christian community. However, it is highly likely that these numbers have significantly grown since then. According to the South African Bible Believers website (2008), the Zionist Christian Church is the largest AIC in South Africa.

The initial plan was to engage with a mosque in the Midrand area, where most Muslims from Rabie Ridge would attend worship prayers. However, after visiting the mosque, it was established that it was run by foreigners who did not have relationships with local worshippers and could not recommend participants for the study. The mosque keepers then recommended that an Islam organisation that performs burial rites and conducts burials for both local and foreign Muslims be visited instead. The organisation was interviewed as both a faith institution and a funeral home.

A leader from each church or organisation was interviewed in a meeting that lasted between one and a half hours to over two hours. At the end of each interview the leaders were asked to recommend households that had experienced death in the last five years. In most cases, the leaders asked for time (usually two weekends in a row) in order to introduce the study to their respective congregations and only after this would they ask people to volunteer. When contact was next made with them, they would either forward the contact details of households that had agreed to take part in the study, or they would decline on behalf of the congregants. Four leaders refused to recommend households that would participate in the study. Their reasons were that the study was too sensitive and that the church was in support of helping families heal and that instead, the study would evoke painful memories that should rather be forgotten. Churches that declined include one mainline, one Pentecostal and two African-Initiated. This drawback increased time spent in the field. The snowball sampling technique was employed with households that had agreed to participate in the study (this will be discussed in the section on community interviews).

From the beginning, the plan was to interview a branch of the largest African Initiated Church in South Africa in either of the communities. However, invitations were repeatedly declined. Although four requests were made in Alexandra, the church elders made promises, which were followed by endless excuses. Upon failure of engaging the AIC elders, the researcher approached two other branches, one in Soweto and another in the Johannesburg CBD. These attempts were also unsuccessful. Because this church has the largest following in South Africa, it was important to establish the church's perceptions of the old and newer ways of cemetery planning and to determine its views, openness to

alternatives to conventional burial and potential constraints thereof.

Following engagements with churches, interviews were then conducted with seven funeral undertakers servicing the selected communities under study. The main reason was that they had been working with these communities for a while, and thus were exposed to different beliefs and practices, and the different uses within Waterval Cemetery. The objective was to establish their role in cemetery development, management and use, considering that they are both users of cemeteries, and providers of burial services used within these spaces.

Lists of operating funeral parlours were drawn and a selection was made following three criteria. Firstly, the goal was to find the longest-operating parlours; secondly, they had to be one of the most popular nationally, and thirdly locally owned. Two of the six parlours were nationally known, two had been in operation for over two decades and two were locally owned. The longest standing parlours had been operating in these areas, and around the CoJ from ten to over twenty years. Having been in operation for so long was an indication of their knowledge and understanding of the interment needs of households from the two areas, and a sign of trust between these undertakers and the communities.

Each funeral parlour was approached at its offices, where the objective of the study was explained and a date for the interview agreed upon. The best times to conduct the interviews were Mondays or Tuesdays, whereas the rest of the week was busy with arrangements for both mid-week and weekend burials. At times it was not possible to schedule the meetings on those days. Settling on any other weekday meant having disruptions throughout the interview. These disruptions came in the form of completing administrative tasks in preparation for burials.

The initial plan was to interview twenty religious and five non-religious households from each community; thirty-one (instead of forty) households affiliated to a religious group were interviewed. The meetings took forty minutes to an hour and a half. These engagements were manually and digitally recorded. The digital files were then transcribed. The councillors, community leaders, religious group leaders and youth organisations were asked for names and particulars of religious and non-religious members of the communities who had experienced death in the last five years. Due to the political positions they hold, local

ward councillors were asked to remain impartial and therefore give equal opportunity to participants of diverse political memberships. This was requested of them because there was fear that they could select participants who retained membership of their political parties. Apart from participants identified by local ward councillors, those picked by religious leaders also ensured more equal representation of the population. The newly bereaved were not approached as it was believed a high degree of sensitivity could apply. The reason for going through the aforementioned bodies was they would likely have a register or recollection of such families as they worked closely with the communities.

The interviews took place wherever participants felt comfortable to meet, and this included their respective homes, at churches or local government offices. Where possible, heads of households were interviewed. In cases where this was not feasible (for instance, heads were either at work, these were single-headed households, or wives/children had become household heads by default as their partners/parents were deceased), their wives or adult children participated. In some families, older children (>18) were interviewed mainly because they had been involved in the parents' funeral preparations and thus still had vivid memories of all preparations and occurrences.

4.4.1.3.1 Challenges faced when engaging community leaders

The church dynamics (for instance, ownership, gender relations), were important factors to consider. As a female who does not reside in Alexandra, gaining access to, and the trust of, selected churches leaders and their respective congregants was one of the biggest methodological challenges faced. More challenges faced during engagements with community leaders are discussed in Appendix F.

4.4.1.4 Focus groups with community members

The objective of undertaking focus groups was to have people with different world views (in terms of their religious beliefs and cultural exposure). Another reason was to diversify the research methods, as a way to triangulate and verify the results by consulting multiple and varied sources to ensure reliability of results. To avoid research bias, it was important to stay neutral during data collection to ensure objectivity of the data as argued by Steinhäuser and Barroso (2009). It is through maintaining credibility and providing as much case study detail as possible, that the findings can be generalisable to other settings, especially those

with similar contexts (*ibid*).

Because some of the community members (especially the youth) seemed sceptical and uncomfortable about sharing individual ideas, focus groups were identified to yield the best information, whilst helping participants share their views openly, in a comfortable setting. Parents' consent was not required because the youth was above eighteen. In a focus group, they seemed at ease, since there were familiar faces. Sharing similar characteristics and being cooperative with each other meant that they were not hesitant to share information (Krueger, 1994). According to Baker and Edwards (2012: 9), the disadvantage with focus groups is their engagement of multiple participants in one sitting, and thus prohibiting researchers from probing each person's thoughts in depth. However, they do acknowledge that focus groups are balanced by the ability to get subjects to tackle difficult issues with one another, opposing viewpoints and resolving conflicting perceptions.

Four focus groups were conducted, two in each community. They lasted between one hour and thirty minutes and over two hours. In Alexandra, a group of traditional healers, comprising five participants, was interviewed. These included two males and three females aged between their late twenties and late forties. These were approached through the Traditional Healers Organisation (THO) of South Africa. A youth group inclusive of four females and one male in their early to mid-twenties was interviewed. They were identified to be devoted followers of specific denominations in their neighbourhood.

In Rabie Ridge, one focus group was composed of the youth not affiliated to any religious denomination. Because not only religious people use cemeteries, non-religious ideas were sought from one of the focus groups. Using snowball sampling, this group was identified. The council offices in Rabie Ridge recommended the Rabie Ridge Youth House (RRYH), where the director identified five individuals in the neighbourhood who could take part in the study. The RRYH managed to identify households that were not affiliated to any religious group. This group comprised three males and two females, whose ages ranged from early twenties to mid-thirties. Three of the five participants from Rabie Ridge were acquaintances. In this group, the goal was to interview individuals who did not follow any religious denomination.

The Rastafarians formed the second focus group, comprising three males aged between their mid-twenties and early fifties. This group was also identified through the RRYH. After introducing the study, they agreed to have the focus group held at their home in Rabie Ridge. Of the five who had agreed to take part in the study, only three arrived at the meeting. The main reason given for withdrawing from the focus group was that only elders should address any matters about death and the use of cemeteries.

In Alexandra, a few youth organisations were approached with the aim to select an individual from each organisation to participate in the study. However, because the schools were on break, most of the youth were engaged in outreach programmes around the city. A youth organisation was then approached and the coordinator managed to identify five individuals to participate in the focus group. The request was to identify individuals who followed a particular religious denomination. The individuals had never met prior to the meeting.

Longhurst (2010) argues that researchers would want to keep the group as homogenous as possible to ensure selection of a group that shares similar traits. However, this might not be possible; instead, one should simulate a group of friends or people who have things in common and feel relaxed when talking to each other. In this study, both the Rastafarian and traditional healer groups knew each other, whereas the youth group members in Alexandra were meeting for the first time. In selecting the groups, the goal was to achieve as much diversity as possible in terms of gender, belief, race and age. This was achieved in the youth focus group in Rabie Ridge, particularly in the race category. There was a good balance of age and gender in the traditional healers' group. The Rastafarian group was composed of only males with a good age mix.

It was important to facilitate the focus groups in a neutral setting where participants would feel comfortable and not intimidated (Denzin, 1970). In this study, the focus groups with the Rastafarians and traditional healers were held at one of the participants' homes. One youth group was conducted at a Youth House, while the other was held at a community hall that shares its location with a youth centre. It is not always possible to have perfect conditions; however, these locations were noise-free and accessible. The conversations were left to unfold naturally, and that gave participants opportunities to explore issues they felt were

important. However, at the end of each focus group, a list of guiding questions was checked to ensure that all questions had been covered. The conversations were also informal so as to allow participants the utmost comfort.

4.4.1.5 Challenges encountered during engagements with community members

Due to the sensitivity of the study, a few challenges arose in the two communities where interviews were conducted. The primary challenge was experienced as soon as some participants learnt that the interviews would focus on cemeteries as a form of land use. They felt uncomfortable to proceed with the discussions, complaining that anything relating to death was taboo and that only elders should be involved in such discussions. Participants withdrawing from the study prolonged the fieldwork as new participants had to be identified.

4.4.1.6 Phase D - Direct observation using photography

Permission was sought from the JCPZ to visit Waterval Cemetery in order to observe and record the upkeep and appearance of the cemetery in terms of the innovative elements integrated within their designs. This exercise involved taking photographs using a digital camera to visually experience the space, capture the quality of the cemetery in terms of the design, and to observe how this design influenced the way the use of the space. For instance, green infrastructure elements incorporated in the design of Waterval Cemetery were noted, as was how it was used in line with resilience principles. In determining how the cemetery was used, the researcher would be able to look at the cemetery and assess it in terms of what processes were taking place or issues acting within it; this would thus help the researcher make qualitative judgments about the space.

Waterval Cemetery was visited on different days, and at different times, to observe its use. Visits were made on a Monday and a Thursday to view the state of the cemetery on days when there was not much activity. The cemetery was also visited on a Saturday when it was at its busiest. At one of the visits, the Cemeteries and Crematoria Manager gave a tour of the whole cemetery and other cemeteries in the northern suburbs of Johannesburg. These gave the researcher a perspective of different elements, such as the different levels of upkeep, design features and diverse interment options.

Photographs were taken to capture different resilience elements incorporated in the design

of the cemetery, and all the dynamics that were raised during the interviews. For example, the design of the cemetery and layout of graves and their impact on the traffic; the significance and condition of the built and green infrastructure elements, and the different features that were randomly incorporated that could, for instance, help mitigate climate change impacts.

4.4.1.7 Phase E - Spatial mapping

Spatial data was obtained from the Gauteng City Region Observatory (GCRO), Geoterra Image, the CoJ's Corporate GIS Department and Statistics South Africa (StatsSA). The spatial dataset for the different open spaces in Johannesburg currently sits at the JCPZ, the land ownership status at the CoJ GIS Department, while the rest of the datasets are at the GCRO and Geoterra Image.

Using *ArcGIS 10.1*, study sites (Waterval Cemetery, Alexandra and Rabie Ridge) were mapped to show their location in the context of Gauteng and the CoJ. The cemetery was also mapped to get an understanding of how accessible it is for the communities of Alexandra and Rabie Ridge. Although this was not a site selection exercise, buffering was employed using 5, 10 and 15 km distances to establish the proximity of Waterval Cemetery to the two townships. The road accessibility exercise was then employed by determining the shortest route for communities to reach Waterval Cemetery. Five alternative routes were mapped to calculate the distance from the two townships to Waterval Cemetery. Using the official road network, accurate distances from the centre of the townships to the cemetery were used for the calculations. An average speed of 60 km/h – as per the South African road laws – was used to calculate the travel time.

4.5 Data analysis

This section discusses techniques and programmes used to analyse the data collected. All interview notes, transcriptions and photographs formed part of the qualitative datasets. Four types of data were analysed. These included qualitative and quantitative data collected from interviews and focus groups, photographs taken during the study sites visits and spatial data. Spatial data analysis was undertaken using the Geographic Information Systems *ArcGIS 10.1* software, using secondary data sourced from the previously-mentioned organisations.

Qualitative data was analysed using a computer-assisted qualitative data analysis software programme (*Atlas.ti. 1.0.21 (91)*) to facilitate consistent application of the themes. *Atlas.ti* is software used to analyse different types of data, including text, audios, videos, and pictures. The primary reason for using a computer-assisted programme was so that data was efficiently stored and organised. The data was stored in document files, which consisted of information, such as transcripts from all interviews, observational notes, photographs, newspaper articles. The data analysis consisted of examining the interview notes and transcriptions for correctness, coding and keying data into the software.

All interviews were transcribed verbatim into word files and saved into *Atlas.ti*. As Ryan and Bernard (2003) recommend, all the transcribed interviews were read and reread to appreciate the full picture of the data, and to make connections among participants' ideas. Following that, the process of data reduction, which is the first stage in data analysis, commenced. This process "sorts, focuses and organizes data in a way that conclusions can be drawn and verified," (Miles and Huberman, 1994: 11). Data reduction was done through selection and paraphrasing, where sentences were highlighted from excerpts from each participant's full text. Research questions were kept in mind throughout the whole process, to assist in identifying passages that accurately related to the study's objectives.

The process of segmenting and assigning code labels followed. The highlighted sentences were read, broken down into smaller segments or themes, and the underlying meaning of the passages sought. The second level of themes was followed and codes were then created and assigned to the passages. The aim was to ensure that extracts from the first themes represented the whole text (Ibrahim, 2012). This process is essential in validating themes in the first level of themes and builds reliability of themes at the second level (Miles and Huberman, 1994). Through coding, the data was reviewed by identifying the most significant meaning of the data (Ibrahim, 2012).

Each section of the text was also assigned a code label using terms from the literature; at times a term was composed that seemed to relate to the situation discussed. All the coded information could be located using the programme's search function, thus giving the researcher the ability to see how participants were discussing the code in a similar or different way. The programme also allowed the researcher to search for specific words to

see how frequently they occurred in the texts. These were then used to come up with possible themes based on the frequency of their use. Recurring categories were identified from the uploaded notes and transcriptions. From these categories, themes were created and correlations made.

The actual qualitative data analysis process started with organising and displaying the data in order. The data was displayed descriptively to gain conceptual consistency by ordering items that related to each research question (Miles and Huberman, 1994). The conceptual framework, together with the conferred literature, identified themes, and correlations were then interwoven in the discussion of results. Analysis involved interpreting concepts involved in the research topic to support participants' statements by providing relevant evidence. For instance, direct quotations provided supportive meaning to the interpretation of the data, and enabled the linking of thoughts and ideas and the comparison of information so as to reach conclusions (Miles and Huberman, 1994).

4.6 Ethical considerations

Because this study involved the contribution of human participants and dealt with the very sensitive issue of death and cemeteries (as considered by many cultures and religions), approval to conduct interviews with the bereaved families was sought from the University of the Witwatersrand's Ethics Committee. Hence, formal ethical clearance was sought and granted with approved participant information sheets and consent forms (see signed approval, consent forms and participant information sheets in Appendix D).

Confidentiality and anonymity were ensured. Unlike in interviews, in focus groups confidentiality cannot be strictly guaranteed. Even at times when a research assistant was used during focus groups, the participants were assured that the research assistant held the same commitment to confidentiality as the researcher. Because it is difficult to guarantee confidentiality and anonymity in a focus group setting, the participants were neither asked to disclose each other's information nor share information discussed during the focus groups with third parties. Because some of the participants were familiar with each other (e.g. traditional healers and some participants of the Rabie Ridge youth group), they were also asked to keep other participants' identities anonymous.

All the data collected from the study sites through interviews, observations and other

documentation will be used for research purposes only. To show respect for cemetery users and the cemetery itself, permission was sought from the JCPZ before visiting and taking photographs. All the protocols followed, such as requests for participation and participation information sheets, can be found in Appendix D.

4.7 A brief description of the research methods employed for the Diepsloot Memorial Park (DMP) study

Interviews were held with key respondents, and these included three officials from the JCPZ (the Cemeteries and Crematoria Manager; the Managing Director; and the Chief Operations Officer). One prominent funeral undertaker within the Diepsloot Township was interviewed. Sixty questionnaires were distributed across different sections of the city. Thirty questionnaires were distributed in Diepsloot, and another thirty at four points in the Johannesburg CBD. In total, fifty-eight were completed for the study.

Permission was sought from the JCPZ to visit the memorial park in order to observe and document its upkeep and appearance in terms of the innovative elements integrated within its designs. This exercise involved taking photographs using a digital camera to visually experience the spaces and capture how it was used. To observe ethical considerations during the DMP study, anonymous questionnaires were distributed after participants who volunteered to take part in the study had given consent. Thus participants remained anonymous. A full account of the research methods employed for this study can be found in Appendix A.

4.8 Conclusion

This chapter discussed the qualitative research approach and case study method used to address the research problem and question. Different research instruments used to collect data were examined and defended. The chapter introduced the diverse participants interviewed for the study, and challenges faced during engagements with them. It further described the data collected and how it was analysed, using both the qualitative and quantitative analysis tools. The ethical procedures followed were also addressed as they ensured that the research had adhered to the University's ethical guidelines. A brief account of the DMP study was also given.

Chapter 5: Context of the City of Johannesburg

5.1 Introduction

The objective of this research includes understanding systems and processes that underpin the current cemetery planning in the City of Johannesburg (CoJ). The objective explores the resilience principles that have been incorporated in the planning, design and management of Waterval Cemetery. The research seeks to understand institutional barriers that constrain the uptake of approaches and newer methods of body disposal that contribute to resilience. This discussion provides an important context for thinking about how cemeteries can be designed, provisioned and managed in a way that contributes to the social-ecological resilience of urban spaces.

According to Aligica (2013), institutional resilience focuses on the social aspect of human–environment relationships; on systems and processes concerning resource allocation, reaction and recovery from shocks, and political and cultural barriers to the system’s stability and adaptation to changing conditions. He argues that society’s inability to react to changing environments is due to its institutions’ inability to respond appropriately, and its inability to stimulate adaptive learning, effective management and innovation from its members. Although the concept of resilience has been applied and developed primarily with environmental shocks in mind, it remains relevant for social shocks too (Aligica, 2013). However, due to the perspective of integrating human capacities of learning, innovation and adaptation, institutional elements that contribute to resilience also need to be considered.

This chapter is aimed at explaining the context of Johannesburg and explores processes that underpin cemetery planning and provision. It does so by exploring whether and how Waterval Cemetery integrates resilience ideals in its design and management. Although the chapter discusses the Waterval Cemetery case in detail, results from the Diepsloot Memorial Park (DMP) are also briefly discussed. The Diepsloot case shows how the City has introduced additional innovative elements in the cemetery’s design, beyond those found at Waterval Cemetery. The chapter shows that although there has been a revolution in how cemeteries are planned and managed, there are still limits. The chapter traces the development of cemeteries back to when gold was first discovered in Johannesburg. Prior to that, there were farm cemeteries. However, the demand for burial space came with the

early formation of settlements brought about by gold mining. After tracing this history, the chapter looks at the institutional arrangements of cemetery planning and their limits. The merits and limits of Waterval Cemetery as one of the transitional approaches to cemetery planning and management are then discussed. The discussion further explores if and how cemeteries can contribute to urban resilience.

5.2 History of Johannesburg cemeteries

The socio-political history of South Africa is reflected in the current dominant design of cemeteries (Christopher, 1995). Prior to 1948, racial and religious segregation took place within cemeteries (*ibid*), but after 1948, completely separate cemeteries were established according to race. According to the JCPZ (2008), the first cemeteries in the CoJ date back to the mid- to late 1800s, before the discovery of gold. These were located on small farms where farmers, their families and workers were buried. More than 25 of these old cemeteries can still be found and are under the authority of the JCPZ.

Previously, cemeteries in townships reserved for Black people were provided in a way that would pack in as many graves as possible (Newtown Landscape Architects Developer, pers. comm, 2014). Land was identified and people were asked to start burying soon after, without having followed any planning appraisals or conducting environmental assessments. Hence even today, the JCPZ still finds sections with unsuitable environmental conditions within existing cemeteries (e.g. some sections within Nancefield and Avalon are rocky with big boulders forbidding the digging of regular graves). During apartheid, however, cemeteries in predominantly affluent suburbs (e.g. Westpark) were properly planned (Developer, pers. comm, 2014). Land was surveyed and sections were zoned; environmental suitability was determined, and infrastructure (e.g. roads, water) was provided. No planning was done for the development of cemeteries located in townships (e.g. Nancefield, Avalon). However recently, land for cemeteries is zoned and planned accordingly.

There is a drive by the JCPZ to design cemeteries that accommodate everyone, despite their racial or economic status (JCPZ Official, pers. comm, 2014). The CoJ's policies support inclusivity even in death, where the focus is on developing cemeteries that redress the disparities left by apartheid, and those that do not encourage segregation. Although the city is shifting towards innovative cemeteries that, for instance, act as green lungs in old and

new developments, there are limits concerning how they can rethink these spaces. There are restrictions regarding the innovative elements they can integrate within cemeteries. Many old cemeteries, especially those found in townships still look gray and personnel continue to bury as many people as possible. They are affected by unregulated traffic jams especially during peak days (e.g. weekends) when most people bury their dead. They also still experience high crime rates.

The section below explores systems and processes that reinforce cemetery planning in the CoJ. It starts with addressing the gaps in policy and discusses the implications of such gaps.

5.3 Systems and processes that underpin current cemetery planning

An institution's resilience depends on its position and role in governing a network of systems in the urban landscape (Aligica, 2013). It becomes important to understand the systems and processes put in place to support cemetery planning, and to investigate their merits and drawbacks. This discussion focuses on the policy guiding cemetery planning and development, and institutional governance and its capability to cope and adapt to changing conditions.

5.3.1 Policies guiding cemetery planning

There is little to guide cemetery planning in the CoJ. According to the South African Constitution (1996), cemetery provision is a local government function. The Cemeteries and Crematoria By-Laws is the only legislation passed and enacted by the CoJ to regulate the use and management of cemeteries in the city. Like many cities in South Africa, these by-laws do not deal with the long-term planning of cemeteries, but only with their day-to-day management. The by-laws also prohibit what are indicated to be types of anti-social behaviours or acts, and effect punishment if such prohibitions are not observed.

The Constitution of South Africa (1996, Section 24) stipulates that everyone has the right (a) to an environment that is not harmful to their health or wellbeing; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development. Sections 4(2)(d)3 and 4(2)(i), 4 73(1) and (2) of the Municipal Systems Act

reinforce sections 152(1)(b) and (d) of the constitution, where local government is obligated to encourage sustainable development and the right to a clean and healthy environment. In addition to the environmental right, the constitution obliges the local government to ensure the provision of services to communities in a sustainable manner and to promote a safe and healthy environment.

The Spatial Planning and Land Use Management Act (SPLUMA) (2013) emphasizes the relationship between spatial planning and land-use management, and promotes inclusivity, consistency and alignment across the different spheres of government. SPLUMA does not specifically mention cemeteries; however, it clearly states that any development that has potential effects on the environment should comply with the environmental legislation (2013). SPLUMA (2013: 32) shows that municipal spatial development frameworks (SDFs) should,

“...give effect to the development principles and applicable norms and standards, and identify, quantify and provide location requirements of services provision for existing and future development needs for the next five years.”

As much as the SPLUMA (2013) clearly indicates that the Municipal SDF must be prepared as part of a municipality's Integrated Development Plan (IDP), in accordance with the provisions of the Municipal Systems Act, there is a disjuncture between the two plans in terms of how cemetery planning is reflected on the ground, with the primary focus on Johannesburg.

By helping to address most socio-economic disparities brought about by the past, the National Development Plan (NDP) (2011) charts the new path to a better South Africa, whilst other plans to manage urban transformation include, for instance, the IDP and the regional and municipal SDFs. The NDP is aimed at poverty elimination and the reduction of inequalities by 2030. It does this “by drawing on the energies of its people, growing an inclusive economy, building capabilities, enhancing the capacity of the state, and promoting leadership and partnerships throughout society,” (NDP 2030, 2011: 25). SPLUMA (2013: 18) promotes the principle of spatial justice,

“whereby past spatial and other development imbalances must be redressed

through improved access to and use of land; spatial development frameworks and policies at all spheres of government must address the inclusion of persons and areas that were previously excluded, with an emphasis on informal settlements, former homeland areas and areas characterized by widespread poverty and deprivation.”

All these ideals reflect the JCPZ’s resolutions to conserve green spaces, as they are underpinned by an effort to redress the historical disparities of green spaces that occurred around the same time as the gold mining boom of the 1880s. While these efforts are driven by interventions to conserve the urban green elements, the underlying rationale seems to be the drive toward improved access to recreational opportunities and the beautification of open spaces, particularly in previously disadvantaged areas.

Although the JCPZ has a set standard of four hectares of open space for 1 000 people (CoJ, 2012), the gap remains as no norms and standards guide the planning and provision of places of interment. Further, no plans contain the strategy and foresight of how to plan for future burial space demand. They do not consider the spatial implications of these spaces, especially on adjacent land uses. For example, the Health Act (2003) addresses the handling and disposal of human remains, although it does not guide cemetery planning and management. The development of cemeteries is identified as one of the activities in terms of section 24(2)(a) and (d) of the National Environmental Management Act (NEMA) 1998 (Act No. 107 of 1998). The NEMA requires that environmental authorisation is attained before expansion starts on an old cemetery or any development that could have adverse effects on the environment, and must follow the procedure as described by the Environmental Impact Assessment Regulations (2006) (the National Environmental Management Act, made under section 24(5) of the Act and published in Government Notice No. R. 385 of 2006).

In the absence of appropriate framing legislation to guide cemetery planning and management, the South African Local Government Association (SALGA) is trying to drive that process (SALGA Official, pers. comm, 2014). SALGA hosted and participated in several conferences, seminars and studies that documented cemetery planning challenges, with the objective to help municipalities to find context-specific solutions. According to SALGA, there

has not been any progress in the uptake of resolutions from these meetings mainly due to the absence of a Cemeteries and Crematoria Strategy and other challenges, such as the lack of capable human resources. Although SALGA may provide guidance in terms of cemetery planning, development and management, it cannot enforce any recommendations it makes. Municipalities are also not obliged to adopt the advice given by SALGA. This somehow defeats the whole purpose of all these processes.

SALGA plans to develop a Cemeteries and Crematoria Strategy (see Appendix H), which will map out the future of cemetery planning in South Africa. This process involves holding workshops where individual municipalities present their challenges and good practice models in relation to cemetery planning and provisioning. At these workshops municipalities develop resolutions, approaches and strategies associated with cemetery planning. These resolutions will be fed into the Strategic Framework and Municipal Guidelines on Cemeteries and Crematoria, to be proposed by SALGA. These guidelines will take into account funeral parlours and related cultural and religious practices.

After failing to find a policy that directly references cemetery planning and development in the CoJ, the Department of Development Planning was contacted for illumination (see Appendix G for the diverse policies, their purpose and role in cemetery planning). The response to why there is limited policy guiding long-term planning of cemeteries was as follows:

“As far as I know, we do not have a policy dedicated to cemeteries in the City from a spatial planning point of view. As it is a city function, I would assume that City Parks²⁵ would be able to monitor capacity and plan for the acquisition of land should more cemeteries be required and then they would have to follow a process to acquire suitable land. We however do not include it in our spatial planning policies as part of forward planning, but rather include already identified sites for cemeteries of those which are already in use in our policy documents” (Email communication with the Senior Strategic Urban Planning Specialist at the Department of Development Planning at the CoJ, 2014).

²⁵ The Johannesburg City Parks and Zoo is commonly known as City Parks.

Lack of policy manifests in lost opportunities to have forward-planning systems put in place. Although legislation stipulates the necessity to mainstream spatial planning across the three spheres of government, IDPs and SDFs are on a broader scale, hence they do not deal with cemetery planning. This remains a problem because cemeteries are consumers of vast amounts of productive land, hence their integration in developments should be seen as important. Lack of alignment and linkages between plans encourages fragmentation and discourages efficient use of land.

Several strategic frameworks and policies have been drafted that have discussed the need for urban green space planning. However, the drive is toward conservation strategies, redressing spatial inequalities through access to green spaces and beautification of built-up areas. A disconnection remains in realising and implementing these as part of integrated infrastructure planning. The spatial emphasis of these initiatives shows the unevenness of spatial distribution of green open spaces between the northern suburbs and townships in the south, and is a constant reminder of how far the city has come and how much work still remains to be achieved (Schäffler *et al.*, 2013).

5.3.2 Implications of the absence of policy

The resilience framework fosters the development and application of long-term and integrated planning processes (da Silva and Morera, 2014). These can be achieved by aligning sectoral plans with the city's vision, strategies and plans, so that the city's needs are addressed. Resilience further advocates for proactive rather than reactive planning. However, inadequate cemetery planning policies increase the habit of emergency planning, only when municipalities see cemeteries rapidly filling up. Planning requires time and progressive forecasting. Including and mainstreaming cemetery planning within other policies could ensure that the infrastructural element of human settlements is strengthened.

The lack of strategy shows lack of uniformity even within a single municipality. Having such a policy could ensure that the same practice is applied in relevant settings. For instance, urban municipalities can follow the same guidelines as they are faced with more or less similar contexts and challenges. Following similar guidelines as those to be provided by the

South African Local Government Association (SALGA)²⁶, which show local and international best practices on cemetery planning and management, could help municipalities develop efficient management strategies, which could provide diverse interment options and therefore potentially stretch the already diminishing land resources.

Greening efforts by the JCPZ seem to serve more of a social development objective and do not necessarily tap into the ecological potential of the already existing urban green spaces or the integration of greenery into built-up areas (Schäffler *et al.*, 2013). The current spatial policy does not ensure integration and management of cemeteries with other surrounding social and ecological land uses such as settlements and other open green spaces. This spatial policy does not respond to provincial and national objectives that promote city resilience or in the long run. Because cemeteries are a difficult and sensitive land use, aligning their use with surrounding land uses could be difficult. Although viewed as sacred, dynamics, such as their potential for pollution, could make associating them with other land uses challenging.

The CoJ Development Strategy 2040 has used the resilience framework and even gone further to identify components that could change behaviour, and thus increase the city's resilience. It has identified the need for a paradigm shift in cities so as to improve the City's capacity. Major drivers of uncertainty it identifies as affecting the city include, for instance, migration, natural resource scarcity, climate change and inequalities. To embrace uncertainty, and therefore nurture resilience, the City's plan is to strengthen its adaptive capacity so as to nurture resilience (CoJ GDS 2040). It does so by "laying the foundation for multi-level, multi-scalar and integrated responses to the challenges the city faces," (CoJ GDS 2040, 2011: 11). Although the strategy mentions how the City plans to achieve all its objectives towards becoming a resilient city, it does not break down the strategy into smaller achievable goals. Perhaps this is not the role of the GDS; however, it is important to ensure its ideas are cascaded into other policies, plans and operations of the municipality.

The following section focuses on findings from engagements with key respondents. The objective is to understand how cemeteries are conceptualised in the CoJ and to establish the processes followed in the development of cemeteries. Waterval Cemetery

²⁶ Included in Appendix G.

demonstrates a shift from the old way of providing and managing cemeteries to the newer approach that has tried to implement the JCPZ's greening initiatives.

5.4 Conceptualisation and development of current cemeteries: Roles and responsibilities

The JCPZ is a subsidiary of the CoJ, which funds projects (e.g. development and provision of cemeteries) undertaken by the JCPZ. The JCPZ follows the Capital Investment Management System to submit its budget and estimated project costs before the end of each financial year to CoJ (JCPZ Official, pers. comm, 2014). The budget is drawn based on the citizens' aspirations, as indicated in the IDP (*ibid*). CoJ then decides on the annual capital expenditure budget (inclusive of all its entities)²⁷. This budget is mostly a percentage of what the JCPZ will have requested, hence most of its projects (e.g. cemeteries) are developed in phases (JCPZ Official, pers. comm, 2014). Once the priority projects have been chosen, CoJ releases the funds before the end of the financial year.

Currently, cemeteries are provided at a regional scale to avoid locating them near communities, and because there is limited land available and suitable for cemetery development in proximity (JCPZ Official, pers. comm, 2014). Therefore, the regional cemeteries also respond to the issue of the diminishing land resources. Due to different beliefs, some cultures are not allowed to stay close to the "dead" (*ibid*). However, in time, development (mainly through housing developments) catches up with these cemeteries and they end up being landlocked. Although the Gauteng Department of Agriculture and Rural Development (GDARD) is responsible for conducting Environmental Impact Assessments (EIAs), geotechnical assessments and monitors emissions of atmospheric chemicals (e.g. by crematoria), it is JCPZ's in-house safety, health, environment and quality (SHEQ) unit that ensures that standards are adhered to (JCPZ Official, pers. comm, 2014).

An environmental planner was interviewed to establish which environmental assessments are undertaken and which processes are followed before cemetery development can commence. According to him, processes involved in cemetery planning and development include the identification of land where ownership and zoning are checked in the JCPZ's geographic information systems (GIS) (JCPZ Official, pers. comm, 2014). Following that,

²⁷ These entities include the Johannesburg Roads Agency (JRA), Johannesburg City Power, Johannesburg Property Company, Johannesburg Development Agency (JDA), Johannesburg Social Housing Company, Johannesburg Theatre, Johannesburg Water, Metropolitan Bus Service, Johannesburg Metropolitan Police Department, Johannesburg Fresh Produce Market and Pikitup.

public participation processes take place.

If the land is below 250 000 m² in size, the department stipulates that there is no requirement for an environmental impact assessment (JCPZ Official, pers. comm, 2014). However, the department conducts a screening exercise to check the land's environmental sensitivity and suitability, and only then an environmental authorisation can be sought from GDARD. If the land is over 250 000 m², a consultant is appointed to conduct EIAs. Subsequent to that, developers are appointed to commence with the development. The process of identifying land for development, up until approval for development is granted, can take around a year (JCPZ Official, pers. comm, 2014).

Through employing Waterval Cemetery as a transitional case study, the following section discusses processes involved once the development has been given a stamp of approval. It explores which resilience principles have been incorporated in its design and which have not. This case and the DMP study show the current shift from the previous mode of cemetery planning and provision, which dominates most cemeteries in previously disadvantaged areas.

5.5 Waterval Cemetery as a cutting-edge case in cemetery provision

Waterval Cemetery is located on Waterval Farm, land owned by the Mia Family Trust. The City has signed a renewable 99-year lease with the Trust. The cemetery was opened for operation in 2006, to ease burial demand and increase accessibility for Region A (especially Midrand areas), and for the Alexandra Township, which is in Region E²⁸ (see figure 5.1 for the location of the study sites). When Waterval Cemetery was developed and eventually opened, cemeteries in Region A were rapidly reaching capacity whilst those in Region E, particularly in Alexandra, were already full.

²⁸ The City of Johannesburg has eight regions (A–G).

Location of study sites within the context of the City of Johannesburg

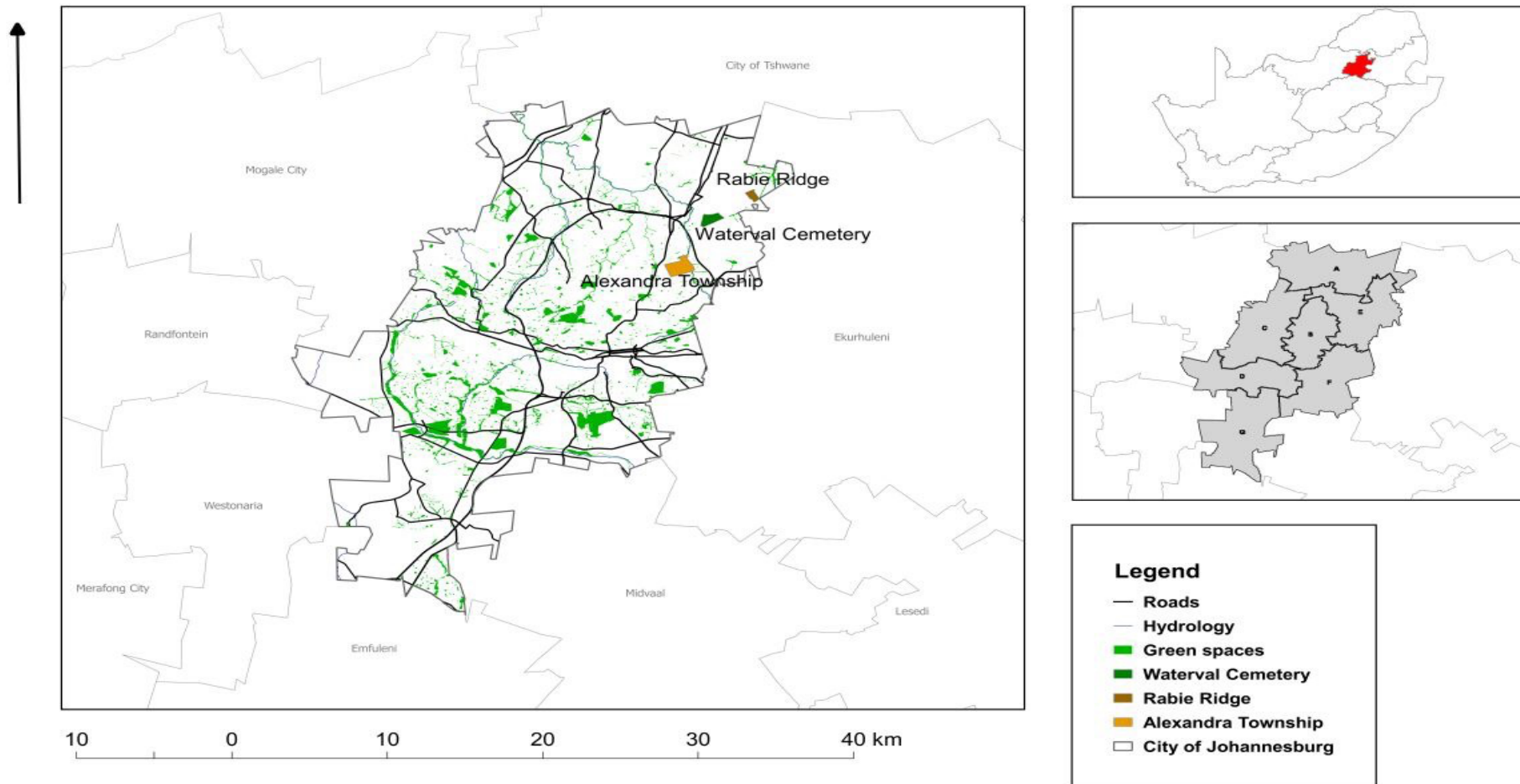


Figure 5.1: Location of Waterval Cemetery, Alexandra and Rabie Ridge in Johannesburg

Source: Author's formulation, 2015

For the development of Waterval Cemetery, the JCPZ's Environmental Protection Department identified a site (JCPZ Official, pers. comm, 2014). Developers were appointed to draft the master plan, design the landscape and to assume responsibility for environmental monitoring. The brief was to design a regional cemetery, the first major one since the establishment of Avalon Cemetery in 1974. A pressing need had arisen for a new cemetery to serve Alexandra and the surrounding areas as Avalon, and the old Alexandra and Midrand cemeteries were full. The requirement was for a cemetery that would be able to accommodate burials for 50 years or more. To reiterate what was discussed in the previous sections, it is important to note that the planning is done in an isolated way and per project before development can commence.

On 17 January 2002, the Environmental Authorisation approving the proposed development of Waterval Cemetery was signed by the-then Head of Department of Agriculture, Conservation, Environment and Land Affairs, Dr D. Hanekom. As documented on the Record of Decision, some of the conditions under which the application was approved included that a geological report be submitted; water must be available in the vicinity of the development; satisfactory provision of stormwater management must be ensured; effective parking spaces with necessary manoeuvring area should be provided; that requirements of the Environmental Conservation Act, 1989 (Act 73 of 1989) must be adhered to prior to the announcement of the cemetery, and that one building was allowed on the plot (Record of Decision, 2002). The building was to be 14m high from the ground and not more than two storeys high (*ibid*).

Some of the design considerations requested by the JCPZ for the project prior to development, included that the cemetery be monumental (have a heritage appeal); have a botanical garden, a tourist feel, and indigenous trees that attract bird life (Developer, pers. comm, 2014). Some of the findings from the environmental impact assessment uncovered that a number of bird species and small rodent species were spotted on site; however, no detailed survey was undertaken; the surface water quality of the area was not suitable for drinking due to the polluted river network caused by industrial activities and poor infrastructure of low-income residential developments along the close-by water systems (Developer, pers. comm, 2014). It was discovered that groundwater use was limited due to the poor quality of the water and that Midrand did not have extensive groundwater

supplies.

A resilient system takes into account the conservation of its fragile elements, and it is said to withstand social change without permanent harm to the resources it is designed to protect. Although some species were noted before development of the Waterval Cemetery, they were not documented. Not documenting the species questions the City's consideration towards conservation principles. The fencing structure surrounding the cemetery takes into account existing species in and outside the cemetery. This is seen through the bottom holes in the fence that allow easy movement of wild animals (e.g. dassies and rabbits) (JCPZ Official, pers. comm, 2014).

A large portion of the site consisted of soil that was unsuitable for burial as it was too shallow. In order to optimise as much burial land as possible, some of the elements in the initial plan were repositioned (Developer, pers. comm, 2014). For instance, where possible, buildings such as the caretaker's quarters, which includes the maintenance yard, were placed on the rocky areas. The vegetation in the southern rocky areas was planned to be retained as natural grassland and the existing habitat was to also be retained. This would set a natural background to the formalised design, and would act as a botanical display of the indigenous vegetation found on site. To anchor the huge site and to remain prominent, the future hero's acre formed the central focus of the site.

5.5.1 Developing a regional cemetery

Waterval Cemetery cost R25 million to develop, and funding for the project was secured by the CoJ and the Gauteng province. The bulk of the budget in such huge developments could potentially go toward conducting geotechnical assessments, hence due to constraints in the budget, the decision is usually made to skip them (Newtown Landscape Architects Developer, pers. comm, 2014). In the Waterval Cemetery case, although a level of geotechnical analysis was performed it was financially impossible to test each 100 m of the land for suitability (*ibid*). The result could be that many geotechnical problems were missed. If this is the case, some sections will have to be restricted from future burials.

Sometimes the budget shifts toward activities that were not catered for in the planning of a development. For instance, during development of Waterval Cemetery, developers had problems concerning the positioning of the entrance to the cemetery (Developer, pers.

comm, 2014). The owner of the plot adjacent to the cemetery disputed the construction of a direct access point from the K101 road. An additional two kilometres of the K60 road had to be built, as did a 600m access road to the main entrance. The bulk of the budget was thus directed toward constructing the access road. This was an unanticipated challenge that caused delays and required funds to be redirected to see the project to completion.

Decisions were quickly reached between the team of developers and the JCPZ's management to ensure a smooth process. To ensure this, the team worked directly with top management at the JCPZ, including the-then senior manager and the horticulturalist, and reported progress directly to the executive (Developer, pers. comm, 2014). This ability to collaborate with developers showed that the JCPZ was open to integrate processes of good governance and effective leadership. This was shown by constant correspondence between the stakeholders, and through having access to top management to communicate progress throughout the first phase of the development. Although the JCPZ had conditions of how the cemetery should look, it also welcomed suggestions from the developers. This collaborative effort ensured a comprehensive and inclusive approach that would eventually lead to a well-thought out product. Apart from the fact that the JCPZ showed effective leadership as it promoted inclusive decision-making and empowered developers during the development, this built trust between the two. The open communication channels strengthened the collaboration.

In the planning phases and from its launch, Waterval Cemetery was expected to reach capacity in 50 years. However, "this period might be even less because of the population explosion in that area," (Developer, pers. comm, 2014). Although the-then burial statistics were used to calculate the time the cemetery would reach capacity, future migration projections were not considered (Developer, pers. comm, 2014). Data is crucial to planning and can help understand and assess resilience. Land-use projections based on current conditions are necessary to address future demand for burial land. In Johannesburg, cemetery planning processes do not factor in migration growth projections in predicting future demands for burial land. And this can make it difficult to generate future forecasts for burial needs (Coutts *et al.*, 2011). Collecting up-to-date and relevant data helps in the preparation of plans. And, as argued by da Silva and Morera (2014: 13), "by leveraging relevant information for evidence-based decision-making, resilient cities can take better

decisions and act appropriately in changing circumstances.”

The sections below address various innovative aspects that were considered in the design of Waterval, making it possible to contribute to the resilience of surrounding urban spaces.

5.5.2 Waterval Cemetery design aspects

Undeveloped, Waterval Cemetery comprised 252.6 ha of grassland, with scattered rock outcrops (Developer, pers. comm, 2014). The cemetery is being developed in phases, whereby the first one comprises approximately 18 ha. Almost 20 000 graves will be used in the first phase and around 240 000 graves for the entire cemetery. From conception, 17 ha were reserved for Muslim graves. Studying these figures, Waterval Cemetery is said to be the largest public cemetery in South Africa. It caters for the northeast quadrant of Johannesburg (Developer, pers. comm, 2014), and due to its size and as per the JCPZ’s request, the cemetery had to accommodate many funerals at the same time.

Because of the trend to move away from the traditional way of cemetery provision, the developers were tasked with designing a state-of-the-art cemetery that encompassed natural elements found on the site (Developer, pers. comm, 2014). The contractors moved away from the common conventional grid layout to a half-moon design, also influenced by the topography of the site. Most roads were designed to be parallel to the contours (*ibid*). The design and patterns chosen were intended to help determine the spacing of roads and thus ease traffic (Developer, pers. comm, 2014). This was to ease movement especially on peak days and hours (e.g. Saturday mornings).

Circular patterns were incorporated into the design to allow better flow of vehicles and to enable easy movement of big funeral processions. The large circles were to accommodate anticipated weekend use when traffic flow is heavy. Overall, 12 870 parking bays were constructed (see figures 5.2 and 5.3 below). The cemetery was also developed in sections to reduce overcrowding; such that different processions would be allocated different sections, particularly on days when there would be more than one burial taking place (Developer, pers. comm, 2014). The topography of the terrain was the main determinant of the final design, and it was the natural elements within the site that were used to create a unique identity for a memorial park.

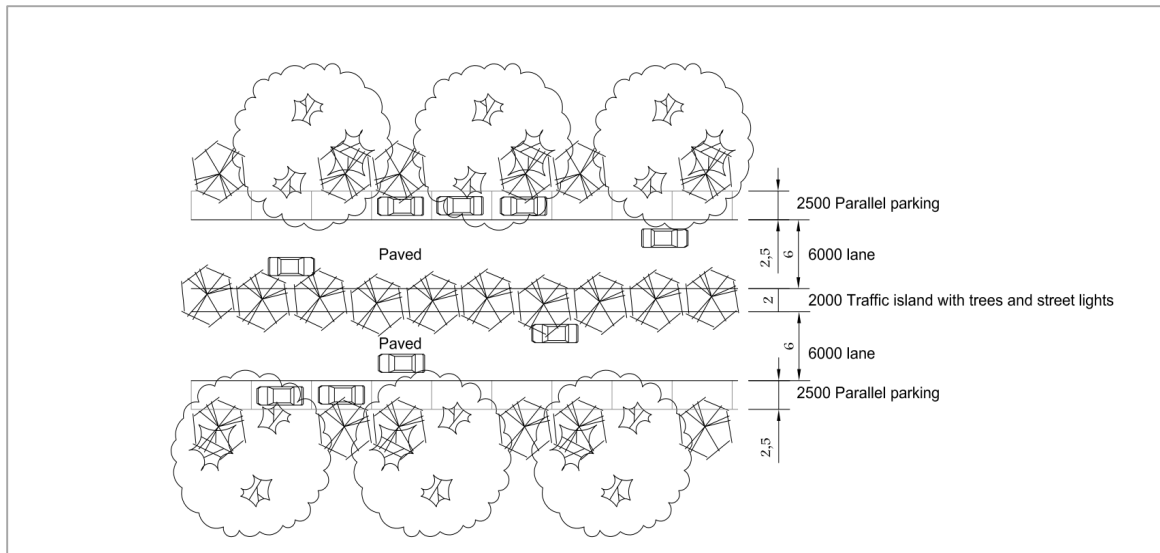


Figure 5.2: Trees planted and parallel parking along Main Road
Source: New Landscape Architects, Undated

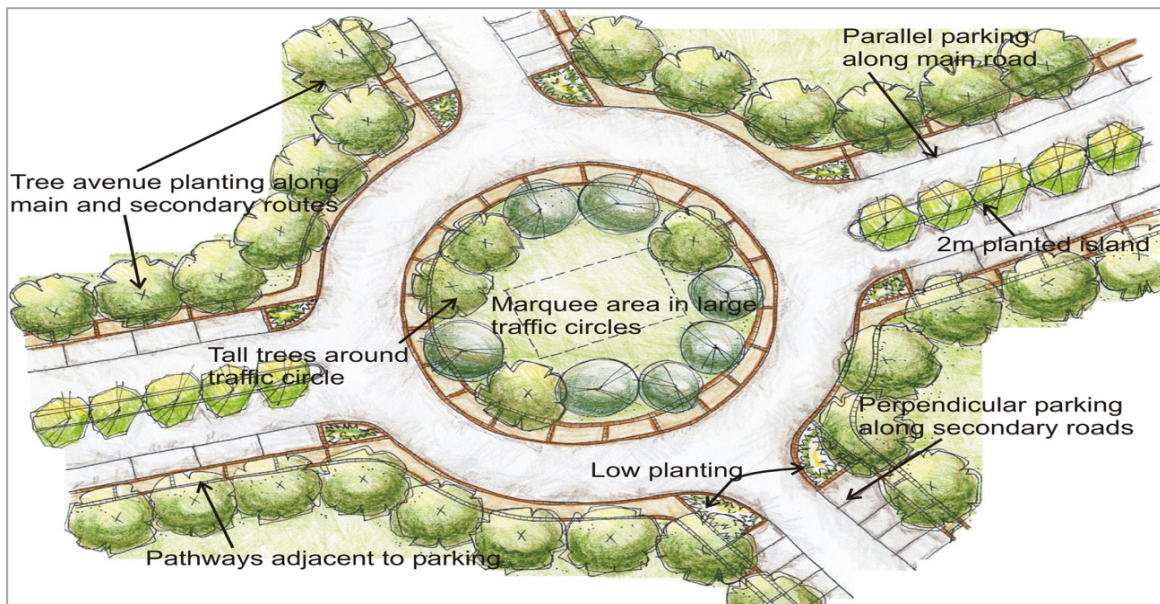


Figure 5.3: Detail around the traffic circles, parking bays and tree avenues
Source: New Landscape Architects, Undated

5.5.3 Integrating innovative elements in the cemetery's design

According to Aligica (2013) a social system that supports innovation can be robust to many external shocks. However, it has to innovate promptly. Although innovation solves problems, it also creates problems (Aligica, 2013). Further, based on the expanding body of knowledge, new knowledge brings with it new possibilities through innovation. Innovation however, creates new social uncertainties about the future. Furthermore, this implies that a system's vulnerability to risk increases.

The response from the JCPZ has therefore been current open space greening interventions, which include cemeteries “to correct wrongs from the previous dispensation (apartheid government),” (*ibid*). From engagements with JCPZ officials, their primary goal is to beautify these spaces with the intent to create a balance in greenery between the North and South. The JCPZ emphasizes that the design of cemeteries in Johannesburg should emulate that of parks to avoid making them “sad spaces”, and rather spaces for the living as well (JCPZ Official, pers. comm, 2014).

Waterval Cemetery is situated on natural Highveld grassland, and species of indigenous trees and grasses are emphasized, which encourage bird life and protect the natural fauna of the area (Developer, pers. comm, 2014). The brief for the cemetery emphasized the need to design and develop a “park for the living” with the plan to add amenities at a later stage to make the cemetery comfortable for visitors (Developer, pers. comm, 2014). To show the extent of planning for green infrastructure throughout the whole cemetery, diverse trees and flowers were planted in different sections. Indigenous plants were given preference over exotic ones, as they do not require excessive water, and are said to be frost resistant, as the area is prone to severe night frost in winter (Developer, pers. comm, 2014). Further, support for low-maintenance vegetation instead of high-maintenance plants was emphasized. Having naturally-growing grasses reduces the frequency of grass mowing as the natural grass does not grow as quickly as the exotic types (JCPZ Official, pers. comm, 2014). To further reduce the frequency of plant cutting and trimming, and the cost of maintenance, fewer sections (e.g. rose gardens) that need regular attention were introduced (Developer, pers. comm, 2014).

Because full memorials are prohibited at Waterval, the cemetery uses a berm design (see figures 5.4 and 5.5 below) where only headstones are erected. Families are requested to comply with this regulation and to have all grave markers levelled so as to ease grass mowing (Developer, pers. comm, 2014). Although it reduces rain water percolation, the berm design does however, “allow for quick and easy maintenance (mainly grass cutting)” (JCPZ Official, pers. comm, 2014). Discouraging soil heaps also ensures that cleaning around the graves is easier (*ibid*). Because the cemetery is used by diverse cultures and religions, no religious symbols were integrated in its design. As such, the design encourages inclusion, and religious and cultural diversity (da Silva and Morera, 2014). Sharing the same space

could potentially foster acceptance of diverse beliefs.

Evergreen trees were given first preference, with large specimen trees along the main axis, and surrounding the circles and heroes' acre (Developer, pers. comm, 2014). Although unintended, the trees planted could help reduce the carbon footprint (*ibid*). Besides the aesthetic appearance of the cemetery, trees in an open area can act as carbon sinks, counteract the heat island effect and provide many other ecological benefits. These sentiments are confirmed by the following statement:

“One big tree equals forty air conditioners. The tree cleans and filters the air from pollutants and dust, absorbs carbon dioxide, produces oxygen, reduces erosion and in turn reduces chances of flooding,” (Developer, pers. comm, 2014).

This shows the cemetery's potential to function beyond ecosystem management.



Figures 5.4 and 5.5 show how headstones are erected on berms
Source: Author's formulation, 2015

Resilience facilitates reduction of the city's vulnerability to shocks which is promoted through durable natural and man-made infrastructure (da Silva and Morera, 2014). And it supports the idea that the natural infrastructure contributes to ecosystem management for flood-risk management, and that the built infrastructure is able to withstand physical shocks, such as floods. Grass blocks and smaller trees were created along the parking bays and pathways to allow for water infiltration and to provide some shade and structure to the

cemetery. Both of these were aimed at minimising runoff in a concentrated way (Developer, pers. comm, 2014), thereby contributing to the cemetery's capability for ecosystem management.

The JCPZ has shown the ability to visualise the cemetery's capability for conservation in years to come. This is indicated by protecting some of the cemetery sections from use. Within the cemetery, a section for conservation was set aside whilst the remaining land would be used for interment. For instance, some sections of the plot had shallow soils whilst some were rocky. The little rock outcrops give a break in the sea of tombstones. The smaller rocky outcrop areas were developed as contemplative spaces, allowing for spaces for meditation and reminiscing (Developer, pers. comm, 2014) (see figure 5.6 below). These areas could incorporate some use of artistic expression, as well as amenities, such as a drinking fountain, dustbin, seating area, a resting shelter or a shade tree. When this visualisation is integrated into the City's long-term plans, there lies potential for the cemetery to function beyond its unique purpose. Although this is currently not the case, the foundation has been laid. Waterval Cemetery has therefore shown long-term integrated planning, capable leadership, effective urban management and evidence-based decision-making.

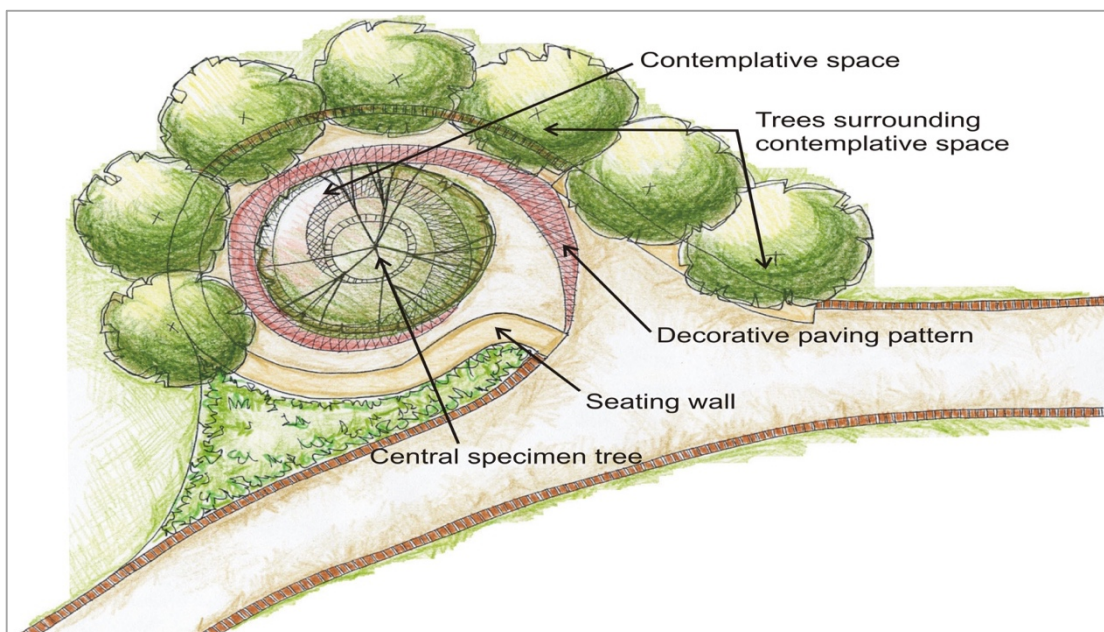


Figure 5.6: Contemplation area

Source: New Landscape Architects, Undated

When asked which ecological benefits could be realised from the greening of Waterval, the JCPZ had not considered the idea of designing cemeteries beyond their usual function (JCPZ Official, pers. comm, 2014). The official showed that at its strategic meetings, the JCPZ had recognised the need to have energy-efficient building designs through incorporating green roofs at its headquarters. However, it had not realised the potential for green infrastructure elements to provide ecological services within cemeteries. Although some of the green elements have been integrated in the cemetery's design, this was not a deliberate undertaking. As indicated, greening cemeteries, which also includes Waterval Cemetery, redress the spatial imbalances between the North and the South (JCPZ Official, pers. comm, 2014). Green elements are also integrated in this cemetery for beautification purposes. They were not strategically integrated to complement the gray infrastructure. This can be observed in other elements of the design, for example, berms and pavements that fail to intercept rain water. Features that contribute to water retention in the grave sections need to be purposely integrated within the cemetery's design features; not just for the cemetery's functional purpose, but for the effective functioning of the city.

Resilience emphasizes the provision and enhancement of protective natural and man-made infrastructure. As previously indicated, there are indigenous trees that add to the aesthetic feeling of the cemetery. If designed and planned efficiently, the green infrastructure can complement the gray, and even take over when the latter fails. However, three problems can be noted with the green elements within the cemetery's design.

Firstly, some of the drainage channels are not well-maintained to allow for seepage. These cannot function as they should as their ability to intercept rain water is reduced. The stormwater drainage system needs to be maintained to ensure effective operation. Secondly, the topography of Waterval Cemetery is steep. It is characterised by typical Highveld grassland, which will eventually be disturbed by burial. With time, the bare slopes could lead to erosion and flooding. Thirdly, "unfortunately due to permanent burial, all of the natural grassland will ultimately be destroyed," (Developer, pers. comm, 2014). The poor upkeep and loss of green infrastructure elements increase the physical vulnerability of urban systems. And this puts the infrastructure in a position where it is not able to withstand erosion, floods and other physical vulnerabilities. This increases the susceptibility of urban spaces to risk, and reduces their resilience to acute shocks (e.g. floods). Fourthly,

the green elements could have been designed beyond beautification purposes. For example, native grasses and pervious drainage passages that allow rain water absorption could have been used, instead of concrete impermeable surfaces that tend to increase free-flowing rain water, which could potentially increase floods and erosion. The greening of cemeteries can go further to enable the realisation of ecological benefits through appropriate design. In terms of a resilience framework, the JCPZ failed to optimise the cemetery's ecological capability of helping to reduce the physical vulnerability of urban systems.

The following section explores the potential of Waterval Cemetery to integrate alternative uses.

5.5.4 Alternative and complementary uses within Waterval Cemetery

The ability to successfully adapt to change requires knowledge and information on social values. Akamani (2014) shows that a system can strengthen its adaptive capacity to deal with the change and contribute to this awareness through integrating local and scientific knowledge and promoting social learning. Adaptive capacity thus opens possibilities for local communities when integrating local and scientific knowledge. This ensures that local knowledge is applied in resource management, and the integrated knowledge then feeds into decision-making processes, whilst also increasing social learning. Social learning can thus be improved by sustaining interactions of all stakeholders in all stages of decision-making.

Resilience shows that to achieve sustainable use of ecosystem services, there has to be continuous understanding of the capacity of ecosystems to provide services (Gunderson and Holling, 2002; Olsson *et al.*, 2004). As much as it is a place where the dead are buried, “a cemetery is not a dead place or a dead end” (SAPS Colonel, pers. comm, 2014). The SAPS Colonel interviewed argued that it is where people practise their cultural beliefs in remembrance of those who have passed on. Allowing people from diverse cultures and religions promotes an inclusive local cultural heritage, encourages cultural diversity and in turn promotes tolerance and a willingness to accept other cultures. It signifies an “ongoing chain of relationships that is created between the living and the dead,” (SAPS Colonel, pers. comm, 2014). Because of the beautiful landscape, the cemetery becomes a dignified space enjoyed by the living, where they are able to feel they are rebuilding relations with those

who have departed. Waterval houses people with different beliefs and therefore promotes cohesion and a sense of collective identity and mutual support.

Waterval carries a huge potential in terms of allowing diverse functions (Developer, pers. comm, 2014). However, the developer emphasized the need to respect different cultures should there be plans to diversify the functions in the cemetery. The JCPZ is open to integrating mixed uses at other cemeteries, such as Westpark, with a plan to introduce a coffee shop. However, this “would not be ideal in townships as people are still very cultural, and would resist such an idea,” (JCPZ Official, pers. comm, 2014). According to him, a shop that sells items that are essential during cemetery visits could be successful in townships. Still referring to cemeteries as township and affluent, however, questions the shift in mindset and the very plans to redress socio-spatial inequalities. Apart from having a garden-like ambience with personal identity and symbolism, some of the design considerations for the project included a flower-selling point, although this is not yet operational. Tourism initiatives have also been proposed within Waterval, where high-profile individuals will be buried. Increasing the use of the cemetery would require consultation with users (Developer, pers. comm, 2014).

The JCPZ acknowledges its understanding of social benefits of greening (aesthetic and cultural benefits), although they fail to realise more ecosystem services that could provide substantial benefits. The greening of cemeteries currently addresses the aesthetic backlogs inherited from the past. The CRL Commission official argued that integrating passive recreation would symbolise lack of respect for the dead and the bereaved. In contrast, the representative from SALGA (pers. comm, 2014) complained that municipalities were not open to recommendations of integrating park-like features within cemeteries. Confirming this, she showed that municipalities, “would say people don’t like it, but in actual fact they themselves do not like the ideas. They just assume, so I think that’s one of the challenges here,” (SALGA official, pers. comm, 2014). Engagements with the JCPZ also confirmed this as officials had not undertaken any awareness campaigns, yet some were adamant that communities would not be open to integrating interesting elements (e.g. mixed uses) within the cemetery’s design.

The availability of forums for social interaction is critical to enhance shared understanding

and promoting collective responses to social-ecological change (Gunderson *et al.*, 2006; Akamani, 2014). Generally, a key challenge in the adoption of adaptive management policies is the reluctance of officials and decision-makers and other powerful stakeholders to embrace change and resilience-thinking principles (Akamani, 2014). Although not all, some of the resilience principles have been embraced in the CoJ. For instance, engagements with some officials showed that they conclude from their offices that people would never adopt alternatives such as cremation, or that green infrastructure elements are costly. And yet no evidence was presented to substantiate this thinking. This proves that the City still has a long way to go before the process of transformation can commence. This transformation cannot happen on the ground whilst decision-makers and officials do not show willingness to gather evidence before completely ruling out alternatives that could work. Because these alternatives are quite new to some, this would require ongoing communication with cemetery users. The communication would also help ensure that people understand why such alternatives are necessary, before ruling out whether they can work or not. The City has therefore not put in place methods that would help determine resistance to these new innovations and how they would be addressed.

Resilience encourages cities and institutions to be reflective and resourceful so that when faced with stresses, they can learn from past experiences (da Silva *et al.*, 2012). They are able to recognise alternative ways to use resources in order to meet their needs. The previous chapters show that flexibility is another quality of resilience that refers to the willingness and ability to adopt alternative strategies in response to changing circumstances. The City is forced to discover ways of incorporating innovative elements in cemeteries as an alternative strategy to the way cemeteries have been provided in the past, particularly in previously disadvantaged areas. Also, due to the increasing land shortages, CoJ is compelled to identify and adopt alternative methods to interment.

The layout at Waterval allows for future development of niches, which would store cremation remains (Developer, pers. comm, 2014). Cremation is on the rise due to increasing urbanisation, modernisation and changing societal dynamics (JCPZ Official, pers. comm, 2014). The official's argument is that economically active people move quite a lot, hence cremation would be the best option for them. This would allow them to move freely

with the cremains²⁹ without being forced to visit cemeteries. The official further argued that cremation numbers would increase due to its affordability in comparison to conventional burial. Cremation works out cheaper when compared to normal burial because many of the extras that come with a normal burial are not required, and the actual cremation requires simple coffins that are not expensive. According to Christian teachings and other cultural beliefs, people used to equate cremation with hell due to the burning of fire (JCPZ Official, pers. comm, 2014). Although this view can be debated, he admitted that because of awareness and exposure, people were in a better position to know and choose.

According to the CRL Commission official, both the Commission and communities would not easily adopt new methods of body disposal, especially cremation, because “the gravesite marks a sacred place where people visit to show their respect and to communicate with the deceased,” (*ibid*). The issue of alternatives is discussed in depth in Chapter 6, which explores cemetery users’ perceptions of alternatives to burial.

The JCPZ views diversified uses as those that have the potential to bring in an income (JCPZ Official, pers. comm, 2014), without really considering more institutional and social benefits. For example, these include grave reservations and filming (e.g. if local production houses have a scene within a cemetery). However, developers had a different understanding, particularly the potential to integrate passive recreational activities (Developer, pers. comm, 2014). When probed further about the City’s plans to introduce more alternatives to burial, the JCPZ had plans to incorporate tourism to attract visitors, particularly in the heroes’ acre (JCPZ Officials, pers. comm, 2014). This high-profile section has been allocated at Waterval Cemetery, although to date very few burials have taken place. And the JCPZ is still to decide on how the tourism attraction would contribute to its revenue. For instance, it would form part of the overall city tourism packages or could be a standalone product that requires an entrance fee from tourists. A proposal had been made for an arboretum in the large central circle reserved for the development of later phases of the cemetery (Developer, pers. comm, 2014). The groupings of trees could act as “memorial forests” that could be dedicated to the deceased, where plaques could be placed on the trees (*ibid*). In the design, provision was also made for a prayer hall, a tearoom and a flower-selling facility for the

²⁹ Remains from cremation.

Muslim community; although these have not yet been built (Developer, pers. comm, 2014).

A CRL Commission Official was asked whether mixing uses within the cemetery would be successful. He indicated that other uses that were not related to the disposal of remains would not be adopted in South Africa, as they would not be respectful to the deceased and visitors of these cemeteries. He also argued that such spaces would not be used adequately. A representative from the SAPS believed that if funeral homes and mortuaries shared space in the cemetery, they could in turn share the responsibility for its maintenance (SAPS Colonel, pers. comm, 2014). This, according to him, would be an opportunity to design it in a “user-friendly” way, which could reduce maintenance costs and discourage crime. Over and above the reduction of maintenance costs, integrating multiple uses within the cemetery would ensure efficient use of space (*ibid*). This idea of multiplicity will be discussed in upcoming chapters, which will deal with cemetery users’ perceptions of newer methods to cemetery planning and provision.

Waterval Cemetery was likened with cemeteries in Italy and Australia, where vertical burial is practised but where only flat plaques are allowed as these make for easy lawn mowing and reduce crime (Developer, pers. comm, 2014). The plaques are less ornate and therefore less of an attraction to criminals. Also, they do not provide criminals with shields to hide as is the case with headstones and full body memorials. According to the developer, this shows people’s openness to doing things differently. In comparison, Waterval Cemetery allows headstones. The success in its uptake, as demonstrated by the large number of people who choose to bury their dead there, could be attributed to that, as headstones do not seem too far-fetched for people who were previously accustomed to full-body memorials.

From engagements with different stakeholders, it became apparent that cemetery design and upkeep could potentially influence crime and feelings of safety and security. These sentiments are discussed below.

5.5.5 Cemetery design and upkeep affect the likelihood of criminal activities

According to da Silva and Morera (2014: 7), a resilient city is one that has social stability and security; it ensures law enforcement, crime prevention and justice. This section discusses whether the design and upkeep of cemeteries can increase the probability of criminal activities within these spaces. It draws on discussions held with two officials from the SAPS

and the JCPZ.

Sugino and Arima (2014) argue that the environmental setting is important and should be considered when planning spaces that are safe. This speaks well to the Crime Prevention Through Environmental Design (CPTED) principles, which identify factors about a location that puts people in danger, and thus deter criminal behaviour through environmental design. The JCPZ and SAPS officials agreed that the main cause of criminal activities within cemeteries is isolation. Waterval Cemetery is located far from users, meaning that, in a way, it is isolated. Isolation also occurs within the cemetery itself. This can mean that it is inadequately used because of its distance. This was observed on several visits made during the week when there was not much activity at the cemetery. However, during weekends, when most people seemed to get buried, the cemetery remained very active.

So far, there has not been any crime reported within the boundaries of Waterval Cemetery. This, according to officials, is because the cemetery is fenced and there is security at the entrance. Another reason no crime has been reported at the cemetery is that patrols are scheduled several times a day (SAPS Captain, pers. comm, 2014). Also, because the cemetery is located far from communities, it does not attract activity when compared to the old cemeteries, which were usually only walking distance away. In this case, isolation becomes a positive trait for the cemetery in terms of crime.

The size of Waterval Cemetery, together with the size of memorials (particularly the headstones), could potentially attract crime. The size of headstones means that criminals could easily hide without being noticed. "As it fills and more people erect headstones on their graves, the probabilities of crime taking place can grow," (SAPS Captain, pers. comm, 2014). Although Waterval Cemetery is enormous, it may not take that long to fill due to the increasing demand for burial space. If elements integrated within the design of a cemetery do contribute to the rate of crime, then Waterval could eventually fall prey. The centralisation of facilities, the administration and ablution blocks could help curtail crime. The administration block has two storeys, and its design allows for easy policing, as security has a view of the whole cemetery from the building. Centralising these facilities means that visitors are always visible especially from the administration block.

When asked about whether any illegal burials had been reported at Waterval, no official reports had been laid and officials from the SAPS could not confirm any reported incidents either. When asked about the likelihood of crime happening in mixed-use cemeteries, there were mixed feelings. Although one SAPS official felt that mixed-use developments would increase traffic and reduce crime, another one felt differently. He thought that increasing traffic would increase acts such as vandalism. His argument was that currently Waterval Cemetery is not accessible to most, so criminals are discouraged to travel that far. However, if more developments were to be introduced within and around Waterval, then those would attract crime.

5.5.6 Using Waterval Cemetery to help foster economic prosperity

The robustness of an economic system is assessed through investments that help a city to provide new and maintain old infrastructure (da Silva and Morera, 2014). This can be achieved through having diverse revenue streams and building contingency funds that help the city respond to stresses that weaken the fabric of a city on a daily basis. At Waterval Cemetery, the money accumulated from grave digging (e.g. R200–R300 per adult grave) is pooled back to the maintenance of the cemetery. At the time of the fieldwork (in 2014), it cost an average of R1 175 for a grave. The money collected from purchasing graves is collected in one account and shared among all entities of the CoJ. The different entities each decide how to utilise the pooled resources. Other streams of income the City has from cemeteries include grave reservations and renting out portions of the cemetery for filming. These, and the sale of graves are not sufficient for the future running and upkeep of the cemetery.

Once Waterval Cemetery fills up, it will require the JCPZ to inject money towards its upkeep. In this regard the City does not have sustainable revenue streams, unless it finds other uses that can be integrated within the cemetery, which will attract business investment and help the cemetery take care of itself. Some of the ideas proposed in the discussion above (e.g. tourism), could help the cemetery run itself. For now, the cemetery allows densification, which is done through multiple burials in a grave. These are meant to promote the sustainable use of space. However, they are also used to increase the cemetery's revenue. To increase densification, very little space is left between graves, and full memorials are prohibited. Grave iron fencing/railings, and brick-laying to mark the grave, are also not

allowed. This ensures efficient use of space. All these efforts stretch the use of space and allocate as many graves to the space as possible. Although the grave fee is reduced, successive burials also bring in money.

The CoJ, particularly the selected study sites (Alexandra and Rabie Ridge), faces many social ills, some of which include poverty, youth unemployment and crime. The City has come up with projects that are aimed at helping communities to access diverse livelihoods and employment opportunities. For years, the JCPZ staff was responsible for the upkeep of cemeteries (JCPZ Official, pers. comm, 2014). The JCPZ later established that it was cheaper to employ contractors for cemetery maintenance instead of utilising its own staff. Using JCPZ staff for maintenance purposes was costly as over and above remuneration, they received other benefits as well (e.g. medical aid and pension funds) (JCPZ Official, pers. comm, 2014).

The resilience framework looks beyond the economic robustness of institutions and therefore observes the ability of systems to improve livelihoods of individuals through, for instance, employment. Access to basic services and better livelihoods support people to survive and thrive (da Silva and Morera, 2014). The CoJ is able to assist communities to meet their basic needs (e.g. food and shelter), access diverse livelihoods and employment opportunities through the Expanded Public Works Programme (EPWP) and the Jozi@Work Programme³⁰. These programmes include access to business investment and development. They improve the city's resilience through facilitating a more vibrant economy and thus fostering economic prosperity, particularly in the selected study sites.

Through the EPWP, local community members were employed in the development phases of Waterval Cemetery. Following the EPWP contracting system, when a contractor wins a tender, they are encouraged to boost an area's economy by buying materials from local businesses. They also work through councillors to identify and employ local people during development. After project completion, local people are employed for maintenance. Through the Development Services Delivery Model (DSDM), the JCPZ has decided to move from using contractors not residing in the area of development, because the old model

³⁰ A programme launched in 2014 where Johannesburg communities partner with the CoJ in the delivery of municipal services in their neighbourhoods. This programme was recently cancelled by the CoJ Mayor Herman Mashaba on grounds that work opportunities were unfair and unequal. The CoJ is working on establishing a new programme that would be modelled on fairness and equal opportunity.

mainly benefited company owners. The DSDM model allows economic benefits to be shared amongst locals.

Through the Jozi@Work Programme, communities are encouraged to register cooperatives (JCPZ Official, pers. comm, 2014). This is to ensure that benefits are equally distributed across community members (*ibid*). It is through these cooperatives that members of the community will apply for diverse opportunities within cemeteries and parks. These cooperatives undertake projects, such as grass growing and mowing, grave digging and general maintenance of cemeteries. These not only ensure that communities are involved in the upkeep of spaces they regard as sacred, but they are able to financially support their families doing so. Through these programmes, the City offers skills training to ensure the communities are able to do their jobs.

5.6 The main elements of the Diepsloot Memorial Park (DMP) case

In its innovative design, DMP has introduced flat plaques instead of the normal tombstones or headstones allowed at Waterval. These are argued to increase consumption of land. This is in line with densification efforts that ensure that graves are able to contain as many as three bodies. Also, in line with these efforts, very little space is left between graves. The use of plaques is very modern, as they blend well with the park-like features. However, they are very foreign to users. Although they entail the same inscriptions as those found on common headstones, users still view them as inadequate. To improve the economic prosperity of Diepsloot, local community members were employed during the development phases. This took place through the EPWP, just as people were involved during the development of Waterval. The development of DMP cost R17 million, yet its full potential is not fully realised. Not many people want to bury there, and hence the investment poured in its development does not reflect its use. Appendix A discusses all the innovative elements in detail and how users perceive it.

5.7 Institutional barriers to resilient cemeteries

An institution's ability to adapt and retain its effectiveness, despite changing external conditions refers to institutional resilience (Steinberg, 2009). Effectiveness implies the extent to which an institution fulfills its core mission, even if the organisational systems (e.g. staff, procedures) and strategies change over time (*ibid*). However, even if the systems and processes in place persist, the institutional arrangement may fail. This section explores

institutional constraints to newer approaches and models that strengthen a system's resilience.

Cross-sector collaboration that challenges 'silo' approaches in government is critical to effective decision-making (da Silva and Morera, 2014:13). It is the JCPZ's responsibility to provide and manage cemeteries without support from other government departments. This environment of working in silos does not promote the distribution of resources, particularly knowledge sharing. This is detrimental to the cemetery-planning sphere as it discourages coherent coordination. It might not be possible to demand coordination between entities and departments for the provision of cemeteries. However, it is critical to strengthen opportunities for cemetery planning, resource and knowledge sharing so that the planning process is aligned and improved. Opportunities to have aligned and integrated development initiatives are missed due to this disjuncture.

With respect to the JCPZ, the limited fiscal base and autonomy imply that the entity is forced into reactive decision-making and crisis management. The JCPZ's fiscal base, coupled with the rapid depletion of cemeteries over the years, has not allowed pro-active cemetery development. The JCPZ has had to plan on its toes with regard to growing burial demand. Both the rapid depletion of operational burial grounds and budgetary constraints have caused the development of cemeteries in phases, as is the case with Waterval Cemetery (to be discussed below).

"Cemetery services are heavily subsidized by municipalities as revenue generated from this sector is significantly low compared to the total budget allocated," (Gwala *et al.*, 2014: 11). The JCPZ prioritises the development and maintenance of parks and recreational facilities over cemeteries. Although the JCPZ faces growing demand for accessible burial spaces, there are budgetary constraints, as it does not always get the funds calculated in the proposed budget drawn up and submitted to the CoJ. For instance, the City's 2016/17 total budget amounts to approximately R54.8 billion, whereas JCPZ's is R38.1 million (inclusive of salaries, sundries and cost of sales (e.g. grave digging, purchasing of cremators)) (Moloi, pers. comm, 2014). All income generated goes to the City. JCPZ's decision to undertake projects in phases until completion (e.g. Waterval Cemetery), is therefore the main cause of delays in the supply of burial spaces. This has led to a slow delivery process, as the time

between cemetery development and operation is increased.

Although cemeteries are sacred spaces that promote local cultural heritage, the City is constrained to provide innovative and inclusive cemeteries due to insufficient financial resources. Lack of finances affects the supply of innovative cemeteries in two ways. Firstly, introducing different amenities that were previously not available in older cemeteries requires a lot of money. Integrating complementary infrastructure can also be costly during implementation, though cost-effective in the long run. Secondly, although a facility such as this is not effectively used, money continues to be spent towards its maintenance and management. This costs the City money that could be directed towards development of new facilities that would be adequately and frequently utilised.

“Spatial planning cannot be dealt with in isolation – from either infrastructure and service provision or other aspects of land policy,” (Rakodi, 2001: 216). Planning cemeteries in isolation implies that the bulk of the work rests on the relevant department (Cemeteries and Crematoria) alone. Working in silos cannot be of benefit as it burdens one department, and restrains knowledge exchange between departments. Decentralising responsibilities for infrastructure and cemetery provision broadly, and involving local government and internal departments, private entities and the public, requires strong inter-organisational networks in relation to administrative duties. Allocation of responsibilities, effective and efficient performance, accountability and achievement of policy goals could set the platform between the different stakeholders and establish trust, confidence and respect for authorities.

Cemeteries are still dealt with in isolation. This is in terms of their design and location. Their location is driven by the current need, the cost of purchasing the land, and not how connected they are to other open spaces. This leads to the sporadic location of open spaces that do not promote easy access, free flow of species, and their collective performance, particularly in terms of their ecological functioning. For instance, when open spaces are planned as a collective, they can become effective carbon sinks unlike when they are patchy and do not foster a shared and effective performance to attain the desired effects (as viewed from figure 5.1). When interlinked with other open spaces, they are in a better position to encourage efficient use. For instance, cemeteries, such as Waterval, could

potentially have hiking trails and become spaces that promote contemplation for visitors (Developer, pers. comm, 2014). Incorporating hiking trails and a park inside a cemetery creates large open spaces, which can potentially promote prolonged and different uses. This connectivity implies that large areas of land are in a position to provide several ecosystem services at the same time. For example, having an aesthetic appeal, acting as carbon sinks whilst intercepting large amounts of water, reduces soil erosion and flooding episodes. This thinking requires support from progressive officials. It is the lack of support from decision-makers who still view cemeteries as sensitive sacred spaces, which delays progressive thinking and transformation.

This conventional planning and thinking spreads across other efforts. For instance, interventions that promote the use of indigenous vegetation are largely approached from a conservation perspective, rather than from broader infrastructure planning. Green infrastructure methods are labelled as expensive without any evidence as argued by some JCPZ officials. It is this conservative thinking that causes resistance and scepticism in identifying and implementing alternative infrastructure. These officials equate green infrastructure planning and management with conservation to address the ecological disparities and to beautify the built infrastructure. This thinking shows limited understanding of green infrastructure planning, both in plans and practice; hence the delay and reluctance to transform. The progressive officials are discouraged by daily operations that continue to promote the implementation of gray infrastructure that deals with, for example, stormwater management. The potential of green elements to strengthen ecosystem management is still not understood.

The fact that cemeteries are not at the forefront of planning shows that there could be other pressing needs about which authorities are mostly concerned. The interviewed JCPZ officials strongly felt that they are forced to be proactive and plan for death with or without the people's willingness to participate. As witnessed from interviews with them, they engage communities in the design of parks but not in cemeteries. As confirmed by the response "the duty lies with City Parks only," (JCPZ Official, pers. comm, 2014), hence the officials seem to have concluded that due to their strong personal cultural beliefs, communities will not be interested in being involved in cemetery-planning processes.

5.8 Conclusion

The significance of cemeteries for local communities is wide, as they are able to embrace cultural, historical and environmental benefits, as well as educational and recreational uses. Although Waterval Cemetery meets some of the criteria in contributing to the overall resilience of the city, there is room for improvement, either within the cemetery or in new developments going forward.

First, the primary limit constraining the planning and provision of cemeteries in the CoJ relates to the limited policy guiding cemetery planning. Hence although progressive efforts can be made, mainstreaming it in infrastructure planning will still be difficult. For instance, greening initiatives directed toward balancing ecological benefits throughout the city are guided by conservation ideals and the need to beautify these spaces. So their potential to be planned as part of the city's infrastructure is still not appreciated.

Secondly, cemeteries are not included in the City's forward planning. Most planning for cemeteries is isolated and is done on a needs basis when a new cemetery is being developed. This implies that although cemeteries are consumers of large spaces of land they are not integrated in long-term planning and in relation to adjacent land uses. Hence their potential to play integrated functions is unlikely to be realised. Nonetheless, success in the transition toward adaptive governance structures and institutional arrangements could be enhanced where favourable conditions exist, such as flexible institutional systems, as well as an enabling policy environment that promotes participation in decision-making. These preconditions for successful transition deserve attention in cemetery planning in the CoJ. The fact that the JCPZ is the only entity responsible for cemetery planning implies that other government departments (e.g. Department of Development Planning) do not include cemeteries in their plans either.

Thirdly, the limited budget directed toward the planning and provision of cemeteries implies that the JCPZ at times fails to meet demand. This can result in illegal cemeteries (sometimes due to the cost of burial), that probably develop on land that is unsuitable. This did not come up strongly in the study but could be explored in future studies as illegal cemeteries were noted at the beginning of this study. The issue of budgetary constraints also affects decisions regarding investments directed toward new cemetery development. Large

investment was poured into the development of Waterval Cemetery, and although there has not been resistance toward the cemetery, the space is still not fully utilised. A large investment also went into the development of DMP, yet the cemetery's uptake has been very poor.

Although the old dominant models that were introduced in the previous administrations have proved to be resilient, this chapter showed that there is a slow shift from cemeteries that are gray and mono-functional to innovative ones that encourage sustainability. Institutional and cultural limits still exist that constrain this move. Although officials can be expected to be progressive in their thinking and planning, they remain conflicted due to their personal cultural beliefs and those of community members. For example, the officials could be right in the case of DMP; however, the experience at Waterval Cemetery is different. Although this internal conflict could delay the transformation needed in planning cemeteries as spaces to be enjoyed by both the living and the dead, it highlights the need to judge the experience case by case.

There are not only negative implications that can be noted from the development of Waterval Cemetery and DMP. Several resilience principles are evident in their planning, design and management. First of all, throughout development, the JCPZ's ability to collaborate with developers showed they were open to integrating processes of good governance and effective leadership. JCPZ built trust with developers, and this allowed an exchange of ideas during the planning phases. This was shown by constant communication between them and the developers. Collaboration with and access to senior management meant that the JCPZ was open to suggestions and proposals to take the development to a different level. The upcoming chapters will discuss whether such collaborations were afforded to cemetery users as well. It was during collaboration with developers that JCPZ demonstrated the ability and willingness to adopt alternative strategies in response to changing the cemetery planning trajectory. This flexibility was made possible through knowledge exchange, which improved the City's ability to learn and experiment with new ideas, which can be seen at Waterval Cemetery. Apart from the strong leadership, these collaborative processes demonstrated and promoted inclusive decision-making and empowered stakeholders.

The JCPZ showed an ability and willingness to learn from past experience to inform future decisions in response to changing conditions. In an effort to redress the ecological imbalances inherited from apartheid, the JCPZ has been embarking on projects that improve the city's infrastructure. These projects include the greening of old and new cemetery developments. Although these can be seen in a positive light, there is a fear that they are unnecessary (this issue will be dealt in depth with in Chapters 6 and 8). This can be witnessed from the poor uptake of DMP. Although this is an innovative solution that combines burial with recreation, the cemetery has not been successful in attracting new burials since its inception in 2007.

The green elements integrated at Waterval Cemetery are for beautification and conservation purposes. Some of the green infrastructure elements contribute toward the aesthetics of the cemetery and could in the future play even larger roles of passive recreation if there is a mindset shift and culture transformation, as explored in the following chapter. Harnessing the already-integrated green infrastructure elements and introducing new ones could potentially enhance the functioning of conventional infrastructure within the cemetery and beyond its boundaries, and thus enhance the resilience of the city. Although only the first phase of Waterval Cemetery has been completed, there is room left to develop the cemetery beyond its distinct function. The cemetery has potential to function beyond its predicted role, and thus contribute to the city's overall resilience through combining uses. Although it cannot be completely ruled out, it is an undertaking that would require significant consideration of people's beliefs.

Rapidly expanding urban spaces are faced with overstretched infrastructure. In its planning, the JCPZ has not yet fully exploited the potential of cemeteries to be designed as part of the green infrastructure so as to harness their ecological functioning. Although physical infrastructure has been designed to manage stormwater drainage, this infrastructure was not designed to have the built and natural infrastructure complement each other. The natural resources are integrated in the design as soft aesthetics that give a break from the gray built environment. Further, the built structures are not well maintained. This reduces the design's ability to withstand floods.

Waterval Cemetery contains innovative elements that can function beyond the social

aspects (e.g. burial, educational, heritage, aesthetics), and these were incorporated in the design to help with the cemetery's overall functioning. The green infrastructure elements integrated within the cemetery's design help with the day-to-day functioning of the cemetery. Going into future developments of other phases, the JCPZ has the opportunity to realise the potential of the new phases. And unlike most old cemeteries located in previously disadvantaged areas, the location and design of Waterval Cemetery has led to a space that is currently crime free. Measures put in place have deterred criminal activities within this space.

The JCPZ's revenue streams are limited, and are therefore not sustainable, particularly with the cemeteries reaching capacity in the future. There are plans to develop Waterval into a tourist attraction spot for income generation. Although there are plans to integrate other uses within the cemetery, it remains to be seen whether these will be used. Initiatives proposed by the City (e.g. tourism) to attract investment do not guarantee sustainability and Waterval's ability to self-maintain once the cemetery has reached capacity. The lack of contingency plans for multiple streams of revenue will continue to put added pressure on the City to support with the maintenance of old, and development of new cemeteries. The upcoming phases at Waterval give the JCPZ a platform to realise more opportunities for sustainable multiple streams of income.

Another way through which resilience is fostered, in areas surrounding Waterval, is through the introduction of the EPWP and Jozi@Work Programme, which help community members to access diverse livelihoods and employment opportunities. Due to these programmes, communities can access business investment through skills training and development. And it is through these opportunities that poverty levels and crime can be reduced within these areas.

Chapter 6 will report on the findings from engagements with cemetery users.

Chapter 6: Cemetery users' perceptions of newer cemetery models and alternatives to conventional burial

6.1 Introduction

Within a resilience framework, systems are said to be complex and adaptive because of the interdependent nature of the environment and communities; where the social and cultural relations play an important role so do the natural relations (Mehmood, 2016). The nature of relationships between social and ecological systems is seen to be effective due to the governance structures, adaptive capacity of communities, and the role of the natural environment and the ecosystem services it provides (*ibid*). Drawing upon the emerging themes from the fieldwork, this chapter documents findings from engagements with Waterval Cemetery users (local ward councillors, church leaders, households), and their views on various aspects of burial and cemetery design that might be seen as consistent with resilience principles. In doing so, the chapter assesses: 1) whether stakeholders understand the design elements that have been integrated within Waterval Cemetery, 2) their understanding and acceptance of a multi-functional cemetery, and 3) openness to innovative methods of interment.

This chapter presents findings from individual interviews and focus groups. The first section documents the conceptualisation and planning of Waterval Cemetery, and investigates whether the different stakeholders were aware of plans to develop it. It seeks to understand participants' perceptions of Waterval Cemetery toward its design and the innovative features it integrates. These include green infrastructure elements, proposed diverse uses and alternatives to conventional burials. The objective is to understand whether participants are open to use a cemetery that has evolved from the old cemetery models (particularly those in previously disadvantaged areas) to those that have integrated innovative elements that utilise their elements to function ecologically, promote socially-cohesive communities, and encourage efficient use of space. The chapter also looks at the use of Waterval Cemetery, and its proximity to users. The objective is to also discuss the barriers that could constrain the appreciation of the innovative design features by users, and the uptake of alternatives to traditional approaches to cemetery provision, and methods of burial.

6.2 Participation in the conceptualisation and planning of Waterval Cemetery

This section focuses on participation in the conceptualisation and planning of cemeteries, and how various users and interest groups view that. Interviews with users involved asking them whether they were consulted before the planning and development of Waterval Cemetery, and whether they would be interested in participating in future developments. Councillors were aware of the development and the request made by the Mia family to have different sections. It was unclear whether the sections would be divided by race or religion. However, a councillor from Rabie Ridge explained that they, as councillors, had disputed that recommendation, as it would perpetuate segregation:

“The Mia’s family was owning that area, they wanted it to be for this side people and this side people, and we said, no, a cemetery should remain a cemetery, there is only one thing, they will have to be buried in one cemetery not others there and others there, it must just be like that,” (Rabie Ridge councillor, pers. comm, 2014).

Although some councillors were against the development of a separate Muslim section, as the plans stand, a portion of the cemetery has been allocated for future Muslim burials. Within this, allocation has also been made for a prayer hall, a tearoom and a flower-selling facility for the Muslim Community.

Undertakers responded that the JCPZ follows a top-down approach in cemetery planning and development, hence they did not take part in the development of Waterval Cemetery. Their concern was that the JCPZ plans for the present without considering future growth and demand for cemetery development. According to most undertakers and the representative of the Central Islamic Trust (CIT) (an organisation responsible for Muslim burials), the only meetings that take place between them and the JCPZ address the issues surrounding the availability of space for grave allocation and amendment of by-laws. They were not involved in the planning of Waterval Cemetery either. The official from the CRL Commission supported the view that education and awareness were vital and that the JCPZ should not just draft by-laws expecting people to follow without being educated about different challenges they face and without being sensitised to different solutions.

A recurring response from community members was that it was common for families to

discover a new cemetery from an undertaker, whilst preparing for burial of a loved one. Funeral undertakers seemed to share the same sentiments as they demonstrated that only when they booked were they told about the new cemetery in which they could start burying. In justifying why households did not participate in the planning of Waterval Cemetery, an Alexandra councillor responded that:

“We have not given them [local families] more time [to become involved with the planning]. Even if you try and give them more time, they will not come because there are people who believe that they must only go to the gravesite or talk about it when someone is dead, that is how they believe. They are not going to come in numbers. We have to talk about it and try to tell the people and participate and tell us what are their needs,” (Alexandra Councillor, pers. comm, 2014).

This statement shows the discomfort of community members towards discussing future allocation of cemeteries and probably death-related matters unless a death has already been declared.

Faith leaders were asked how councillors could ensure that communities were involved in the future planning and development of cemeteries. Two faith leaders felt that councillors did not understand the communities’ needs and challenges, because as soon as they were elected, they moved to affluent suburbs (Apostolic Church Priest and Uniting Reformed Church Theologian in training, pers. comm, 2014).

Showing that councillors did not prioritise the communities’ needs, the Apostolic Church Priest further explained,

“Forget about them, each and every one of them, they are looking to fill their pockets and that’s the truth; everyone is looking for his own pocket. It’s no more a calling, it’s something to make money. I think the best thing that I can see fit is that it’s time now for the City Parks and their councillors to stand up and stop being lazy and expecting other people to do their work. They must create seminars where they can convey their message to the masses,” (Apostolic Church Priest, pers. comm, 2014).

Of the twelve faith leaders who were interviewed, only one attested to having been aware of and involved in the planning of Waterval Cemetery. He was from an African Initiated Church, and showed that they were informed by the previous Mayor about JCPZ's search for land that would be developed for a burial ground in response to Alexandra's lack of cemeteries (Ethiopian Catholic Church Priest, pers. comm, 2014). According to the priest, all Alexandra cemeteries were full and were only accepting second burials³¹. When asked whether there was a need to involve the church in the planning of cemeteries, he responded that, "the church is like a community. And everything City Parks does, it does for the community. So the church should be at the core of planning for cemeteries," (Ethiopian Catholic Church Priest, pers. comm, 2014). The rest agreed that it was essential for JCPZ to involve them in future cemetery developments. The priest from the Rabie Ridge Apostolic Church argued for long-term and integrated planning of a newly-established residential area, and elaborated further:

"When people think about houses, when they build houses, City Parks at that time must think of cemeteries: Where are these people going to bury their loved ones? Is there enough space? Can we lay some pipes for water and sanitation? Those are the things that comes [to mind] before building."
(Apostolic Church Priest, pers. comm, 2014).

As users of cemeteries from a religious perspective, the church's role is to support grieving families. Hence, its input would involve contributing to the cemetery's aesthetics and how it could best provide comfort to bereaved families. All faith leaders, including those not aware of efforts to seek land and develop Waterval Cemetery, found it important to be involved in such developments because of roles church leaders play in society. They showed that families sought solace from the church, which offered support as soon as the family learnt of a loved one's death. Its contribution to the processes of cemetery planning and development would be more toward the design that would ease the grief for the family, especially during burial and visits to the gravesite.

As represented by graphs 6.1 and 6.2 below, households were asked whether they had participated in the development of Waterval Cemetery, and if they were interested in being

³¹ The burial of a second body is legally allowed between at least twelve to eighteen months after the first burial. In the CoJ, only family is allowed to bury in one grave.

involved in the conceptualisation of future cemetery developments. Of the thirty-three participants that were interviewed, only one said she knew about the development of Waterval Cemetery, although she could not remember through which media she learned of the development. Twenty-five said they had not been aware prior to the development. Four were not sure whether community members had been invited to any public participatory processes, whilst three did not respond to the question. Only twenty-three of the participants showed interest in being involved in the planning of Waterval Cemetery and development of future cemeteries, whilst only one was not interested. Seven of the respondents were uncertain about their contribution in future cemetery planning, whilst two did not respond to the question.

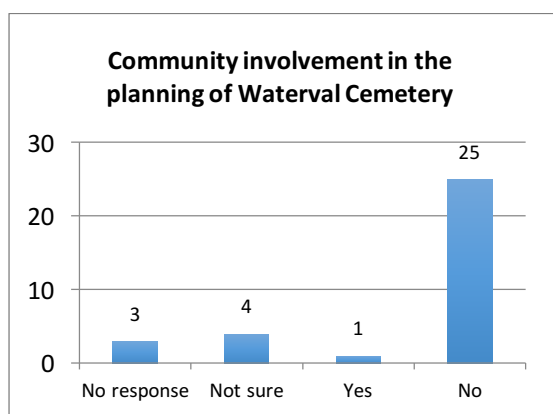


Figure 6.1: Number of participants who were involved in the planning of Waterval Cemetery.

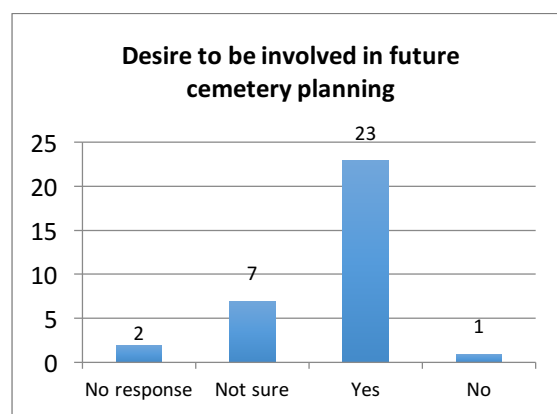


Figure 6.2: Number of participants interested in taking part in the planning of Waterval Cemetery.

Although Alexandra had no operational cemeteries, and Midrand was nearing capacity, most participants were not aware of plans to develop Waterval Cemetery. Most only got to know of it once it was developed, and had opened its gates for burial. There was a shared reaction amongst the respondents that government always undermines them and their views. For instance, participants felt that the JCPZ should engage people and explain to them challenges they are faced with concerning cemeteries.

One resident of Alexandra, who had heard of plans to construct Waterval Cemetery before development started, indicated that she heard of the public participation meetings even though she did not attend them. This confirmed sentiments felt by the Alexandra Councillor concerning how community members are not interested in matters relating to death and

cemetery planning. In further responding to whether it was important to include members of the community in cemetery planning processes, and in particular Waterval Cemetery, some respondents explained,

“No, I was never aware of any cemetery planning and developments. The only time we think of cemeteries is when we lose a loved one. We don’t even know who owns the cemeteries,” (Alexandra community member, pers. comm, 2014).

“There is no transparency. The government or councillors aren’t transparent. They implement things without informing us. They should inform us to get different views because we believe in different cultures and they have to develop space accordingly. Without us, nothing goes right,” (Alexandra community member, pers. comm, 2014).

The above statement confirms the Alexandra Councillor sentiments whilst the second shows the lack of trust communities have in local government. Only one participant showed that her involvement was through payment of grave fees in preparation for a deceased’s passing. Other than that, she had never heard of the community being involved in any conceptualisation processes. Most participants wanted to be informed as users of cemeteries while only two were not sure how they could participate. Although participants showed that they would like to be consulted in the planning and development of cemeteries, they could not clearly indicate how they would contribute.

Four focus groups participated in the study. These included two youth groups, one of which was affiliated with a religious denomination. The third focus group was held with traditional healers, and the fourth with Rastafarians. All groups agreed that they were not aware of plans to develop Waterval Cemetery, and that they were not consulted before and during development. Although all groups felt the strong need to have been consulted during planning and development of Waterval, they could not say how they would have contributed to the process and how they would contribute in future cemetery developments. From discussions, it was clear that all they were asking for was to be made aware of plans involving them before any decisions were taken on their behalf. The groups seemed to be in agreement that whether they approved or not, the municipality would

have continued with the development regardless. There was a strong sense of unpleasantness as the groups felt that the JCPZ did not include them in any major decisions involving the community. Although the JCPZ might have been proactive in recognising the urgency for a cemetery, the groups viewed this as undermining the community's involvement in development plans as they were not consulted.

Community members shared the same sentiment that the JCPZ provided new cemeteries without consulting with cemetery users. The general feeling was that it was important for JCPZ to involve communities in the planning of cemeteries as people have different beliefs, and hence their beliefs needed to be considered in the design of cemeteries. Mostly, people were not aware that the JCPZ has problems, hence most community members interviewed felt that the JCPZ should engage the people, and explain the cemetery planning challenges they face. If cemetery users want to take part in the development of cemeteries, the likelihood is that they could be interested in contributing to how these spaces should look, and which amenities and infrastructure should be added.

6.3 Integrating green infrastructure within Waterval Cemetery

This section documents participants' views on green infrastructure elements incorporated within the cemetery design. Study participants were asked whether it was important to add green infrastructure elements within cemeteries. Their perceptions of Waterval Cemetery and the green elements that had been integrated were documented.

Most churches were in favour of cemeteries being greened to beautify and dignify them. Mainstream churches were open to and understood that a green environment was healthy for people visiting the cemetery, to remember the dead. Interviewed leaders from charismatic and Pentecostal churches had conflicting beliefs. Although the churches would prefer congregants not to visit the cemetery (so as to avoid ancestral worship³²), they argued that some were forced to visit, sometimes by family. African Initiated Churches also had different viewpoints. Some had no problem with visiting the deceased's graves, as taught by their respective churches, while others believed in ancestor veneration.

The increase in churches that teach congregants not to communicate with the dead (especially contemporary charismatics that seem to be mushrooming all over the city) could

³² Most modern charismatic churches forbid congregants to practise ancestral worship as ancestors are believed to be evil spirits.

potentially lead to a limited use of cemeteries. There were conflicting views from these churches, as those who claimed to be staunch Christians disapproved of congregants visiting cemeteries unless for burials. Most congregants from these churches claimed ancestors were demonic spirits hence their churches prohibited ancestor worship. It was evident that Christianity and traditional cultural beliefs were practised in most churches. Some church leaders acknowledged that when forced to make a choice, congregants would probably choose their culture over religion. Hence, some from the mainline churches struggled to keep the masses, and were just happy to see people going back to church. The contemporary charismatic churches seemed to attract the masses. The implication of that and them not believing in ancestor veneration is that people would have to cut down on visiting cemeteries, and only go to attend funerals. This questions the need to invest in spaces that are not used much. The JCPZ would thus be compelled to find a balance between how much to invest and for which percentage of the population.

When asked whether it was important to incorporate green infrastructure elements in the cemetery, most undertakers indicated that they preferred to have as much land for burial as possible. They did not have a problem with the installation of green infrastructure elements, as long as they would not consume the already diminishing land. Two undertakers thought that greenery would ensure safety within the cemetery, as the space would be well-maintained and would reduce chances of attracting crime. The rest acknowledged that green elements would instill some dignity, peace, and beautify the cemetery. They believed users would be comforted seeing their loved ones buried in a dignified place. The funeral undertakers argued that although beautiful green spaces gave the deceased some form of dignity, peace to the bereaved, and could increase safety, running a green cemetery would be costly and escalate grave fees. They argued that the lush lawns, flower beds and trees would require constant maintenance. This would force the JCPZ to find ways of increasing the maintenance budgets, which could be sought from the grave fees. They further argued that if the JCPZ was adamant in incorporating green infrastructure elements, then each use should have its own allocated space.

Muslims did not have a problem with the greening of cemeteries, as long as the graves remained visible (CIT Representative, pers. comm, 2014). Islamic law encourages Muslims to plant trees and not to remove them unnecessarily (*ibid*). They would even by-pass the

location of trees in order to dig a grave. An undertaker from Rabie Ridge would only support uses related to the functioning of the cemetery as according to her, park-like features would attract unruly behaviour. She exclaimed, “people would start drinking from there and making noise. That would be inappropriate,” (Rabie Ridge Funeral Undertaker, pers. comm, 2014).

There were mixed feelings amongst community members regarding the proposition to have green infrastructure elements integrated within the cemetery. Twenty-two participants were in favour of these, whereas ten were not. Only one person was uncertain and one did not respond. Although the idea of having a green, well-maintained cemetery appealed to community members, most respondents agreed that the greenery should be to enhance the space and not attract them to visit the cemetery.

Some participants also felt that there was no need to integrate green infrastructure elements, as these would consume the already-scarce land. They felt JCPZ would incur unnecessary costs, and suggested that money should be directed toward other community needs instead. They argued that people did not stay longer than necessary at cemeteries and that they would visit parks if they needed some form of recreation. To most, passive recreation would eventually lead to active parks, which would not be controlled once operational. Mostly, people appreciate a beautiful space for burial and visitation of graves, but not for recreation.

Some respondents identified themselves as devout Christians, and thus saw no need to visit the cemetery, hence they did not perceive the importance of integrating ecological and mixed uses within cemeteries. However, no matter how much they argued about not caring about visiting the dead, they seemed vested in knowing any plans to convert or expand their use. Some of the responses showing support for green infrastructure within cemeteries included:

“When it’s beautiful, it shows the mourning that there are people who care. Since you can’t go there every day to clean, it is hurting when they are not well-maintained. It is comforting when they are beautiful,” (Rabie Ridge community member, pers. comm, 2014).

“Being green, beautiful and respected would show that we didn’t throw animals there. If it’s green and shows life, you don’t cry, you become happy; it’s healing. If it’s dirty, it’s as if somebody just died yesterday,” (Rabie Ridge community member, pers. comm, 2014).

These responses show that although some people may not visit the cemetery for purposes beyond burial, they still care to know about any decisions to improve the cemetery and particularly the dignified uptake.

A feature that most participants appreciate at Waterval is the greening and upkeep of the cemetery. The municipality’s drive was to beautify the space whilst redressing spatial ecological disparities left by the apartheid administration. This feature seemed to have a huge impact on the users as they indicated that the cemetery was not dull and depressing. Instead, most claimed that they felt comforted knowing they had buried their loved ones in a dignified cemetery. They also indicated that the greening showed there was life. The belief was that those buried there were aware of the dignified surroundings hence they would rest in peace. Some of the reasons Waterval was preferred over older cemeteries included the interesting elements integrated within the design. For instance,

“The entrance has a fountain, which increases its beauty,” (Rabie Ridge community member, pers. comm, 2014).

Participants appreciate the tranquility provided by the green cemetery as it has an effect on those remaining behind. These green elements help in their grieving process. One community member from Alexandra raised a point that every time one visited a cemetery, it opened up old wounds, especially if the cemetery was not well kept. However, due to its appearance, Waterval helps visitors deal with their grief.

Beyond the purpose of redressing ecological imbalance, one community member from Rabie Ridge saw the benefit of growing trees and grass. She believed they would help with the production of oxygen, attract birds and provide shade on sunny days. She also felt that the living would feel more relaxed and at peace in a green environment, unlike concrete, which is lifeless. The greenery is appreciated for its aesthetics and peacefulness.

The youth group not affiliated to any religion was in agreement about the green elements at

Waterval Cemetery, and indicated that they would be open to using it for passive recreation. Rastafarians supported the greening of cemeteries, and recommended adding a remembrance park within Waterval Cemetery. They showed that greener, “is naturally creating healthy spaces,” (Rastafarian focus group member, pers. comm, 2014).

To some community members, there was no need to beautify the cemetery. They did not see the need to plant grass because people did not stay for long. Some articulated,

“When it rains, the grass will become untidy,” (Rabie Ridge community member, pers. comm, 2014).

“Let’s try not to invest so much in the dead,” (Alexandra youth focus group member, pers. comm, 2014).

Reasons people gave for not understanding why a cemetery should be greened included that money was being invested in an inadequately-used space; that the green elements (grass, trees) would require extra maintenance (hence an additional budget), especially since the JCPZ was seen to be failing to maintain other cemeteries, and that trees were dangerous as they attracted lightning strikes during rainy seasons. Those who complained of lightning strikes argued that umbrellas would shield them from the rain or blazing sun.

Although the majority of members of the youth group with a religious affiliation were open to the idea of having beautiful green spaces, others questioned the idea of integrating passive recreation. One of the members remarked, “Some people would be sad and grieving, whilst others would be enjoying the environment!” Traditional healers agreed that a cemetery should not be used for anything else but interment. They opposed the idea of having cemeteries being used for passive recreation. “It’s not a place to read,” one traditional healer exclaimed.

Although incorporating green elements and other uses was appealing to some focus-group members, there was a general sense that government should rather invest mainly in the living, as services in the cemetery would not be sufficiently used, due to the uniqueness and sensitivity of the place. They were firm that there needed to be a balance, and that government needed to restrain from investing too much in spaces that were not used daily.

6.4 Mixed uses integrated within the cemetery

This section focuses on participants' perceptions of mixed-use cemeteries. Participants were asked whether they would be open to using Waterval Cemetery if it had multiple uses integrated within it. These uses could either be relevant for the function of the cemetery, or they could be services lacking in nearby communities.

In addressing the issue of land scarcity by mixing uses within Waterval Cemetery, a councillor from Alexandra strongly believed that most African cultures believed in having quiet cemeteries so that "those sleeping" would not be disturbed. Hence he would not support mixing uses within the cemetery. A councillor from Rabie Ridge shared these sentiments, and felt that a shop selling gravestones on site would instead be consistent with the community's beliefs regarding the sacredness of the cemetery.

Of the interviewed religious denominations, mainline churches and Jehovah's Witnesses were open to having other uses that were linked to the functioning of the cemetery. They believed that the space should be put to good use as the dead were not aware of anything happening around them. They both argued that the current space within cemeteries was wasted. While African Initiated and most Pentecostal Churches did not support having a mixed-use cemetery, charismatics emphasized the need to consult with families before introducing anything. A Bishop at the Ethiopian Catholic Church in Alexandra argued that people would probably not be open to a mixed-use cemetery. He indicated that while a few members of the community would welcome the idea, most would find it inappropriate. According to him, they would however later be forced to accept that things had changed:

"They [JCPZ] don't care about the community, they do their own thing. The only way to improve cemeteries should be keeping them neat, not mixing uses," (Ethiopian Catholic Church Bishop in Alexandra, pers. comm, 2014).

"Sometimes money is invested but the service doesn't benefit the community. And money is always spent. Sometimes they don't care about the community," (Ethiopian Catholic Church Bishop in Alexandra, pers. comm, 2014).

There is a general view that the JCPZ does not understand the communities' needs.

Although there are other urgent needs in the community, some participants are not aware that different departments have individual mandates. For instance, although a clinic might be an urgent need, the JCPZ cannot provide clinics because it is not its mandate.

Other church leaders who saw a mixed-use cemetery as positive argued that,

“In most cases, a graveyard is not an inviting place. If more uses are added, there’ll be more traffic and people will feel safer. Uses added within these spaces should be respectable in nature. So putting up an industry will be disrespectable as it will be too noisy. A cemetery should still remain a quiet place. Perhaps an office space or something relevant to the purpose of a cemetery. For instance, a shop that rents spades for families to close the grave after a coffin has descended,” (Jehovah’s Witnesses Pastor, pers. comm, 2014).

Cemeteries have been known to be unsafe due to their isolation and are quiet when there are no burials. Sometimes the large headstones act as shields for criminals who are there to assault and rob visitors. Mostly in Black African cultures, it is a sign of respect for family and friends to fill the grave with sand. Having a place that rents spades would be a convenient service, as sometimes families do not own these. It has also become common in township cemeteries for groups of men to offer the service of filling in the grave with earth, which is helpful for families without manpower.

Undertakers do not support the idea of having mixed uses within Waterval Cemetery, from the commercial and cultural point of view. Convinced that their clients would not be open to such a proposition, they instead recommended having uses that were relevant for the common functioning of the cemetery. For example, an undertaker, who heads the Alexandra branch of one of the largest funeral parlours in the country, recommended having a non-religious venue that would cater to everyone. This building would host memorial and funeral services, and function as a catering venue after burial. However, he also stressed that this recommendation could work for a different market than his current clients, who would instead prefer to hold funeral services at home, where guests also go for refreshments and the funeral meal.

Undertakers suggested that the JCPZ would have to decide in which cemeteries they would mix uses, because the idea could not work in all cemeteries. An undertaker from Rabie Ridge gave a further example that having a chapel in an area where people hold night vigils at home the night before burial would not work, as they would probably also hold a short service from home. So the chapel may not be used in such an area. Muslims do not support mixed uses within the cemetery either, arguing that a cemetery is sacred.

“People want to be able to visit the graves. Respect needs to be shown to the deceased,” (CIT Representative, pers. comm, 2014).

The CRL Commission official shared sentiments that other uses not related to the disposal of remains would not be accepted in South Africa, as such cemeteries would not be respectful to the deceased and visitors.

Of the thirty-three community members that were interviewed, sixteen liked the idea of having mixed uses in the cemetery. However, most of them felt that these should be related to the cemetery’s unique functioning. The remaining seventeen were not supportive of having a mixed-use cemetery, as they believed that to be culturally wrong. The belief was that a cemetery is a sleeping space. And just like people are respected when sleeping, that should also apply in a cemetery. Some participants felt that due to the diverse uses, the cemetery would be easily accessible and would thus increase crime levels. However, some respondents saw the increase in traffic as positive as the cemetery would not remain isolated, and believed that isolation would result in criminal activity within a cemetery. Some of the uses recommended included a shop that sells items used at the cemetery (e.g. candles, snuff, flowers); a church or chapel; a catering place used after burial; crematorium; mobile kiosk that sells refreshments, and light food, especially during the funeral.

Some participants who did not support having any additional uses incorporated within the cemetery, argued that they did not stay longer than necessary so would not need more services. According to them, the actual burial procedure at the cemetery takes ten to fifteen minutes. It was said to be shorter out of respect for the body as it would have spent the whole night at home during the wake, and out of concern for people attending the funeral.

An observation exercise was undertaken, which included attending an actual funeral of a

member of one of the mainline churches to observe how much time was actually spent at a graveyard. Because a tombstone was installed on the same day, the whole service at the cemetery took over an hour. One could argue that it was enough time for someone to fall ill (in the heat) or become thirsty or hungry, especially taking into consideration that the funeral service had commenced at 10:00 at the deceased's house, and the procession had only left for the cemetery at 12:30. The procession left the cemetery just after 14:30, after the headstone was erected. As the service was continuing at the cemetery, individuals were seen retreating to their car boots, where food and refreshments had been packed. These were mostly the elderly. Unlike at other old cemeteries (particularly in previously disadvantaged areas), where it was now common practice for people to sell refreshments, no refreshments were sold during this particular funeral service.

When asked if they would be comfortable using the cemetery for passive recreation (over and above other uses) instead of noisy activities, some participants felt offended. In their views, the trees would be used for shelter during hot days whereas the sections meant for contemplation would only be used by those visiting particular graves. They were against anyone visiting the cemetery for passive recreation, more especially if they did not have anyone buried there. They argued,

“Kids aren’t safe in a park because they get raped, and there is mugging,”
(Alexandra community member, pers. comm, 2014).

“... people should go to libraries if they want to read,” (Alexandra community member, pers. comm, 2014).

“... beautifying a cemetery isn’t for the dead, but to comfort the living,”
(Rabie Ridge community member, pers. comm, 2014).

Some participants felt that using the cemetery for passive recreation would increase the rate of vandalism, as more headstones would be damaged, and grave markers and coffins stolen (a common rumour doing rounds in most townships). Some of the youth focus group members shared this view. There was fear especially from the elderly that the youth would have parties, play loud music and therefore not observe the need for some quiet.

Arguing that South Africa had not been progressive enough about the uptake of innovative

ideas, and would only do so when forced to, one of the respondents claimed,

“I think here in South Africa we’re boxed, we don’t know any better,” (Rabie Ridge community member, pers. comm, 2014).

The above response came from a young community member, who like most youth, seemed more open to the evolution of cemetery spaces. One could argue that perhaps the youth are not as deeply entrenched in their beliefs as the elders. They seem more open to different ways the cemetery space can be transformed. This sentiment was shared by some youth members from the focus groups:

“When change happens, we’ll accept it,” (A non-religion affiliated youth focus group member, pers. comm, 2014).

The youth groups thought having multi-purpose facilities was a great idea. For instance, a hall would be used to host the funeral service and for catering purposes after burial; a permanent kiosk selling refreshments and snacks, and other uses related to cemetery use, were proposed. The Rabie Ridge youth group (with no religion affiliation) was open to the mixed-use design. They proposed the use of creative barricades in cases where uses not related to burial were integrated within the cemetery. This was to conceal the visibility of graves, which could likely discourage the use of the space. There was also agreement that having a mixed-use cemetery would be a new idea that would take time for people to adjust to.

Although the idea of having mixed uses was liked by most, a debate arose about what the implications of such a space would be. This view was supported by a strong sentiment shared by one member of the traditional healers’ focus group, who argued that generally other uses take first preference over cemeteries. Whilst traditional healers were against the idea of having multiple uses within the cemetery, Rastafarians were in support of uses related to the functioning of the cemetery, (e.g. a florist and museum to preserve the local community’s heritage). Most members of the youth and Rastafarian groups strongly felt that due to their calmness, cemeteries could offer great spaces that could spark creativity for artists (e.g. writers). However, the traditional healer focus group members frowned upon using a cemetery to read, and argued that libraries were available for people who

needed to do so. Instead they argued:

“Leave them the way they are. You will find space if you wanna build the biggest mall in the world. Yet there is no available space for cemetery development,” (A traditional healer focus group member, pers. comm, 2014).

They mostly felt that other facilities were available for people to use and that none should be incorporated into the cemetery. Most found it sad that whilst people visited the cemetery to grieve and expected people to be empathetic, others would visit to stimulate their creativity. They felt that having a park-like setting would not support those who were grieving.

From discussions with different participants, there were mixed feelings of whether passive recreation should be encouraged and introduced at Waterval Cemetery. Respondents who were in support of this, agreed that users would have to be consulted, as not everyone would understand the need for this. Because the municipality endorses cultural diversity, the JCPZ managed to some extent to accommodate cultural inclusion within the cemetery. For instance, not using any religious symbols in the design promotes social cohesion and creates a sense of collective identity as no community feels alienated.

6.5 The uptake of alternatives versus conventional burial

Because the CoJ is experiencing land shortages concerning development of cemeteries, alternatives to burial have been identified. These are meant to attract users away from conventional burial, which seems to consume vast amounts of land. These alternatives include cremation and mausoleums.

6.5.1 Cremation as an alternative to conventional burial

This section documents users' views of cremation and whether they are open to adopting the method. There is brief mention of second burial, as some participants are familiar with the practice. No crematorium at Waterval Cemetery exists, but cremation would decrease the demand for burial land across the city's cemeteries.

Burial is the most commonly-practised form of interment in both Alexandra and Rabie Ridge, as members from these communities are predominantly Christian. Participants were aware of cremation, although they had limited knowledge about it and its cost in

comparison to conventional burial. The representative from the CRL Commission showed that both the Commission and people would not easily adopt new methods of body disposal because, “the gravesite marks a sacred place where people visit to show their respect and to communicate with the deceased.” His focus was more on cremation as an alternative, as it seemed to be one method the Commission would not easily endorse. He argued,

“Taking up cremation as a practice will not happen without a fight or a lot of work on the City’s side. The deceased lived on earth, benefitted from the earth, and should eventually go back to the earth. Being stored in an urn and kept in a house nullifies the going to earth act,” (CRL Commission Official, pers. comm, 2014).

The official did not support ideas that would support cremation practices, especially for people whose cultures did not allow this. He elaborated that the trend of cremation seemed to be picking up within the middle-class, whereas people in the low-income groups still preferred burial. He emphasized that sometimes choice was influenced by people’s level of understanding, exposure, reasoning and education. A huge concern with cremation seemed to be the question of ashes and their storage. He asked,

“Where will the remains be stored? In the house? There is no place in a house that will be as sacred as a gravesite,” (CRL Commission Official, pers. comm, 2014).

Using the argument that migration trends show that the economically-active age group was very mobile, would also not work to convince people as having cremains at hand did not mean that there was no need for a burial place. According to the Commission, moving around with the cremains would be seen as disrespecting and upsetting the ancestors, as in some cultures there is symbolic importance to where a body is buried. Therefore, cremation might not be preferred for religious reasons but instead for convenience sake.

Asked if he would advise communities to cremate, a councillor from Rabie Ridge said that he would not, as the community was accustomed to burying, and he did not believe in the practice. Hence it would be difficult to encourage others to do it. He argued that cremation was fairly new to some cultures, therefore people would have questions that he would fail

to answer. For instance, there is the question relating to whether their ancestors would be able to recognise the deceased if there were no bones left in the earth. At a personal level, a councillor from Alexandra would not cremate. However, he was willing to advise people to do it, if and when his job required him to do so. He said:

“Not as a person but as a councillor, yes, because it’s a policy of the City then I do agree with the policy of the City and it ends up there. This has never been our culture, it has always been a western thing why must we now become westernised and everything that we do is inferior? The love that we do have to our own ones, we feel it’s cruel to burn someone into ashes because you believe he’s no longer alive so you’re finishing him off?”
(Alexandra councillor, pers. comm, 2014).

Although both councillors viewed cremation as a western practice, it is practised by some South African religions. There might be people willing to adopt cremation because of convenience, however, there are South Africans whose religion allows them to cremate (e.g. Hindus). Both councillors argued that cremation would uncover feelings of oppression, especially for the elderly, who would claim they were, “being oppressed all over again,” and that they would be estranged and disconnected from their ancestors who had not been cremated. However, they both believed that the youth would be receptive because, “they have their own minds and don’t believe on the old traditions,” (Alexandra and Rabie Ridge councillors, pers. comm, 2014).

Although some churches were open to cremation, they admitted that the decision was left to families. Mainline and charismatic churches were more open to cremation than Pentecostal, Apostolic and African Initiated Churches. For instance, the Roman Catholic Church was not against cremation, “provided that it does not demonstrate a denial of faith in the resurrection of Christ,” (Roman Catholic Church Priest, pers. comm, 2014). Church leaders from both the Anglican and Roman Catholic Churches showed that the cremation service could be included in the funeral liturgy, as was evident in the church books. Seventh Day Adventists were the main Protestants who accepted any method that would allow the family to grieve easily. They emphasized that their focus was on the living and not the dead; hence, they did not care much what happened to the body.

Although cremation was allowed in mainline churches, most of their interviewed congregants did not necessarily practise it. Jehovah's Witnesses were open to any method and left the decision to the family, as did mainline churches. The pastor from the church felt that cremation was easier, quicker and cost effective. This pastor did however argue that the JCPZ was not proactive in promoting awareness around cremation. He exclaimed,

"It is as if they crush it themselves. They don't recognise it as a positive thing to do. Let them show it as something positive," (Jehovah's Witnesses Pastor, pers. comm, 2014).

African-initiated and Pentecostal Churches and charismatics mostly rejected cremation, although some showed that the decision to cremate remained with families.

Most mainline churches confirmed that they were struggling to keep the masses at church, hence they did everything in their power to have people go back. One way was by not asking the worshippers to choose between religion and culture. Although the churches do not condone some of the rituals performed by families, they cannot voice their disapproval. When asked whether they would advise their congregations to cremate, most faith leaders showed that their churches would not forbid cremation. However, they showed that it would not be in the interest of the church, and that they knew cremation was against most of the congregants' cultural beliefs. They acknowledged that people were not well informed about the cemetery provisioning challenges facing the JCPZ, hence people would not understand the need to have alternatives to burial. Most church leaders had questions concerning cremation. For instance, an African Initiated Church Reverend in Alexandra asked,

"What will happen on the day that Jesus comes? We don't know where other cultures come from, especially when we talk about cremation. It is important not to follow other people's beliefs, but [to] know your own history and follow your own traditions. You know about history of your family," (New Christian Catholic Apostolic Church Reverend, pers. comm, 2014).

Views from church leaders such as the Reverend's showed a fear that, during resurrection, those cremated would not arise because they had been burnt to ashes. By contrast, those

who were buried and had eventually become part of the soil, would be able to resurrect. Interesting discussions arose where faith leaders were convinced that people lacked an understanding of whether the body or the soul was more important, which would help them to determine if cremation was harmful to the corpse or spirit. For instance, a Reverend from the Anglican Church in Alexandra indicated that the deceased's soul was much more important than the flesh, which would decompose if buried, or turn into ashes when cremated. A priest from the Roman Catholic Church in Rabie Ridge agreed that it did not matter how the human remains were interred, but for people to know that death was not the end and that there was a purpose to life. The end would be resurrection, which would not be affected by the method of interment. According to both priests, this seemed to be what most of the congregants struggled with most.

A pastor from one of the small charismatic churches in Alexandra argued that the youth were more open to change, as "they don't know their culture as they haven't been taught," (Jesus Gospel Mission Pastor, pers. comm, 2014). Such arguments were common during engagements with diverse stakeholders as they argued that the youth did not care about the black traditions, but tended to be more progressive.

Also, there seemed to be confusion and a lack of awareness amongst the church leaders. For instance, some equated cremation with the elite and argued that the majority of people would not afford it. For example:

"It will be tough to adopt cremation. It is done by rich people," (New Christian Catholic Apostolic Church Reverend, pers. comm, 2014).

Undertakers showed that they had for many years been left with the responsibility of informing and educating bereaved families about cremation. However, for different reasons, all funeral undertakers interviewed would not advise families to cremate. Two funeral undertakers were once told that cremation was against their clients' cultural beliefs, hence they do not advise families to do it. The remaining funeral undertakers agreed that they rarely received requests to cremate. Only one preferred cremation as it was, "easier to prepare for in terms of the administration," (Funeral Undertaker in Rabie Ridge, pers. comm, 2014). Most showed that they would not advise families to cremate because it was not what they believed in either. They did, however, agree that it was the family's choice

whether to cremate or to bury.

Cremation was not an option for Muslims either, as they argued,

“We don’t cremate, and scatter ashes. The Quran does not allow it. As indicated, from sand and dust you will return. If they (the JCPZ) really plan, they can’t run out of land. Burial is an Islamic rite and not a business,” (CIT Representative, pers. comm, 2014).

According to the CIT Representative, because the Islam faith does not allow cremation, the only solution for the Muslim community would be to bury multiple people in one grave. And this required that the grave is dug deeper for the first burial, to allow for at least three burials.

There was consensus that cremation would not make business sense for funeral undertakers as their profit was generated through extras that families requested. A funeral undertaker servicing the Alexandra community commented that promoting cremation would neither benefit them (as undertakers) nor the JCPZ. From engagements with community members, it was noted that sometimes funeral undertakers preyed on the family’s guilt and thus coerced them into over-spending on unnecessary extras in the name of showing love to the departed. Preying on the already vulnerable families has given undertakers a bad name and reputation, as they are viewed as ruthless and heartless. A basic funeral with a basic coffin would cost anything between R12 000 and R15 000. When a coffin is upgraded to a casket with all the extras added, the cost could escalate to R70 000. The extras could include for instance, tents, chairs, flowers, programmes, hearses and transport for the family (e.g. buses). When a family asks for cremation, the demand for extras is limited and that would literally put the undertakers out of business.

Throughout the fieldwork, cremation seemed to cause a lot of debates and was a sensitive issue for most participants. Although most community members (19) in the study did not support cremation, a significant number (13) was still open to it, as depicted in figure 6.3 below. Only one person was not sure whether they would be open to it or not. Interestingly

though, almost all the Baby Boomers³³ were willing to be cremated, except for one who was not sure. Of the seven Generation Xs interviewed, only two were open to cremation, whereas only two of the Generation Ys were, and one was not. Figure 6.4 shows that of all the participants, twenty-five were open to second burials, seven were not and only one was not sure.

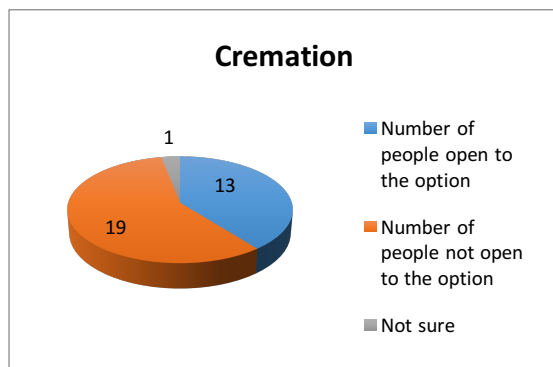


Figure 6.3: Number of participants open to cremation

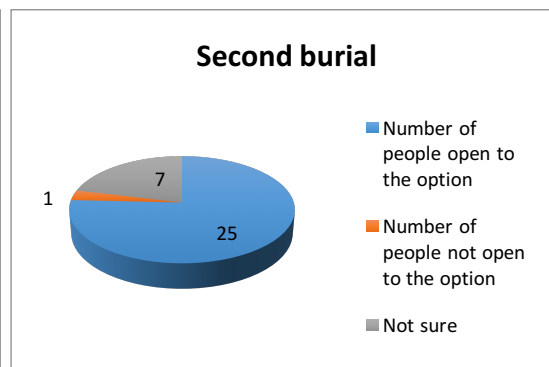


Figure 6.4: Number of participants open to second burial

Importantly, people believed cremation was more expensive than conventional burial, and they stressed that it was only practised by the affluent. According to their religious and cultural understanding, they believed that come resurrection, the deceased would not rise if they had been cremated, the reason being that they would have turned into ash and no bones would have remained in the grave. Participants strongly believed that after death, the flesh was destroyed, whilst the bones would last forever in the grave; and that it was those bones that would enable resurrection. This is what the participants had to say about cremation:

“I know the person is already dead, now you’re making sure that they’re really really dead,” (Alexandra community member, pers. comm, 2014).

“With Blacks, cremation is like putting them in hell. It should be a personal choice, otherwise we’ll feel like we’ve taken you to hell already. The youth

³³ In this study, Baby Boomers are categorised as participants born before 1960; Generation Xs were born in the early 1960s to late 1970s; and Generation Ys were born in the early 1980s to early 2000s.

easily adopts what they hear on the streets, perhaps City Parks can start with convincing them,” (Rabie Ridge community member, pers. comm, 2014).

“Cremation is not an option. They’re creating it to be a convenience burning for everyone from everywhere. Don’t tell us we don’t have enough land for burial. Not in SA. If you’re government, and don’t have land, then you’re not government,” (A Rastafarian focus group member, pers. comm, 2014).

“I for one don’t favour cremation because my belief is that I need to sleep so that I can wake up (at resurrection). If I’m cremated, I won’t be able to wake up” (Rabie Ridge community member, pers. comm, 2014).

Cremation seemed to be equated with hell because of the use of fire. Hence, most people appeared to struggle with grasping the whole process. And there was a belief that burning the remains meant destroying the fact that the deceased ever existed in the first place. One community member from Rabie Ridge, who seemed to know the cost of cremation, argued that people who did not have money should rather cremate, as they would not incur high costs that included expensive coffins. A different view arose where a participant strongly believed that the church had a role to play in teaching people about cremation. Her view was that people were holding on to burial because that was what the church taught. However, she argued that churches should instead teach that the spirit was the most important in death, as the body would eventually decompose. Although she formed part of the interviewed households, she was also one of the two practising traditional healers who seemed to have different views from other traditional healers, as those who formed part of the focus groups. She felt that having ashes in the house would make her ancestors more accessible as she would not have to travel to the cemeteries every time she had to communicate with them. She explained,

“It’s the best option; less stress; less expense,” (Rabie Ridge community member, pers. comm, 2014).

“If you don’t understand that this is only a body, like, if you are HIV, it’s not your soul affected but your body. When your body dies because of HIV, your spirit lives but without HIV. Even at church, they don’t teach us about it. They

should teach people the difference between the body and the soul,” (Alexandra community member (also a practising traditional healer), pers. comm, 2014).

“When you get born-again, you get to know about the difference between the skin and the spirit,” (Alexandra community member, pers. comm, 2014).

Although some people would prefer to be cremated, they acknowledged that the decision rested with their families. Those remaining behind can decide whatever feels comfortable for them. An official from the CRL Commission suggested that the JCPZ should not impose alternatives on people, but should instead let the answers come from the people, as they would own the solutions (CRL Commission Official, pers. comm, 2014). He showed that this could be done through visiting elders from affected communities, sharing ideas and experiences with them, and allowing these elders to impart some indigenous knowledge that would help in finding the right solutions for all. The official emphasized that engaging communities, and especially the elders, showed respect and that showed that their views mattered. He concluded, “Forcing people to follow one method undermines their constitutional rights”.

More than half of the youth affiliated to a religion were open to cremation and all were open to second burial. Although most were open to cremation, they believed it cost more than the average burial. The youth did not really care much about death-related matters. They did not have a problem with second burial just as long as only family members shared a grave. However, with more awareness, they could see cremation as something they would adopt. The youth remained more open-minded than most age groups about newer approaches to the design and use of cemeteries. An interesting observation came from one member of the non-religion affiliated youth focus group members who believed cremation to be more expensive than conventional burial. She claimed,

“Cremation is more costly. There’s class in death. They should bury people vertically instead of horizontally. The grave would be able to take four people” (A non-religion affiliated focus group member, pers. comm, 2014).

In her understanding, cremation should be for the elite. She felt that JCPZ should find other

alternatives that could suit households in the low- and middle-income brackets. Members of this focus group were coloured and Black people. Their ages ranged between the early twenties and the mid-thirties. However due to lack of resources, some had dropped out of high school and some could not afford to further their studies at tertiary institutions of interest. They had different views from the local ward councillor who had facilitated processes in identifying the group. Because he was not open to cremation in his personal capacity, this was confirmation that he did not influence their views in any way.

Of all the generations, Baby Boomers and the youth were more open to cremating. The traditional healers focus group was not open to cremation as they believed the deceased would never rest in peace, and loved ones would not know where to visit them. They did not have a clear understanding of the process of cremation and wished for the JCPZ to have programmes that teach the community about it. They were, however, open to second burials.

Cremation was not an option for the Rastafarian focus group members. They saw it as a form of oppression. They questioned whether in their planning processes the JCPZ had not foreseen the looming land scarcity issue. The group was also not open to second burials. They strongly believed that the JCPZ should identify land even if it was far away. However, the JCPZ would have to contribute to transport costs, as not all families could afford that. The focus groups seemed to be in agreement that, whether they approved or not, the JCPZ would find solutions and force them onto the people anyway.

The Rastafarians and traditional healers were not open to cremation and strongly believed that they were being forced to change their culture. The youth appeared not to care that much about what would happen to their remains after death. They did not oppose second burial only if family members shared a grave. However, with more awareness, they could see cremation as something they could accept. Their belief and thus concern was that cremation was more expensive than traditional burial. Some focus group members who were against cremation, strongly believed they were being forced to change their cultures and that because these were entrenched, it would be very difficult to convert them.

6.5.2 Mausoleums as an alternative to conventional burial

This section focuses on participants' familiarity with mausoleums and whether they are

open to using them as a form of interment. According to the Cemeteries and Crematoria By-laws, burial, second and reduction³⁴ burials, and cremation, are the only interment options offered by the JCPZ. Most participants did not mention mausoleums, thus showing their familiarity with only two methods of body disposal in the CoJ. Figure 6.5 shows that most people did not know of mausoleums being used for interment. Only four people seemed to be aware of them as an option.

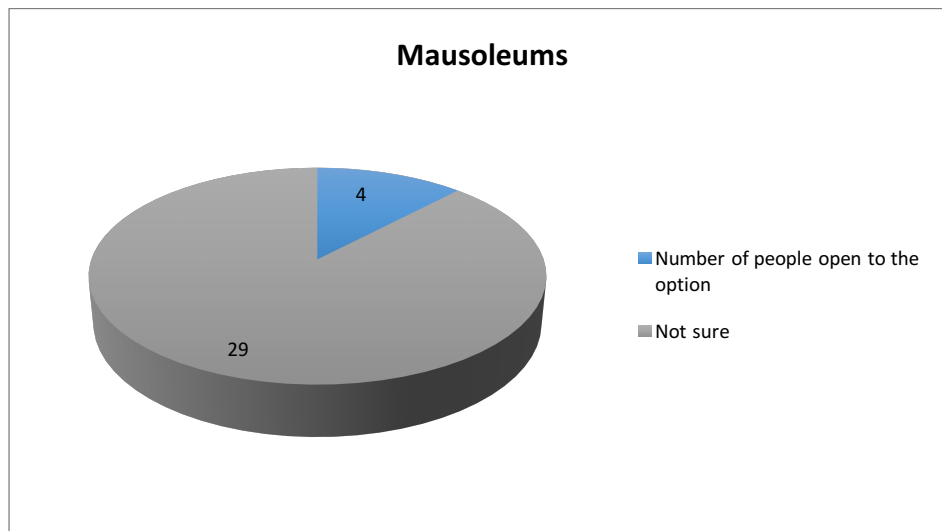


Figure 6.5: Number of participants open to using mausoleums as an alternative conventional to burial

“City Parks should hold on to the idea of mausoleums as they are not very different from underground burial,” (Alexandra community member, pers. comm, 2014).

Mausoleums (figures 6.6 and 6.7 below show these structures in affluent areas in the city) are not included in the Cemeteries and Crematoria By-laws. This could be the reason respondents were not seem familiar with them. Perhaps most people who were against cremation could probably opt for mausoleums because they do not involve any destruction of the body. But the challenge could be that the body is not returned to the earth as it is in conventional burial. And this would require the City to be creative and come up with innovative designs that would appeal to diverse users.

³⁴ Reduction burials involve exhuming old remains, placing them in smaller coffins and burying them at a deeper depth to allow for more burials in one grave.



Figure 6.6: A mausoleum being built in cemeteries located in an affluent area of Johannesburg
Source: Author's formulation, 2015



Figure 6.7: New privately-run mausoleums in cemeteries located in an affluent area of Johannesburg
Source: Author's formulation, 2015

Although Rastafarians found the burial of multiple bodies in a grave unacceptable, they were more familiar with it than other alternatives. The reason could perhaps be that it has been practised over the years.

The Rastafarian group was of the opinion that the JCPZ, as a provider of cemeteries, had to identify solutions that would accommodate everyone without undermining others' beliefs. Instead, they gave the option of having cemeteries located farther from the community with the condition that the JCPZ should incur transport costs, as "families won't afford". Both the traditional healers and Rastafarians were prepared to travel far. People's willingness to travel even farther shows resistance toward alternatives that are against cultural beliefs.

On the one hand, Baby Boomers preferred an option that would be cost-effective and less demanding in terms of preparations. On the other hand, although the youth were not interested in death-related issues, they seemed more progressive in terms of adoption of alternatives (especially cremation) to burial. This was acknowledged by one pastor from a charismatic church and some members of the two communities. Their argument was that the youth did not follow customs mainly because they had not been taught the importance of practising their customs. They were also not concerned about the meaning and implications of death for both the family and the community at large. Thus, death and the urgent need for burial space were not a concern for them.

According to the CRL Commission official most cultures would not accept other alternatives

because they were forced on them. He believed that solutions should come from people, therefore underscoring the importance of participation prior to and during development.

6.6 Functionality of Waterval Cemetery

Over the years, cemetery users have experienced similar challenges in their use of cemeteries. These have been, and continue to remain, particularly in older cemeteries, such as Alexandra and Midrand. They include, for instance, the inaccessibility of graves since they are closely packed and lack footpaths, a lack of space for funeral undertakers to erect tents and some of their equipment, and uncontrolled traffic when entering and exiting cemeteries, which ultimately leads to delays of burial services. The development of Waterval Cemetery has eased burial pressure in both Alexandra and Midrand, and in other areas that had run out of burial land. The design of the cemetery and grave layout allow funeral undertakers to conduct services smoothly. The circles integrated in the cemetery's design ease traffic flow. Unlike the old cemeteries, which only had one gate, having an entrance and an exit at Waterval Cemetery also help reduce traffic congestion.

6.6.1 The user-friendly cemetery

Depending on the day of the week, and how busy the cemetery is, an undertaker can be allocated a section to conduct burials without any disturbance, especially if he has several funerals closely packed together (e.g. on a peak day). These sections allow undertakers to evenly spread out. The sections have thus reduced the overcrowding that is a noted problem at old cemeteries. This overcrowding prohibits undertakers from erecting tents to protect the family and guests from the elements, to the extent that they were forced to pitch them on top of graves. Also, the overcrowding does not allow mourners space to mourn in private. Hence the sections at Waterval allow funeral groups some emotional privacy. The sections also reduce the likelihood of having gravestones damaged, as previously people would use them as steps to be elevated so as to keep up with the funeral proceedings. Also the church elders and participants showed relief, as they are no longer forced to compete by song with other funeral groups. Because the groups would be standing close to one another, conflict would arise as the sound from the preaching, singing and playing of instruments heightened.

Most of the participants interviewed acknowledged that two gates (an entrance and exit)

and traffic circles integrated in the design of the cemetery improve traffic flow. In old cemeteries traffic jams last for hours particularly on peak days (e.g. Saturdays). was so intense that it lasted for hours. The confusion it caused sometimes led to people following the wrong funeral processions. Participants noted that traffic flowed smoothly at Waterval Cemetery and that there were no delays (see figures 6.8 and 6.9 below). Apparently it would take two to three hours for a procession to exit a cemetery. Because there was only one gate and no control, cars would cause bottlenecks as they forced their way in and out. These delays were emotionally draining for mourners, especially because they were already in an emotional state.



Figures 6.8 and 6.9: The design that reduces traffic congestion at Waterval Cemetery
Source: Author's formulation, 2015

The open roads, circles and ample parking spots that allow smooth traffic flows have reduced the emotional distress of being stuck in uncontrolled traffic jams. However, it remains to be seen whether the allocated sections will still be spacious and thus allow for privacy as the cemetery begins to fill up.

6.6.2 Accessing the cemetery

Waterval Cemetery is located within a reasonable distance from Rabie Ridge (about 8 km), whereas it is quite a distance for Alexandra residents (close to 20 km); this is especially because it is not reachable by public transportation. If they cannot afford to hire a cab or a neighbour's car, users catch taxis that drop them off at the N1 freeway. They then have to cross the freeway and walk for about 7 km to reach the cemetery. The fact that Waterval Cemetery is located far from Alexandra was not a concern for one undertaker who

confirmed that transport costs were already factored into the funeral package³⁵. The distance factor is a challenge for communities and not for undertakers. Undertakers who shared similar cultural beliefs with participants stressed that Waterval was located far from residents of Alexandra, and that they would have to sacrifice a lot to make frequent visits, or they would have to limit their visits to only a few per year, or every few years.

A representative of the CIT, an organisation responsible for Muslim burials, also agreed that Waterval Cemetery was far for it as an organisation. It is located in Mayfair, Johannesburg. The representative continued that the cemetery was far for some families hence they would have to factor in the traffic and the cost of fuel incurred when attending the funeral. Burying at Waterval would require high petrol costs, and it would force the funeral procession to be stuck in traffic, especially since, as Muslims they bury within twenty-four hours of death. He showed that it could take them an hour to reach Waterval in high traffic. Hence they weighed the economic options against convenience (CIT Representative, pers. comm, 2014).

There was consensus amongst communities that a cemetery should be within a walkable distance, with most participants proposing between 1.5 to 2 km as a reasonable distance, or at least where one can take a local taxi for R6.00. Regarding a cemetery's accessibility, one participant shared:

“There is no transport going there if you want to go visit your loved ones; otherwise you must be careful when walking; it's not safe for women. If you don't have family with a car, then forget it. If you bury a loved one, you must just forget about them,” (Rabie Ridge community member, pers. comm, 2014).

Most households were worried about the travel costs on the funeral day and for future visits. This implied that Waterval Cemetery was far, particularly for people who do not own private vehicles, as no public transportation was available, particularly for people in Alexandra. Some of the participants from Rabie Ridge also complained how unreachable the cemetery was. Almost all the interviewed community members did not own private cars.

³⁵ The funeral package is dependent on the monthly premium. The average package includes a coffin, tents and chairs, transport for the deceased (a hearse also used by the parents or children of the deceased depending on who the closest relative is) on the day of the funeral. The family incurs transport costs for those attending the funeral and from then on during their visitation to the gravesite. Funeral extras include flowers, programmes for the funeral service, venue booking if the service will not be held at home, etc.

Hence they were forced to pay up to R400 to hire a cab or a neighbour's car when visiting the cemetery. One member from Alexandra explained that being unable to visit the graves meant that family members would fail to know their identity through those who came before them. He explained,

“Inaccessibility plays a role in knowing yourself and your background. If the cemetery is far, you also forget the grave number and it's like *le mo lathlile*”
(Translation: ...and it's like you have abandoned him/her), (Alexandra community member, pers. comm, 2014).

As calculated from the spatial mapping exercise, Waterval Cemetery is closer for people living in Rabie Ridge than for those from Alexandra, so it is easily accessible when they want to visit loved ones. Previously, cemeteries (in Alexandra and Midrand) were a walking distance for both communities, hence visiting was not a challenge. This is currently the best option for most of them because increased visits require high travel costs. DMP is located at a walking distance from houses. Although the cemetery is not adequately used, this promotes energy efficiency as it reduces the use of cars by those who opt to bury there. It therefore becomes difficult to balance current cemetery development trends with sustainability goals and socio-economic needs and realities of users.

There seemed to be fear from participants that burying at Waterval Cemetery meant that the deceased was abandoned because it would be difficult to make frequent visits. And this implied that families were unable to keep the link between them and their ancestors alive. Although differences were noted, for most cultures, this is difficult as ancestors are understood to only be sleeping a long sleep, hence it was crucial to keep the communication lines open. This is quite contradictory, as most people are Christians. Although some charismatic churches forbid their congregations to visit graves, some people overrule this instruction and would rather follow some of their cultural practices. With the introduction of these churches, some people have forgone their cultural practices as instructed by the churches. However, this remains an ongoing battle between culture and religion. Keeping relationships with the dead is important for them because ancestors are there to guide them through life, to protect them and to act as mediators between them and God.

6.6.3 Keeping the link with ancestors alive

Most participants were worried that when loved ones were buried at Waterval Cemetery, it would be difficult to show the rest of the family where their ancestors lie, especially those family members who failed to attend the funeral. Part of the family traditions involved taking all those family members to the cemetery to show them where their ancestors' bones lie. Hence it was important for families to be able to reach the cemetery without incurring excessive costs.

Although participants preferred to have the cemetery within reach, they did not want it visible and thus a constant reminder of their loss. They argued:

"You mustn't see it, if you do, you'll think of the person. Meaning always seeing the cemetery is a painful reminder that delays the healing process. Distance isn't an issue, you must prepare yourself," (Rabie Ridge community member, pers. comm, 2014).

"It's not nice to stay next to a cemetery," (Rabie Ridge community member, pers. comm, 2014).

Besides the visually depressing effect of the graves, there seemed to be a common cultural feeling in some Black African participants that the dead were feared. Some attributed that fear to respect, and explained that when one is visiting the cemetery, the deceased could see them. Others believed that grief can be delayed if the grave is always in sight. It was important for the dead to have their own space where the living can visit for therapy, and to come to terms with loss. Different participants indicated that they visited the cemetery for different reasons. While a participant from Rabie Ridge believed it was important to keep the link with her parents alive because of the special relationship they shared, others visited on special days, such as birthdays or during milestones in children's lives. Most visited the graves to clean, quench³⁶ the dead, and to pray and ask the ancestors to help relay their families' needs to God. Families have different reasons for keeping the link with the dead, and if this is affected, it can be to their detriment if the cemetery is not reachable.

³⁶ Water is sprinkled in line with where the head lies. Sometimes people sprinkle the deceased's favourite refreshments like tea.

6.7 Management and maintenance at Waterval Cemetery

This section discusses participants' views of the cemetery's management and upkeep, and how it affects its use. Most church leaders indicated that they were pleased with Waterval Cemetery, especially when comparing it to the older cemeteries in Alexandra and Midrand. Most participants complained of bad roads, hijackings and theft of valuables inside cars at old cemeteries – acts they were not concerned about at Waterval because of the tarred roads, sufficient parking within the compounds of the cemetery, and security measures in place.

Undertakers were satisfied with the running and upkeep of Waterval Cemetery because of the well-functioning infrastructure, the efficient record keeping system, and the easily accessible graves. All community members except two were happy with the running of the cemetery. As seen below, one did not like the regulation that only headstones were allowed, whereas the other felt that the cemetery did not look like cemeteries she grew up seeing (because full-body memorials are not allowed).

“It's like you've lost your loved one. They allow for headstones only,”
(Alexandra community member, pers. comm, 2014).

With time, people have become used to cemeteries that are characterised by huge memorials, hence they are still adjusting to the new regulation introduced at Waterval Cemetery. As shall be discussed in the book chapter in Appendix A, huge memorials are a status symbol because they show a family's power and social standing. The main disadvantage to erecting these large stones is that they attract crime. Offenders hide behind them and attempt to attack anyone who visits the cemetery, as is the case in many old cemeteries.

In most old cemeteries, especially those found in previously disadvantaged areas, crime seems to be prevalent because there is no security, and fencing structures have been uprooted. This is common practice in Alexandra where the steel barricades were sold at metal scrapyards in exchange for money, which is used to buy the common addictive drug

“nyaope”³⁷. None of the participants had heard of any criminal activity at Waterval Cemetery, but noted that crime was high in the old Alexandra and Midrand cemeteries. Several security measures have been introduced at Waterval. The general belief was that the fence surrounding the cemetery deterred any criminals from entering the premises. Security at the gate registers all incoming and outgoing cemetery users. Participants believed that crime did not exist at the cemetery because security guards controlled access and movement at the entrance and exit gates.

The office block is a double-storey administrative building (see figure 6.10 below), which allows guards to have a view of the whole cemetery. Although the JCPZ has introduced some security measures at Waterval Cemetery, the perception has remained that cemeteries are not safe places to visit. Consequently, people decide to visit in groups, have escorts or only take an opportunity to visit when attending funerals. People wait until there is a funeral and when the procession reaches the cemetery, they spread out in different directions to go check on their loved ones’ graves.



Figures 6.10: A double-storey administrative building at Waterval Cemetery

Source: Author's formulation, 2015

Because the perception that crime was rife in cemeteries already exists, people remain

³⁷ “Nyaope”, also known as “whoonga”, is a uniquely South African street drug that is highly addictive and destructive. It is mostly found in previously disadvantaged townships. The drug is usually made up of marijuana, Nyaope rat poison, heroin, detergent powder, anti-retroviral drugs, milk powder, pool cleaner and bicarbonate of soda.

terrified of visiting, even though the JCPZ has implemented measures to curb criminal acts in newer cemeteries. People had other reasons for not visiting Waterval Cemetery, and these include growing up not visiting graves, or the cemetery being located far from where they live. Those who claimed to be devout Christians argued that the Bible did not allow visiting the cemetery. They referred to the following Bible quote to support their decision not to visit,

Luke: 59–60, which states “But the man replied, Lord, first let me go and bury my father. Jesus said to him, Let the dead bury their own dead, but you go and proclaim the kingdom of God”.

The verse has been understood to mean that Jesus’ request meant not placing tradition or the disciple’s own desires ahead, and thus neglecting his spiritual calling. Those who visited loved ones at Waterval did so because they were expected to by family, believed in appeasing their ancestors, and because they went to pray for the deceased’s souls; they went to clean and make sure the gravestones were still intact and not vandalised, and that grave markers had not been stolen.

Some churches were concerned over open graves, as seen in figures 6.11 and 6.12 below. During the week, the maintenance staff at Waterval Cemetery digs many holes in different sections in preparation for peak-day burials. Saturday is the busiest day of the week in that most burials are scheduled for then. The main concern was that the elderly, children, and those who were weak could accidentally fall into the open holes. This showed that although the situation was far more pronounced in old cemeteries as the graves were closely packed together with heaps of soil in between or on top of older graves, it was important for JCPZ to take necessary precautions to avoid accidents.



*Figures 6.11 and 6.12: Open graves ready for use at Waterval Cemetery
Source: Author's formulation, 2015*

The shared feeling was that those who disliked Waterval Cemetery, opposed the regulation that only headstones could be erected. Showing disapproval, some participants criticised,

“It’s like the American army design. For me, it’s not on. At least if they had the whole body,” (Alexandra community member, pers. comm, 2014).

This criticism and many others suggested a balance between those who like the cemetery and those who were not fond of it. Perhaps their distaste is something the JCPZ can integrate in future cemetery developments.

6.8 Barriers toward the uptake of alternatives such as cremation

One very important objective of the study was to investigate reasons that could potentially lead to barriers that constrain the uptake of cemeteries that contributed to the resilience of urban systems. This section focuses on what the study identified as social constraints, which include cultural and religious beliefs, negativity towards alternatives to traditional burial, the need for the bereaved to maintain links with society and cost implications of such traditional burial practices.

6.8.1 Cultural and religious beliefs

The most commonly noted barriers, which could potentially constrain the uptake of alternatives to conventional burial practices, are influenced by cultural and religious beliefs. In some Black African communities, a proper funeral is very important, as it is perceived to be the last important rite of passage. Commonly-practised funeral and burial rituals have taken years to become established, and it is important to acknowledge that it could take

many more years to get accustomed to new ones. Participants agreed that new approaches to cemetery planning and ways of interring the dead would need buy-in from all relevant stakeholders as argued below. This could be because cultural preferences would determine whether people would be comfortable using a cemetery in the first place, or whether they would prefer to use a different one.

“There are so many denominations, such that integrating uses will cause conflict,” (Rabie Ridge community member, pers. comm, 2014).

“In generations to come, cemeteries will change. Only then will people become open to different ideas. Culture takes time to change, but it will,” (Rabie Ridge community member, pers. comm, 2014).

Guilt was noted as a factor that would stop people from adopting alternatives, such as cremation, as they felt that burning a corpse was a sign that the family did not love the deceased. It was considered cruelty to an individual, as it ensured that every trace of the human body was destroyed. As previously indicated, fire is mostly equated with hell in most Black African cultures, hence most participants saw cremation as literally sending their loved ones off to hell. Also, there appears to be limited information available regarding current land scarcity challenges and the need for alternatives; limited information about the process of cremation and how destructive or not it can be to the corpse.

6.8.2 Maintaining societal links

From engagements with communities, cremation was viewed as a private experience that would isolate the deceased's family from the whole community, thus deterring the community from supporting them. It would not enable the community to pay their last respects. This is normally done through different acts of service, such as holding prayer sessions every evening until the funeral; preparing meals for guests at the deceased's home; cooking the funeral meal, and closing the grave after the coffin has descended. However, during cremation, only the family is allowed in the crematorium, so the community's last engagement with the deceased would only be at the memorial or funeral service. This was noted to be a huge problem by most people, as watching the coffin descend into the grave somehow brought closure to those attending the burial.

As much as most participants believed cremation would restrict them from paying their last respects, it was also clear that it would limit the bereaved family from engaging in some communal acts, such as displaying an expensive coffin as a way to publicly display their love for the deceased. Having someone cremated would also mean that the community does not share in the funeral meal, which has in recent times become a platform for the family to claim its social standing, and out-do the last funeral that may have taken place in the community. Whereas previously the funeral meal used to contain one form of starch, meat and vegetables, recently people offer three starches, three salads, steamed vegetables, juice and cold drink, bottled water, ice cream, cookies and cake. Cremation would therefore deny families the opportunity to show their status through the diversified funeral meal. If the deceased or their family was part of a burial society or “stokvel”³⁸, society members would be policing and ensuring that all the money was spent toward the funeral and nothing else. Hence, cremation would discourage unreasonable spending.

6.8.3 Burial as an African experience

According to the CRL Commission, Black Africans have always been communal. The community’s response to an individual’s death, and thus participation at a funeral, depends on how well the individual lived his or her life, and the impact they had on the community at large. The official elaborated that when someone is cremated, it would be impossible to perform some symbolic gestures or rituals. He reasoned that burial was symbolic, both in a cultural and a Christian sense, hence “it should not be seen as just an act, but as a spiritual process that can eventually lead to healing,” (CRL Commission Official, pers. comm, 2014). Moreover, death of an individual, funeral, burial and mourning should not be viewed in isolation, but instead as a whole “African experience”. The period from when a person is announced dead, during the burial, and after, can take a while since the family waits for the “right” people to perform and ensure that rituals that observe the mourning period are put into place. These are uncles or aunts, depending on the deceased’s culture.

Some participants and faith leaders preferred cremation because they understood it to be intimate, and that it did not require much time and preparation. A Roman Catholic priest from Rabie Ridge acknowledged that cremation allowed him to interact closely with the

³⁸ Burial savings group or investment society to which members regularly (e.g. monthly) contribute an agreed amount. When a member or beneficiary dies, the member receives a lump sum payment to help with the funeral and burial.

family. This close interaction gave him the opportunity to support the family throughout the funeral service, and even during and after the interring of ashes.

“It is usually a very nice ceremony, the interring of the ashes, because it is only the family that comes and one can be with them. And it is an emotional moment, and I have time for them, whereas when we have a big funeral service and the church itself, it’s okay, it’s important. But uhm very often it is just, I shake hands with people and so on. So I like that ceremony where we have a church service and after a church service the coffin is taken away for cremation, at a later stage the family come back, enter the ashes in our garden of remembrance and there is a plaque that goes on the wall,” (Roman Catholic Church Priest, pers. comm, 2014).

Although the downside to cremation is that it is more private (as only close family and friends attend), it seems to also offer the family close engagement with the church elders, who are primarily counsellors to the bereaved.

Although there are other basic necessities that could take preference, it is important to realise that cemetery planning and provisioning cut across diverse social issues. Hence they cannot be addressed in isolation. The following section discusses the cost implications that were raised, which could be seen to have an indirect relation to cemeteries.

6.8.4 Cost implications of conventional funerals

The JCPZ has, over the years, left undertakers to introduce cremation to families. Because it does not make business sense to them, it is likely that they did not strongly recommend it to bereaved families. Mausoleums, although not a common option, are privately run. It would also not make much business sense for undertakers to recommend mausoleums because they cost a lot of money that goes toward the purchasing of the crypt. For instance, a new crypt in a mausoleum currently costs around R40 000.00 in the CoJ. This implies that families could forego the extras, as the bulk of the budget would go toward the coffin and the crypt. Mausoleums would thus not be profitable for undertakers.

Whether cemeteries are located closer to communities or not, visiting loved ones is not viewed in economic terms. People are prepared to visit the deceased, regardless of cost.

Different people are compelled by different reasons to visit the deceased; hence distance cannot be an issue when such a time arises. "People will not mind to sacrifice their last rand to make a visit to the gravesite," (CRL Official, pers. comm, 2014). When asked about the current trends of extravagant funerals, the official indicated that the current trend of spending thousands of rands on funerals and burials is not part of history and culture. He believed the excessive spending was a matter of families showing off and thus claiming their status in the community.

When asked what the role of the church was in the cost incurred for funerals, faith leaders agreed that they chose not to get involved in family undertakings. For example, the matter of cost-effective versus extravagant funerals was viewed as a family choice and what they could afford. On the one hand the theologian in training from the Uniting Reformed Church admitted that the church had not found its place in such matters. On the other hand, the CIT representative argued that Muslim funerals were not extravagant. He further explained,

"Honestly the church hasn't got to that level where it can challenge or advise some of the things in life. The church has to play that role as it did in apartheid. The pastors, the bishops, [the] Steve Bikos and Desmond Tutus, they played a role in terms of apartheid to get rid of apartheid, so the church now, I don't know if it's scared of losing membership or it's ignorant on other things where they are stereotype to say we grow people spiritually but when it comes to care, then the church is not playing its adequate role on that," (Uniting Reformed Church Theologian in training, pers. comm, 2014).

"Every Muslim is buried in a decent and dignified way. Regardless of their colour, gender, social standing and wealth. The cost is about the same. A basic burial costs R3 400 to R4 500," (CIT Representative, pers, com, 2014).

The CIT representative showed that the deceased was shrouded in the same material and that there was no class or gender discrimination or preference. He indicated that a tombstone was a personal/family choice and not a must for Islam religion. It seems extravagance was not a determinant for decency in Muslim funerals, whereas lavishness was a basis for funerals in diverse Black African cultures.

Some participants confirmed that in an effort to uplift the family status, those who were not members of societies or “stokvels” found themselves having to borrow money so as to afford all the extras. Consequently, they found themselves having to pay back the loans in two to three years after the funeral. Although one of the prominent funeral undertakers from Alexandra did not condone overspending in the name of culture, he understood the reasons families tended to overspend. He showed that apart from the guilt and pressure from society, families felt obligated to show their gratitude to the deceased by overspending, although some churches and participants argued that pleasing the deceased was useless as he could not see. The undertaker argued that,

“We regard the burial as the last wedding. With Whites, when they get married they buy a ring of more than R10 000 to R20 000; and when we get married our ring is just about R200 or R300. But now when somebody dies we say this is our last wedding. That is his last wedding; that’s where we feel like spending a lot of money,” (Alexandra Funeral Undertaker, pers. comm, 2014).

One of the participants from Rabie Ridge showed that when her son passed away in 2012, she was not a member of any informal network (e.g. society or “stokvel”). She had neither money nor policies. However, her neighbours offered to bury her son. Although grateful, she would have preferred to cremate him because it cost less. More participants in support of or against extravagant funerals asserted,

“Lefu ke lenyalo la dilast,” (Rabie Ridge community member, pers. comm, 2014). (Translation: “A funeral is like one’s last wedding”).

“The high spending for funerals is not our tradition. People show off that we can afford, yet they waste. People like competition and want to become famous,” (Alexandra community member, pers. comm, 2014).

“People feel bad that the money they get from a policy goes towards things that aren’t related to the funeral. So they would rather use all the money for the funeral and even buy an expensive coffin,” (Rabie Ridge community member, pers. comm, 2014).

Societies and funeral policies appeared to be another cause of overspending. People incurred high funeral costs because a funeral policy makes a large amount of money available. There is pressure to spend it all because having a funeral is what the policy was intended for. Therefore, the more extravagant the funeral, the more popular the family will become in the community.

“People talk so we impress them. To show that we can,” (Rabie Ridge community member, pers. comm, 2014).

“Families who bury there are mostly people who want to be seen,” (Rabie Ridge community member, pers. comm, 2014).

As understood from the above response, choosing a cemetery to bury in was also a matter of status. Because of its design and appearance, Waterval Cemetery is viewed as better than those cemeteries found in townships but still below the standard³⁹ of those found in affluent areas. Although there was a general agreement that funerals should not be as expensive as they currently are, families did, however, take pride in the funerals they had given their loved ones. They felt obliged to spend for prestigious reasons. This seemed to be common in the Black African cultures, whereas in the Islam faith the deceased’s colour, gender, social standing and wealth were insignificant.

6.9 A summary of Diepsloot Memorial Park (DMP) results

The DMP is located within the Diepsloot township; however, most people prefer to bury their deceased in neighbouring cemeteries. Some have gone to the extent of burying as far as Pretoria because elements integrated within the memorial park’s design are not compatible with their cultural beliefs. The DMP is one of the first cemeteries in South Africa to incorporate innovative elements in its design, and in previously disadvantaged areas in Johannesburg. It was developed firstly as a response to redress the open space imbalances inherited from apartheid (between the northern and southern areas of Johannesburg). This took place through the integration of park-like features in the cemetery’s design. These were meant to provide a comforting environment whilst encouraging passive recreation, especially for those who have loved ones buried there. Secondly, it was to address an urgent

³⁹ Category A cemeteries are found in affluent areas and have amenities (e.g. running water, ablution facilities), whereas Category B cemeteries are in previously-disadvantaged areas and lack amenities. Although it has amenities, Waterval is a Category B cemetery because of where it is located.

need of dignified cemeteries that are properly planned, unlike the old ones that were just selected randomly. Thirdly, it was responding to the diminishing land resources and would therefore address the increasing demand through densification. This would happen by allowing multiple bodies to be buried in a grave, and through leaving as little space as possible between the graves. Fourthly, the cemetery would not allow full-body memorials, but instead only flat ground plaques would be used to memorialise the dead.

Although some people view it as a necessary shift from the old dominant cemetery models, the majority of the study participants do not see the need to have incorporated the different design elements that distinguish DMP from other cemeteries. According to them, the cemetery should have either looked like the old type of cemeteries (e.g. characterised by tombstones), or the space should have been developed into a recreational park. The two should have not been combined. The idea of using cemeteries beyond anything unrelated to interment is foreign to most people and is regarded as culturally unacceptable. Based on the fact that cemeteries are respected and the dead are feared, it could take time before people open up to a notion other than the traditional one. Because recreation is sometimes attached to insubordinate behaviour, the thought of having cemeteries act as places of recreation might possibly offend many.

Participants who had previously decided to bury at the cemetery did so for several reasons. Firstly, they liked that the cemetery is within close reach and they would be able to visit without incurring any costs. Secondly, their decision was made easy due to the comforting appearance of the cemetery, which eases the bereavement of those left behind. Most participants do not favour the densification measures introduced within the cemetery, since they are not in line with their cultural beliefs. They felt that the limited space left between graves does not offer privacy during the burial ceremony and visitations afterwards. Some participants were conflicted as they liked the cemetery but disliked the regulation that they could not erect full memorials.

Most participants argued that the cemetery's design is incompatible with their cultural beliefs. This was further perpetuated by the regulation prohibiting the erection of tombstones. Several participants mentioned that tombstones make a cemetery look like a dignified resting place for loved ones. They feel that a cemetery without visible tombstones

is unusual and therefore does not seem dignified enough to bury loved ones. Engaging the participants further raised the fear that the lack of tombstones meant that the graves were not properly marked. Most were not aware that the detail contained on the common headstones would still be engraved on the plaques. Some thought that if tombstones were prohibited, then the only identification method used would be a grave number. They did not understand how the grave numbers and plaques work. The use of plaques is the most cost-effective choice between headstones and full-body tombstones. However, it negatively impacts funeral undertakers' profits, as they drive a commercial business where most of the profits come from the extras (such as tombstones) included in funeral and burial packages. Although the JCPZ has since introduced a section that allows headstones and full-body memorials, most members of the community are not aware of this. Interestingly, no gravestones have been erected in this section despite it being used for burials for almost a decade.

A detailed discussion of the results can be found in Appendix A.

6.10 Conclusion

From engagements with different stakeholders, it was clear they wished to be kept informed regarding developments that affected them, in this case cemeteries. Both councillors were aware of and took part in the conceptualisation of Waterval Cemetery, whereas most stakeholders and community members were not. It seems common for users to only find out about the existence of a cemetery when they are dealing with a close death. Though stakeholders, such as church leaders, knew that their role would be to contribute to the aesthetics of cemeteries, it was however challenging for community members to say what theirs would be. Although they would not have the power and resources to dispute government's plans, consulting them would show that their views were considered, thus showing a level of respect for them.

While the importance of green infrastructure elements is understood to dignify the cemetery for both the dead and the living, these do not seem to be a priority for most participants. Although some are concerned with having as much available space as possible for future burials (e.g. undertakers), others are of the view that investment should be directed to urgent needs in communities instead of upgrading cemeteries that may not be

adequately used. This goes for having mixed uses as well. It is important for JCPZ to decide accurately which uses would be compatible with cemeteries, particularly taking into account users' beliefs. For instance, regarding the issue of space, undertakers felt that having as much land as possible was better than integrating all the interesting designs in the cemetery, especially if they would take up space that could be used for burial. Some community members would prefer JCPZ not to invest heavily in cemeteries, and that the bulk of the Col's budgets be directed towards other basic services that would be important for daily use.

Although regarded as an interesting idea, having mixed-use cemeteries was foreign to most. Cemeteries are still viewed conventionally as sacred spaces that should remain as such. Integrating other uses would be offensive to most people. There was a strong belief that having other uses incorporated would disturb the deceased. This was unsettling because the dead are still held in high regard. Previously, only one body was buried in a grave. However, with recent developments, people have since become accustomed to second burials in the same grave. One might argue that with time the same could apply to cremation and mixed-use cemeteries. It could be a matter of how the JCPZ introduces new ideas to people in order to get their buy-in. Although some participants thought a mixed-use cemetery was interesting, most could not imagine themselves using it. For most, the deterrent was the deeply-rooted cultural beliefs, coupled with the fear people have for the dead. In some cases, this fear was mistaken for respect. The dead appeared to be more respected than the living, particularly in the Black African cultures.

The elements integrated in the design of Waterval Cemetery improve its use and could imply success in the move towards models and management of newer cemeteries. These integrate the social aspect of the cemetery and its functionality. For instance, the sections introduced reduce overcrowding whilst facilitating mourning in private. Some of the design elements go beyond the use of the cemetery during funerals. For example, the crime-reducing measures put in place have made Waterval Cemetery a better model than old cemeteries, which are generally crime-infested. This could improve usability; however, the main deterrent could be that the cemetery is not easily accessible, reducing the frequency of visits. This affects potential links between the dead and the living, which are strengthened over time through frequent visits. Not being able to easily access the

cemetery will negatively affect users' ability to practice their traditions.

Despite some ideas being seemingly appealing to some community members, it may take a while before everyone else can open up to them. For instance, although people were aware of the existence of alternatives like cremation, this does not immediately translate to already adopting such practices. Undertakers do not support cremation as it threatens their livelihoods. While traditional burial provides many prospects for business, both cremation and mausoleums would threaten a large portion of their income streams. Although the task of bringing awareness about alternatives (such as cremation) has been left in hands of undertakers for years, it seemed they had not been honest to the families who needed their services. This was confirmed when most participants assumed cremation was more expensive than conventional burial. Alternatives thus do not make business sense for undertakers as they do not make as much profit as conventional burial. However, they would be cost-effective for users. Although a few churches would not support new ideas, such as cremation, or the mixed-use design within cemeteries, most would support their congregations in whatever choices they made. The numbers of community members open to cremation were noteworthy, since it is still fairly a new approach to most. However, generally, people have limited information and awareness about it.

In protecting the cultural rights of citizens, the CRL Commission recognised the need to consult with those with indigenous knowledge, particularly because the history of most Black African cultures is not documented. Their argument was that burial processes that followed death, the funeral and mourning rituals, all provided spiritual healing to the bereaved. The Commission did not trust that the bereaved would get the emotional support and healing they deserved if they were to cremate, as most of the processes followed would have to be removed. Some of these processes included, for instance, the role played by the general community in supporting the grieving family, in terms of acts of service. They, like other users such as Rastafarians, were adamant that JCPZ needed to find ways to continue with conventional burial as it was a cultural right.

Chapter seven will analyse results from the two studies. These results will be anchored on the resilience framework. The objective is to see whether the social perceptions of Waterval Cemetery and Diepsloot Memorial Park support the cemeteries' ability to contribute to

resilience through their planning, design, development, use and management. The intent is also to understand if and how the institutional and social barriers identified can constrain the ability of these cemeteries to contribute to the general resilience of the CoJ.

Chapter 7: The social-ecological values imperative to achieve the desired state of resilience

7.1 Introduction

In Johannesburg, there has been an attempt to introduce more innovative approaches to cemetery planning, provision, and management, which might be seen as contributing toward urban resilience. The Waterval Cemetery and Diepsloot Memorial Park (DMP) are two of the City of Johannesburg Metropolitan Municipality's groundbreaking cemetery developments. The DMP study went further and investigated reasons for the cemetery's poor uptake. However, there are limitations in viewing and accepting the two cemeteries as a necessary shift towards spaces that contribute to the resilience of surrounding urban environments. Although the current study takes a normative position on resilience and evaluates some of its principles within urban environments as social-ecological systems, it does not ignore negative resilience. In particular, moving away from the old dominant way of providing cemeteries seems to be difficult, as most people have come to identify with it, to the extent that aspects of it are entangled in most people's cultures. Interweaving history with the cultural keystones makes the shift toward newer approaches of cemetery design and development even more difficult.

The diversity of the CoJ in terms of demographics (from stable to rapidly growing populations), size, cultural diversity, economies, and geographical and historical contexts, make this region a rich case study for furthering the understanding of urban resilience. The selected resilience principles that helped assess whether cemeteries are able to contribute to resilience in the CoJ include the city's leadership role in ensuring inclusive participatory processes in the development of cemeteries and its ability to learn from past and present situations, so as to enhance adaptive capacity to adequately address current cemetery planning challenges.

Following the introduction, the chapter analyses results in different sections. These include the significance of adaptive governance for resilience; perceptions of approaches to cemetery planning and development that could be seen as consistent with resilience principles, and barriers that could potentially constrain their implementation. Adaptive governance is essential to determining the sets of social and ecological values that are

imperative to maintain a desired state. These cannot be reduced to a list of prescriptions, as they are context specific. It is also important to pay attention to the potential gaps between what is theoretically necessary for a well-functioning social-ecological system, what society wants from the system, and what is administratively achievable.

7.2 Adaptive governance and its significance in resilience

7.2.1 The absence of policy informing cemetery planning

Land resources for cemetery development are diminishing. This section points to three important concerns that make this problem difficult to address: the absence of long-term policy that informs cemetery planning, governance challenges and budgetary constraints, and the absence of collaborative processes between providers and users of cemeteries.

Resilience is said to be strengthened by an integrated development strategy and plans that are regularly reviewed and updated by cross-departmental groups (da Silva and Morera, 2014: 7). The implementation of integrated strategies and plans ensures that different projects and programmes are aligned, mutually-supportive, reflective of past experience and resourceful in the face of future uncertainty. Inclusive planning processes encourage consultations with interested and affected stakeholders.

Currently there is no policy that informs cemetery planning and development in the CoJ. Resilience is starting to influence policy in the City of Johannesburg. Although it is defined in some plans, such as SPLUMA, the NDP and GDS, its applicability in spatial planning and land-use management remains difficult to determine. Hence its acceptance beyond disaster-related situations requires further negotiation. The JCPZ only has by-laws, and these deal with the day-to-day management of cemeteries. Like most cities, the CoJ lacks the foresight to include these ecologically- and culturally-rich places in their comprehensive plans. The CoJ attracts local migrants and those from outside the country. However, future growth projections are not factored into planning to project future demand for cemetery spaces. Demographic projections for an ageing, more culturally diverse and growing population point to the need to develop strategic plans for burial infrastructure and policy that responds to the demand. The absence of policy informing cemetery planning and development increases the habit of emergency planning when cemeteries rapidly fill up and there is demand for more. Because cemeteries consume vast amounts of space, failing to

mainstream them in spatial planning policy discourages integrated planning and efficient land use. This could further exacerbate challenges such as urban sprawl as land uses become fragmented and disconnected.

What makes cemetery planning of particular interest is that society expects to have a place to bury its dead. Participants from Alexandra were adamant that they wanted a cemetery within walking distance, yet they agreed that they could not live with it in close sight. Francis *et al.* (2000) contend that users would ideally like a burial place close to family and kin. Yet this inevitable tension between the immediate wants, both spatial and temporal, of a local community and broader strategic planning needs is one that remains an ongoing dilemma for local and regional planners, and their respective communities and other interested parties (Bennett and Davies, 2015). From a land-use planning and broader societal perspective, there has been little research to understand where the community wants cemeteries and related facilities.

Woodthorpe (2011) has suggested that cemeteries are a public service, and that with increasing pressure on urban land, cemeteries face spatial competition and compression pressures, and are subject to conversion and replacing by other uses, such as open space. This extends their function beyond that described by Arffman (2000) (health and hygiene, place for sorrow, connection with religious views and marking the social status for descendants), further complicating how cemetery planning should fit within government-led and contemporary metropolitan planning (Bennett and Davies, 2015).

Findings from the Waterval study support those uncovered by Basmaijian and Coutts (2010), and Davies and Bennett (2016), which is that strategic planning for cemeteries is an area of policy that receives little attention despite the fact that it has a direct impact on land-use planning. At the strategic level diverse city plans have failed to identify areas of cemetery demand or specific locations for the potential supply of new facilities. This may be due to the focus of plans on urgent needs, such as housing for the living and economic growth, rather than accommodation for the dead. Davies and Bennett (2016) argue that the opportunity cost and return on investment for the public and private sector, of a cemetery or crematoria, over a housing development, may not be a rational financial investment. This further signifies potential future tensions over land use for cemeteries for future

communities. The fact that cemetery planning was never considered in the larger town-planning strategies is cause for concern because there are no clear guidelines for where the cemeteries can and cannot be erected.

7.2.2 Systems and processes underpinning the current cemetery planning and implications for social-ecological resilience

Processes followed in the development of Waterval Cemetery included the identification of land where ownership and zoning were checked in the JCPZ's GIS systems, geo-hydrological and geotechnical assessments, and environmental impact assessments, and a traffic study to determine how the cemetery would affect traffic from the surrounding areas (JCPZ Official, pers. comm, 2014). Although all these assessments were conducted prior to development of Waterval, these were not thorough (Newtown Landscape Architects Developer, pers. comm, 2014). To prevent depletion of the budget on one exercise, minimal assessments to determine the site's suitability to develop Waterval Cemetery were followed. This was indicated by a representative of the cemetery's developers when he showed that sometimes, because of budget constraints, a lot of geotechnical assessments can be skipped. Hence many geotechnical problems can be missed. For the DMP study, records of processes followed before development were not found.

"Adaptive governance involves devolution of management rights and power sharing that promotes participation," (Folke *et al.*, 2005: 449). In the CoJ, authority and decision-making concerning the planning, design, development and management of cemeteries is bureaucratic. The governance of cemeteries is monocentric as it does not involve a more divergent set of actors (e.g. citizens, NGOs), which would probably contribute to more nuanced governance outcomes.

Participation has been indicated as a fundamental principle contributing to the resilience of urban spaces. Effective participation promotes effective leadership, strengthens the link between information gathering and inclusive decision-making, and includes empowered stakeholders and integrated planning (Simonsen *et al.*, 2015). Although the JCPZ claimed to have consulted with households of Diepsloot before development of the memorial park, most of the participants who took part in the study only found out about the cemetery, through undertakers, when they were faced with a loved one's death. People who might

have been consulted then, might have long moved as the township expanded. This shows the need for ongoing public participation processes, especially since the cemetery has integrated new elements that people are not accustomed to. Most participants from the Waterval study were also not aware of the development of the cemetery. Although they would have preferred to be part of the conceptualisation processes, they could not clarify exactly what they might have contributed to the processes.

It is important to acknowledge that government may not always be responsible for poor public participation processes. As is common, sometimes members of communities show hesitation in attending such processes. However, better approaches can be identified that could motivate people to attend. As the JCPZ faces more challenges attributed to the shortage of land for cemetery development, this calls for more collaborative processes with diverse stakeholders as solutions need to be identified. However, this has not been the case.

These processes are important in strengthening the link between information gathering, ongoing learning and effective decision-making (Biggs *et al.*, 2012: 436). From engagements with community participants, it is apparent that the JCPZ has failed to communicate with cemetery users the challenges they are faced with concerning future cemetery planning and development. Such communication could realise various solutions that would work for all parties involved. People are generally not aware of the challenges facing the JCPZ, especially concerning diminishing land resources. Therefore, when asked which solutions they would be willing to adopt, they did not understand why there was a need for any solutions.

Instead, officials seem to decide in their offices that people cannot open up to alternatives, such as cremation, as they seem to be in conflict with their cultures. Although the JCPZ is trying to implement newer approaches to cemetery planning and provision, the processes they follow still show limitations. They seem to have changed some processes but not all. For instance, limited collaboration with multiple stakeholders can only bring resistance to solutions the JCPZ could adopt.

7.2.3 Availability of financial resources and contingency funds

Cemeteries are the only business that “sells something once and takes care of it forever,” (Llewellyn, 1998: 60). Once full, the permanence of cemeteries limits their ability to generate new revenue and fund long-term maintenance (Davies and Bennett, 2016). Results

from this study concur with those from Basmajian and Coutts (2010), who declared that although cemeteries frequently possess local historical and cultural significance, maintaining them is a substantial expense.

Cemeteries are developed in phases because of fiscal constraints. The money collected from grave fees is pooled together with that collected from different city entities. Instead of being redirected to the development of new cemeteries, funds for cemetery development are allocated by the CoJ. This “could build resilience in economic terms by reducing impacts during periods of budget deficiencies and economic recession in cities,” (Colding and Barthel, 2013: 165). However, this would require efficient leadership in terms of motivating, mobilising and providing direction.

The JCPZ has identified other revenue streams in order to attract inward investment. These include renting out portions of the cemetery for shooting scenes for local movies and soap operas (Moloi, pers. comm, 2014). The JCPZ has also identified a section that will be allocated towards the burial of “heroes” within Waterval Cemetery. The decision still needs to be taken as to how tourism will supplement their economic base using the heroes’ acre. Although the JCPZ does not purposefully plan for resilience, they do however, see the urgency of identifying diverse revenue streams, the ability to attract business investment, and to build emergency funds.

For a city to maintain its infrastructure and provide for its communities, it needs “a robust economic urban system,” (da Silva and Morera, 2014: 11). A careful structuring of city budgets will consider the availability of funds to regularly invest in infrastructure and to respond to emergencies (*ibid*). This is supported by a robust revenue base, supplemented by the city’s ability to attract inward investment. During development and through continuing maintenance of Waterval Cemetery and Diepsloot Memorial Park, the JCPZ facilitates diverse livelihood opportunities and thus allows citizens to proactively respond to changing conditions without undermining their wellbeing through the Extended Public Works Programme and the Jozi@Work Programme discussed in the previous chapter. In the long run, “savings, training, business support and social welfare form a safety net that enables people’s flexibility during times of stress,” (da Silva and Morera, 2014: 12).

7.2.4 Perceptions of current burial choices and implications for social-ecological resilience

“Social feedbacks can keep a system locked in an undesirable regime and require weakening to enable transformation,” (Biggs *et al.*, 2012: 430). This study found that although the resilience policy might introduce more fluid and flexible options, older practices that were inherited from apartheid limit the adoption of newer approaches to cemetery planning and provision. Over time people have become accustomed to these old practices and their conceptions do not make the shift toward newer practices possible either. Despite efforts to move from the inadequate use of space, resistance seems to persist from within the City and from users of the space. This resistance hinders the process of learning and experimentation, as the old dominant methods of burial do not allow for change due to the long acquired values at individual and societal levels.

The continuing shortage of suitable land resources has given the JCPZ the opportunity to identify innovative ways of ensuring that land within cemeteries is adequately used. As mentioned above, both Waterval Cemetery and DMP promote densifying, and further introduced incorporation of recreation sections. In both cemeteries, although not enforced, burial of multiple bodies is encouraged and little space is left between the graves, also with the objective to densify. Whilst management interventions introduced by the JCPZ include forbidding the erection of full memorials at Waterval Cemetery, at DMP, these interventions have been extended (including the use of flat, ground plaques).

“Like funeral customs, interment methods are shaped by religious teachings and cultural structures,” (Ertek, 2006: 41). The negative response toward the uptake of DMP is visible in reactions towards the newer models that have incorporated innovative features within them so as to encourage efficient use of space. This has been met with resistance as households continue to decide to bury in surrounding cemeteries and even travel further away, in search of cemeteries that allow practices that align with their cultural beliefs. Community members from Diepsloot (as discussed in Appendix A), complained that their culture prohibits them from using a cemetery that mixes burial with recreation, forbids headstones and full memorials, and one that encourages densification. One might argue that perhaps this resistance is still possible because users still have a choice. However, once

those cemeteries fill up and their choices shrink, perhaps they will be forced to bury in the very cemeteries they have been avoiding.

So, as metros have been complaining of shrinking land resources, it will be a matter of time until cemeteries that were once rejected will be utilised. A successful shift toward practices that contribute to the city's resilience would require the municipality to invest a lot in converting users' perceptions. This is a clear sign of an abstract policy that does not make sense in the two cases and the current contexts, as people do not relate positively to the prescribed resilience principles. The old beliefs and practices do not allow change but instead contribute toward land resources being used inadequately. In terms of adaptive governance, there is a shift in the design of cemeteries, although there has not been a mindset change in people's entrenched beliefs. Although government may have moved to cemeteries that are more consistent with resilience principles, there are still socio-cultural limits, as upcoming sections will show. And it might take time for people's views concerning these new innovative cemeteries to change. This is an opportunity for resilience practitioners to engage more deeply with how ideas and beliefs are changed, particularly with the intent to drive towards resilient urban systems.

The study on DMP shows how poor communication channels between actors in social networks can deter the successful identification of alternative solutions and thus improve resistance towards innovative cemetery designs. For instance, the negative response toward the uptake of DMP in the neighbourhood, irrespective of need, seemed to be a divisive land-use issue that resulted in strong resident opposition as influenced by the support of local ward councillors. Hence, public consultation throughout project conceptualisation and development becomes a key enabler of social learning, which can take place through intentional or facilitated processes (Biggs *et al.*, 2012: 432). Through learning, beliefs and values can be restructured. This learning could encourage changes in governance and management approaches, as required from the Waterval and Diepsloot studies.

7.3 The role cemeteries play in the life of mourners and community at large

Due to the unique function it plays, Waterval Cemetery remains very important to its users, especially community members who have buried their loved ones there and continue to visit, thus reconstructing a connection in spite of them no longer being alive. Just as the

Bible perceives the dead as sleeping, so did most of the community participants. According to Paul, in his letter to the *Thessalonians* (4:13), death is a kind of sleep:

“Brothers, we do not want you to be ignorant about those who fall asleep, or to grieve like the rest of men, who have no hope,” (*The Holy Bible*, 2005: 1 285).

This is seen in the way visitors conduct themselves at the cemetery. They speak in low tones, as they would not want to wake the sleeping. Onukwugha (2011) argues that death is not the end of life, but rather a transformation from the Christian or religious perspective.

Shared memories and the ability to express identity and practice one’s cultural beliefs give meaning to spaces such as cemeteries. These however, change with the shifting social-ecological needs and demands. Waterval Cemetery provides people with a place with which they identify because it houses those dearest to them. They have a connection to the deceased’s graves, hence those who visit are concerned with the upkeep of the whole cemetery and their particular graves. The grave remains one strong link people have with their loved ones, and this can be seen in the act of bringing gifts and refreshments to the grave. If visitors bring water, it is drizzled at the head ‘to quench the dead’s thirst’, while gifts such as snuff and traditional beer are sprinkled on top of the grave. The snuff and the beer represent things the ancestors would be familiar with, and those they liked and used while they were still alive.

Funerals are said to play multiple roles in society. Firstly, they honour the deceased, who continue living in another realm as ancestors (Case *et al.*, 2013). Secondly, they provide the deceased and their immediate family an opportunity to claim their social standing in their communities. Thirdly, funerals knit the social fabric for extended families and the community at large (*ibid*). Lastly, they allow the family to redistribute some of the deceased’s belongings. Because certain rituals are performed during this process, family members are drawn closer and they get an opportunity to get closure. For some or all of these reasons, funerals in some cemeteries tend to be elaborate and expensive (Case *et al.*, 2013).

This study argues the same point made by Bennett and Davies (2015) that cemeteries also play an important role in anchoring cultural communities. Results from this research show

that a death brings about ruptures in the family and at times in the community. Hence there is agreement with Reimers (1999) that the funeral and the headstone that is raised over the deceased can be viewed as tools for the restoration of the social structure, relations and values. Burial practices and activities that take place in cemeteries assist in the construction of collective memory, which strengthens formal, informal, national (because sometimes people are buried at heroes' acres due to their position in society or in the country) and community identity; this is particularly for the more culturally diverse communities. It is partly through the rituals performed at the grave that families are able to move forward with their lives. By congregating as a collective and in prayer, it is also at the grave that groups of people (e.g. families) are able to share their daily struggles and also show gratitude when things are going well in their lives.

Community members and the church congregation are considered helpful and thoughtful when they prepare tea and cookies for the bereaved family and its visitors in fellowship with them. This is supported by Masango's (2006) findings from research which traced the reasons for churches resisting cremation and identified scriptural passages that support cremation. The findings show that this act of support helps the family to achieve closure and expresses the community's compassion. The community shows care through various acts of service as mentioned above, especially after death has been announced and in days leading to the funeral. One act that shows a socially cohesive community is when community members help fill the grave with earth after the coffin has descended. This act shows that community members are communal, especially in the time of need when the mourning family mostly needs support. This also shows respect for the deceased and empathy to the family.

7.4 Perceptions of alternative burial options and implications for social-ecological resilience

Resourcefulness and flexibility are qualities that show an institution's adaptive capacity and thus resilience of systems in place. Within the development of Waterval Cemetery and DMP, the JCPZ has shown resourcefulness through identifying alternative ways to address challenges caused by diminishing land resources. This flexibility is demonstrated through its willingness and ability to adopt alternative strategies in response to different stresses and changing circumstances. Cemetery users are willing to use Waterval Cemetery, whereas the

uptake of DMP has been poor. The reason may be that Waterval's policies are not too far-fetched for users, as it allows headstones, which still remain important for users. However, DMP introduced innovative elements that users were not familiar with. Their resistance to use the cemetery for both burial and recreation is a sign that sometimes the new technologies or knowledge may not be readily accepted. Although systems can be made more flexible and innovative, through introducing new technologies or knowledge, if traditional practices are not transformed, that can result in poor uptake. And that implies that innovation is not always positive.

The Waterval study established that the introduction of alternative burial options seems to be a sensitive issue that needs care in how it is approached. First of all, people are not aware of the need and urgency to introduce and enforce alternatives to burial. Understanding that the city is facing land scarcity challenges which therefore compels it to seek diverse solutions and methods of human remains disposal is the first step for most people in both communities (Alexandra and Rabie Ridge). This gives JCPZ an opportunity to go out and educate communities about its challenges. This awareness should be without really assuming that people would be unwilling to adopt some alternatives. The discussion held with local ward councillors and engagements with SALGA concerning its research on municipalities across the country confirmed that it is them (officials) who would not be open to these, and they in the process are denying everyone else the opportunity to decide for themselves what would and would not work.

7.4.1 The double-storey grave

Many participants, and particularly the Rastafarians, emphasized the importance of burying an individual in their own grave. However, given the increasing shortage of burial land and high death rates, people are slowly becoming accustomed to having more than one person buried in a grave. This shows that although it might take long to happen, people's mindsets are changing as are their cultural beliefs. The one condition emphasized by participants is that only family can share a grave if this regulation is enforced. The Muslims are also open to more people sharing a grave, with a condition that they are from the same family. Having strangers share a grave, is currently not done in the CoJ.

According to families from most Black African cultures, only family members can share a

grave so as to avoid any confusion that would arise during communication with the deceased or ancestors. Mixing two ancestors from different families would imply that they are not resting in peace but would instead anger them. The grave offers a link between the two worlds, and an open communication between the dead and the living. It is during visitation that the living speak to the dead as if they can hear.

The Muslim burial ensures that the remains interred previously are not disturbed at all during a reopening (CIT Representative, pers. comm, 2014). According to him, Muslims visit cemeteries frequently to remind themselves that death is real. Further, they frequent graves of friends, families, and even deceased people they do not know. Furthermore, praying for strangers is emphasized as the link between the living and the dead. It is not strengthened by the fact that they are family, but because they are Muslim. Although it depends on the person's preference, most people of the Islamic faith visit graves weekly, especially on Friday mornings (*ibid*).

According to the JCPZ, currently the family owns the grave in perpetuity; and it is on this small piece of land that people are allowed to practise territoriality through, for instance, controlling the appearance of the grave. However, these activities are in line with rules that govern the cemetery. The family owning rights to the grave implies that cemeteries are protected by law and therefore cannot be disturbed. The holder of rights includes a person who purchased a grave or received it as a gift from the purchaser. They can be inherited and are transferrable upon registration by the council. However, this arrangement leaves the municipality with very little say in how they can reinvent these spaces as families are becoming accustomed to allowing more than one burial per grave, and some even romanticise the idea of being buried permanently with their life partner. Multiple burials per grave is not sustainable in the long run. It does not meet long-term demand, and eventually more land will still be required for burial.

The study established that mausoleums are not popular amongst participants. After explaining what they looked like, most participants felt the method was not very different from traditional burial. And it seems they would be more willing to adopt the method, although with conditions. Some of the conditions were that the elders should be buried closer to the ground whilst children can be buried in the top crypts. This confirms the

difficulty with accepting any method where remains would not be closer to the ground. Mausoleums offer a less expensive and more compact method of interment that can blend well into park-like cemeteries. They can be provided in places where cremation is not accepted for cultural and religious reasons. Because they are compact and provide high-density burial space, they reduce the amount of land required for burial. They can be erected in cemeteries where underground burial is unacceptable due to unsuitable environmental implications.

7.4.2 Cremation

This study is careful not to proclaim that building resilience is always positive. In some cases, communities can be highly adapted to their circumstances but also trapped by them. Cremation is one option that people will need to get used to. Although the majority of participants would rather opt for traditional burial, perceptions about cremation may gradually change. This is confirmed by a promising number of younger and old people who were open to cremation. Apart from personal preference, cultural and religious beliefs play a dominant role in the accepted method of interment.

The unexpectedly large number of participants who are open to cremation shows that there are Christians who have nothing against the method. Very few of those believe the soul is more important than one's bodily remains, whereas for others it is more a question of the convenience and reduced cost of cremation in comparison to traditional burial. Unlike Masango (2005), who believed that African churches would continue to argue that there is no scriptural backing toward cremation, hence burial; some participants and religious leaders saw the church as being the right platform to teach congregants that the body is just a tool that carries one's soul and hence its importance fades after death. The Christian faith accepts both cremation and in-ground burial. And if interred, the preference is that the body should be placed in a casket, and the feet must face east (Jacobs, 2003). However, Masango's argument is that the only time that African people may agree to cremate is when a person has done dreadful deeds (*ibid*).

Masango (2005) showed that people from most Black African cultures relied on the scripture to guide them on which method of interment to practice. He demonstrated that apart from tampering with the temple (body) as created by God, they also worry about

resurrection. It is thus important for churches to have solid theological arguments to support cremation. Failing to find some, it will be difficult to convince most cultures to opt for cremation. And hence the question will remain whether the dead are more important than the living, and whether they should use up all the space for burial. For many participants, even those who did not oppose cremation, another challenge was the emotional reaction against the thought of burning the dead. This finding is similar to that of Masango (2005), who explained that the rapid destruction of the body or mental picture of the process could deter some persons from giving consideration to cremation.

The study's findings are similar to those of Davies and Bennett (2016), who argue that the dominant funeral industry model of interment seems to have the greatest influence over the behaviour of mourners and their choice. For example, this can be seen in the prominence of funeral undertakers and their role in selling after-death care through burials, and their resistance towards teaching their clients about the benefits of other alternatives, such as cremation. Understandably, cremation is not commercially appealing for them. And due to its newness in most Black African cultures, venerating cremated remains is still not understood. For most cultures, that is one of the primary concerns as they question whether respect for the dead would be preserved. This finding attests to what Masango (2005) discovered, that when told about cremation, people ask what they would do with the ashes. Burial is a religious must for Muslims, as they believe that the dead will remain in their graves; and those heading for Paradise will experience peace while those heading for hell will experience suffering. Hence cremation is not an option for them.

The JCPZ shows adaptability to undertake different interment methods while enabling them to innovate and utilise the opportunities that may arise from change. Key respondents from the study concur with results from Davies and Bennett (2016), which from a land-supply perspective, interment of ashes provides a far more efficient use of space than traditional burial. Cremains can enable interments to be conveniently located to family that would not be otherwise possible. Cremation provides a supplement rather than substitute for other modes of interment. As such, they increase the diversity of interments. This gives communities diverse options and the opportunity to choose the best option for them, based on their preferences. For the strategic provision of cemetery services, the emergent trends

certainly point to the irrelevance of a one-size-fits-all model. While cost and convenience can be used as decisive factors to drive cremation, it will take time to see a shift in social values and for most cultures to warm up to it. The funeral services industry, together with the JCPZ, could factor these trends into future planning for new interment facilities, as well as considering how death is positioned in the landscape.

The old way of cemetery provision and traditional burial can be associated with the inability to adapt. However, more recent cemetery designs and interment methods are much more flexible, not only incorporating a wide range of functionalities, but also enabling users to themselves decide the function of a cemetery and the final destination of remains. This means that these new designs and alternatives can facilitate greater flexibility within social and economic development components of urban communities. They also form the foundation and pave the way for new, collaborative forms of urban innovation, which could potentially contribute to the resilience of urban environments.

7.5 Perceptions of approaches consistent with normative resilience principles

This section discusses stakeholders' (local government, special interest groups, communities, religious groups) perceptions of the shift towards innovative approaches to newer cemetery models, which could potentially contribute to urban resilience. This is done by assessing Waterval Cemetery and DMP's potential to contribute to the city's resilience through the integration of green infrastructure elements within their designs and management practices.

7.5.1 The ecological functioning of Waterval Cemetery

The urban landscape is threatened by land-cover change, fragmentation and land-use intensification as a result of the constant pressure from human development (LIFE, 2010). As a result of urbanisation and construction, land-cover is changing dramatically. Increasing the impermeable surface area in cities reduces the capacity of water to percolate in soils, increasing the volume of surface water runoff and thus increasing vulnerability to flooding (Villarreal and Bengtsson, 2005). Interception of rainfall by trees and grasses has been shown to slow down flooding effects, while pavements enhanced with green elements absorb water and reduce the pressure on urban drainage systems (Bolund and Hunhammar, 1999).

Multifunctional landscapes can contribute to climate change mitigation by sequestering carbon in above- and below-ground vegetation and reducing energy required for cooling (Mell, 2009). However, Basmajian *et al.* (2010: 314) argue that “if cemeteries are to be part of municipal green infrastructure, planners will have to work to mitigate the environmental impacts of their upkeep”. This is so that cemeteries can improve a community’s natural environment, especially because some cemeteries are considered part of the green infrastructure and therefore used for recreation; for instance, in some USA states. This is a practice that can be adopted in some local cemeteries. Although there were strong reactions to this idea in the studies discussed, this would depend on the social context (e.g. income status, location, race, age, etc.).

This study found that green infrastructure elements integrated in the design and management of Waterval Cemetery have the potential to provide ecological functions within the cemetery and to surrounding environments. These elements include planted trees and grasses, and the addition of semi-permeable pavements that intercept and retain rainwater during higher precipitation periods. Through management practices that encourage healthy environments, which could promote resilience, only headstones are allowed at Waterval Cemetery. Most of the land surface is therefore covered in grasses and trees, which play a role in intercepting rain water and thus reducing erosion and flooding (Newtown Landscape Architects Developer, pers. comm, 2014). Trees also provide shading and cooling from the scorching sun to users during burial and visitation.

Multifunctional green infrastructure elements play a role both in adapting to new environmental conditions and in mitigating an environmental problem it may have been erected to address (Lovell and Taylor, 2013). Should the built infrastructure fail to divert and retain water, the natural infrastructure is able to intercept water and thus reduce the likelihood of flooding. By complementing the built infrastructure, the natural pervious elements at Waterval accentuate the redundant measures put in place to intercept water. Should the man-made infrastructure fail, the natural elements will continue to play the ecological functions. The spare capacity created can accommodate disruption caused by extreme pressures. Currently, the built pervious infrastructure is not properly maintained. Proper maintenance can increase efficient functioning and improved resilience.

7.5.2 Promoting resilience through integration of green infrastructure elements

“Designs that accommodate multiple uses might bring burial facilities back into community life and contribute to a community’s green infrastructure,” (Basmajian and Coutts, 2010: 315). Greening at Waterval Cemetery and DMP was mainly to redress past spatial inequalities between previously disadvantaged areas and affluent settlements. It can be used as a tool that promotes resilience through innovation and adaptive management, as it requires the active participation by residents in its maintenance. Visiting cemeteries has been practised for generations for reasons such as cleaning around the gravesite and performing rituals so as to appease the ancestors. The introduction of green infrastructure elements into the cemetery increases the opportunity for prolonged visits, as the cemetery is now losing its character as a gloomy, eerie space.

McPhearson *et al.* (2015) argue that resilience-focused planning, management and governance will be better served by including ecosystem services explicitly. Focusing mostly on cultural and aesthetic ecosystem services (recreational), this thinking has proved otherwise within this study, especially regarding the planning and management of cemeteries, and in a context characterised by rich cultural and religious diversity.

The findings show that it might take time for people and authorities to support the application of some resilience attributes, with a special focus on the incorporation of social uses within cemeteries. Although the integration of ecological features may not cause disapproval, it will however, require meticulous planning and design. The ecological functioning and environmental friendliness might be affected though. And this could be because the ongoing and multiple disposal of human remains in a single grave could impact the space’s changing dynamic. The impact of dense cemeteries through multiple burials in a grave, and limited space between graves could be explored in future studies. The impact could potentially be negative as more bodies (and pollutants from coffins and all items buried with the bodies) are buried in each grave, to increase the space’s potential capacity. Promoting the idea of green cemeteries can be debated as the toxicity of coffins used for burial, and the carbon footprint of headstones, counters the greenness of the space. Such considerations are valid; however, this research did not investigate them.

Participants who viewed the integration of green infrastructure elements within these cemeteries as something positive, associated them with an opportunity to provide a peaceful and dignified space where some were able to let go of the guilt they had been carrying after the loss and burial of the deceased. The fact that they would be able to let go and make peace with loss, and sometimes with the burdens they had been carrying from before the death, meant that they were able to forge new relationships with these spaces. As indicated by the frequency of their visits, this relationship with the cemetery develops into an attachment, and could be linked to some psychological need. This need could, for instance, afford one the ability to mourn the loss, and the opportunity to visit and share milestones and struggles with the deceased. The findings could mean that the physical characteristics of the cemetery space as presented by both the natural and man-made features are therefore seen in a positive light, where they have the tendency to meet the psychological needs of users and therefore improve their quality of life.

For those participants who did not see the need to visit the cemetery, their views of integrating green infrastructure elements were quite different. They felt that the JCPZ was investing large amounts of money in spaces that are inadequately used. They argued that the investments should rather be directed towards other uses, such as parks. Even among these participants, there seemed to be mixed feelings. Some did not think that the JCPZ should invest in more parks. Their argument was that the meaning attached to parks had changed over the years, as they now attract unruly behavior.

Although incorporating green infrastructure elements was observed as unnecessary by some users of Waterval Cemetery, there was consent that it does change the ambiance of the cemetery, as it provides some comfort to visitors. Although a few were indifferent, most of the participants agreed that the incorporated green infrastructure features enhance the cemetery space and therefore reinforce their sense of pride in their ability to bury one of their own in a dignified space. This gives those remaining a sense that their loved one shall rest perpetually with dignity. The ability to frequently access this space also affords those with unresolved psychological issues the opportunity to make peace with the loss and to deal with the guilt toward unresolved issues with the deceased. Hence loved ones become interested in what goes on in the cemetery as it affects a family's grave and there are strong

emotions attached to either the pleasure or displeasure that would be experienced as a result of disturbing the grave. The strength of attachment a family may feel toward a grave would be the sense of belonging, which would be affected by their inability to access the cemetery or grave. However, for many, these would depend on when death has occurred, and the period of time that has passed thus giving the participants the chance to grieve.

A very important finding showed that some participants (e.g. funeral undertakers) felt that investing in a green cemetery would be costly; hence investing the already-tight budget in other uses for the community should instead be prioritised. From the undertakers' point of view, green infrastructure was not a priority as their main concern was having as many available burial spaces as possible. This is one of the key factors driving negative resilience. Because they come from a commercial position, it is obvious that they would want to make as much profit as possible. They supported the integration of green elements on condition that these did not consume the already-diminishing space for burial. This raises the point that although there may exist measures against which a system's resilience may be assessed, in reality, other factors can be prioritised for the efficient functioning of that system.

Greening and diversification within cemeteries will not replace efforts in other spaces. Small-scale efforts, such as greening of cemeteries can enable resilience or lead to transformation at a larger scale, with isolated ventures inspiring broader efforts that are dispersed through the city. In agreement with Folke *et al.* (2010), consequently, a focus on small, manageable systems, such as cemeteries may contribute towards larger efforts; hence, it would be worth investigating in depth.

7.5.3 Multi-functionality and diversity of social uses

Although it is not the only approach, "green infrastructure is a valuable and practical tool for strategic and local planning and delivery of urban resilience and sustainability" (Vandergert *et al.*, 2012: 12). Effective planning processes help to address land requirements for diverse land uses, and in this case cemeteries, which contest for land with other uses. Whether modifying existing cemeteries to accommodate additional uses, adopting policies that encourage alternatives to burial, or something else, when planners help communities manage the externalities of death they confront deeply-rooted cultural practices, some

related to religious beliefs (Basmajian and Coutts, 2010: 30). The integration of nature in the multifunctional and multi-scalar approach of green infrastructure ensures efficient and sustainable use of land by incorporating interacting functions or activities occurring on the same area (LIFE, 2010). Green infrastructure can therefore provide a multitude of ecosystem services under different land-use systems (*ibid*). Although the problem of planning for disposal of human remains is severe, there are few evidence-based studies focused on the issue. The taboo equated with publicly discussing death and interment hinders the potential of cemeteries to play multiple social-ecological functions.

As in Woodthorpe's (2011) study, which looked at cemeteries as spaces filled with emotion, potential for business and community, diversifying the use of the cemetery could be met with resistance from users because it is an emotional landscape that carries feelings of loss and sadness. Hence some users may not be comfortable with, for instance, encouraging mixed-use and compactness and commercial emphases to secure the future of the cemetery. While some participants from the Waterval Cemetery case were open to a mixed-use cemetery as they felt it would help curtail crime and acts such as vandalism, others had a fear that mixing uses would attract more traffic and therefore invite law-breaking and unruly behaviour.

7.5.3.1 Killing two birds with one stone

"Even traditional cemeteries may be incorporated into community life in creative ways," (Basmajian *et al.*, 2010: 312) and resilience supports multiple and diverse functions to ensure efficient use of space. It allows matching uses to be paired. The multiplicity can be seen in a few cemeteries around the CoJ, which currently only includes services related to the functioning of burial (e.g. crematoria, niches and mausoleums). However, having diverse functions increases the adequacy of the cemetery space as these do not necessarily have to be related to burial. The diverse functions can include for instance, community halls that are missing in the two study sites and in the areas neighbouring Waterval Cemetery.

This thinking supports the argument by Biggs *et al.*, (2012: 425) that there is wide consensus from a variety of disciplines that diversity and redundancy are important for resilience because they provide options for responding to change and disturbance. Diverse functions could ensure that functionally, different components protect the system against various

stresses. For instance, diverse uses could ensure that a cemetery is commercially viable by encouraging visitors to see it as more than a space for burial and cremation. The diversity of system elements, such as multiple management approaches, and institutions, provides the basis for innovation, learning, and adaptation to slower, ongoing change.

Uslu (2010) concludes that a cemetery should be adapting to modern conditions and redefining its original undertakings, and landscape. Green and Argue (2012) argue that careful consideration needs to be given to allowing multi-purpose use of the land, such as use as parkland, if acceptable to communities in South Africa. For example, they suggest that a cemetery may be mixed with a police station, a fire station, nature conservation and a district hospital⁴⁰ (located at least 3 km away from residents). However, there are conflicting responses from participants in the Waterval and DMP cases.

Participants of this study were asked to recommend land uses they found compatible with burial. Recreation was not common, as respondents were concerned about how to integrate recreation while also respecting people buried in the cemetery. Although some participants preferred services that include, for instance, a mobile police station and clinic, these are still much more limited than others argue are possible, as they are mainly focused around the traditional cemetery function. These preferences were claimed to be services missing in the surrounding residential areas. Some participants preferred these mobile services to be utilised during funeral services. They believed that having activity within the cemetery would increase traffic, which would in turn reduce the likelihood of the cemetery becoming a crime-infested area. Those who were against having any services integrated within the cemetery showed that introducing any activity would defeat the purpose of identifying a cemetery as a sacred space. Hence they felt that those services would take that away from the cemetery's character.

The design also strongly influences the types of uses that can be matched with the function of burial. Although the findings show that the need for multi- and mixed-use facilities for efficiency purposes, and due to capital, operational and maintenance budget constraints (The Planning Initiative Team, 2008: 65), might technically be desirable, because of for

⁴⁰ Offers range from outpatient and inpatient services and operating theatre/s; receives referrals from and provides generalist support to clinics and community health centres (Green and Argue, 2012).

instance, improved service provision, it is not so simple.

Pursuing environmental and economic sustainability through encouraging users to view the cemetery as a space for purposes beyond interment and mourning might prove challenging. Although most participants were comfortable with the appearance of Waterval Cemetery, using it for purposes other than interment was new and something that would take time to get used to. Participants from Diepsloot were also new to the idea and did not like it. However, their case was extreme because the JCPZ has introduced more elements that completely change the cemetery landscape.

7.5.3.2 The impact of cemetery location and design on users' grief

Compact urban space can reduce the use of energy for transport. Increasing density of development and activity means that people have to travel less to different land uses (Jabareen, 2013). In that case, the urban land is used more efficiently. Although a resilient city encourages compactness and connectivity, the findings have shown that this may not be relevant for the majority of participants of the study. While the majority of people in Alexandra and Rabie Ridge would have appreciated a cemetery within walking distance, they are aware that this may not be possible. Hence they are open to travelling longer distances to visit loved ones, on condition that they are still able to practise traditional burial methods. Although DMP is located right next to the Diepsloot settlement, some community members did not know about it. Those who knew of its existence, showed that they would have preferred a park located next to houses, instead of a cemetery.

As perceived by users, Waterval Cemetery looks better than most cemeteries and definitely supersedes all old cemeteries that were allocated in less affluent areas. Most participants appreciate the available and efficiently working infrastructure within the cemetery. For example, two gates (an entrance and an exit) erected, and the integration of circles within the design of the cemetery have reduced congestion as the traffic can now flow easily, unlike in the old cemeteries where traffic remains uncontrollable. Besides making the undertakers' job easier, this design reduces the likelihood of frustration for mourners as they can concentrate on grieving without distractions. Participants shared their experiences of being stuck in traffic congestion and worrying about guests getting lost and following the wrong funeral procession. This tendency for guests to leave with the wrong funeral

procession seems to be quite common in old cemeteries, and leads to guests finding themselves at the wrong house, struggling to go back to find the right procession. The bereaved are already in a sensitive and delicate state, hence the design at Waterval Cemetery relieves them from the unnecessary stress. This shows a positive synergy between resilience measures (reducing traffic congestion and thereby carbon emissions) and features of the social-ecological system, with the desire to grieve and the need to host a space where grieving takes pace.

While the intention for most users of Waterval Cemetery is to visit loved ones and tend to their graves, the meanings users derive from their experience extend beyond elements that might be perceived to enhance their experience; for example, the availability and cleanliness of bathrooms, benches and access to potable water, etc. For instance, some participants felt that having benches right below the trees showed the effort and thoughtfulness that the JCPZ had put in the design. The fact that they could sit on benches and be sheltered from the sun showed them the importance of strategically integrating amenities that would be adequately used.

The cemetery is divided into sections. Mostly one undertaker (or a few) is allocated a section depending on the number of funerals scheduled for the day, unlike in the old cemeteries where they would be closely packed together. The congestion in old cemeteries caused lots of grievances. Funeral groups would compete through song, sound systems brought to the cemetery to play gospel music, or live bands. Although the sections were meant for functionality and efficiency purposes, they also reduce the burden of having multiple funeral groups cramped in one space, and therefore give mourners privacy to pay their last respects without interruptions. Different funeral groups celebrate their deceased differently. And this already shows an example of a diverse use in one setting.

Because of the cleanliness and upkeep, people have a comforting experience when visiting Waterval Cemetery. This gives them a sense of peace and belonging, as they remain connected to the space. They do not harbour the feelings of regret and sadness that they would normally experience in old cemeteries, which are neither well-planned nor well-maintained. The regret and sadness would mainly be caused by having failed to resolve any feelings of hostility, which could have taken place while the deceased was still alive. The

well-conceived and constructed design and management of Waterval Cemetery therefore demonstrate its robustness and capability to make provision for unforeseen change.

The management of man-made infrastructure includes frequent monitoring, together with regular plans for upgrade and renewal. Well-maintained systems are better able to accommodate abnormal demand, withstand unusual pressures and continue functioning. Ecosystems and built infrastructure designed as integrated urban systems effectively contribute to reducing physical exposure and vulnerability. A resilient city values ecosystem services and has in place robust environmental policies to protect ecosystems in situ. In resilient cities, man-made infrastructure is well-conceived, well-constructed and protected against known stresses.

Although some resilience principles may have been successfully integrated within the design of Waterval Cemetery, there are institutional and social barriers that would constrain the uptake of systems that are consistent with more resilience principles. These are discussed below.

7.6 Barriers constraining the planning and provision of cemeteries in ways that are more consistent with resilience principles

7.6.1 Institutional barriers

The identified institutional barriers constraining the planning and provision of Waterval Cemetery in ways that are more consistent with resilience relate to the design, development, administrative and management processes meant to contribute to the functional capacity of the cemetery.

7.6.1.1 Limits in the governance of green spaces

One relevant purpose of green infrastructure is to increase the resilience of ecosystems by improving their functional and spatial connectivity (LIFE, 2010). It consists of spatially and functionally connected areas, which maintain ecological coherence as an essential condition for healthy ecosystems. Its purpose is not only to reconnect species populations but also to strengthen the functionality of ecosystems for delivering goods and services, to mitigate and adapt to climate change effects, and enhance the quality of life (e.g. through tourism and conserving historic and cultural heritage). However, currently the governance of green

spaces in the CoJ does not realise the connection between land use and ecological functions. Most open spaces, like Waterval Cemetery and DMP, are managed in isolation rather than being ecologically interlinked with others nearby. This indicates an inability to synchronise management across these areas. Not being in proximity to other open spaces reduces their potential to function collectively and reduces their likelihood to add ecological value to the larger environment (da Silva *et al.*, 2012). The JMOSS (2002) views cemeteries as part of the heritage and institutional land uses, and not the ecological assets. This could also speak to the difficulty of seeing them beyond their unique function of burial and management that is different from that of conservation and recreational facilities.

Because the CoJ, together with the JCPZ, is aiming to have newer cemeteries act as green lungs, it would be beneficial to have better coordination between cemeteries and the wider green space strategies. Kjølner (2012) looked at how Danish cemeteries are locally governed and marginalised from the rest of the administration, as they perceive themselves as different. He argues that although cemeteries are part of the green space structure, they are not managed as such. This current study agrees in part with the point he is making because in the context of the CoJ, cemeteries are viewed as green lungs. However, they are still not managed as such. It is possible to find ways of improving their connectivity with the broader green spaces. And this also chimes with Kjølner (2012), who further demonstrates that there are possibilities for better coordination and cooperation between cemetery management and green space management in general.

7.6.1.2 Regional cemeteries, accessibility and efficiency

The JCPZ's Draft Cemeteries and Crematoria Legislation and Policy Guidelines Blueprint takes cognizance of accessibility when planning cemeteries and crematoria, and acknowledges that it is sometimes impossible to find land that is in proximity to residential areas. Processes to identify available land involve looking through the Council's GIS platforms, and determining where the next cemetery should be developed. Hence right after availability, the major challenge becomes the location.

Although accessibility was noted as important in contributing to the city's resilience, the findings showed that community participants thought otherwise. Previous assumptions that accessibility was a concern, especially for the Alexandra community, were not necessarily

borne out of engagements with cemetery users. And unlike Sloane (1991), who indicates that when the community lacks a close physical and emotional connection with cemeteries, the cemetery loses its cultural significance, the opposite was found to be true in this study. Although users preferred cemeteries to be accessible, they were also clear that inaccessible cemeteries would not deter them from practising their traditions; for instance, visiting gravesites and venerating their ancestors. Unlike Afla and Reza (2012), who argue that urban cemeteries need to be accessible to the public, results from this study show that this might not be the case for cemeteries, hence assumptions about what constitutes resilient cemetery planning might not necessarily be applicable in this case. People would rather continue practising the method accepted by their culture regardless of the cemetery's proximity. In this case, they were likely to make alternative plans, even if it meant incurring higher transport costs or reducing the number of visits they make to the gravesites.

In their recent study addressing the gap on cemetery planning and therefore “provide insights to support the case for perpetual cemetery provision” in the Australian context, Davies and Bennett (2016: 99) explore how legislative reform intersects with strategic land use planning and emerging trends (pressures, responses and diversified emergent interment options) that influence the direction of the cemeteries landscape. They argue that cemeteries contribute to the diversity of community assets, and have the potential to add to the desirability of a location (Davies and Bennett, 2016). However, their social meaning and significance is shifting as they are becoming less visited when compared to the social rituals of previous generations (*ibid*). This was experienced during engagements with cemetery users (specifically the youth focus group and members of contemporary churches). This shift is attributed to an increasing popularity of cremations and the scattering of remains, which seem to reinforce the decline in seeing cemeteries as places for mourning and remembrance (Davies and Bennett, 2016).

While most citizens prefer good access to cemeteries, without having to travel long distances, nobody wants to live close to such facilities (Klaufus, 2016: 78). Klaufus reached this conclusion after undertaking research on Columbian cemeteries that looked at the uneven distribution and access to cemeteries across urban territories. This was observed in the study on Diepsloot, where some participants detested the fact that the memorial park is

located right behind their houses.

Availability of land has been noted as a major hindrance in the development of cemeteries in most South African cities, and attention is placed on CoJ. This availability is in terms of proximity to users, as most identified vacant land remains either in private hands, is owned by provincial government or is unsuitable for cemetery development. In cases where land is identified, and necessary geotechnical assessments are conducted, only during development may it become apparent that some sections are unsuitable for development. This can be noted at Waterval Cemetery where some sections were identified to be rockier than the rest of the cemetery. This led to the decision to have such sections become part of the planned passive recreation spots. This shows the capability and willingness of leadership by local government officials (e.g. cemetery manager), as they are forced to mobilise resources and adopt alternative strategies in response to unknown circumstances.

By-laws act as an urban planning and regulating framework that enforces protective mechanisms that prohibit the inappropriate use of cemeteries, even if recreation is allowed within them. The use of cemeteries for recreation is also regulated by giving only a selected few access to the space. Only people who have loved ones buried at Waterval and Diepsloot are allowed to use the space for recreation. However, this questions the decision to invest in the development of a memorial park and the basis of this decision; yet even those identified as potential users of this space, still do not use it beyond burial. Currently, most people do not believe in utilising the cemetery for recreation. So the investment poured into these spaces in terms of the innovative design elements becomes a waste in the end.

7.6.1.3 The role of learning in contributing to resilience

Simonsen *et al.* (2015) argue that an attitude of encouraging learning is important in building the resilience of urban spaces. They continue to show that actively building the knowledge-base through research and evaluation strengthens adaptive capacity (*ibid*). A high level of collaboration between the JCPZ and other public agencies transpires and asks whether the JCPZ systematically assesses risks, and if the risk assessments influence their decision-making. Because theories of adaptive governance place emphasis on cross-level and cross-scale activities that are anchored on governmental policies that frame creativity, it is important from this perspective to recognise diverse stakeholders' roles. However,

these are mostly absent. Present cross-level interactions include for instance, having some church leaders show that their role entails identifying scriptures that could help communities make informed decisions concerning diverse interment options. This would allow a broad choice of options available. This process has to begin with the JCPZ playing a bigger role of educating cemetery users about the diverse challenges they are faced with. Without enforcing one method of interment, the JCPZ is in a position to give an array of options and their implications, and therefore trust that communities are well-informed and can make better choices, and those they are comfortable with.

To respond to changing circumstances and thus modify behaviours accordingly, reflective planning processes could ensure that institutions use past experience to inform future decisions (da Silva and Morera, 2014). From engagements with the JCPZ officials, it was noted that plans were being made to allow the entity to learn from other bigger world cities how to cope with cemetery planning challenges, and in particular how to address land shortages. However, the reality is these may be adopted without contextualising them within South Africa's social environment. Currently, trends in developed countries include developing park-like cemeteries and particularly those that promote mixed-use. Although the JCPZ denies having copied DMP from other developed nations, it is clear that they did not consider people's resistance toward the introduced innovative design elements. People are open to Waterval Cemetery mainly because it still allows the erection of headstones, whereas DMP extended the new design even further, hence the uptake has been poor.

According to Biggs *et al.* (2012), learning happens at different levels, which contributes differently to enhancing resilience. Continuous learning is important to respond to the uncertainty and unpredictable change that characterise social-ecological systems. Learning capacity would in this case involve the ability to draw upon and combine different types of knowledge to support the city's readiness and response to the current cemetery planning challenges. Currently though, the JCPZ was not building its knowledge-base through research and evaluation. No investment had been directed toward understanding the sphere of death and how they can plan for it through provision of sufficient interment solutions. And efforts had not been made to collaborate with researchers in this regard,

which could potentially assist the JCPZ with addressing the cemetery planning and provision challenges.

Churches have been known to comfort mourners just by being present, and by guiding them through their bereavement (Masango, 2006). Most church leaders seemed to understand the urgency of identifying workable solutions. Their pledge was that the JCPZ should hold workshops with them and other community leaders where they could understand the magnitude of challenges facing the JCPZ. And they saw themselves contributing towards bringing awareness to their different congregations. One way would be to teach their congregants the Bible teachings about conventional burial and cremation, and whether there would be any consequences in practising either of the two. One problem community members had was they would not be able to be resurrected if cremated. The religious leaders' role would therefore be to teach that it did not matter whether one was buried or cremated, and that everyone would be resurrected nonetheless.

7.6.1.4 Enhancing adaptive capacity

In engagements with the City, the JCPZ regards its constrained budget as the main impediment to acquiring land for cemeteries at the regional scale. However, the study has identified other factors that hamper their goal of responding to the cemetery planning conundrum. For example, the JCPZ is convinced that the solution to address the diminishing land resources involves people adopting alternative ways to traditional burial. However, if the very same people advocating these solutions do not personally believe in them, and would not adopt them in their private capacities, there is very little they can and are willing to do to influence people that these are some of the best solutions to adopt. As confirmed by councillors from the two communities, they are also encouraged by JCPZ's mandate to urge people to cremate. Even though some JCPZ officials do not believe in cremation in their personal capacities, they would not actively discourage others from the practice. This is one of the key areas where adaptation is required. Some officials admit that their cultural beliefs would prohibit them from practising the very solutions deemed sustainable. If they do not see cremation as one of the best solutions, then they could make possible various alternatives.

According to Kerner and Thomas (2014), learning and initiative are important for achieving resilience. If strong leadership is a prerequisite to influence and provide direction in

response to changing circumstances, the officials have introduced a number of new approaches, and although they may not personally favour it, they are also not forcing everyone to adopt cremation.

7.6.2 Social norms as a barrier to the resilience of urban systems

The major social barriers identified as constraints to the design and management of cemeteries that are more consistent with resilience principles are related to the social norms and cultural beliefs of participants.

Although most of the participants from the traditional religions, such as Christians and Muslims, were not open to cremating, a substantial number of participants seemed willing to learn about it and even try it, especially if it is more cost-effective and land-saving than conventional burial. Eventually, even though one may decide to be cremated, the final decision remains with the family as they can decide to go against the deceased's wishes, especially if they did not support this decision while the deceased was still alive.

Some officials were not in support of cremation, while some participants felt that the JCPZ would force them to cremate anyway. This shows a lack of trust toward the JCPZ. Some participants from Alexandra and Rabie Ridge could not accept subjecting their loved ones to the burning as they believed it would harm the body. They equated this with destroying every fibre of the person's being, and believed that people would do this only if they did not care for the deceased. Some participants noted their families would be open to cremation, only on condition that the deceased had suffered a chronic illness. And in that case the burning ensured that the illness was destroyed and would never find its way back into the family in the future. If cremation is equated with destroying anything that brings suffering, then it could take time and effort for conversion to occur.

There was a sense of agreement and acknowledgement by some religious leaders and by some members of the two communities that the youth was more progressive and would therefore be more open to alternatives, such as cremation. The argument was that the youth did not share the same cultural principles as their elders. The undertakers were not progressive at all. Some were against cremation because their cultural beliefs would not allow it. Others had concluded that their clients would not be interested. For instance, they

argued that cremation was against their clients' cultural beliefs and that for them as businesses, cremating did not make financial sense when compared to normal burial. Traditional burial was more profitable for them, hence they would find it difficult to adapt to the changing circumstances. The undertakers' resistance, in the name of doing what their clients prefer, also contributes to the reasons why old practices are resilient.

Another interesting finding of the study related to the perceived costs of cremation, and that only the elite could afford it. Due to a lack of understanding, some participants assume that cremation is something that only the affluent practise; it is considered costly. Although it is quite to the contrary, most families, even those who were open to cremation, have concluded it to be unaffordable. This implies poor information exchange between the community and funeral undertakers, seeing that the JCPZ has, over the years, left undertakers with the responsibility to encourage families to cremate. This also implies a communication breakdown between the JCPZ and the undertakers.

Although families believed cremation to be costly, they acknowledged that conventional burial was also expensive to perform. Although most participants felt that the high spending helped the family to claim its social standing, others argued that this extravagance showed a public expression of grief, showing care and continuing bonds with the deceased. However, there is a downside to this. Because the family wants to maintain its social standing, they are forced to spend large sums of money that could be put to better use or saved for future family needs. This pressure is witnessed in different ways. Firstly, if the deceased (or family) is a member of a society or "stokvel", they are forced by the "stokvel" members to spend all the contributions toward the funeral. It is believed that the money was saved as a funeral and burial fund, and should only be used towards that. Using it for other needs not related to the funeral (e.g. house extensions) is socially unacceptable. This practice does not encourage financial prosperity. Most participants agreed that although being communal is good, it has some disadvantages as well, as it prohibits economic freedom. All these expenses leave most households in debt and the funeral marks the beginning of many years of struggle (Case *et al.*, 2013). However, this also facilitates a level of social bonding involved with the way death is dealt with. In the Islam faith, funerals are not extravagant. For example, the community will traditionally provide food for the grieving family for the first

few days of the mourning period (usually three days). Hence, cremation would not make much financial difference.

The results confirm the phenomenon of claiming a family's social standing through expenditure on funerals as noted by Case *et al.* (2013). Their study demonstrated that families that could not afford burials corresponding with social expectations, borrowed money to pay for the funerals. In their study, one-quarter of participants had some form of insurance, which financed some fraction of the funeral expenses. Furthermore, another one-quarter borrowed money to pay for the funeral. According to some participants, borrowing money for the funeral drains household resources well into the future. Although the community, church, and employers often contribute toward the funeral, the deceased's household on average paid 90 per cent of the costs associated with the funeral (Case *et al.*, 2013).

Another social practice that seems to inhibit economic prosperity is the erection of high-priced memorials, and this is very common in the Black African cultures. It is in the Islamic faith that a small marker may be erected so that the grave can be recognisable. Traditionally, large and elaborate monuments are prohibited. On the one hand, Waterval Cemetery allows headstones. This was an easy transition from the old cemeteries that allowed full memorials to a new way that seemed like a compromise between the JCPZ and cemetery users. On the other hand, DMP allows flat ground plaques. This case was a bit extreme as it introduced completely new elements, hence most community members detested this regulation. They argued that their culture prohibited them from burying at DMP. Although culture was the main reason given, the interesting revelation was that the JCPZ had since allocated a section that allows full memorials within the cemetery. However, none of the graves in that section had any memorials erected. Culture is used as an excuse in resisting the plaques regulation. Although culture evolves, this may not be the case in Diepsloot, where there is resistance to the innovative transformation.

Cremation has been identified to be private, while traditional burial gives both the family and the community the opportunity to pay their last respects and gain closure. Burial, and all the rituals that happen around it, are spiritually healing (Masango, 2006). Common rituals practised from when the death is first announced, through to the funeral and

mourning period, build societal links as the bereaved are supported through different acts of service (*ibid*). Results from the study agree with arguments put forth by Masango (2006). He showed that rituals performed before, during and after burial in most Black African cultures contain therapeutic healing elements, as they help the bereaved to deal with the actual death and mourning. However, due to a change in dynamics if the deceased was to be cremated, most of these would not be performed. Normally, the extended family, the church, and sometimes the community, take part in some of the rituals. For instance, the rituals associated with the wake, the viewing of the body, the gravesite service, and even the actual burying of the coffin, play an important role in helping the family and community come to terms with the separation death brings and to get closure. Specifically, for the Christian community, the church plays the role of interpreting the meaning of death through scriptures, prayers and hymns. In the case of Muslims, rituals would include washing and dressing the corpse with a shroud. This ritual happens right before the remains are transported to the cemetery to be buried.

7.6.2.1 Overcoming the social barriers

For most participants, the decision to use innovative cemeteries beyond burial, or to cremate, would be influenced by their cultural and religious values. Although there is little understanding among participants about the process of cremation, people know that this disposal method involves burning. And because in some cultures fire is equated with bad spirits and suffering, very few would be willing to put their loved ones through that distress. The burning is equated with suffering because it is believed that the deceased is aware of what is happening to them and their surroundings. Masango (2005) argues that congregants can no longer resist cremation by misquoting the scriptures. Gathering from engagements with some religious leaders, there is also little understanding of what really happens to the body when one dies. Hence some believed it was their role to clarify to congregants the difference between the body while one is still alive and when one has perished. Such teachings would probably ease the decision processes for some, especially those who are not entrenched in their cultural beliefs.

Like Leclerc-Madlala (2002), this study identified traditional healers as potentially influential people who might encourage people to consider cremation as an alternative to traditional burial. Their role as guardians of tradition might make healers ideal candidates as

proponents of cremation amongst people who, since time immemorial, have buried their fellows in the ground. Perhaps if the healers are convinced that ancestral spirits will not be upset or averse to the idea of cremation, they could use their influence to get others to adapt and change traditional burial practices. On the one hand traditional healers who formed a focus group were against cremation, as the thought of not having ancestors' bones in a grave was appalling. On the other hand, two traditional healers who formed part of participants in both Rabie Ridge and Alexandra agreed that cremating would allow them immediate access to cremains if they were stored in their houses. That way, they would not be forced to travel to a cemetery in order to speak to them or to appease them.

While learning at the local government level could comprise authorities changing their governance methods and procedures, adapting skills and taking actions to provide alternatives to conventional burial, at the community level it could involve households changing their cultural practices and adopting alternatives, such as cremation. For instance, although Muslims were not open to alternatives, such as cremation, they were willing to discuss how their burial practices could help in the efficient use of land. Funeral undertakers could also find ways of ensuring that alternatives help in sustaining their business interests, instead of resisting them altogether.

7.7 Conclusion

The two studies discussed in this chapter show that cemetery planning and provision in the CoJ lacks the appropriate policy directive and multi-level organisational linkages among communities, government agencies and non-governmental organisations, but remains centralised. The systems and processes guiding long-term cemetery planning and provision are followed in an isolated way, and thus lack the sharing of management power and responsibility that involves multiple and often polycentric institutional and organisational linkages. The multi-level governance systems that come with cross-level interactions are absent. All of these limit the ability of systems to be flexible in addressing stresses and their capacity to deal with change.

Advancing effective urban management requires communication across sectors and departments, and evidence-based decision-making. This research shows that cemeteries can be planned and developed in ways that contribute to the resilience of urban systems.

This however, requires a broader approach and an appreciation of the changing social dimensions and their contextuality. The fact is that these cannot be implemented in a mechanical way. By fostering long-term and integrated planning, strategic planning and provisioning of protective natural and man-made infrastructure reduces the physical vulnerability of urban spaces. This can be done through aligning plans and projects with the city's vision and strategies, which are appropriate to respond to the city's needs. These must be aligned with provincial and national goals as well.

Urban systems are becoming important contributors to both problems and solutions faced within these environments. The JCPZ has a difficult job of balancing the demand for interment with other needs such as spaces for recreation, heritage and education. All these require vast amounts of space and are affected by the City's fiscal constraints. In responding to these challenges, different land uses can be developed to promote densification and mixed-use to ensure adequate use of space. However, one clear fact is that similar solutions cannot be readily applied to different land uses. For instance, in identifying sustainable future interment options, cultural values and perceptions need to be considered, specifically in adopting alternatives to burial and new approaches to cemetery planning and provision.

Mostly, resilience principles are prescribed and used in disaster or climate change-related events that influence resilience within cities without addressing the social vulnerabilities of affected areas. Understanding green infrastructure broadly and being aware that it may affect resilience to social, ecological or economic change could imply that resilience may affect ecosystem services that provide benefits beyond the city's livelihoods and wellbeing. The successful assessment of prescribed resilience principles depends on the strict definition of scope and context in terms of physical and temporal scales (Turok, 2014). This calls for the social meanings and understandings of these contexts.

The following chapter looks at the implications of this research for the social-ecological resilience framework, and the policy recommendations.

Chapter 8: Conclusion

8.1 Introduction

This research takes resilience as a normative concept that can be realized through the adequate planning, management and use of cemeteries in an era when it is important to provide basic needs and ensure that contestations between diverse land uses are reduced. Although both internal and external stresses test the resilience of a system, they could actually be considered as opportunities from which organizational structures draw from the innovation and knowledge concentrated in the impacted area. Integrating green infrastructure elements is seen as one innovative approach that may improve the resilience of urban settings. Others include alternative solutions to burial which cannot continue to happen in perpetuity due to the inadequate land resources suitable for future cemetery development; and the potential for cemeteries to apply compaction and densification approaches for a more integrated city region.

As Johannesburg grows, its infrastructure is strained (Schäffler *et al.*, 2013). And this threatens its ability to provide basic services and infrastructure to its residents. Due to urbanization, increasing developments and population growth, the City needs a strategy that will ensure that the infrastructure, including cemeteries, can accommodate the current and future populations. However, the system of cemetery provision is threatened on a variety of fronts by stresses such as land scarcity, growing death rates and other challenges such as the isolation of cemeteries from other physical and cultural landscapes, and lack of municipal finances.

Governance and legislative processes also have implications for the current provision of cemeteries. To ensure efficient use of resources and reduce investment poured into single-use facilities, it becomes important that wherever possible, the natural and man-made infrastructure is designed in a complementary way. The challenge for the Johannesburg City Parks and Zoo (JCPZ) and the city at large is to find innovative solutions that address the sustainable disposal of human remains, offer social and spiritual needs for the living, whilst also addressing the city's environmental requirements.

Hence, human adaptation is an important part of the resilience of complex social-ecological

systems. Because not all innovations can be successfully diffused in their cultural contexts, it is important to understand through research, the interplay between multi-scale drivers of change which are difficult to quantify. To ensure successful diffusion and uptake of an innovation, interactive collaboration between providers and users of cemeteries may play a key role in disseminating information and bridging differences in perception. Such collaborative learning has the potential to harness adaptive capacity of different stakeholders and to strengthen the social-ecological resilience of urban systems.

When this research commenced, it was aimed at understanding whether the current cemetery planning and provision approaches take into account resilience principles, and to investigate constraints that would prevent the uptake of new body disposal methods. The study did this by establishing the systems and processes that underpin the current way of designing, providing and managing cemeteries; revealing the implications of current forms of cemetery provision for resilience; investigating how cemeteries can be designed, provisioned and managed in a way that contributes to the building of social-ecological resilience; uncovering communities' and religious groups' perceptions of current and alternative burial options; establishing diverse stakeholders' perceptions of the current and potentially more resilient approaches to cemetery design, provisioning and management; and determining the institutional and social barriers that constrain the planning and provision of cemeteries in ways that are founded on normative resilience principles. The objective of this chapter is thus to draw together the main findings, present a summary of conclusions, discussing their generalizability, and indicating their significance and contribution to new knowledge.

8.2 Summary of findings and their relationship to previous work

This section gives an overview of the findings of the study and their relationship to previous work. Most research related to resilience focuses on approaches to disaster and emergency planning and shows that although change is inevitable, the city must strengthen its capacity to handle and cope with those stresses that are predictable and unanticipated. This research concurs with previous research which shows that a resilient urban system promotes links between healthy ecosystems and healthy economies. For instance, the findings are in harmony with the research conducted by the Sheltair Group (2003) who argue that a system must enhance the capacity of individuals and institutions to respond to

unexpected economic, social and environmental change. Being engaged with the outside world from an angle of information sharing thus improves the resilience of urban systems (da Silva *et al.*, 2012).

Several issues affect systems and processes that underpin the current way of planning, designing and managing cemeteries. These include for instance, budgetary constraints, conservative planning ideologies, inadequate policies guiding cemetery planning, socio-cultural beliefs pertaining to what users can accept and not. Although there is resilience thinking at national government and in the City of Johannesburg (CoJ), it is not translated into spatially targeted investments. It is not integrated into spatial planning processes. It is treated in a very isolated way. The siloed approaches, lack of insight, recognized relevance and urgency for planning for resilience show that institutional processes are not adequately set up to properly deal with it. These are further magnified by limited funds directed toward development of cemeteries. The Johannesburg City Parks and Zoo (JCPZ) does not have a lot of resources. Because they are constrained, they prioritize other urgent needs like recreational parks. The institutional systems and processes are therefore not efficient because they do not allow well-coordinated systematic thinking about resilience. Hence they do not promote resilience.

As shown in figure 8.1 below, JCPZ showed adaptive capacity by effectively leading the implementation of Waterval Cemetery, showing the willingness to experiment with new ideas, collaborating and ensuring open communication channels with developers. Through this collaboration, both parties came up with an innovative design that has been accepted by users as some elements were not too foreign. These include green infrastructure elements, densification through multiple burials in a single grave, and mixed uses (with potential to introduce more with the development of new phases). Because these elements do not clash with users' cultural practices, their sense of pride in the design is reinforced. And it is through these elements and the cemetery's upkeep that users are able to uphold their social status. However, JCPZ can improve the cemetery's uptake by ensuring ongoing participatory processes with users, particularly to avoid the poor uptake of cemeteries such as is the case with DMP. These can be used as information sharing platforms where the JCPZ is able to share their challenges and invite solutions from users.

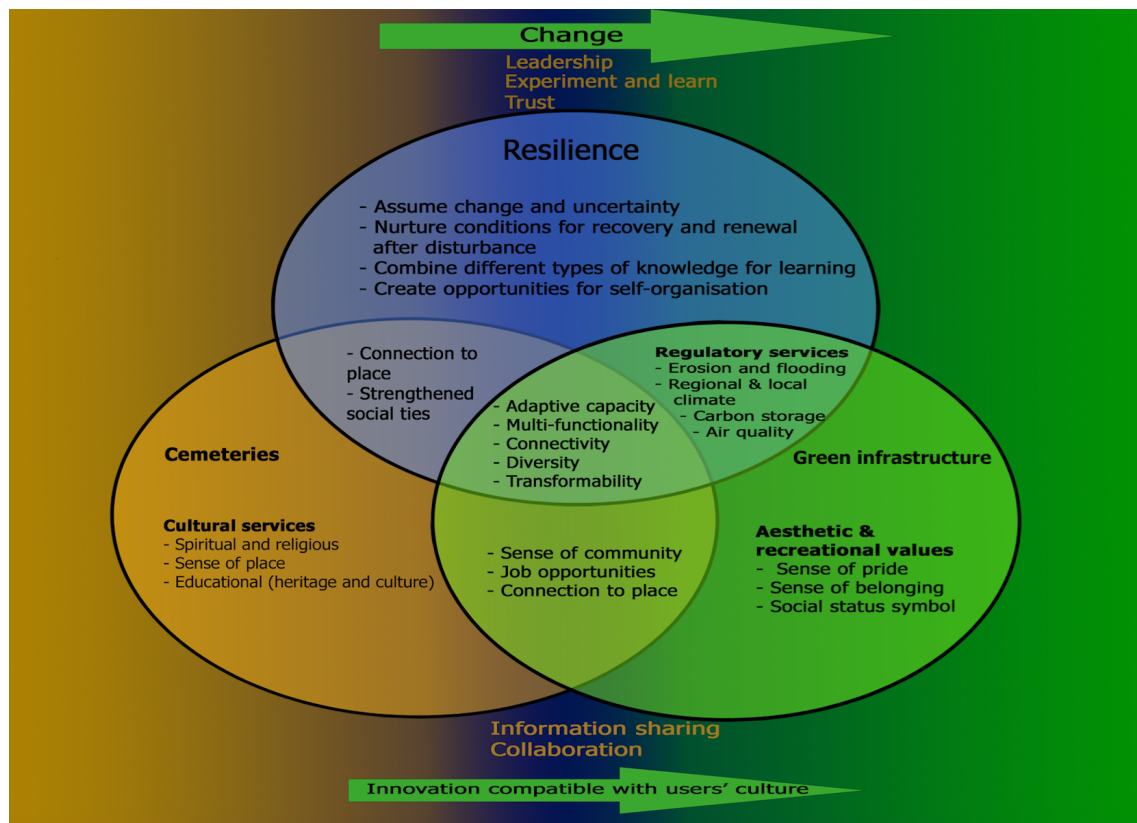


Figure 8.1: Resilience principles and adaptive capacity characteristics improve the understanding of social-ecological systems

Source: Author's formulation, 2016

The provision of cemeteries goes beyond the mere delivery of a service. In the CoJ, this is balanced with the City's broader goals of equality, sustainability and resilience that should encompass needs of today without dissolving those of tomorrow's generations. Currently, the unsustainable design of old cemeteries particularly in previously disadvantaged areas is coupled with the ecological imbalances of greenery between these areas in the south and affluent suburbs in the north of the City. These spatial imbalances have over the years contributed to the negative resilience of inequality as they persist until today. Although JCPZ has implemented programmes to redress these disparities, there are gaps. The greening of some cemeteries cannot be successful because they are highly disorganized and are already filled with tombstones, such that there is no space to integrate any green elements in their design. Hence the importance of strategically incorporating green infrastructure elements in newer models from project inception. Another important factor is that the cemeteries are not connected to other green spaces. This fragmentation fails to intensify the city's green functioning and diversified biodiversity due to the open spaces that are not connected (Simonsen *et al.*, 2015). The city then loses the collective social and ecological benefits that

could be potentially realized, particularly the ability to promote resilience.

Innovative ideas such as encouraging multiple burials in a grave, integrating multiple functions related to interment and other uses compatible with the type of interment within the cemetery promotes densification and will thus expand its use. The resultant adequate use of space is critical to build resilience and adaptive capacity. Densification does not seem too far-fetched for users; hence they might easily open up to it. However, it could take time before they are ready to accept cremation. Alternatives to traditional interment need to speak to a mix of cultures, age, educational levels and different stakeholders' willingness to adopt new approaches to cemetery design and provision. The study established that although the majority of participants were not willing to adopt alternatives such as cremation, still, a substantial number seemed open to the idea. The figure is so significant that it should give JCPZ confidence that the interest will increase with time and awareness.

8.2.1 Institutional and social barriers to resilience in the City of Johannesburg

This study has demonstrated that abstract resilience principles can be difficult to conceptualize, hence interventions founded on them are difficult to understand and implement. The main institutional barriers toward adoption of new approaches that are founded on resilience ideals include the lack of policy that guides cemetery planning, fiscal constraints for allocation of new cemeteries and maintenance of older ones, poor collaborative processes between JCPZ and cemetery users. Barriers to realizing resilience include fiscal constraints which imply that JCPZ can only prioritize urgent needs. Cemeteries that have integrated innovative elements in their designs remain a luxury for people who have other important basic needs. The poor uptake translates into the City continuing to direct investment into spaces that are not used, and those that will continue to require continuous financing for their upkeep. This does not help relieve the financial constraints JCPZ is under.

Institutional barriers that constrain the planning and provision of cemeteries in ways that promote resilience also include conservative planning ideologies that prevent officials and local ward councillors from being receptive to newer approaches due to their personal beliefs. They are mandated by their jobs to encourage alternatives to traditional burial, however, this questions their capability as leaders to encourage and convince communities

to adopt the newer methods, if they are personally against them. Their personal beliefs demand that they practise old methods of interment regardless of whether they are sustainable or not. It is in this regard that old dominant approaches remain “resilient” even though they perpetuate the inadequate use of cemetery space. Their consumption of space is not sustainable in the long-term.

The main setback with incorporating green infrastructure elements is that they require ongoing maintenance. With the current fiscal constraints and without any revenue generation, maintenance becomes more problematic, especially when the cemetery reaches capacity. Once they reach capacity, their potential to function perpetually is reduced. This is where integrating functions that are compatible with interment, that will continue functioning even after burial can no longer take place, remains essential. Functions that continue bringing in income could increase the cemeteries’ ability to self-maintain. These functions would not have to be too far-fetched but harmonious with users’ cultural beliefs.

Cemeteries induce a sense of identity, belonging and cohesion. Hence their appearance makes a huge difference. In the few minutes spent visiting loved ones, the environments can be therapeutic for visitors and confirm to them that the deceased lie in dignity. The integration of green infrastructure elements strengthens their value and intangible character. The cemetery enforces a sense of pride and belonging, and dignity. Coupled with the rituals practised at the deceased’s home (by both the family and community at large) and during the funeral and burial, this sense of belonging induces a strong attachment to the cemetery and thus increases the cemetery’s cultural significance. While the connection and cultural significance of the cemetery enables continuing bonds with the dead, the role played by the community promotes collective identity and mutual support, and thus strengthens social cohesion and social support.

The major social barriers towards adoption of newer methods of interment include embedded cultural beliefs that prohibit people from seeing cemeteries beyond their function of burial, lack of awareness and understanding of current and future cemetery planning challenges facing JCPZ, poor understanding of alternatives to traditional burial, and lack of trust between cemetery users and the JCPZ.

Resilience is not always normative. Old cemetery designs seem to be dominant in the CoJ. These designs were inherited during the apartheid era, and seem to have influenced people's cultural conducts and rituals. Some of these influences include the use of an expensive tombstone erected to mark the deceased's grave and to also provide a sense of identity for those remaining behind. Because of their elaborate designs and enormous sizes, these tombstones consume the already scarce land resources. It is these beliefs that continue the resilience of old cemetery models, although they may be resource-depleting and are harmful to the environment. Hence it will take much effort, for instance, for a shift in mindsets and cultural beliefs to change this landscape and for conversion to happen. This demonstrates that although it is possible to integrate resilience ideas within policy, execution of such ideas remains difficult due to peoples' beliefs that could take time to transform.

Both the DMP and Waterval cases show that participants are willing to compromise in order to practise interment methods that are compatible with their beliefs. The cost of sprawl thus becomes magnified, not just in terms of the transport fare, but also in terms of the energy cost as the land resources become scarcer closer to where people reside. These choices made to bury far from the township result in additional costs incurred, from the time of burial to years later when the bond is created with ancestors through continuous visitation. This raises another noteworthy point of how families continue to become disempowered due to the excessive funeral and burial costs. Spending large sums of money on a funeral and burial of the deceased seems to economically disempower families as they are left with debt, which they continue to pay off years later. This further reduces their resilience as funerals draw away from expenditure on more socially important things (e.g. children's education) (Case *et al.*, 2013). Cultural values thus have an impact on economic choices made by families and their ability to live once the burial has passed (*ibid*). The negative economic implications reduce some families' resilience to future stresses.

8.3 Limitations of the study

First of all, findings from this study are restricted to urban environments as rural and urban contexts face different cemetery planning challenges which require context-specific solutions. For instance, the issue of land scarcity may not be a problem for predominantly rural municipalities. However, these municipalities may be mostly concerned about

unregulated burials which often take place in environmentally unsuitable areas. Hence results of this research can be mainly generalized in urban contexts.

Secondly, the study focuses on previously disadvantaged areas because open spaces in these areas, particularly cemeteries, have over the years been poorly sited as geotechnical and environments were not conducted to assess their suitability. Most cemeteries in affluent areas have enjoyed some form of green infrastructure elements in the past; hence interventions to redress existing social-ecological imbalances which can also be observed within cemeteries. However, having said that, the limitation of not investigating affluent communities is that their perceptions remain unexplored and unknown, particularly towards new practices explored in this study. It is important to study their attitudes in an effort to introduce approaches that contribute to resilience of urban spaces in the long-term.

Thirdly, the study also leaves out some religious groupings. Those selected for study remain predominant in the study areas. South Africa is a culturally-diverse country, hence it would be important to include attitudes of religious groupings that have been currently left out from this research. Lastly, this research looks at green infrastructure elements such as trees, plants, soil and permeable pavements, as features integrated in the design of the cemetery so as to help with intercepting precipitation, reducing soil erosion and flooding, and mitigating the urban heat island. There is a whole realm that looks at green infrastructure in its broadest sense, which also deals with the physical and hydrological systems. These trajectories are acknowledged although the research does not explore them.

8.4 Summary of contributions

Just like sustainability, some resilience concepts emerged from the environmental sphere, hence its applicability remains strong in the environment sphere. Although its acceptance is still growing, its multi-interpretability allows diverse actors to apply different aspects of the concept to serve individual interests. The failure to pay attention to social contexts contributes to gaps between policy ideals and execution. The representation of the social aspect remains a concern in the global north as well. Locally, although reflected within the national and provincial spatial planning policy, it is difficult to tangibly translate the resilience concept, as the policies do not define its application in any level of detail. Most of

the common developmental concepts are developed in the global north. However, it is important to note that they should not be mechanically adopted without understanding the local context which generates unique and critical perspectives.

The research addresses the problem of cemetery planning and highlights sentiments shared by diverse stakeholders toward possible and currently available solutions. Different government plans may support the integration of resilience into policy. However, these plans may sit within strategic planning divisions, and this leads to failure for resilience ideas to be translated into practice. Also, there is failure to view land-uses such as cemeteries as an integral part of a resilient city. Hence the study shows how critical it would be to have policies and plans that are synchronized, where the idea of resilience is filtered across the three scales of government.

Investigating the potential application of social-ecological resilience in cemetery planning and provision increased the originality of the study. Although resilience is commonly applied in natural settings, its application and impact remains limited in the social sphere. This study calls for a conversion in the way of thinking and accepting change so as to understand and nurture interconnections between social and natural environments, and the ethical underpinnings that should govern these intertwined relationships. Undertaking the study in South Africa adds an important and valuable dimension to the resilience and cemetery planning fields due to the country's complex and diverse socio-cultural context. It is hoped that the rich cultural diversity and the broad range of participants will make a significant contribution to the unfamiliar field of cemetery planning on the one hand, and to the social-ecological resilience framework on the other.

As an area of research, there is limited published literature on cemetery planning, and more so examining it through a resilience lens, and in the global south and South African context. Most of the available local literature investigates negative impacts caused by the inappropriate siting of cemeteries. Some of the work focuses on the impact of increasing developments that lock the cemetery, and thereby resulting in unforeseen implications; for instance, rising water tables that did not exist when a cemetery was first developed. This study has tried to bridge and expand an understanding of how social and institutional dynamics can influence attempts to make the system more resilient. It shows what is

needed to change and restructure institutional approaches and social beliefs in order to increase a system's resilience.

Results from this research indicate the influence of social dynamics in building resilience within an urban system, and how social and institutional practices affect the prospects for the implementation of approaches compatible with resilience ideas. They also show the intricacies of designing and providing sensitive public spaces such as cemeteries in complex social-ecological systems. As demonstrated in this study, resilience theory seems to be evolving, and hence the need to take account of the social context and perceptions and continuously refine it toward meaningful applications in social-ecological systems. That way a holistic focus on the different dimensions (social, economic, environmental, institutional) becomes important in promoting resilience.

Results from this study support the argument that spatial and social-ecological imbalances left by apartheid played a key role in the resilient patterns of unsustainable cemetery spaces. The study highlights that the resilience of old patterns of spatial segregation between disadvantaged groups in the south and the affluent in the north shows a different and negative undertone to the resilience concept; and confirms the fact that resilience is not always normative and that sometimes negative aspects of a system can be resilient as well.

The research confirms the need to transform old cemetery models and conventional interment methods in order to align them with sustainability and resilience goals. The provision of cemeteries as a form of green infrastructure, especially in urban areas, is not addressed much in academia, and particularly in the global south with particular focus on the South African context. This research builds on the work that has been done internationally. For instance, although it can be costly to integrate green infrastructure elements during implementation, non-monetary benefits can be realized, which improve the atmosphere and mood of users. Although these elements can improve the overall attitude, there are however basic needs and services that seem to be of urgency to both providers of cemeteries and users.

In transforming the cemetery landscape, the study displays implications of integrating green infrastructure elements and other uses not related to interment, in the design of cemeteries. Therefore, the study explored the argument that supports the strategic integration of green infrastructure within cemetery planning so that it is viewed as more than just an aesthetic luxury. In doing so, cemeteries would also be considered as part of the green infrastructure that contributes to strengthening resilience of urban systems. The findings support the argument and build onto the literature that, integrating green infrastructure elements can improve multi-functionality of cemeteries. These elements encourage the attainment of more ecological benefits that can help moderate extreme weather events and manage the micro-climate. Integrating the green infrastructure elements could make visitors deal with their loss in a better way as they appreciate that their loved ones are buried in a dignified place.

In the context of the City of Johannesburg, communities are given the opportunity to contribute to the design of recreational spaces such as urban parks. This thinking can also be adopted within cemetery planning particularly seeing that cemeteries still play a significant role in people's lives. Identifying how exactly communities can contribute in cemetery spaces they are likely to benefit from could improve their adequate use. Cemetery planning literature needs to emphasize the role ongoing public participation processes can play in improving the innovative design and use of cemeteries.

With the objective of investigating the ability of cemeteries to contribute to the city's resilience, this research identifies which land-uses can be mixed with interment. Not all can be incorporated within the cemetery space. Those identified need to be compatible with users' perceptions of what a cemetery is and what it looks like. This thinking seems to be new in the context of South Africa, specifically for uses that are not related to the distinct function of interment. The study participants and diverse stakeholders were also able to say which alternatives to burial they were likely to adopt in the context of a looming shortage of land. These different insights show the potential of and direction in which cemetery planning can grow, specifically in the context of South Africa. Because of the similar cemetery planning challenges they face, findings from this research could be comparable to some contexts in the global north and some in the global south. Countries in the global south could be more open to some of the innovations identified in this research, however,

sensitivity is required toward local beliefs and what death, and methods and places of interment mean for them.

The context and scope in which the study was undertaken have significant influence in the application of the prescribed principles of resilience. In the end the study shows that the application of resilience is not clear cut as it needs to take note of the city and its residents' context and perspectives. First of all, the study establishes that in a diverse city like Johannesburg, it would be important to take cognizance of the changing social aspects of different stakeholders and their surroundings, their beliefs and how flexible and willing they are to doing things differently. Secondly, the study shows that the different resilience principles cannot be applied automatically. They may have to be customized for each context. Because these principles are commonly applied in different contexts (e.g. different cultures), they remain rather abstract in the study's context. This study therefore calls for a selective approach based on a contextual understanding, particularly of social and institutional issues.

8.5 Implications and recommendations of the study

This section focuses on implications of applying resilience for policy and broader recommendations that come out of the study.

The adoption of resilience principles should not be mechanical. Instead, they should be context-specific and take into account the social beliefs and practices of where they are to be adopted. Because cemeteries consume vast amounts of land and require land that is productive and can be used for other uses like agriculture and housing, it is important to investigate and understand how cemeteries can be designed, provided and managed in a way that would encourage efficient use of space. Because these are usually located at the urban fringe, they encourage urban sprawl. Mixing compatible uses could help cities densify and increase compactness. Identifying and mixing compatible land-uses could ensure the adequate use of space. This has to be done in harmony with locals' beliefs. This could prevent the poor uptake of such facilities.

However, mixing uses could prove difficult because cemeteries are a more complex and sensitive land use. An alternative could also be to have many small cemeteries, more integrated in the built fabric of the city. Although this research does not investigate that, it

has implications for this thinking. This could deem cemeteries are closer to users, particularly those whose beliefs require frequent visits. This may also be difficult to achieve as it is close to impossible to find available land that is also suitable for cemetery development within the city.

To augment the current spatial patterns concerning cemeteries and their contribution toward resilience, government should take the lead and thus be proactive and integrate spatial planning whilst tapping into the knowledge and skills other stakeholders have to offer. This collaboration can improve current cemetery planning processes while informing spatial planning systems. Introducing densification and compaction within cemeteries aligns well with the City's thinking, although at a higher level. Cemeteries could be used to further social integration. This is seen within new cemetery establishments like the DMP where both the rich and poor are buried in one setting. The idea of using cemeteries beyond their current function opens the door to new opportunities that could ensure that the City's plans are translated down to the local level.

This research has important implications for cemetery planners, urban designers and users. First of all, it is important for urban planners and designers to mainstream green infrastructure, particularly green cemeteries, within planning policy and processes to realize their value in providing multiple and diverse functions, and to prepare for an unpredictable future. Secondly, it is important to shift mindsets concerning the different appropriate uses within cemeteries, if they are to remain culturally relevant. Thirdly, it is critical that all stakeholder groups are involved in decision-making with special consideration for engaging under-represented groups. The diversity of cultures in the CoJ, and South Africa as a whole, calls for innovative approaches to cemetery planning and several alternatives to traditional burial, because a single solution is not feasible. For example, cremation should be part of varied solutions. Hence approaching communities to collaboratively address cemetery provision challenges with the JCPZ will lead to a sense of shared understanding and ownership of solutions identified. This inclusion and integration could show processes of good governance and effective leadership, important attributes for creating a resilient city (Simonsen *et al.*, 2015).

Planning cemeteries as part of the green infrastructure can be highly debated in the South

African context. Looking at the social dimension, most probably view it as a luxury because there are other urgent needs. However, taking the ecological perspective, cemeteries could contribute to the City's environmental imperatives such that when designed as part of the broader green infrastructure, they could collectively help mitigate environmental and climate change impacts. These benefits could be collectively experienced, not just locally but regionally as well. So this would call on CoJ to strategically include cemeteries in their green space plans. Doing so would require that finances are allocated for revamping old and passive cemeteries while also designing new ones with a creative mind to ensure that their full potential is realized.

Findings from the study raise questions for planners and managers of diverse interment spaces seeking to develop new cemeteries and manage existing ones. Policies need to be flexible and progressive enough to accommodate and enhance the multiple roles that cemetery space has in its urban context. This relates to considerations about location for new sites, the right place-based emotional connections to develop identity and maintain bonds with the deceased and an ability to attract all sections of the population to represent diverse public identity. When thinking about existing cemeteries, planners need to assess what types of developments would be suitable in close proximity; their compatibility with users' beliefs; consider the impact on habitats and plant and animal species found in these spaces; but also on cemeteries as important public spaces that hold entrenched expressions of personal identity. In doing so, the urban cemetery can remain multifunctional and unique.

Resilience has been applied to planning in building the adaptive capacity of urban spaces in governance, communities and cities so as to cope with slow occurring stresses and abrupt shocks. However, most social-ecological resilience approaches to governance seem to be focused mostly on adaptive management and co-management of urban systems. This research questions the automatic applicability of resilience theory and approaches in terms of how they take account of institutional barriers. As seen from the DMP study, the political and power aspects of governance, and particularly the influence these have on people on the ground, are not sufficiently taken into account hence the application of resilience may not live up to its ideals in practice. Applying the principles of resilience thus needs to engage further with these issues. These include human activities and beliefs, socio-economic drivers

and institutional structures that have reciprocal feedback and impacts on social-ecological systems.

Cemeteries are still viewed as sacred spaces. Hence there are mixed feelings concerning which facilities to include within them. Mostly, participants agreed that to realize multiplicity, most uses related to interment could be added. These are the most appropriate services as they would still observe the dignity and sacredness of the cemetery. It is believed that this reverence protects them from being subjugated to irreligious activities. On the contrary, perhaps it is users of cemeteries that need protection from inappropriate activities, hence the strict regulations that guide their day-to-day activities and management (e.g. as depicted in the By-laws). And perhaps when a significant amount of time has passed (and so has the intensity of grief), such that the cemeteries no longer receive as many visitors, then these regulations can be relaxed and other uses introduced within them. In that way, integrating mixed uses may not be too sensitive, especially for those who have loved ones buried there.

The lack of understanding of what really happens to the body during cremation and after burial calls for urgent awareness and education interventions, which would empower people to make informed decisions. For instance, the JCPZ would be able to impart knowledge about cemeteries and the challenges they are faced with; churches would be in a better position to teach people about what happens to the body and soul after death; traditional leaders would share knowledge about what would be required for them to keep the link with ancestors, and whether having ashes would make a difference as compared to having bones, which ultimately disintegrates into the earth.

People could be more open to mausoleums. Because they ensure burial of remains, they may not seem as far-fetched for some people as cremation seems. Also, they are not as expensive as traditional burial. For the City, they do not require much maintenance. Because they can be erected on land that is unsuitable for underground burial, JCPZ can discover creative ways that could appeal to users, in collaboration with diverse stakeholders. An option such as second burials buys municipalities time. However, eventually, JCPZ will still have to find other sustainable solutions. Introducing compatible mixed uses could ensure efficient use of space and thus ensure that the space is never left

unproductive. However, in the context of South Africa, this could take time. This could be achieved through introducing uses that are slightly compatible with local cultures to reduce the likelihood of giving people a culture shock. This will not only be for the city's benefit, but for the people's as well, especially in preventing challenges such as fragmentation, urban sprawl and pollution.

As argued by Rugg (2000:272) "even without the operation of other factors, the passage of time alone can change the nature and meaning of individual sites". She argues how several factors can change the nature of the burial space; from the change in the choice for memorials, to the ownership and management practices of the space; from society's attitudes towards the dead and the view of cemeteries as sacred, to transforming them to local parks, to reclaiming them as socio-political heritage sites. This is a very important argument as it shows the cemetery's ability to transform as compelled by circumstance, and the changing needs of society. Hence the representation and participation of communities in the design and implementation of culturally-sensitive urban policies should be promoted.

This research and engagements held with JCPZ seem to have sparked interest in the Research and Cemeteries and Crematoria Departments to want to embark on consultation processes with communities, where challenges will be tabled and different alternatives to conventional burial explored and promoted. The attempt will focus on laying the groundwork so as to change the public's perception of alternatives to traditional burial. This process began in 2016. The challenge thus remains how the consultation processes will unfold. What approach will JCPZ use in engaging with communities? For instance, will they engage communities with the attitude that they know what is best for them or will they discuss challenges they are faced with and thus seek solutions from communities? Or at the very least, will they seek the middle ground? Their approach and attitude will determine the success of these awareness and education initiatives. For instance, the Commission for Linguistic and Cultural Rights emphasized how engaging elders from different cultures reinforced communities' constitutional rights. In addressing JCPZ's challenges, they showed how such engagements could be seen as an opportunity to impart indigenous knowledge concerning the importance of and the right to practise cultural beliefs. Although these engagements are currently not prioritized, they could reinforce important elements that are said to contribute to the resilience of urban systems.

8.6 Future research

This study raises important considerations for researchers, urban planners and policymakers who currently have little guidance on planning for new or existing cemeteries but are critical in the ongoing successful and sustainable development of cities. The analysis and findings from this research are restricted to cemeteries as one form of land use, which are inadequately utilized due to their common mono-functional nature (e.g. locally), yet they consume vast amounts of land. The study concurs with the ideas that resilience can be very abstract in its application. Although cemeteries are used as a case in this research, the idea of resilience could be assessed for other land uses and contexts too. In South Africa, resilience is being adopted as a clear and pragmatic policy goal. However, it is still not clear how this is translated and implemented on the ground. It is important to conduct research that will determine how this gap is bridged for countries in the global south, not forgetting the social contextualities that shape policy to promote resilience and how it is adopted.

The study investigated primarily Christians, traditional faiths and Muslims. South Africa has diverse cultures and religions, and these can be included in future studies. The research also focused on the formal provision of cemeteries, however, there is a significant informal perspective to this. A perspective that deals with illegal burials could be explored, for instance, from the rural-urban migration angle.

8.7 Conclusion

Resilience and its principles have been accused of being both abstract, vague, and arguably technocratic with limited understanding of social and institutional dimensions in their application. Planning, designing and managing cemeteries through a resilience lens thus requires a constant appreciation of changing social values and practices as these may differ across contexts. For instance, although most participants have shown resistance to alternatives such as cremation, they have however demonstrated their adaptive capacity to changing circumstances by being open to making sacrifices such as cutting down on their cemetery visits. The DMP is a good example that shows resistance towards the innovative elements integrated within it. This resistance emanates from how the cemetery is viewed as incompatible with cultural beliefs. To gain support from members of the community, local leadership used this to their advantage and in the end ensured the development of a section that is deemed compatible with people's beliefs.

Although the theoretical precision and useful application of resilience has been questioned (Brand and Jax, 2007), various efforts have been made to better operationalize a resilience approach (Biggs *et al.*, 2012). This study has demonstrated that a gap exists between the promotion of social-ecological resilience in academia and its uptake as a policy discourse, and the capacity to implement and govern for resilience on the ground. And because the understanding of the social dimension is weak, this affects potentials for implementation. The research shows the importance and potential application of resilience ideas at a community level and how it can have benefits that filter to the local spatial and regional scales. Looking at JCPZ's efforts to provide cemeteries at the regional scale that service both residents of the CoJ and surrounding municipalities, this confirms the need for cross-scale (e.g. Johannesburg, Ekurhuleni and Tshwane) coordination in the governance of social-ecological systems.

This research has focused on diverse stakeholders' perceptions of cemetery planning approaches and alternative methods to conventional interment. It acknowledges that cemeteries may not be sufficient on their own to sustain social-ecological resilience, but that it becomes critical that connections are made with other open spaces so as to collectively contribute to the city's resilience. This can be done through collaboration with other sectors such as housing and public health. This is because no matter how resilient a land use may be in a normative sense, it may still be affected by the pressures arising from socio-demographic shifts associated with urbanization and development. Aligned policy frameworks that are proactive and support innovation and adaptability, that allow for evolving dialogue and change, whilst also highlighting the importance of cultural and religious values, could help identify how planning decisions may have a direct or indirect impact on moving towards more resilient cities.

Applying a concept that has its roots in ecology requires careful understanding of the social sphere so that the critical social science insights are not lost. Applying resilience in the social setting has to do with shaping the challenges and responding to them. Hence the application of resilience in the social world is viewed as normative. A lot of research has been conducted that looks at cemeteries in relation to sustainability and a lot of interventions debated seem to be consistent with resilience ideas. Both concepts encourage

minimal negative impact on the environment. They promote compaction and densification, although when used in the context of cemeteries, they are applied to expand a cemetery's capacity. Resilience looks beyond the environmental imperatives the City aims to achieve. In the context of cemetery planning and particularly with regards to diminishing land for future cemetery development, it emphasizes adaptable methods of interment which encourage building up and into the earth without consuming more land. It also advocates for these spaces to be sensitive to families' grieving processes.

This research has explored the potential to achieve normative resilience in relation to cemeteries, however, the non-resilient forms of cemetery provision seem to be dominant in South Africa. This research draws attention to the negative resilience as well, by showing how resistant to change people are. This is observed in officials who are still engrossed in conventional and old apartheid planning ideologies, or those whose cultural beliefs influence their judgements. This is also observed in community members' resistance to the introduction of some elements within cemeteries and to some innovative methods of interment. Although Johannesburg is becoming an integrated city region with cemeteries that look beyond the racial and class divide, there is still a mindset that there are township and affluent cemeteries.

As such, as a legacy inherited from apartheid inequalities, it is difficult to change the dynamic of old dominant cemeteries that do not contribute to the resilience of urban spaces. Changing the status quo requires the institutional will and capabilities to respond with more transformative actions. In order to address identified cemetery planning challenges, liberal officials, progressive systems and processes, and feasible long-term collaborative processes could provide institutional conditions that could enable and facilitate learning and adoption of newer innovations. This transformation can be facilitated through participatory processes with cemetery users, and could result in a shift in communities' norms and values, and changing of governance and management approaches to cemeteries. It is through participatory learning processes that change can occur, even within the City's conservative planning systems and processes.

The idea of seeing cities as social-ecological systems is important, hence resilience needs to strongly consider the social and cultural contexts. To some extent, the idea of green

infrastructure must be matched with people's views. And this calls for active participation of cemetery users in order for the innovative design elements to be socially accepted. This research broadens the conversation on social-ecological systems, by considering the potential for viewing cemeteries as partially multifunctional green infrastructure to contribute to greater resilience in the face of an unpredictable future challenged by diverse stresses. However, the idea of mixed-use cemeteries does not look very important as there are more urgent needs.

People's decisions and interment choices are influenced by their cultures and religions. Research, particularly the DMP study, shows that social practices determine the success or failure of development interventions, which are accepted or not, depending on their compatibility with the local culture; implying that culture is neither fixed nor static. Hence the urgent need for strategies aimed at promoting resilience discourses that address issues that are affected by social values, customs and traditions of people. Policy ideas like resilience therefore need to take account of social and cultural practices and not ignore them or assume them away.

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Book Chapter: Rethinking Cemetery Design and Management: Johannesburg and the Diepsloot Memorial Park^{41 42}

Introduction

In Johannesburg, South Africa, there has been an attempt to introduce more innovative approaches to cemetery planning. The Diepsloot Memorial Park is one of the City of Johannesburg (COJ) Metropolitan Municipality's ground-breaking cemetery developments. Its development was a response to Johannesburg's diminishing burial land. Instead of designing a normal, conventional style cemetery that most people are used to, Johannesburg City Parks and Zoo, an entity of the COJ, proposed a development that would serve as both a place for internment and also form a part of the city's green lung open park area that would also benefit the people presently living in Diepsloot and surrounding areas (Nelana, Pers. Comm., 2015). It was appropriately designated the *Diepsloot Memorial Park* and cost R17 million to develop. It opened its gates to the Diepsloot community and its surrounding areas in April 2007 (Johannesburg City Parks and Zoo, 2007). The cemetery is located in one of the COJ's seven regions, Region A in the province of Gauteng. It was envisioned to accommodate a total of 120 000 burials not including second burials or interring the cremains, the ashes from cremation. In responding to shortage of space, the cemetery would relieve others such as Avalon Cemetery in Soweto and serve the growing Diepsloot community.

Unlike other older cemeteries, from conception the Diepsloot Memorial Park was designed with a slightly different purpose. It is located in the Diepsloot Township (Map 0.1 on page 304), an area facing many social ills. These include accelerating unemployment rates, crime, and youth unemployment, poor service delivery and inadequate housing. Looking from the outside, the memorial park gives the area a visual break from the congested informal

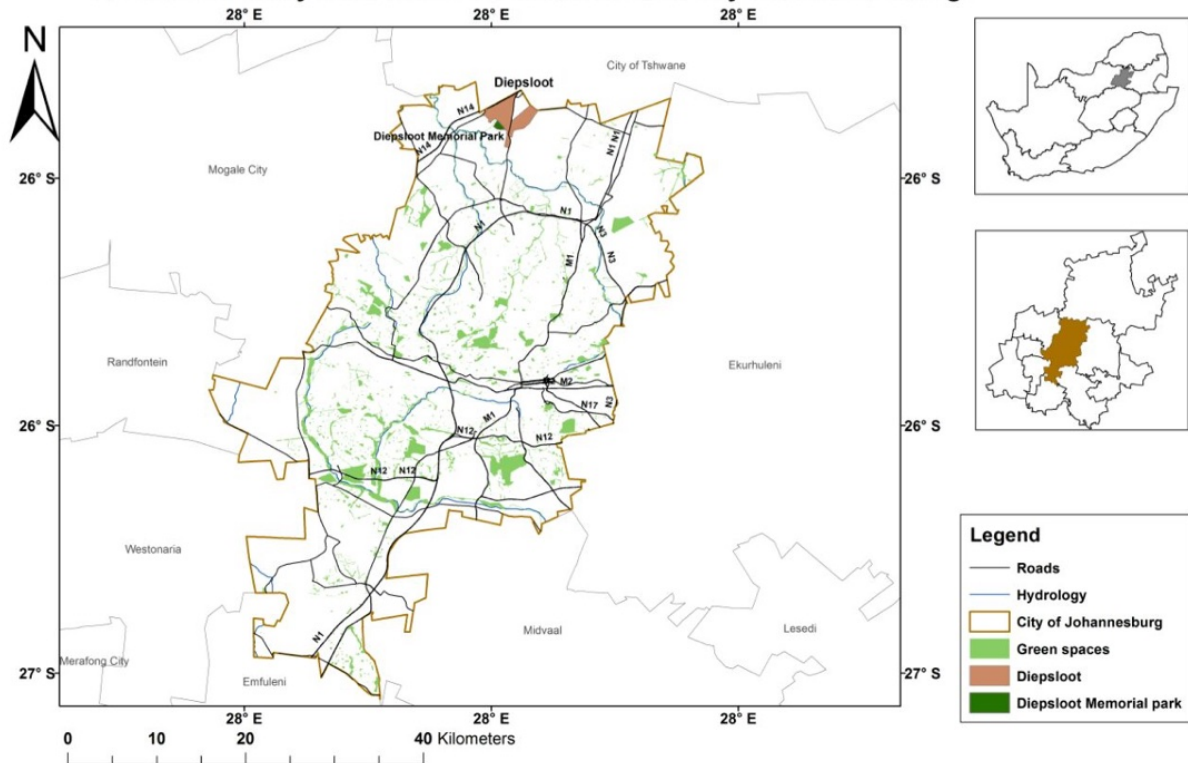
⁴¹ This book chapter has been peer-reviewed, refereed and accepted. The editors are in the process of appointing publishers.

⁴² Some of the material from this thesis was also used in drafting another book chapter ((Un)Rest in Peace: The (Local) Burial of Foreign Migrants as a Contested Process of Place Making) in the book *Routes and Rites to the City: Mobility, Diversity and Religious Space in Johannesburg*, that was recently published by Palgrave Macmillan UK.

structures characterising the township. When the cemetery first opened its gates, it allowed only flat plaques. Neither full-body memorials nor headstones were permitted. That changed as the cemetery has since developed a section that allows tombstones, according to Mr. Moloi (Pers. Comm., 2015), the Cemeteries and Crematoria Manager at Johannesburg City Parks and Zoo. This was the culmination of community uproars provoked by a range of socio-cultural and political influences (Nelana, Pers. Comm., 2015).

This study identified a recently completed cemetery that shows an element of innovation by recognising elements of creativity and originality. By exposing reasons that led to its development and users' perceptions, research was undertaken to assess whether its construction has had any significant impact on the area where it is located. Since the design integrates both burial and recreation functions the general public's view of this different approach for a cemetery was sought. It is against this background that the study took Diepsloot Memorial Park as a case study as it reflects a move towards an innovative design in the provision of cemeteries. After briefly discussing the background of cemeteries as a social institution, the objectives of the study are stated. The theoretical framework that grounds the theme of this research looks through the lens of Rogers' (1995) 'diffusion of innovations' theory. This chapter scrutinises the innovative practice employed in the design of Diepsloot Memorial Park. The extent to which people are open to seeing cemeteries beyond their primary role and the barriers that affect the diffusion of its adoption are identified. Assuming a shift took place, the design itself is examined and its objective, and the challenges the final product faces, are determined as is the possibility of it merely being a replication of other international cemeteries.

Map 0.1: Location of Diepsloot and Diepsloot Memorial Park
Location of study sites within the context of the City of Johannesburg



A description of the methodology that addresses the objectives follows, then the conclusions and recommendations emerging from the findings are presented. Two particular points to note are an assessment of the potential to design the Diepsloot Memorial Park for upscaling and adaptation in other South African cities, and how a cemetery and adapted models could potentially be used to transform the functioning of the areas in which they are located.

Background to Cemeteries

South Africa is home to a rich variety of cultural and religious belief systems, in which cemeteries play a crucial role in people's lives. This is visible on important holidays such as Easter and Christmas Day when families and friends visit cemeteries, and gather by gravesites to remember and pray for their dead. In Johannesburg, families own graves in perpetuity. This means that the Johannesburg City Parks and Zoo incurs ever-increasing demands for burial space and increasing maintenance costs.

However, due to their land-consuming nature, cemeteries occupy significant areas and thus echo the historical legacy of these areas. Cemeteries are under immense pressure from

urban growth and development. Like most basic services and bulk infrastructure, they are susceptible to impacts of rapid urbanisation, increasing population growth, and environmental and climate change. Integrating some green infrastructure elements within cemeteries as the Johannesburg City Parks and Zoo is currently doing, could help them respond to urban development challenges. For instance, they could potentially provide ecosystem services such as climate regulation, carbon sequestration, water infiltration and curbing erosion. Increasing greenery within cemeteries could help reduce run-off, increase natural infiltration and can thus help to control flooding. The use of vegetation instead of impervious surfaces increases interception levels. The current climate change impacts will continue to negatively impact the built environment and further intensify urban challenges. These challenges cut across continents and will eventually require governments and insurance companies to incur greater costs for repair and to provide new infrastructure (Development Bank of South Africa, 2011).

Generally, people are uncomfortable with considering the realities of death. Any discussion concerned with the planning, design and management of cemeteries is bound to be sensitive. Hence, any proposed change could lead to resistance from the users of these spaces. However, eventually change will have to be effected, given the number of pressures facing government. These concern the diminishing availability of land suitable for burial, fiscal constraints, environmental concerns and the reluctance to move away from conventional planning practices. In most cases, the upkeep of cemeteries is depleting municipal budgets. It is clear that with many of the solutions being applied to the use or reuse of the cemeteries in South Africa, practical approaches tend to outweigh other factors (Wilkins, 2011). For these and other reasons, cities will have to be proactive and innovative, whilst cemetery users will have to eventually adapt. Religious and cultural beliefs impact strongly on the acceptability of solutions being proposed by metropolitan authorities (Wilkins, 2011) particularly regarding cemeteries.

Often a cemetery is the only relic left from early settlements and as such is a critical link with the past (Uslu, 2010). Cemeteries provide quiet places to honour and celebrate the deceased, whether it is of a most personal nature, or on a local, regional or even national scale (King et al., 2004). "By viewing cemeteries as incarnations of personal and cultural

identity and history, people are motivated to be custodians of such spaces, taking action to maintain, restore, and improve their community, the landscape, and larger ecosystems” (Hester, 2006:364). Such efforts also have the potential to bring community members together for a common cause (Harker, 2012) using different platforms.

In cities, cemeteries are part of the urban system and can improve quality of life for urban dwellers through providing the aesthetic, recreational, educational, cultural and spiritual experiences in people’s daily lives. For those still living, cemeteries hold deeper meanings as they are believed to house loved ones whose memories are rarely forgotten. According to Murray (2003), cemeteries are established for the disposal of human remains but also offer solace and education to the living: “The cemetery landscape was central to the cemetery ideal’s vision, where nature and religion combined to produce a sublime environment” (Murray, 2003:130). Due to its distinctive function and sanctity, a cemetery is perceived as essential in enforcing public morals (*ibid.*). Moreover, they are also viewed as a space that helps uplift a community’s dignity, a state that can be observed from how these places are maintained.

Cemeteries contest with other land uses, including housing. Looking at current urban development challenges, cemeteries can be planned so that they are able to respond to some of the identifiable challenges. For instance, apart from their role as places of interment, they can provide other community benefits. The current trends in cemetery design and provision include garden sections, places of passive recreation and contemplation. Outdoor activities that have minimal environmental impact on the recreational site are most desirable, especially as they require minimal facilities and development, for instance, for walking, hiking and nature observation. Reviving cemeteries that are already full and ensuring the adequate use of active ones is an important item in present-day town planning.

A significant recent trend in European, Asian and American cemeteries that is taking on and ushering in a new era of fresh thinking is the idea of integrating interesting functions that generate revenue for their upkeep, whilst benefitting the surrounding communities. A good example is Mandaluyong Cemetery in the Philippines, which plays an important cultural role in the life of close-by communities. Valmero (2014) illustrates photographically that at night

the surrounding community enjoys congregating amid the cemetery's park-like and green features. Most North American cities have introduced different themes for their cemeteries. Cemeteries can also be used as venues for wedding ceremonies (Photograph 0.1 below) theatrical performances, music concerts, tourism and heritage tours and as arboretums. Some even have restaurants.

Photograph 0.1: Marble Cemetery, New York, as venue for weddings and photo shoots



Source: Fleming (2014)

Research Objectives

Taking Diepsloot Memorial Park as a translation of innovation in a diversified cultural context, the objectives of the study were to:

- Understand the reasons that led to the development of Diepsloot Memorial Park and whether users were involved in the development process
- Establish the local community's perception of the memorial park
- Determine the general public's view of newer cemetery designs that integrate the burial and the recreational functions of this particular cemetery site.

The intent behind the formulation of these research objectives was able to show whether the design model of Diepsloot Memorial Park has the potential to be adapted for use in other South African cities and for upscaling, and whether having the idea of having different functions on a cemetery site would transform other urban areas too in some way. Before describing the methodology used in this study, the theory applied is discussed.

Theoretical Framework

The 'diffusion of innovations' theory grounded this research to inform the focus, orientation and approach to the study. In 1962, Everett Rogers made the 'diffusion of innovations' theory famous in his seminal work that synthesised prior research on diffusion. He later on published more work on diffusion, some of which incorporated and criticised past research, including his own. Although the theory was initially influenced by fields such as

anthropology, education, rural, medical and industrial sociology, scholars from a range of disciplines successfully apply a diffusion perspective in their work covering diverse themes in development studies, geography, history, agriculture, marketing, public health and many other research endeavours (Sahin, 2006).

An innovation is an idea or object that is perceived as new while the diffusion of an innovation is described as the process through which an innovation is communicated over time within a social system through certain communication channels (Rogers, 1995:5). The diffusion of innovations theory has been selected as the most applicable theory for this research because it is versatile and can be tailored to the needs of multidisciplinary analysis. It cuts across different social science disciplines and can be applied in very different contexts (Rogers, 1995).

The theory focuses on a social system's awareness and knowledge of the innovation, the attitude towards the innovation and the decision making that could lead to the innovation being adopted or rejected (Rogers and Singhal 1996). The theory also centres around how and through what media an innovation is communicated; the attributes of innovations; the decision process that leads to adoption or rejection of an innovation; and the characteristics of adopters. Roman (2003) reasons that contextual factors shape the diffusion and adoption of innovations; and that the focus of the theory is not only on economic and general infrastructure indicators but also on, for instance, local value systems, living habits, social norms and culture (*ibid.*:560). Drawing from Rogers (2003), five variables affect decisions to adopt an innovation: perceived attributes of the innovation (such as its compatibility with social values and norms); the properties of the social system; the type of communication used to diffuse an innovation; types of innovation adopters; and the time to diffuse an innovation.

Perceived attributes of the innovation

Rogers (1983) identified a number of attributes through which an innovation is perceived. These are: relative advantage, complexity, compatibility, observability and trial ability. Among these attributes, compatibility is of particular relevance to this study although they all apply in some way or another. In applying diffusion theory to cemetery design research, the most relevant point to understand the perceived attributes of innovations, especially

the compatibility attribute, is how the community perceives the new cemetery design and the new elements integrated within it. Compatibility is selected in this study as the most appropriate attribute to analyse Diepsloot Memorial Park users' perceptions of cemetery design because it assesses the degree to which an innovation is perceived to match the needs, capacity, values and social norms of prospective adopters, as Roman (2003:224) explains.

Compatibility is "the degree to which an innovation is perceived as consistent with existing values, past experiences, and needs of potential adopters" (Rogers, 1995:224; 2003:240). Rogers (1995) shows that an idea can either be compatible or incompatible with socio-cultural values and beliefs, ideas that supersede it, or the user's needs for the innovation. An innovation's incompatibility with cultural values can block its adoption (*ibid.*). An idea that is more compatible would be less uncertain to the potential adopter, and fit more closely to the individual's needs. Dubois (1972), in fact, notes that many studies conducted showed that innovations had failed to diffuse because of incompatibility with the existing norms of the socio-cultural system.

The diffusion of innovations theory applies to this study because it makes known how and why an innovation is adopted, how social factors affect its adoption and through which channels diffusion can increase its adoption. The nature of the social system as a variable is selected to ground the argument of this study because of its emphasis on the process of social change.

The properties of the social system

The nature of the social system in which the innovation is diffusing affects both its acceptance and rate of adoption. It includes its norms and degree of network interconnectedness (Rogers, 2003:207). The diffusion of an innovation operates within the boundaries of a social system. In this study, a social system is defined as a community of Diepsloot as users of Diepsloot Memorial Park.

Lekhanya (2013:1563) too draws attention to socio-cultural beliefs playing a fundamental role in the diffusion and the adoption of an innovation. The belief that cemeteries remain spaces that facilitate ongoing relationships between the living and the dead is constantly

influenced by cultural norms and values. The acceptance and adoption of new designs can be reduced if these norms and values are not taken into account in the design and development of cemeteries. Usually, individuals are influenced by others in their communities when considering acceptance of new ideas. According to Lekhanya (2013), this could shape their attitudes towards the adoption of something different.

In this research, distinct examples of cultural values and norms are the residents' strong beliefs that only one body should occupy a grave and the erection of large tombstones identifies a grave. The basic accepted belief system is that cemeteries should be used for interment only and should not be combined with any form of recreation, passive or active. By virtue of their common membership as residents of Diepsloot residents would come together as a community and share a core common understanding and many customs among which would be agreeing on a fitting design pertaining to places of burial. Planners of the Diepsloot Memorial Park should have had detailed knowledge of the community's social and cultural characteristics prior to developing a social facility for this resident community. Consideration of these is vital for successful adoption.

The diffusion of innovations theory introduces the principles of *homophily* and *heterophily*, where *homophily* is "the degree to which pairs of individuals who interact are similar in certain attributes, such as beliefs, education, social status, and the like" (Rogers, 1983:18). However, Rogers points out that the diffusion of innovations requires at least some degree of *heterophily* too. This is "the degree to which two or more individuals who interact are different in certain attributes" (Rogers, 2003:19). The most distinctive problems that arise this theory perceives are related to participants having many different attributes, as communication channels will not be adequately effective (*ibid.*). The mere fact that diffusion occurs in a social setting is because interpersonal channels exist. It is the changing of strong personal attitudes toward an innovation that subsequently can lead to its adoption (Sahin, 2006).

The type of communication used to diffuse an innovation

Rogers (1983) categorises the main information exchange methods as two distinct categories: mass media and interpersonal channels. Mass media channels are said to be more useful in generating knowledge about an innovation, while interpersonal channels are

more advantageous in changing perceptions and mindsets about a new idea (*ibid.*). Diffusion of innovations emphasises the fact that word of mouth is particularly effective in persuading people to accept new ideas (Rogers, 1995). Rogers (2003) and Robinson (2009) contend that word of mouth, the interpersonal, and showing by example are far more influential than mass advertising. Rogers (1995) observed that most people are not influenced by facts or results but by hearing from others who had already adopted the innovation when making a decision about an innovation.

Types of innovation adopters

Adopter categories are “classifications of members of a social system on the basis of innovativeness” (Rogers, 1995:22) and an innovation needs to be widely adopted to be self-sustaining. In his research Rogers (2003) divides the population into five categories: innovators, early adopters, early majorities, late majorities and laggards as defined in Table 0.1 below. It is understood that each group has its own attitude toward a specific innovation and that innovations are adopted when they advance to meet the needs of subsequent clusters (Robinson, 2009) to complete the sequence of adoption.

Table 0.1: Five-adopter categories

Adopter categories	Description of adopters
Innovators	• Are gatekeepers bringing the innovation in from outside of the system • Are active information seekers about new ideas • Have a high degree of mass media exposure and their interpersonal networks extend over a wide area, usually reaching outside of their local system • Are able to cope with higher levels of uncertainty about an innovation than are other adopter categories
Early adopters	• Are more likely to hold leadership roles in the social system, other members come to them to get advice or information about the innovation • Have the highest degree of opinion leadership among adopter categories • As role models, early adopters’ attitudes toward innovations are more important; their subjective evaluations about the innovation reach other members of the social system through the interpersonal networks • Put their stamp of approval on a new idea by adopting it
Early majority	• Have a good interaction with other members of the social system • Seldom hold positions of opinion leadership in a system • Are deliberate in adopting an innovation and they are neither the first nor the last to adopt it
Late majority	• Are sceptical about the innovation and its outcomes, economic necessity

Adopter categories	Description of adopters
	and peer pressure may lead them to the adoption of the innovation • Interpersonal networks of close peers should persuade the late majority to adopt it
Laggards	• Their innovation-decision period is relatively long • The last to adopt a new idea • As the most localized group of the social system, their interpersonal networks mainly consist of other members of the social system from the same category; because of the limited resources and the lack of awareness-knowledge of innovations, they first want to make sure that an innovation works before they adopt • Have the lowest social status

Source: Rogers (1962; 2003)

Two other issues important in the adoption of an innovation are change agents and opinion leaders. On the one hand, change agents are mediators between change agencies and clients. They facilitate the flow of innovations from change agencies, the resource systems, to clients who are the adopters (Rogers, 1983:313). On the other hand, Rogers (2003) notes that opinion leaders are the most influential in spreading either negative or positive information about an innovation during the evaluation stage of the innovation-decision process and on late adopters. As noted by Rogers (1983:332), the change agent can accelerate the diffusion process by concentrating communication efforts on opinion leaders in a social system. Opinion leaders are said to have greater exposure to the mass media; greater contact with change agents; more social experience and exposure generally; usually have higher socio-economic status; and are more innovative than others.

According to Rogers (2003), people in elected positions in the community are recognised as opinion leaders. He comments on the fact, for whatever reason, opinion leaders are able to influence adoption decisions through informal persuasion. On the one hand, ward councillors could be viewed as opinion leaders as they hold positions of leadership, are respected members of the community and known to be influential in the use of Diepsloot Memorial Park. Their views about it could have influenced the community through mouth-to-mouth communication. On the other hand, the community as a whole could fall between the late majority and laggard categories as their decision to use Diepsloot Memorial Park or not depends on what they know about the experience of others who have already buried loved ones there.

The time to diffuse an innovation

Once an innovation has been completed, adopters look for elements that they perceive as important; to some it might be availability, to others it might be effectiveness, and to many, it might be cost (Robinson, 2009). Over and above these criteria, other social pressures, inadequate information about an innovation, bad timing for its introduction and a lack of political support could potentially constrain the adoption of new ideas. Although an innovation could have inherent potential to bring about positive change, adoption is not automatically guaranteed. If the innovation does not meet the social system's perceived needs, it could be rejected. This study proposes that the diffusion process will be quick when the perceived attributes of the innovation are compatible with the values and norms of the social system and *vice versa*. A rapid process in this case would imply a larger segment of the social system adopting the innovation with relative ease and within a short space of time.

Methodology

To address the objectives, interviews were held with key participants and users of the Diepsloot Memorial Park. The latter group comprised community members who were given information sheets, which explained the purpose of the study. To adhere to ethical considerations, anonymous questionnaires were distributed after those willing to participate had given oral consent and they were assured anonymity would be respected. Interviews were conducted with officials from the Johannesburg City Parks and Zoo as a source of the key information required and a semi-structured designed set of questions were followed. This choice of procedure guided the interviews and gave flexibility affording the opportunity to probe for further clarification.

First, the interview with Mr. Moloi (Pers. Comm., 2015), an official from Johannesburg City Parks and Zoo, focused on specific issues that concerned the reasons that led to the decision to establish the Diepsloot Memorial Park; to establish if and which international cemetery had been replicated in the development of Diepsloot Memorial Park; to discover possible reasons for the community's apparent poor level of acceptance of the cemetery; and to find out Joburg City's plans for the future development of cemeteries that would add to the users' well-being. Then two executive officials from the Johannesburg City Parks and Zoo, Mr. Nelana (Pers. Comm., 2015), the Managing Director, and Ms. B. Njingolo, Chief

Operating Officer, were also consulted regarding the processes that led to the development of the cemetery and the city population's response to its poor uptake.

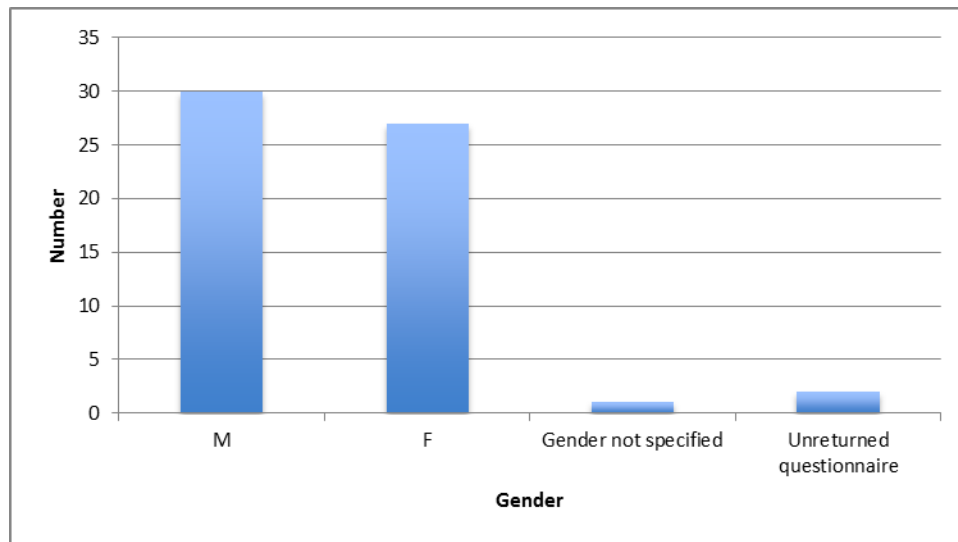
Another perspective of the research topic came from the interview conducted with Mr. M. Sibiya (Pers. Comm., 2015). He is a senior undertaker at Lalakahle Funeral Undertakers providing burial services to the township of Diepsloot and the surrounding areas. Due to the long service he had been providing families, and the level of respect he had earned in Diepsloot, Mr. Sibiya's contribution was fundamental to the study in portraying an undertaker's view. At the conception of this study the plan was to interview three undertakers for the sake of representivity and to reduce sampling bias. Several attempts were made to track down two undertakers in the township. One office was closed on days that the township was visited while the other left his phone unanswered. Although this was disappointing, due to time constraints the situation had to be accepted.

Thirty participants were approached to fill in questionnaires in Diepsloot and another thirty at four distribution points in the Johannesburg City area. Non-probability sampling was the process followed to gather a sample of respondents although not all the individuals in the population have an equal chance of being selected (Explorable, 2009). This was feasible in this densely populated case study area of Diepsloot. To increase representivity and to get a diverse mix of participants, every tenth person was approached to participate in the study. The study's objectives were explained to all the approached individuals and then they were handed a questionnaire to complete. Participants had the opportunity to ask questions of clarification as they filled it in. All questions were answered in twenty-nine questionnaires in Diepsloot.

Using non-probability sampling technique as well, thirty questionnaires were distributed across four points in Johannesburg: Bree Taxi Rank, Noord Taxi Rank, Johannesburg Park Station and Braamfontein. Due to their functionality as entrance and exit points into and from Johannesburg, these locations were selected because they offered a broad distribution of people from Johannesburg and outside. Extending the area beyond Diepsloot allowed people from further afield to complete questionnaires. Diverse backgrounds, age groups and genders could provide different perceptions of the current move toward more user-friendly cemeteries. The same process of approaching participants used in Diepsloot was

followed at these four points. Of the thirty questionnaires completed outside Diepsloot, twenty-nine were successfully answered, although one of the twenty-nine did not specify a gender. Altogether, as represented in Chart 0.1 below, fifty-eight of the sixty distributed questionnaires were filled in; gender representation was close to even and responses came from thirty males and twenty-eight females. One questionnaire did not specify the gender.

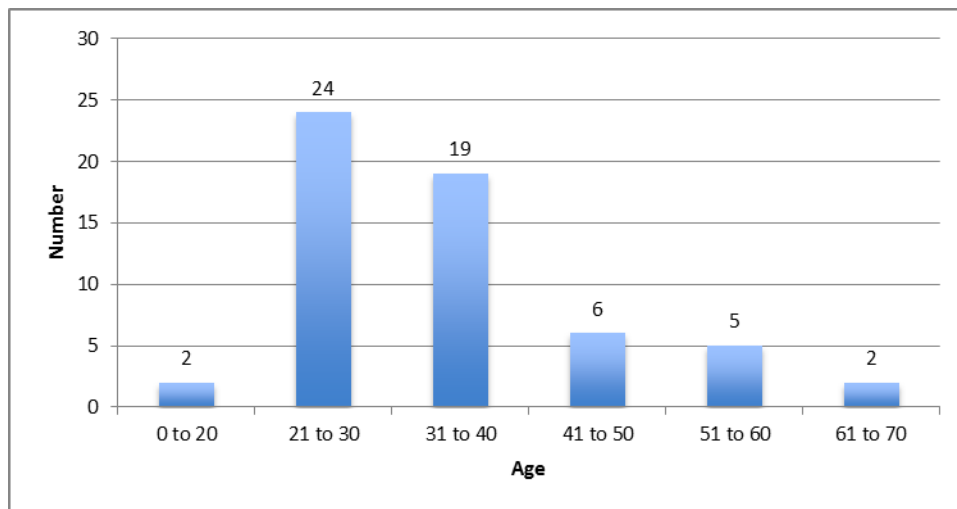
Chart 0.1: Number and gender of participants



Source: Author's formulation

The age distribution of the respondents shows predominance of young adults (Chart 0.2 on page 316), with most of the participants being the 21-30 age group with a quarter being over the age of sixty. For the purposes of this study, this spread could be deemed satisfactory because the sample is gender representative and only 4% of the respondents did not answer the questionnaire. Although, participants filled in the questionnaires, brief discussions were held with them regarding some of the issues they raised in the questionnaires. This was a great opportunity to clarify matters.

Chart 0.2: Age range of participants



Source: Author's formulation

Further to the interviews, two visits were made to the Diepsloot Memorial Park. Photographs were taken to capture the landscape, to explore the different sections, for the children, for full-body memorial ceremonies and for plaques. The use of the cemetery and some of the elements that were raised in the questionnaires were observed. There were no burials on both Saturdays that the cemetery was visited. Field notes were taken in Diepsloot on the day of distributing the questionnaires.

Challenges faced during the fieldwork

Fieldwork is hardly ever without challenges. Efforts to study all documentation that was produced prior to, during and after the development of Diepsloot Memorial Park could not be accessed nor could reports drawn from consultations with the community. Although three officials from Johannesburg City Parks and Zoo were engaged and provided information, the documentation would have been critical to tracking all processes that followed from conception to final development, and to give the overall perspective of the COJ as representing local government.

Brief account of Johannesburg cemeteries

This section offers an overview of the history and development of cemeteries in Johannesburg and how Diepsloot Memorial Park fits into the evolution and changing attitudes of cemetery development in the light of larger historical and political processes. Just like other urban green open spaces, cemeteries have the potential to contribute to the rich biodiversity and multiplicity in terms of mixed-use, of urban systems that face and need

a response to urban development challenges. However, the COJ is trying to move away from conventional planning processes as today some cemeteries in the City of Johannesburg encompass tracts of land with unsightly views of rows of headstones and lack of greenery. It is hoped that new ways of dealing with cemeteries will prevent this happening in the future. The COJ has instituted programmes aimed at changing the old grey appearance of cemeteries through tree-planting initiatives in diverse public open spaces to improve their appearance. Although these initiatives are geared toward beautification and equality of care, it is imperative to note that cemeteries offer opportunities to increase not just a multiplicity of uses within them, but diversity (in terms of biodiversity, cultural groups and governance institutions) as well. Despite the involvement of local residents in the design of local parks, they do not participate in the planning of cemeteries. The COJ has the opinion that the topic of cemeteries is taboo to most people and that they would not be interested in the systems and processes of cemetery formation (Moloi, Pers. Comm, 2015).

Old cemeteries in previously disadvantaged areas reflect the country's socio-political history when segregation was emphasised. While religion determined the place of burial in colonial times, where sections were divided into different religious denominations (Christopher, 1995), it was during apartheid, however, that race and ethnicity became the determining factors and each race was allocated its own cemetery (*ibid.*). The COJ is in the process of redressing the spatial and ecological imbalances inherited from apartheid. In this study ecological imbalances means the unequal distribution of natural and man-made green spaces between the northern and the southern areas of the city. According to Mr. Moloi (Pers. Comm, 2015), currently, cemeteries are neither established along religious nor racial lines. This is evident in one of COJ's recent establishments, the Diepsloot Memorial Park where racial desegregation is practised as the burial of all races from diverse economic backgrounds are allowed in the one setting.

Research Findings

The diffusion of innovations theory shows that for an innovation to be adopted by the critical mass, it must be considered socially acceptable and compatible with the social system's values, norms and practices. It must also supersede other ideas perceived by the population that came before it. According to Rogers (2003), some innovations require much time and persuasion before they can become socially acceptable. If the innovation is

incompatible with the social system's current practices it will not be adopted (*ibid.*). The Diepsloot Memorial Park was introduced as a new approach to cemetery design and provision. It faces resistance mainly because it is perceived as culturally inappropriate. Although some people view it as a necessary shift from the old dominant cemetery models, the majority do not see the need to have incorporated the different design elements that distinguish Diepsloot Memorial Park from other cemeteries. According to them, the cemetery should have either looked like the old type of cemeteries, or the space should have been developed into a recreational park. The two should have not been combined.

This section reports on the research findings that cover five themes. It starts with the design and development aspects of Diepsloot Memorial Park and then proceeds to deal with creating space for the activities of people living in Diepsloot. The empirical findings from engagements with different stakeholders and the general antipathy towards the new cemetery are discussed. The section closes with some thoughts on the future of cemeteries with particular reference to the prospects of the COJ's garden cemetery and its potential for upscaling.

Design and development of the Diepsloot Memorial Park

According to Mr. Moloi (Pers. Comm., 2015), the new design was influenced by several factors. The first reason was to redress the ecological imbalances left by apartheid. Second, an urgent need to provide cemeteries that are dignified, unlike the appearance of old ones that were not necessarily originally planned with future growth in mind. Today identifying land for burial in previously disadvantaged areas includes identifying open space. Moreover, environmental and geotechnical assessments have to be done before burial places are chosen. Third, due to the diminishing land available for graveyards, possibilities to maximise land use while addressing the increasing demand could be to allow multiple bodies in a grave and ensure that not much land is left between graves to increase usage density.

It was important to establish whether any international model influenced the design of Diepsloot Memorial Park, and if it did, which elements were adopted. If not, how its design was conceived and brought to fruition. According to Mr. Moloi and Mr. Nelana (Pers. Comm, 2015), no particular international model influenced Diepsloot Memorial Park's design, and especially the general move towards creating greener and more beautiful cemeteries in

Johannesburg. They said that besides the need to redress ecological inequalities between the northern and southern areas of Johannesburg, the design was influenced by the need for easy maintenance. The big tombstones found in old cemeteries apparently do not facilitate easy maintenance; for example, lawn mowing around the tombstones is difficult. Although there are examples in other cemeteries that headstones facilitate quicker maintenance in comparison to the use of full-body memorials, the use of flat plaques in this memorial park would make the job even easier. Although the Johannesburg City Parks and Zoo officials could not admit to having replicated the Diepsloot Memorial Park design from any other existing cemetery elsewhere in the world, it is clear that there is a growing trend in the development of cemeteries that appeal to the general public as well. Mr. Nelana (Pers. Comm, 2015) firmly asserted that the decision to allocate space in the area assigned for having a cemetery was based solely on finding ways to enable the cemetery's efficient upkeep.

Similar to the use of artefacts of Iron Age cultures from archaeological digs in the vicinity of the *Cradle of Humankind*, South Africa's heritage site lying some 40 km directly west of Diepsloot, its memorial park has an Afrocentric theme. These represent cultural aspects of burial practices beneath circular cowsheds (Visser, 2008). Diverse heritage elements, indigenous flora and naturally occurring habitats have been integrated into the cemetery's design, thus allowing it to function as both a cemetery and a conservation area (Nelana, Pers. Comm, 2015). Apart from its circular layout, the cemetery has incorporated natural stone pillars (Photograph 0.1 on page 320), which represent typical African designs also seen at the Zimbabwean ruins. The gabion tower, a special feature commonly used in landscaping, is a tall structure made of dry-packed stonewalls or cylinders contained within wire-mesh baskets (Cape Contours Landscape Solutions, n.d.).

Regarding the cultural significance of the memorial park, Mr. Moloi illuminates:

The design embraces Africanism and each section has its entrance and has gabions in the centre. This theme emulates the old African village in the olden days when houses of the community would surround a king's home (Moloi, Pers. Comm, 2015).

Photograph 0.1: Pathway leading to the gabion tower



Source: Leuta, 2015, with permission

According to City Parks, as the Johannesburg City Parks and Zoo is commonly known, the idea behind the cemetery was to design a space for the use of ‘living’ people and not only the dead. The greening of the cemetery remains the COJ’s aim for the developing of cemeteries that will remain vital components of the city’s ‘green lungs’ for oxygen regeneration even after they have reached capacity as burial places. Over 5 000 trees were planted to change the feel of the cemetery (Moloi, Pers. Comm, 2015). The greenery, pathway nodes and pillars give the cemetery a park-like feel. The cemetery was designed around the nature conservation section. This section was not developed for burial purposes because it contains indigenous trees and flowers, and large rocks that give the cemetery a “nice feel” (Moloi, Pers. Comm, 2015). This section will therefore never be used for graves.

The focal point of the cemetery is the large gabion tower that acts as an artistic landmark for the entire site (Figure 2 below; Photograph 0.2 on page 321). The tower also creates a sense of orientation surrounded by the nodal structure, which resembles an African kraal. Every visitor to the memorial park passes through this node. Stone-built pillars line some of the walkways to create avenues (Visser, 2008) (see Photograph 0.3 on page 321). The aim was to use it for passive recreation purposes. Hence the inclusion of relaxation sections demarcated by benches made from recycled plastic, drinking fountains, large African urns and dustbins in its design (Photograph 0.4 on page 321; Photograph 0.5 on page 322). The use of flat plaques upholds the eco-friendly design of the memorial park in place, since the use of headstones and full memorials were prohibited.

Photograph 0.2: Design of gabion tower during planning phase



Source: Johannesburg City Parks and Zoo (2007)

Photograph 0.3: The gabion tower during development phase



Source: Johannesburg City Parks and Zoo (2007)

Photograph 0.4: Avenue to gabion tower



Source: Leuta, 2015, with permission

Photograph 0.5: Contemplation/relaxation sections in winter



Source: Leuta, 2015, with permission

Photograph 0.6: Contemplation/relaxation sections in summer



Source: Johannesburg City Parks and Zoo (2007)

The overarching goal was to have an environmentally friendly cemetery with costs as low as possible and minimal maintenance requirements. In keeping with the feel of a healthy green environment, large sections of the cemetery were not paved. Concrete was not used in making paths lest they needed more burial space in the future (Moloi, Pers. Comm, 2015). Bricks that are easily removable were used instead.

Over recent years, the cemetery has won international awards for having integrated and embraced diverse African cultures, thus shifting away from the Eurocentric models with the typical square block layout, seen in old cemeteries. One of the accolades was the *LivCom Awards* launched in 2007 and endorsed and organised by the *United Nations Environment Programme* (Visser, 2008). Within the “Cities Environmental Management” category, the awards observed the objective “to improve the quality of life of individual citizens through the creation of liveable communities” (*ibid.*).

When asked whether it was important for the community to be part of the planning of the cemetery, Mr. Sibiya, the undertaker, felt that, as users of the space, both the community and the undertakers had to be consulted. He acknowledged that it would be critical for undertakers particularly to be in the process as they work closely with the community and thus have first-hand knowledge of their needs. Mr. Sibiya suggested that City Parks should consult them in future developments as “we’ll tell them what will work and what will not work”. Using the issue of not allowing full memorials space at Diepsloot Memorial Park as an example, he would have told the COJ that, although it was a new idea at the outset it would not work as it was not the traditional way of burying a deceased person.

As the main users of the cemetery, the community of Diepsloot strongly felt that their opinions had to be considered by the authorities who were developing new social facilities, particularly cemeteries. The community has since grown in size since the opening of Diepsloot Memorial Park and some people have moved away. It is possible that if any consultation was undertaken in the community then, it is likely that might now be outdated as opinions and needs change over time.

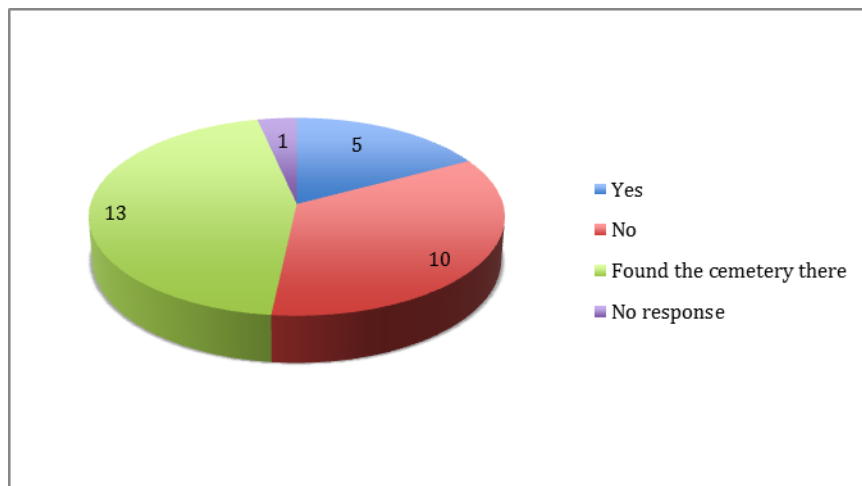
Of the twenty-nine Diepsloot community members, only five knew that a development was being planned but could not say how they found out about it (Chart 0.1 on page 324). Ten of the participants did not know of the plans to build that a memorial park prior to development and fewer than half only found out about it when the cemetery started operating. When asked what their input would have been had they taken part in its planning stages, only eight participants indicated that they liked it the way it was and would not have changed anything about it. The majority intimated that the community would have ensured that gravestones were allowed, the service improved unlike in other older cemeteries, and that graves were adequately spaced to give visitors some privacy. Two other comments were:

It was supposed to be a park because it's inside the houses.

They should bury one person six feet under.

Participants would have preferred this space to be developed into a park because it is located close to houses. Seeing that it operates as a cemetery now, instead of interring multiple bodies, participants would rather have only one body buried in a grave.

Chart 0.1: Participants with awareness of Diepsloot Memorial Park before development



Source: Author's formulation

In conversation, some respondents did not like the integration of park features and the cemetery function. Participants clearly did not support the burial of multiple bodies in one grave but would rather have only one body in a grave.

Different responses were given regarding whether the community was engaged in the design of the cemetery or not, hence the interpretation is based on both. On the one hand, there is the likelihood that if some members of the community of Diepsloot would have been consulted before implementation, but they might no longer reside in the area. This means that the newer residents either have to accept and adopt the current design or reject it, or set a process in motion to request a reinvention. The reinvention would be a compromise on the part of the COJ to provide a section for the erection of tombstones. Rejection would mean that most members of the community would simply choose to use other cemeteries.

On the other hand, because the township has expanded extensively in the last decade or so, most of the people who could have participated in the consultative processes conducted by City Parks could have moved into other areas opened up for new residents and thus spread out across the township. If no consultation processes were held, that would remain a challenge for the use of the cemetery, as most members of the community would not understand the reasoning behind its design and function.

Multiple channels can be used during the communication of an innovation. One network

could focus on transferring information to instil awareness and knowledge about the intention of intervention, while another channel would encourage people to adopt the innovation. This would be in keeping with the first phase of diffusion of innovations model (Table 01). For ultimate acceptance of an innovation this is a vitally important stage. However, in the case of Diepsloot Memorial Park, communication could have been handled by the change agency, in this case, City Parks on behalf of the COJ, before the development of the cemetery. Since this step was not carried out, later on many people were strongly swayed from adopting the cemetery. In engagements with community members as participants in this survey, it was realised that rumours were spread in the early adoption phases of Diepsloot Memorial Park. These would have prevented its adoption. The rumours influenced members of the community as they were told that some of the cemetery's design elements went against the community's cultural beliefs. The issue they wanted addressed was to request sections that allowed full-body memorials. Although the foundation of these rumours was not confirmed or verified, some participants thought that local political leaders could have instigated the rumours.

Although the decision to develop a beautiful user-friendly cemetery could have been for the benefit of the community, incompatibility with users' values and norms remains the main obstacle in people having a positive attitude to the cemetery and being willing to use it. Because the cemetery is located next to houses, some participants would have preferred it to be a park. The community does not understand some of design elements integrated in the complete picture of the cemetery. In particular, the park-like features and the use of ground plaques instead of tombstones. The lack of understanding and wrong information fed to the community are matters to be addressed. To achieve this, communication channels between officials of the Johannesburg City Parks and Zoo and the community as users of this cemetery have to be improved. The people do not understand the reasons behind combining facilities that offer recreational opportunities with the allocation of space for burials that follow special traditional practices and rites. Inevitably, the consequence of local government action with regard to establishing a cemetery that negates their beliefs arouses their emotions negatively and they seek an explanation and a solution. Although not everyone will use the cemetery, other socio-ecological benefits can still be gained from its existence and the way it is designed. Two particular areas would be of benefit, protection

of the natural environment and space set aside for people's enjoyment of nature with potential for educational benefit for young and old. Hence it is the responsibility of City Parks to explain to users the motivations that led to this integration and the challenges both the COJ and the community faces regarding the Diepsloot Memorial Park.

Of the twenty-nine city-wide participants, only two females between the ages of thirty-one and forty did not see the need for communities to be informed and involved in the planning and development of cemeteries. One responded that, "it would cause lots of confusion and people would make demands that would take long to implement". Twenty-seven participants thought it was important to consult communities before development of a cemetery. The most recurring reason was that the cemetery belonged to the community, hence they should be consulted. They believed that engaging them in the proposed plans would help to align the community's cultural beliefs and interests with the cemetery planning processes.

As intermediaries, change agents, the COJ in this case, should know the needs of the community while also trying to facilitate national goals as is expected of them. The community knows its priority needs and could engage with change agents effectively. Taking their current practices into account in an initiative should increase the likelihood of having innovations rapidly diffused and subsequently adopted.

Creating spaces for recreation

Although the cemetery has a park-like feel, passive recreation by all members of the community would not be allowed as "it would be abused" according to Mr. Moloi (Pers. Comm, 2015). He explained, "the plan isn't to attract everyone to the cemetery, but to provide a comforting environment to those visiting their loved ones". Because most people still view cemeteries conventionally, Diepsloot Memorial Park will not be open for active recreational use by people other than those who have buried family and friends there so as to avoid attracting noise, alcohol misuse and unruly behaviour. Mr. Moloi indicated that because there were paved paths, children could ride their bicycles whilst their visiting parents visited graves (Photograph 0.7 on page 327). However, the Johannesburg City Parks and Zoo would also allow the filming of local soap operas and movies, a strategy that is being used to generate revenue.

Photograph 0.7: Paths where children could ride bicycles whilst parents visit graves at Diepsloot Memorial Park



Source: Leuta, 2015, with permission

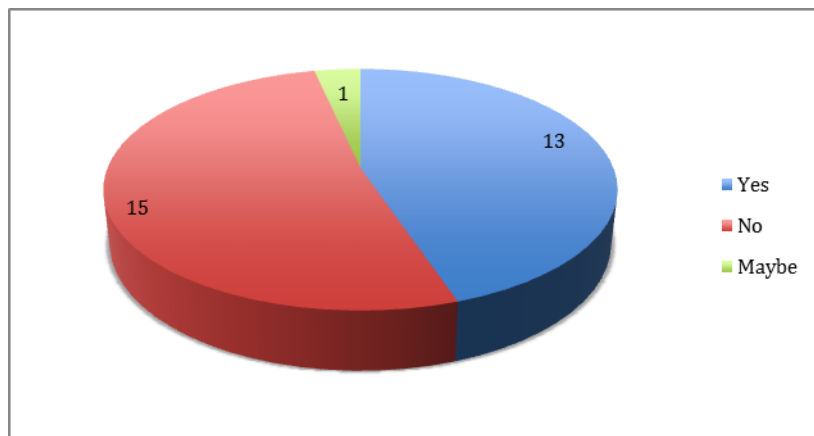
Another avenue the research explores was to see whether the people who live in the area are actually taking up the COJ's intentions. Although the idea was to develop a beautiful green space for those visiting the cemetery to use, City Parks would not allow people who did not have loved ones buried there to use the cemetery. The reason was to minimize any potential unmanageable behaviour. The Johannesburg City Parks and Zoo's understanding was that anyone who had loved ones buried in the cemetery would want to respect it and uplift its dignity through observing quietness whilst being there. When asked whether they would visit the cemetery for reasons other than burial, Diepsloot participants' responses were still related to the functioning of the cemetery. When the question specified clearly whether they would use the Diepsloot Memorial Park for recreational purposes, one person was not sure, thirteen showed interest whereas fifteen were not open to that idea (Chart 0.2 on page 328). Those participants not interested in visiting Diepsloot Memorial Park said they had no need to visit the cemetery as there were no tombstones and they objected to the fact that multiple bodies were buried in a single grave. Two pertinent responses were:

Because of the way they are burying people, there is no way to visit loved ones.

There is no one of my family buried there. We don't bury there.

Even though the question clarified the use of the cemetery for recreation, the first response still shows a lack of understanding of the cemetery's design. These participants' purpose to visit the cemetery is to visit loved ones buried there, whether recreation elements are incorporated in the cemetery or not.

Chart 0.2: Willingness to use Diepsloot Memorial Park for recreational purposes



Source: Author's formulation

There were feelings of confusion as some of the participants felt the environment could be used beyond just for burials, however, they would be afraid to relax there. One participant replied, "to sit. It is very quiet. But I would be afraid to sit because of fear of being around the dead". Although some people appreciated the quietness in the cemetery it posed a problem for others who highlighted that it was unsafe, especially for women. One of the two women who were concerned about security in the cemetery responded, "It's not safe and it is hidden". Responses of participants open to using the memorial park for recreation included:

Just may be if I want to take a walk.

It is a really nice place to relax.

Because of the trees and the grass there.

Although all the participants had been to Diepsloot Memorial Park, most had gone there for burial purposes. One person had been to the cemetery to fetch water, two had attended community meetings and two used the cemetery as a shortcut path.

City-wide participants were also asked whether they would visit cemeteries for reasons other than to visit to remember loved ones or to attend funerals. Out of the twenty-nine participants, only three said that they would visit cemeteries as a community service such as to clean in an effort to keep the cemetery neat, and to show others where family was buried. The remaining twenty-six would not visit a cemetery for any reason unrelated to its normal functioning. Examples of their responses were:

It would be very uncomfortable.

Cemeteries should not be used for purposes other than burial.

My religion does not allow that.

I don't believe in visiting graves.

The notion of using cemeteries beyond anything unrelated to interment is foreign to most people and it can be deemed as culturally unacceptable. Based on the fact that cemeteries are respected and the dead are feared, it could take time before people would open up to a notion other than that. Because recreation is sometimes attached to insubordinate behaviour, the thought of having cemeteries act as places of recreation might possibly offend many. The Diepsloot Memorial Park could then be understood as being inconsistent with the values and needs of present day users in this location. This incompatibility with users' values, norms and what they are presently used to implies that the cemetery will not be adopted as rapidly as a cemetery that is compatible with current beliefs.

Perceptions of cemetery users

The primary objective of this study was to investigate community members' perceptions of the Diepsloot Memorial Park. One could view the development of the Diepsloot Memorial Park as a positive shift, especially with the COJ's goal of redressing spatial and socio-ecological disparities left by apartheid. However, to the majority of those who were repressed and segregated in the past, the new design could be a sign that they are being prohibited from practising their freedom and will. In discussion with some of the Diepsloot community members who were participants in this survey, the opinion was expressed that they felt that they had been suppressed in the past and were not allowed to have access to certain opportunities. They perceived the regulation to use only flat plaques was a continuation of this suppression, however, even by a different government. The introduction of different innovative design elements was seen in the same light with socio-political and cultural implications that denied community beliefs. If the ability to decide to erect an enormous tombstone that is perceived as a current cultural practice and provides a status symbol for some families is taken away, old wounds are opened.

Mr. Sibiya, the undertaker, seemed to be in favour of the memorial park, especially since "it looks like a botanical garden". Although he viewed the cemetery as a modern form of cemetery development, he was, however, concerned that it had not maintained the

standard with which it started. He said that when it first started, it was neat and beautiful. However, the standard dropped when City Parks sub-contracted a private company to attend to its maintenance and upkeep. He was of the opinion that the cemetery was not properly managed and that it lacked signage. The example he gave was for instance, to show where visitors could find drinkable water. Walking through the entrance of the cemetery, there was a sign indicating that water was undrinkable. However, no other signs were visible in the cemetery to show where to find drinkable water. Mr. Sibiya complained that the “grass is outgrown, there is running water, sewerage from houses. The standard is now no more a good standard that it started with” (Sibiya, Pers. Comm., 2015). When asked whether he supported the shift to a modern cemetery design, Mr. Sibiya indicated, “let’s not make graveyards something for people to be scared of. Let’s move with the times; something different from what our fathers had”. He further emphasised the need for City Parks to advertise the cemetery to local communities, as people did not know of its existence. It would depend on which adopter categories it identifies as the most resisting and then apply appropriate communication channels for each segment of the population.

Several of the Diepsloot community members mentioned that Diepsloot Memorial Park was a good move towards cemeteries that catered for the inclusion of other activities in people’s everyday lives not only for ceremonies at the end of a person’s life. Concerns that the graves were not sufficiently spaced (examples in Photograph 0.8 on page 331) and that the stacking of the bodies of the deceased was a main issue remained dominant. Thirteen people, almost half (45%) of those consulted, thought good care was taken of the cemetery and that it was well-developed. Because taxis sometimes drove through the cemetery, one participant was really unhappy as it forced him to pass through the cemetery, which he felt was disrespectful as his religion did not allow him to frequent the cemetery for reasons other than burial. His response, when asked what his perceptions were of the cemetery was: “I never really got to appreciate it because I just feel forced passing there”. Responses from those who do not like the memorial park expressed their perceptions of the memorial park in these ways:

I don't think their design looks like a gravesite.

Design is poor because there is no fence.

No security and it is close to the houses.

Photograph 0.8: Closely packed children's graves at Diepsloot Memorial Park



Source: Leuta, 2015, with permission

The Diepsloot Memorial Park is different from old cemeteries that are dominant in Johannesburg. Several respondents mentioned that tombstones are features that make a cemetery look like a dignified resting place for loved ones. However, interestingly, most of the old cemeteries do not have infrastructure that can be found at Diepsloot Memorial Park, namely, security guards, and fencing. These were identified as essentials. The security guards are not situated by the cemetery's entrance and this concerns people as the cemetery is located near people's homes. Their argument is that, due to this proximity, the cemetery should have rather been developed into a park. Had this been done, everyone in the community would have access to it, unlike now when only a select few can use it for passive recreation. Participants who seemed to support the cemetery's design had this to say:

Well designed but they should allow for tombstones.

The design is different and nice.

It's 100% because it goes with the times.

There could be multiple reasons why these participants were open to Diepsloot Memorial Park's innovative design. This reaction can be seen as an indication that these participants are open-minded and not really culturally rooted in their beliefs. Most of these participants who were positive about the design were females in the 31-40 age bracket. Few people had mixed feelings and concerns about the cemetery. Other expressed concerns were about the grave layout, the lack of identification of the specific features and facilities, and general access to the cemetery. A recurring perception was that the authorities forced the burying

of several bodies in a grave. Other clearly expressed perceptions were:

The graves are fine but I would like to see my family or friend's name rather than a number. It also looks like you abandoned a family member when you bury them there.

I have an impression that when they give space to bury, someone is already buried there.

I don't understand how the graves are laid out because I see numbers close to each other.

These responses show a lack of understanding of Diepsloot Memorial Park's design elements and requirements for burying there. For instance, multiple bodies can be buried in a grave but City Parks only allows the family to make this decision. They strongly dismiss the idea that families are allocated graves already used by strangers. Because of the COJ's plans to utilise space efficiently, little space is left between graves. This does not please the participants at all, as it is sometimes difficult to follow the numbering of the graves. Participants feel that a cemetery without visible tombstones is unusual and therefore does not seem dignified enough to bury loved ones.

When asked about their perception of the cemetery's design, four participants clearly wanted the cemetery's appearance changed to what they were used to, whereas others identified specific aspects they were not happy with and named the elements they wanted to include. One participant who had difficulty accepting the cemetery lamented, "Just if it was a conventional gravesite or maybe just be turned into a park" (a 38-year-old Diepsloot female participant, 2015). Two participants suggested that the flat plaques should rather be used to identify children's graves while the graves of adults remain identifiable by the engraving on normal tombstones.

The study was also conducted to establish the general public's perception of newer cemetery designs and their implications. This was achieved through the distribution of questionnaires at different points across the city. The majority of participants felt that, to avoid resistance from the community, cemetery users should be engaged in the initiative and their cultural and religious beliefs taken into account from outset. As the primary users of cemeteries, it would perhaps be in their best interests to know the COJ's plans associated with designing such spaces and to let their views be known. Failure to do so could run the

risk of having white elephants that win awards yet fail to meet the users' basic needs. According to Robinson (2009), the best way to attain successful adoption of an innovation would be to ensure that its users are made active partners in an ongoing restorative process. "By applying participative action research, techniques can be followed to ensure that partners participate actively in the improvement of innovations" (Robinson, 2009:2).

Although people may take time to adjust to new cemetery design and approach, they could eventually accept it. As Rogers (2003:1) documents, "getting a new idea adopted, even when it has obvious advantages, is often very difficult. Many innovations require a lengthy period, often of some years, from the time when they become available to the time when they are widely adopted". The theory endorses this contention. Based on the concepts *homophily* and *heterophily* in the theory, it could be difficult for the Diepsloot Memorial Park to be adopted without significant effort on the part the Johannesburg City Parks and Zoo as the source of the innovation. The reason is essentially because the Diepsloot community members as the receiver might share the same attributes and lack the *heterophilous* ties needed for effective diffusion of acceptance of the memorial park in line with the objectives formulated for its purpose.

Sahin (2006) argues that, to reduce the uncertainty of adopting the innovation, individuals should be informed about its advantages and disadvantages to make them aware of all its consequences. Some participants have requested that the cemetery be expanded. Ongoing engagements on the part of City Parks could actually increase the cemetery's acceptance and thus chances of adoption. Once differences of opinion are settled between the provider and the receiver, as something new and modern, the Diepsloot Memorial Park could play a helpful and valuable role in the lives of all users or its well-considered structure and purpose. However, trust within the community and acknowledgement of community needs have to come together as the pattern of the diffusion of an innovation takes its course.

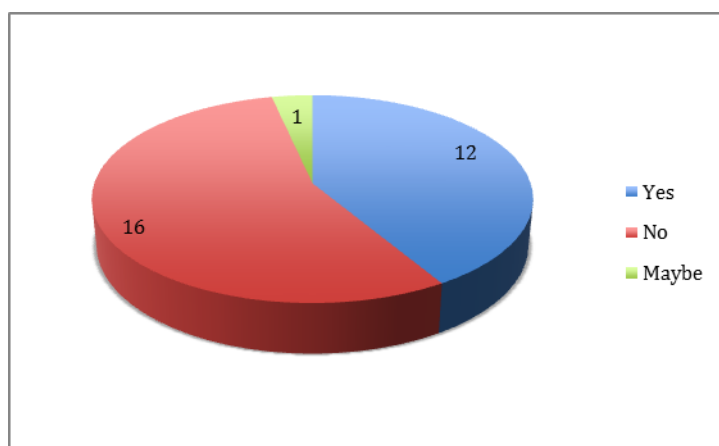
Burial practices at Diepsloot Memorial Park

Participants' choice of Diepsloot Memorial Park as a burial place gives an insight into how the community perceives the issue. The argument is that one would not want to be buried in a cemetery that is viewed as inappropriate. The result (Chart 0.3 on page 334) obtained from asking Diepsloot participants whether they would want to be buried at Diepsloot

Memorial Park does not yield a decisive answer. Twelve of the participants were open to being buried there whilst sixteen were not. One participant could not give a definite answer and responded, “I can't say yes or no because if you know that you are paying insurance you know where you want to be buried. If you are poor, you must be buried there. It's up to your family or your insurance” (a 40-year-old-male participant, 2015).

This is an intriguing response as the participant feels that only poor people should be buried at the cemetery, probably because they lack choices.

Chart 0.3: Choice of Diepsloot Memorial Park as a burial place



Source: Author's formulation

A few participants had conflicting feelings as they liked the cemetery but hated that they were not allowed to erect full memorials, at least so they thought. They reasoned, “if the lawn must not be planted on top of the grave. If there was a tombstone allocation” (a 67-year-old male, 2015). Those who preferred to be buried at Diepsloot Memorial Park gave the following reasons:

Because I am going to be near my family.

Because my child is already buried there.

I like the place. The place is nice that why we buried there.

It's not expensive, there is no need for transport. It is close.

It is clear that participants who have previously buried loved ones at Diepsloot Memorial Park would continue to do so for several reasons. First, the mere fact that they will be close to their family is motivation to be there too. Second, proximity plays a huge role in their decision concerning a burial place. Since it is located close to their homes, they do not incur

any transport costs when visiting the cemetery. Third, due to its appearance, the cemetery gives the impression that loved ones will lie in a dignified place permanently. This consideration eases the bereavement of those remaining behind.

While six people indicated that they would be buried back home, one said that it was up to his family and that he would not have a choice. The majority of participants who did not want to be buried at the memorial park gave the following reasons:

We would lose track of which number belongs to who.

Because someone else will be buried over me.

Because it is not what we are used to. Our culture requires us to visit the tombstones and have that tombstones as remembrance for even generations to come.

We always know we will get buried back home.

Most participants seemed to share the sentiments that the cemetery's design is incompatible with their cultural beliefs. The community's concern that tombstones are not allowed supports this contention. The responses also demonstrate a lack of understanding of how the grave numbers and plaque allocation work. They do not understand that both can be used to identify a grave and that none is preferred over the other. The number allocation is obligatory. Some participants think that grave numbers are the only type of identification allowed. They do not understand that plaques contain the same information found on common tombstones and that their graves will still be identifiable. Although the Johannesburg City Parks and Zoo has since introduced a section that allows headstones and full-body memorials, most members of the community are not aware of this.

Acceptance of Diepsloot Memorial Park

In the first few years after development, local interest in the cemetery was very high (Moloi, Pers. Comm., 2015). However, this changed as the number of burials started to drop. According to Mr. Moloi, Diepsloot Memorial Park has seen slow acceptance based on cultural differences. The cultural beliefs of the population do not accept the use of ground plates. Prohibiting full-body memorials in the beginning and levelling the ground surface after burial and disallowing heaps of soil near the grave, aggravated some community members who claimed these practices were against their culture. Declining burial numbers were the result (Moloi, Pers. Comm., 2015). Mr. Moloi and Ms. Njingolo pointed to the fact

that cemeteries close by were competition for Diepsloot Memorial Park. Their appearance too differed from the old traditional style. Besides that, these cemeteries have been properly planned, they allow for full-body memorials, have a working infrastructure, are green and lush, and well-maintained. Through community protests, people showed dissatisfaction with the park-like feel of the Diepsloot cemetery in the memorial park (Moloi and Nelana, Pers. Comms., 2015). The COJ was then forced to develop a full-body memorial and headstones section.

In discussion with different participants, five reasons were identified that could have led to the poor adoption of Diepsloot Memorial Park as a community asset. First, the memorial park is perceived as culturally unacceptable because it combines a park and a cemetery. Although the recreation part of the cemetery is meant for use by only those who have buried loved ones in it, participants believe that everyone should be able to use it for recreation. They are also adamant that using the cemetery beyond its distinct function as a cemetery goes against their culture.

Second, to respond to the diminishing burial land in Johannesburg, the COJ introduced ways of adequately utilising space within the cemetery. It encourages the burial of multiple bodies in a grave and leaves very little space between graves. Most participants do not favour either of these measures since they are against their cultural beliefs. They felt that the limited space left between graves does not offer the required privacy during the burial ceremony and visitations afterwards.

Third, another new design element introduced was the use of flat plaques instead of tombstones. Participants protested that their culture did not allow them to have flat, ground plaques instead of full memorial tablets. According to Mr. Sibiya (Pers. Comm., 2015), ward councillors supported this outcry. According to some participants, the local politicians could have potentially perpetuated this dissatisfaction and, in exchange for votes, promised to give residents the option to erect either full memorials or headstones. There was speculation in the community that the funeral undertakers endorsed the uproar as they had a great deal to lose if the decision was not rescinded. Besides this, a poor understanding of the appearance of flat plaques prevailed among community members. Most participants were not aware that the detail contained on the common tombstones would still be

engraved on the plaques. Some participants thought that if tombstones were prohibited, then the only identification method used would be a grave number.

Fourth, families were deprived of maintaining their prestige in the community as is often showcased through the erection of massive tombstones; something also perceived as reflecting culture. The tombstone plays a bigger role than just as a grave identifier. It is a remnant that will link generations of past ancestors with those of the future. Although they will have not met their ancestors, the grave offers a sense of identity. Since the use of flat plaques was formally introduced, the large tombstones had to find space elsewhere. This could be another reason why families have decided to bury loved ones elsewhere, a place where they are able to display love for their deceased whilst also claiming their social standing.

Fifth, funeral undertakers drive a commercial business and most of their profit comes from the extras included in funeral and burial packages. Tombstones are part of these extras. If the COJ prohibits the erection of headstones and full-body memorials, the undertakers are bound to lose some of their profit on the service they offer. Hence they would not support the shift to the use of flat plaques (Nelana, Pers. Comm., 2015), which would be the most cost-effective choice between headstones and full-body tombstones. Interestingly though, no gravestones have been erected in the full memorial section despite it being used for burials for almost a decade. Addressing the question of whether the problem was truly a cultural one, or whether it was politically or commercially-driven, it could be speculated that there has been some motivation from influential leaders or other key players in the community that could account for this practice continuing.

According Mr. Sibiya, a funeral undertaker in Diepsloot, there were several reasons for the community's reluctance to use the Diepsloot Memorial Park. First of all, some people chose not to bury here as they complained the cost of the grave was too high. Secondly, families who had relatives living in close by townships, like Tembisa, preferred Waterval Cemetery because it was central. Thirdly, there was a perception that people were forced to inter multiple bodies in a single grave. However, Mr. Sibiya said that he had made a point of educating his clients explaining that only two bodies could be buried in a grave, and that it was a family's choice. He also stresses the fact when speaking to his clients that only family

members could share a grave. After explaining this to some of his clients, they had agreed to bury at Diepsloot Memorial Park.

In addition, according to Mr. Sibiya, Diepsloot Memorial Park was located in an area that was previously a swamp, which was a causal factor for the flooding that the participants constantly complained about. City Parks, however, deny these claims, showing that geotechnical and environmental impact assessments were undertaken prior to the development and proof was given that the cemetery's physical location was suitable for burial purposes. According to Mr. Sibiya and over half of the participants (55%), during the rainy season water tended to accumulate in the graves. This necessitated City Parks coming to drain the water the day before a burial. Mr. Sibiya showed that sometimes the water had to be drained on the day of the burial. This seemed to be a huge problem for the community as families had gone to the extent of burying loved ones "wearing leather jackets lined with fur on the inside so that they did not get cold from the water" (Sibiya, Pers. Comm., 2015). He asserted that the impact of this inconvenience was both cultural and emotional as people strongly believed that the deceased had a sense of what was going on around them, hence they would freeze from the cold rain water. He alleged that the water was from underground and that City Parks could not do anything about it. When Mr. Moloi, an official at City Parks was asked whether there were high water tables, he denied that that was the case (Moloi, Pers. Comm., 2015).

Robinson (2009:2) reminds that "Impersonal marketing methods like advertising and media stories may spread information about new innovations, but that mouth-to-mouth conversations spread adoption". Mr. Sibiya, as an undertaker, showed that he has played and continues to play the role of educating his clients about the benefits of Diepsloot Memorial Park as burial place. He confirmed that those who had taken his advice would attest to that. His reason for educating his clients was that he did not see the point of burying family members faraway as the memorial park was located close to them should they wish to visit graves of loved ones after the ceremony and in years to come. Robinson's (2009:2) remark supports the value of taking advice: "it is usually people we know and trust, and who we know have successfully adopted the innovation themselves who can give us credible reassurances that our attempts to change will not result in embarrassment,

humiliation, financial loss or wasted time”. Perhaps those who have already buried the deceased at Diepsloot Memorial Park would be in a position to persuade others into choosing to be buried there as well.

The Diepsloot Memorial Park case is a good example where the characteristics of the social system can affect the adoption process leading to the users either accepting or rejecting an innovation. According to the diffusion of innovations theory, Diepsloot Memorial Park as an innovation, is not compatible with the social values and norms of the target group, the Diepsloot residents. As a result, the rate of adoption of the Diepsloot Memorial Park did not reach a critical mass, as the diffusion process had not yet become self-sustaining by the time of this survey was done, over a decade after its inception. The change agent, Johannesburg City Parks and Zoo, could still fail to convince the resident late majority or the laggards, that the innovation would benefit them. Due to the leadership role they hold in the social system, the opinion leaders, the local ward councillors, managed to convince the community not to use the cemetery but suggested that instead they should request a section that would allow people who choose to bury one body per grave and to erect tombstones.

According to Rogers (2003), the opinion leaders’ personal judgements about the innovation reach other members of the social system through the interpersonal networks. Robinson (2009) suggests that one way of working with the late majority is to promote social norms and show that other conservative people find the innovation essential. Robinson also points out that other ways of ensuring that the general public, especially the late majority, take an idea up is to emphasise the risks involved if left behind, or the promoters can decide to reduce the cost of adopting the innovation.

The future of cemeteries

The Johannesburg City Parks and Zoo’s plans will embrace the garden cemetery theme further even in future developments (Moloi, Pers. Comm., 2015). To ease in the idea and give people time to get used to it, smaller sections that would allow full-body memorials would be incorporated in future cemetery developments. Younger participants in the study believe that integrating technological advancements would be an advantage. Navigation aids to find the location of a grave on a map of the cemetery would be a possibility. A screen

where people would type in details of the grave site, such as names and home addresses, would be a helpful innovative element. Eventually other advancements will be created thereby changing the cemetery's design, use and management, and perhaps attract more users.

According to Mr. Moloi (Pers. Comm., 2015) the Diepsloot Memorial Park is one of the first cemeteries in South Africa to incorporate innovative elements in the design of cemeteries in disadvantaged areas in Johannesburg. That some of the users in the community did not show any resistance to the design, can be viewed as a positive sign. According to Robinson (2009), when designing a project, the change agent needs to know the percentage of those who have already adopted the innovation in a social system. Robinson specifies that it is this fraction that guides the change agent as to which part of the population to address next, and what communication channels to use. City Parks can use this approach when upscaling this facility if necessary and in other areas. Other municipalities that decide to adapt the Diepsloot Memorial Park model and contextualise it in their own areas. Change agents would have to get the buy-in of opinion leaders who are influential in a social system and who have the authority to either spread positive or negative information about an innovation.

The Diepsloot Memorial Park model can be replicated in other areas across South Africa since it responds to the burial demand while also creating healthy spaces for people in the community. Due to the country's cultural and religious diversity, different elements of the cemetery design can be adapted in different areas to make them relevant in their context. In this way, only appropriate features need to be adopted in response to each area's specific challenges. To ensure the success of future innovative cemeteries, the Johannesburg City Parks and Zoo and other departments responsible for cemetery development and provision across South Africa, would have to involve diverse stakeholders in important decisions.

Projects that have strong cultural implications require the buy-in of multiple stakeholders. This may entail involving a range of community members, funeral undertakers and diverse faith-based and cultural groupings. Listening to their concerns, which can be discussed and considered in the project implementation, is an imperative. Although change is inevitable, people will always be anxious and uneasy about what they do not know and are not used to.

When introducing a new idea and solution, it is important to cover all the relevant ground issues, plan ahead to overcome possible challenges in the execution and adoption of the innovation.

Conclusion

Through its design, the Diepsloot Memorial Park can be understood as an innovative solution, albeit with a partly unsuccessful outcome. The innovation that coupled burial demand with a recreational function, which although can be enjoyed by a select few (those who have buried loved ones in the cemetery), will provide ecosystem services such as water percolation and reduced erosion and aesthetic benefits in its setting. The allocation of open spaces, designed to combine both burial and recreational functions, are also one of the latest of these innovations. The challenges to their wider adoption and sustainability can be understood within the diffusion of innovations framework Rogers (2003) specifically describes in this context. Some of the variables of the diffusion of innovations theory are considered and applied in this study, such as the nature of the social system, the compatibility attribute and communication channels used to diffuse an innovation. Going forward, it would be important to examine other variables of the general diffusion theory when examining the broader perceptions and adoption of innovative cemeteries.

Diepsloot community members share similar attributes that can be perceived as *homophilous*, according to the diffusion of innovations theory. Rogers (1962:19) shows that a certain degree of *heterophily* is required to gain knowledge of the innovation. Because *homophilous* individuals are said to engage in more effective communication, which could potentially lead to attitude and behaviour change, all they need is a degree of *heterophily* to introduce a new idea to increase the effectiveness of its diffusion. Hopefully, once the *homophilous* group, in this case study, the Diepsloot community, increases ties with a slightly different group, the early adopters, then more of the community members are likely to adopt the innovation, the Diepsloot Memorial Park.

According to the findings of this research, and based on the diffusion of innovations theory, Diepsloot Memorial Park could be perceived as a failed diffusion if failure refers to a diffusion that does not reach 100%. This leaves scope for everyone to adopt to reach complete adoption. Although the cemetery was partially adopted in its initial stages, its

diffusion did not approach full adoption due to a possible lack of community involvement and participation in its development. A network of negative influences, a lack of awareness of the project and competition from close-by cemeteries as far as appearance and cost, were identified as negative influences that retarded the diffusion process.

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APPENDIX B: PERMISSION TO CONDUCT RESEARCH



Johannesburg City Parks and Zoo (NPC)

City Parks House
40 De Korte Street
Braamfontein

P O Box 2824
Johannesburg
2000

Tel +27(0) 11 712 6600
Fax +27(0) 11 403 4495
www.jhbcityparks.com

Monday, February 3, 2014

Ms Tsepang Leuta
University of Witwatersrand School of Architecture and Planning
leuta.tsepang@gmail.com

PERMISSION TO CONDUCT RESEARCH AT WATERVAL CEMETERY

Dear Ms Leuta

On behalf of Johannesburg City Parks and Zoo (JCPZ) it is a pleasure to herewith grant you permission to do carry out research at Waterval cemetery in Midrand with a view to determine whether current cemetery provision in the City of Johannesburg is consistent with resilience principles

This letter serves as notification that Ms Tsepang Leuta from the School of Architecture and Planning at the University of the Witwatersrand is granted permission to conduct research at the Johannesburg City Parks and Zoo facility, Waterval cemetery.

Permission is granted on the following terms:

1. All photographs taken will be done in good taste and in an unobtrusive manner to grieving families.
2. Draft questionnaires or interview questions will be shared with the JCPZ Corporate Research and Knowledge department to provide input/suggestions.
3. Preliminary findings will be shared with the JCPZ CRKM Department.

Should you need any other assistance in this regard, please don't hesitate to contact me.

We wish you success with your research project and will appreciate it if you kindly could keep us informed of your progress with your research.

Yours sincerely

Ms. Ayanda Roji, General Manager: Corporate Research and Knowledge Management

Directors: Adv M Madumise (Chairperson), B Nelana (Managing Director),
Dr G H Karim, S R Bogatsu, M Dolamo, M Simelane, T Mashanda, Y Gordhan,
M Makgonye, A Shongwe (Company Secretary)

Reg No: 2000/028782/08

APPENDIX C: ETHICS CLEARANCE CERTIFICATE



Research Office

HUMAN RESEARCH ETHICS COMMITTEE (NON-MEDICAL)
R14/49 Leuta

CLEARANCE CERTIFICATE

PROTOCOL NUMBER H14/02/18

PROJECT TITLE

Reconceptualising cemetery planning in South Africa: Assessing the potentials for approaches informed by social-ecological resilience principles

INVESTIGATOR(S)

Ms T Leuta

SCHOOL/DEPARTMENT

Architecture and Planning

DATE CONSIDERED

21 February 2014

DECISION OF THE COMMITTEE

Approved Unconditionally

EXPIRY DATE

24/03/2016

DATE 25/03/2014

CHAIRPERSON

(Professor T Milani)

cc: Supervisor : Prof Alison Todes

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10003, 10th Floor, Senate House, University.

I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to completion of a yearly progress report.**

Signature

_____/_____/_____
Date

PLEASE QUOTE THE PROTOCOL NUMBER ON ALL ENQUIRIES

APPENDIX D: PARTICIPATION INFORMATION AND SHEET CONSENT FORM



School of Architecture and Planning

Private Bag 3, Wits, 2050, South Africa • Tel: +27 11 717-7623 • Fax: +27 11 717-7649/7739
www.wits.ac.za

12th September 2014

Dear Sir/Madam

Request for participation in research

My name is Tsepang Leuta, a PhD student from the School of Architecture and Planning at the University of the Witwatersrand.

I seek your assistance in conducting research that looks at whether the current cemetery provision in the City of Johannesburg is consistent with resilience principles by looking at the existing cemetery planning approaches and processes. Considering the contextual background (including cultural and religious diversity) of cemetery planning in the City, this project's purpose is to contribute to the understanding of how the provision and management of cemeteries can be done in an efficient and inclusive manner. This research is for a PhD degree.

You are kindly invited to participate in a focus group which will find out what your perceptions are of Waterval Cemetery, to find out whether your needs for cemetery space were met in the cemeteries you previously used or whether they are currently being met at Waterval Cemetery. From the focus group, I also want to determine if you would be willing to adopt alternative ways to burial, and according to you, which new uses should be implemented within the cemetery.

Throughout the focus group, an assistant and I will take notes, which we will later transcribe. However, I also kindly request your permission to be audio-recorded. You have the right not to be audio-recorded, participate or to withdraw from the study. You will therefore not be disadvantaged in any way by a refusal to participate or withdrawal from participating in the study. Although participants will be asked not to disclose to third-parties anything discussed during the focus group, please note that anonymity and confidentiality cannot be guaranteed. I will however, ensure that no names, addresses or any other identifying information will be included in any report on the study.

Findings from this study will be reported in the PhD thesis, online and will also be presented at conferences. Should you have any questions regarding the study and require a summary of the findings of the research, please feel free to contact me on 072 892 8350 or at Tsepang.Leuta@students.wits.ac.za. You are also free to discuss your participation in this study with my supervisor Professor Alison Todes on (011) 717 7702 or at Alison.Todes@wits.ac.za. Your participation in this interview will be highly appreciated.

Kind regards
Tsepang Leuta



School of Architecture and Planning

Private Bag 3, Wits, 2050, South Africa • Tel: +27 11 717-7623 • Fax: +27 11 717-7649/7739
www.wits.ac.za

Dear Sir/Madam,

Project Title: Reconceptualising cemetery planning in South Africa: Assessing the potentials for approaches informed by social-ecological resilience principles

The researcher has clearly explained what the study is about and I understand that my input will help promote an understanding of the current cemetery planning processes and thus contribute towards how the provision and management of cemeteries can be done in an inclusive manner taking into consideration both social and ecological characteristics.

I have read the participant information sheet and I hereby consent to be interviewed as part of the research project:

- I have been given clear information, both written and verbal, about the study, and understand what is required of me.
- I understand that my participation is voluntary. I may refuse to answer any question and to be recorded, and I remain free to withdraw from the interview at any time without explanation.
- I am aware that the interview in which I participate will be audio-recorded and transcribed. I may decline to be audio-recorded at any time during the interview and my decision to do so will not be used against me.
- I understand that all information from the interview will remain confidential to the researcher and that all information will be securely stored with all identifying information removed and stored in a password-protected computer.
- I understand that none of the information that I provide will be described or portrayed in any way that will identify me in any report on the study.
- I am aware that I may ask any further questions about the research study at any time.

Participant Name..... Participant signature.....

Date

APPENDIX E: SOME OF THE QUESTIONS THAT GUIDED ENGAGEMENTS WITH DIVERSE STUDY PARTICIPANTS.

QUESTIONS FOR THE JOHANNESBURG CITY PARKS AND ZOO

Reconceptualising cemetery planning in South Africa: Assessing the potentials for approaches informed by social-ecological resilience principles

By Tsepang Leuta

Please take a few minutes to answer the following questions with deep consideration and honest information:

A. Statistics

Name	
Department	
Position	
Roles	
Duration with Department	

B. Cemeteries

1. How does the City view cemeteries and why? As part of an efficient service delivery solution (e.g. regional cemeteries) or as part of a park system (e.g. having smaller cemeteries within the City)?

2. How were cemeteries previously conceptualized and does the planning still follow the same processes?

3. What laws govern burials in South Africa?

4. What is the current mandate for Avalon and Waterval Cemeteries as historic cemeteries still in use or capable of accommodating further burials? Please elaborate on the plans or vision known to you.

5. What factors influence the demand for cemetery space?

6. How do migration rates impact the characteristics of the community and nearby cemeteries?

7. What are the predicted death rates in the City of Joburg? Soweto and Midrand?

8. What is the average number of burials per annum?

9. How much future land space is required for cemeteries for the next 30 years? And does the City have capacity?

10. How can these spaces be planned and designed so that they are of value to everyone in the community?

11. Does the City consider 'accessibility' when providing new cemeteries? Please elaborate.

12. What is the level of awareness of the community in terms of the provisioning of cemeteries/lack thereof?

13. Does City Parks involve the community in the design and management of cemeteries? If yes, how?

If no, why not?

14. Apart from body disposal, what other benefits do you think can be gained from cemeteries as a form of land use?

15. How can these spaces be planned and designed so that they are of value to everyone in the community?

16. Are there partnerships between communities, government and other institutions that support the management of cemeteries?

C. Alternative Methods/Practices

17. Given the increasing population of JHB City and the under-utilization of cemetery space, amidst expanding commercial requirements, what would you think the fenced cemetery spaces could be better used for/better suited to?

18. From your own professional knowledge or civic needs, what would you say the future use of the cemetery space will be or should be?

19. What are the current accepted ideas for renewal or revitalization, which could be applied if given the opportunity to redesign these cemeteries?

20. When the cemetery finally reaches full capacity, to promote usability, what other uses would you recommend be incorporated in the daily use of the cemetery in terms of not neglecting them as 'dead spaces'?

21. How should the City ensure that the recommended uses above do not undermine other people's cultural practices and religious beliefs?

22. Besides conventional burial and cremation, which other alternative interment options can be found in the City of Joburg? When did they become operational?

23. Does the City plan to introduce more? Why and which ones?

D. Burial and Mourning Rituals/Practices

24. Are communities willing to adjust their religious/cultural beliefs in order to adopt new ways of body interment?

E. Ecological

25. What benefits could cemeteries and burial/mourning practices have on the community?

26. Does the City view cemeteries as part of the city's green infrastructure? If yes, how?

27. What are the benefits of designing cemeteries as green infrastructure?

28. What is the City's forward thinking regarding the greening of current and future cemeteries?

29. Does the municipality provide the public with information on the (potential) natural and beneficial functions of cemeteries? How?

THANK YOU FOR YOUR TIME

QUESTIONS FOR ORGANISATIONS (e.g. SALGA, CRL Commission)

Please take a few minutes to answer the following questions with deep consideration and honest information:

A. Statistics

Name	
Organization Represented	
Position	
Responsibilities	
Duration with Organization	

PERCEPTION OF CEMETERIES

1. According to SALGA, what is the role of cemeteries in society?

2. Does SALGA consider current cemeteries as positive, approachable places or not, and why?

3. What is SALGA's stance (e.g. design, grave layout, availability and condition of infrastructure, management) on the old dominant and newer models to cemetery provision and management?

ROLE ON CEMETERY PROVISION AND MANAGEMENT

4. What role does SALGA play in cemetery provision and management (includes legislation guiding cemetery development and standardization, identification of land, etc?)

5. What role does SALGA play in the provision and management of alternatives to burial?

6. What legislation guides cemetery planning in South Africa?

7. Is there need for standardization of this legislation in all municipalities and in urban and rural areas?

8. Within SALGA, how much budget is directed towards cemetery provision and management?

DESIGN & USE

9. Should a cemetery be open to the public? Yes/No, and why?

10. How can cemeteries be designed in an efficient and inclusive way?

11. Besides for interment purposes, how else would SALGA recommend the cemetery be used? Are there other facilities that can be integrated within an operational cemetery?

12. How would/do the users of a cemetery and the community at large, benefit from a green cemetery?

13. Do you have any further comments/views about the possibility of merging other uses or design features within cemeteries?

OLD CEMETERIES

14. When a cemetery reaches full capacity, to promote usability, what other uses would you recommend be incorporated in their daily use? Perhaps so that they are not neglected as 'dead spaces' but to benefit both the dead and the living?

15. How will the users and the community at large, benefit from a greening of this cemetery?

CASE: WATERVAL CEMETERY

16. How will the users and the community at large, benefit from a green cemetery of this cemetery?
BOTH SOCIAL AND ECOLOGICAL BENEFITS

17. What features were included in the design of Waterval Cemetery that make it different from other common cemeteries?

SAFETY/CRIME ISSUES

18. How do you suppose the old and the newer cemetery designs could influence crime?

19. How do perceptions of safety and crime influence the use of cemeteries?

20. How does the current upkeep/maintenance of the cemetery influence causes of criminal activities? Old and new cemeteries?

21. Do you have recommendations or any further information that can be crucial for the study?

THANK YOU FOR YOUR TIME

QUESTIONS FOR THE SOUTH AFRICAN POLICE SERVICES (SAPS)

Please take a few minutes to answer the following questions with deep consideration and honest information:

A. Statistics

Name	
Organization Represented	
Position	
Responsibilities	
Duration with Organization	

PERCEPTION ONF CEMETERIES

1. How do you feel about cemeteries?

2. Do you consider cemeteries to be positive, approachable places or not and why?

3. As the police how often do you visit a cemetery? And what would be the reason?

USE OF CEMETERIES

4. Besides for interment purposes, how else does the community use the cemetery?

5. Do you think that a cemetery should be open to the public? Yes/No, and why?

6. Apart from body disposal, what other benefits do you think can be gained from cemeteries as a form of land use? Are there other facilities that can be integrated within a cemetery?

7. Do you have any further comments/opinions about the possibility of merging other uses with cemeteries?

SAFETY/CRIME ISSUES

8. How does the current cemetery design influence causes of criminal activities?

9. How do perceptions of safety and crime influence the use of cemeteries?

10. How does the current upkeep/maintenance of the cemetery influence causes of criminal activities?

11. Do you have recommendations or any further information that can be crucial for the study?

THANK YOU FOR YOUR TIME

QUESTIONS FOR COMMUNITIES

Please take a few minutes to answer the following questions with deep consideration and honest information:

A. Demographics

Age		Arrival at Current Location	
Place of Residence		Ethnicity/Race	
Place of Origin		Religion/Culture	

B. Cemeteries

1. What are the primary modes of body disposal in the community?

2. Are these aligned with your cultural beliefs and religion? Explain.

3. How do you feel about cemeteries? Do you consider cemeteries to be positive, approachable places or not and why?

4. In your understanding, what is the role of cemeteries in society?

5. How often do you visit a cemetery? And what would be the reason?

6. Is the community aware and informed regarding processes of the provisioning of cemeteries/lack thereof? How?

7. Is the community involved in the planning, design, management and decision-making processes regarding cemeteries? Do you think they should be?

8. Would involving the community in the design and management of cemeteries ensure better and efficient use of these spaces? How?

9. Do you think that a cemetery should be open to the public? Yes/No, and why?

10. When the cemetery finally reaches full capacity, to promote usability, what other uses would you recommend be incorporated in the daily use of the cemetery in terms of not neglecting them as 'dead spaces'?

11. Besides for interment purposes, how else does the community use the cemetery?

12. Apart from body disposal, what other benefits do you think can be gained from cemeteries as a form of land use?

13. How can these spaces be planned and designed so that they are of value to everyone in the community?

14. The provision of cemeteries is at a regional scale, what effect does this have on the community's ability to visit and use the cemetery?

15. How accessible is Waterval Cemetery to your community?

16. Does it adequately cater for your burial needs?

17. What is your perception of Waterval Cemetery in comparison to other cemeteries around or those you have used before?

18. How do current cemetery design and management practices influence causes of criminal activities?

19. How do perceptions of safety and crime influence the use of cemeteries?

C. Alternative Methods/Practices

20. What other land uses can be incorporated within Waterval Cemetery?

21. Would these be in line with the community's cultural and religious beliefs?

22. Would you consider stopping traditional burial practices, in a full-length grave, due to lack of space for accommodating coffin burials in the city?

23. Would you be willing to try new methods of body interment? Why, and if not, why not?

24. Would cremation or burial of bones in a smaller coffin or box be an acceptable alternative method, in your culture or in your family?

25. Would you consider it for yourself, your parents or grandparents? If you answered no for any of the mentioned generations, why would it not be acceptable?

D. Burial and Mourning Rituals/Practices

26. How long have you been in Johannesburg?

27. Where were most of your deceased family members buried or cremated?

28. What was the cost of the last burial/cremation and funeral that was conducted by you or your family?

29. Does grief and mourning involve the community or extended family, in your culture, or is it more private or secluded?

30. How long does mourning last and what special rituals are done over this period?

31. Are any facilities or spaces required for these rituals to be practised? Are these special facilities or spaces available to you or your family close to where you live now?

32. What are the common practices in your belief system and within your family when somebody passes away? Please give a full description.

33. What is the significance of cultural/religious rituals in death (burial and mourning customs)?

34. Has any member of society (e.g. neighbour or authority) ever been openly against your burial and mourning practices? Please give an account where and how this occurred.

35. Would you be willing to alter your religious/cultural beliefs in order to adopt new ways of body interment? Elaborate.

E. Ecological

36. In your understanding, what benefits do cemeteries and funeral/mourning practices have on the community?

37. Does the community's cultural practices and religious beliefs encourage environmental responsibility in the Waterval Cemetery?

38. If the cemetery were to be converted into a place of recreation while remaining a sacred/historic burial site, would this be valuable/useful to you or your family?

39. Would you visit it and how often? If not, why?

40. How would you feel about conducting funerals/ceremonies in a public place used for recreation purposes as well?

41. Conversely, how would you feel about going about recreational activities in a place where patrons are mourning, conducting ceremonies or accommodating the dead?

42. Do you have any further comments/opinions about the possibility of merging other uses with cemeteries?

THANK YOU FOR YOUR TIME

QUESTIONS FOR UNDERTAKERS

Please take a few minutes to answer the following questions with deep consideration and honest information:

A. Demographics and Operational Information

Name		Ethnicity/Race	
Age		Culture	

1. How long have you been operating in Alexandria?

2. Where are most of your clients buried or cremated?

3. What are the costs of the lowest and highest burial/cremation and funeral that were conducted by you?

B. Cemeteries

4. What are the primary modes of body disposal in the community?

5. Are these aligned with the community's cultural beliefs and religions? Explain.

6. How do you feel about cemeteries?

7. In your understanding, what is the role of cemeteries in society?

8. How often do you visit a cemetery? And what would be the reason?

9. Do you consider cemeteries to be positive, approachable places or not and why?

10. Is the community aware and informed regarding processes of the provisioning of cemeteries/lack thereof? How?

11. Is the community and other organizations involved in the planning, design, management and decision-making processes regarding cemeteries?

12. Do you think that a cemetery should be open to the public? Yes/No, and why?

13. When the cemetery finally reaches full capacity, to promote usability, what other uses would you recommend be incorporated in the daily use of the cemetery in terms of not neglecting them as 'dead spaces'?

14. Besides for interment purposes, how else does the community use the cemetery? WC and AC

15. Would involving the community in the design and management of cemeteries ensure better and efficient use of these spaces? If yes, how?

16. Apart from body disposal, what other benefits do you think can be gained from cemeteries as a form of land use?

17. How can these spaces be planned and designed so that they are of value to everyone in the community?

18. The provision of cemeteries is at a regional scale, what effect does this have on the community's ability to visit and use the cemetery? For you as an Undertaker?

19. How accessible is Waterval Cemetery to your community?

20. Does it adequately cater for burial needs of your community? (And in comparison with older local cemeteries?)

21. What is your perception of Waterval Cemetery in comparison to other cemeteries around Alexandra or those you have used before?

22. How do current cemetery design and management practices influence causes of criminal activities?

23. How do perceptions of safety and crime influence the use of cemeteries?

C. Alternative Methods/Practices

24. What other land uses can be incorporated within Waterval Cemetery? And Alexandra Cemetery?

25. Would these be in line with the community's cultural and religious beliefs?

26. Would you consider stopping traditional burial practices, in a full-length grave, due to lack of space for accommodating coffin burials in the city?

27. Would you be willing advise your clients to try new methods of body interment? If yes, which and why? If not, why not?

28. Would cremation or burial of bones in a smaller coffin or box be an acceptable alternative method, in Alexandra?

29. Would you consider it for yourself and your family? If you answered no for any of the generations in your family, why would it not be acceptable?

D. Burial and Mourning Rituals/Practices

30. Does grief and mourning involve the community or extended family, in your culture, or is it more private or secluded?

31. How long does mourning last and what special rituals are done over this period?

32. Are any facilities or spaces required for these rituals to be practised? Are these special facilities or spaces available to your clients?

33. What are the common practices in your clients' belief system when somebody passes away? Please give a full description.

34. What is the significance of cultural/religious rituals in death (burial and mourning customs)?

35. Has any member of society (e.g. neighbour or authority) ever been openly against your clients' burial and mourning practices? Please give an account where and how this occurred.

36. Would your clients be willing to alter their religious/cultural beliefs in order to adopt new ways of body interment? Elaborate.

E. Ecological

37. In your understanding, what benefits do cemeteries and funeral/mourning practices have on the community?

38. Does the community's cultural practices and religious beliefs encourage environmental responsibility in the Waterval Cemetery? And at Alexandra Cemetery?

39. If the cemetery were to be converted into a place of recreation while remaining a sacred/historic burial site, would this be valuable/useful to your clients?

40. How would you feel about conducting funerals/ceremonies in a public place used for recreation purposes as well?

41. Do you have any further comments/opinions about the possibility of merging other uses with cemeteries?

42. Do you have any contributions towards the study?

THANK YOU FOR YOUR TIME

QUESTIONS FOR RELIGIOUS AND CULTURAL LEADERS

A. Statistics

Name	
Religious Denomination	
When was it formed in SA	
Position	
Responsibilities	
Duration with the Church	

B. Cemeteries

1. What role do cemeteries play in a community? In the church/mosque/foundation/organisation?

2. Do you consider cemeteries to be positive, approachable places or not and why?

3. Is the church/mosque/foundation/organisation aware and informed regarding processes of the provisioning of cemeteries/lack thereof? How?

4. Is the community and the church/mosque/foundation/organisation involved in the planning and design of cemeteries?

5. Is the community and the church/mosque/foundation/organisation involved in the management and decision-making processes regarding cemeteries?

6. Would involving the community and the church/mosque/foundation/organisation in the design and management of cemeteries ensure better and efficient use of these spaces? How?

7. What primary modes of body disposal does the church allow?

8. Are these aligned with the community's cultural beliefs? Explain.

9. Besides for interment purposes, how does the community use Waterval Cemetery?

10. How accessible is Waterval Cemetery to the community?

11. Apart from body disposal, what other benefits do you think can be gained from cemeteries as a form of land use?

12. How can these spaces be planned and designed so that they are of value to everyone in the community?

13. When the cemetery finally reaches full capacity, to promote usability, what other uses would you recommend be incorporated in the daily use of the cemetery, so that they are not neglected as 'dead spaces'?

C. Alternative Methods/Practices

14. Would you be willing to try new methods of body interment and if not, why?

15. Would cremation or burial of bones in a smaller coffin or box be an acceptable alternative method, in the church?

16. Would you advise members of the community to adjust their religious/cultural beliefs in order to adopt new ways of body interment? Please explain.

17. Would you consider stopping traditional burial practices, in a full-length grave, due to lack of space for accommodating coffin burials in the city?

18. Would you consider it for yourself and your family? If no, why would it not be acceptable?

D. Burial and Mourning Rituals/Practices

19. What is the significance of cultural/religious rituals in death (burial and mourning customs)?

20. What is the significance of a funeral and burial/mourning rituals?

21. What benefits do cemeteries and death practices pertaining to burial and mourning rituals have on the community?

22. Does grief and mourning involve the community or extended family, in your religion, or is it more private or secluded? Please elaborate.

23. For how long is the mourning period observed and what special rituals are done over this period?

24. Are any facilities or spaces required for these rituals to be practised? Are these special facilities or spaces available close to where the community is located?

25. What are the common practices in your belief system? Please give a full description.

26. Has any organization or authority ever openly opposed your burial and mourning practices? Please give an account where and how this occurred.

E. Ecological

27. Can the community's religious beliefs help promote environmental responsibility in the Waterval Cemetery? Please elaborate.

28. What is your perception of the new design methods incorporated in the Waterval Cemetery as compared to other cemeteries you have used or visited?

29. In your understanding, what benefits do cemeteries and death practices, pertaining to burial and mourning rituals, have on the community?

30. If the cemetery were to be converted into a place of recreation while remaining a sacred/historic burial site, would the church support the idea?

31. Would you advise the community to visit it and how often? If not, why?

32. How would you feel about conducting funerals in a cemetery used for recreation purposes as well?

33. Conversely, how would you feel about going about your recreational activities in a place where patrons are mourning, conducting ceremonies or accommodating the dead?

34. Do you have any further comments/opinions about the possibility of merging other uses with cemeteries?

35. Do you have any contributions to the study/anything important I might have left out that could be important for the study?

THANK YOU FOR YOUR TIME

Challenges faced when engaging community leaders

One practical challenge was that there are no current lists of religious organisations in both Alexandra and Rabie Ridge. To achieve a geographically and denominationally balanced sample, both areas had to be visited. These entailed walking around with recognised members of the community looking for all visible churches and asking for those that were not. The two individuals recognised by communities offered some sense of safety and security, and were helpful in accessing religious leaders from hidden churches. Walking around helped with familiarising oneself with the physical and cultural dynamics of both communities. While most of the mainline churches have buildings, it is common for others to use the same building several times throughout one Sunday. Others meet in tents in available open spaces. Because it is common for AICs to launch branches all over the country, the pastors and congregations would occasionally visit their branch churches and may therefore be absent in the townships on any given Sunday.

In cases where church leaders declined to recommend households that could potentially participate in the study, more participants were sought from community members (who were previously interviewed). After interviewing members of each household, they were asked to identify other households, especially those from different churches that could be willing to take part in the study. The community participants followed the same process as the church leaders as they also asked for time to look for relevant households, introduce the study and only ask for permission and later forward their contact details. The process usually took close to a week. As soon as the new information was exchanged, those households would then be contacted and dates to conduct interviews set.

Legislation and key policies, and how they address cemetery planning and development

Policy documents	Purpose	Role in cemetery planning
NATIONAL		
South African Constitution	Enshrines the rights of all people in South Africa and affirms the democratic values of human dignity, equality and freedom	Supports citizens' right to freedom of religion, belief and an environment that is not harmful to their health and wellbeing
The National Environmental Management Act (NEMA) 1998 (Act No. 107 of 1998)	Ensures that everyone has a right to an environment that is not harmful to their health and wellbeing	Requires that environmental assessments are adhered to before development of a new cemetery or expansion of an old one
National Health Act (61 of 2003)	In terms of section 90(4)(c) regulates the management of human remains	Addresses the handling and disposal of human remains It does not guide cemetery planning, development and management
Spatial Planning and Land Use Management Act (SPLUMA – Act No. 16 of 2013)	Aids effective and efficient integrated planning and land use management (provides uniformity in spatial planning and land use) Without efficient alignment of strategies,	Allows local municipalities to implement the Act in terms of their needs and capacity. However, the planning in silos emphasizes inconsistencies between sectors and their legislation

	policies, plans and projects across three spheres of government, SPLUMA cannot drive efficient spatial change	It does not directly address cemetery planning
Spatial Development Framework (SDF) (as defined in terms of the SPLUMA)	A city's plan to arrange development activities and the built form in an efficient way without compromising the natural environment Its spatial vision is interpreted and facilitated by the land use management schemes	Observes cemeteries as institutional facilities and heritage sites It does not directly address cemetery planning at the city scale Observes diverse principles, such as sustainable development, pollution reduction, and for all land development and living within ecological limits
SALGA Local Government Strategic Framework for Cemeteries, Crematoria and Undertakers (2014)	Provides a framework for standard by-laws on cemeteries, crematoria and undertakers	A blueprint that guides municipalities on how to improve the management of cemeteries
CITY PLANNING		
Regional Spatial Development Framework (RSDF)	A local plan that aligns with the city-wide SDF, but provides a more detailed reflection of SDF objectives, strategies and policies as they impact on the local area planning It directs public and private investment, and land use decisions	Local area planning including consultation with interested and affected parties for, for example, planned cemetery development According to the CoJ, cemeteries are one land use that cannot be accommodated within the Urban Development Boundary, which is meant to curb peripheral expansion of the city

Integrated Development Plan (IDP) (as defined by the Municipal Systems Act No. 32 of 2000)	Maps the city's short-, medium-, and long-term vision regarding spatial planning, disaster management, finances, performance targets and economic development	Mentions that the city is mandated with delivering basic services as enforced by Schedules 4 and 5 of the constitution
Town Planning Scheme	Enables and facilitates compatible urban development and coordination of urban growth, while ensuring effective environmental management in support of the city's strategic direction The City of Johannesburg has twelve Town Planning Schemes	Shows that in the CoJ, cemeteries cannot be clustered with zones categorised as residential within the land use table Cities of Tshwane and Ekurhuleni have introduced one Town Planning Scheming, whereas the CoJ is in the process of introducing one
The City of Johannesburg Cemeteries and Crematoria By-laws (2004)	Legislates administrative processes, such as allowing the disposal of human remains, requirements and care of graves and monuments, grave re-openings and exhumations, prohibited activities within areas of interment	Guide the daily operations of cemeteries and crematoria, regulations to be observed while in these spaces and standards (e.g. headstone sizes, children and adult grave depths)

APPENDIX H: SALGA CEMETERIES AND CREMATORIA STRATEGY

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SALGA
South African Local Government Association

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Directorate: Community Development

FOREWORD

BY CLLR. F. MABOA-BOLTMAN – SALGA DEPUTY CHAIRPERSON AND CHAIRPERSON OF THE COMMUNITY DEVELOPMENT, WORKING GROUP OF SALGA

It is a great pleasure for me to present this publication which provides a picture of how cemeteries have become an important part of a sustainable development discourse in South African cities. Cemeteries, which are an exclusive function of local government as per Schedule 5B of the Constitution of the Republic of South Africa (1996), have emerged to be having a direct influence on the sustainable development trajectory of communities. SALGA, therefore, had to initiate an engagement with the 8 metropolitan municipalities which culminated into this document.

This publication does not, however, purport to overlook rural related issues associated with cemeteries but provides a specific assessment of cemeteries in urbanised spaces within the context of a rapidly urbanising South Africa. A democratic South Africa is mandated to uphold the rights of all within its borders and it is in the discourse of cemeteries in urban South Africa that the ability of municipalities to uphold the different rights of individuals and community groups is severely tested.

SALGA, in playing its support role to municipalities, has displayed, in this document, the nature of the cemetery related issues faced by cities of South Africa in an endeavour to develop a blue-print that will guide municipalities on how to better the management of cemeteries yet still meeting the development needs of communities. This document will hopefully draw the attention of different stakeholders to the importance of working with local government to effectively shape the sustainable development of communities.

ACKNOWLEDGEMENTS

Author: Sabelo Gwala, Josephine Dambudzo, Dorah Kiki
Management Committee: Antonette Richardson, Sabelo Gwala, Josephine Dambudzo and Seipati Dinko (SALGA)

Acknowledgement is given to all members of the Community Development, Health and Safety Working Group and all SALGA Provincial offices for their support in the carrying out of the study and all learning events that preceded this publication. All the 8 metropolitan municipalities are also recognised for participating in the study as well as sharing experiences that are reported in this paper.

Ms Tsepang Leuta and CSIR, The Institute of Environment and Recreation Management (IERM) and the CRL Rights Commission are sincerely acknowledged for supporting the SALGA's study as well as sharing their knowledge and expertise that was valuable to the writing of this paper.

Recognition is also given to a range of knowledge management guidance documents from which this study was able to draw from. These are cited as footnotes on each page.

CONFIDENTIAL

1. CONTENTS

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2. INTRODUCTION

Cemeteries, devoid of religious affiliation, date largely from the early 19th century and many were planned as spacious, landscaped gardens to house human remains Moodley¹ (2009). In South Africa, these are a responsibility of local government according to Schedule 5B of the R.S.A Constitution of 1996 and are therefore funded mainly through the equitable share, Urban Settlements Development Grant (USDG) – a conditional grant allocated to metro municipalities as per the annual Division of Revenue Act as well as municipalities' own revenue.

In many major urban municipalities, the older cemeteries which were initially considered to be large often run out of space for new burials and vacant land is scarce to extend the cemetery or to develop new cemeteries. There is more demand for burial land as a result of increased population. This challenge has mainly been compounded by the scourge of HIV/AIDS which has caused a spike in deaths (Moodley, 2009). Rapid urbanisation in towns and cities is also resulting in fierce competition for well located land.

Further compounding the shortage of cemeteries is the fact that a cemetery, among many cultures, is much more than just a place of burial for the dead but a place of spiritual and cultural reference. In some cultures such as the African culture, it is a place of connecting with ancestral spirit wherein ancestral worshipping is done. As a result, there is often resistance among some communities to adopt alternatives ways of disposing of the dead such as sharing of graves, grave leasing, and cremation among others hence addressing scarcity of land for cemeteries is proving difficult.

Moreover, there are cemeteries that were also developed on geologically unsuitable land for burial due to non-compliance with or non-existence of related environmental management policies at the time. While these are a threat to development of sustainable communities in this country, remedies to this problem become complex due to cultural beliefs associated with cemeteries, death and burial.

This paper provides evidence that South African urban municipalities are faced with an imminent shortage of cemeteries due to some of these highlighted challenges and suggests possible ways to address them.

3. PURPOSE OF RESEARCH

Municipalities, within their constitutional prerogative, often try to balance meeting the social, economic, cultural and religious needs of their communities. This task has always undoubtedly been cumbersome as some needs tend to become more priority areas for communities than others. In specific terms, municipal planning components of municipalities that deal especially with zoning of land and land use management often battle with finding suitable land for burial and that for other priorities developmental in nature like housing, schools, recreation facilities among others. As a result, conversations have been taking place amongst municipalities as how to possibly deal with what seems to be becoming a development dilemma.

SALGA as the representative of municipalities took it upon itself to provide support in this area and has had some preliminary engagements with municipalities to establish the dynamics

¹ Moodley, S 2009. Bury or Burn? Facing up to South Africa's cemetery dilemma

of the challenges at hand. A conference with a special focus on cemeteries was convened in October 2011 by the Institute of Environment and Recreation Management (IERM) in which SALGA participated and interacted with municipalities on the issue. This was followed up by a National seminar and Local Government Summit on the 21st February 2012 and 12-13 September 2012 respectively whereby Metros and other municipalities, CRL Rights Commission), Institute of Environment and Recreation Management (IERM), Council for Scientific and Industrial Research (CSIR) and funeral companies attended to further deliberate and find mechanisms to deal with the concerning issues associated with cemeteries. Subsequent to these engagements, it was recommended by SALGA governance structures that a local government policy position and a strategy on cemeteries be developed. Research was conducted with the eight (8) metropolitan municipalities to further validate the development of this policy position and strategy. It focused on the current urban municipal responses to challenges associated with cemeteries hence it sought to:

- establish the challenges facing the cemetery sector in urban municipalities
- determine the strategies employed by municipality in response to challenges faced
- determine how municipal processes can be better oriented to meet the burial needs as well as socio-economic needs of communities.

The findings are herewith presented in this report including a brief discussion on international experiences which provide some lessons for South African municipalities.

4. INTERNATIONAL EXPERIENCES

4.1 *Contestations for space*

Kong² (1999) points out that in Hong Kong there is a display of a tension between the individual and the state and between the cultural/religious groups and those not affiliated to any cultural or religious grouping due to scarcity of land. Some Chinese have converted to the practice of cremation from that of burial. This was achieved through the persuasion and control of the state which is guided by secular concerns of planning and efficient land use guidelines. However Chinese cemeteries are still symbolic places for individuals who desire religious and cultural considerations of ancestral worshipping to be fully incorporated in burial. These contestations are also reflected in the state discourse of Singapore which led to government in the 1960s adopting a utilitarian view of burial space, highlighting the insanitary nature of burial grounds and their consumption of space that could or should be better deployed for developmental purposes.

Kong relates the Hong Kong case to the Namibian case whereby similar conflicts emanating from different value systems played out through graves and graveyards are reflected in the Himba graves of Namibia. In this instance, state developmental plans dictated that a hydroelectric dam be constructed while local society emphasised the symbolic and religious meanings of the graves as focal points of identity, expressions of relationships with the land and features central to the practice of religious beliefs and rituals. This also indicates how space is a contested resource in social life.

However there are useful counter-perspectives as to how potential conflicts over the meanings ascribed to and the spaces devoted to cemeteries can be reconciled. ³Berry (1997) points out

² Kong, L., 1999. Cemeteries and Columbaria, Memorials and Mausoleums: Narrative and Interpretation in the study of deathscapes in Geography. Australian American Geography 37(1)

³ Berry, J., 1997. Who will tend our graves? Cemeteries, the ornate and the humble, languis and decay in New Orleans

that a lack of public funds in New Orleans and the greater need to tackle social problems such as poor public schools and crumbling infrastructure have meant that reduced finance and attention had to be given to its historical burial grounds. A non-profit group took up the task of preserving the historical cemeteries by introducing multiple meanings for these cemeteries turning them into recreation and tourism grounds to which visitors can be bussed in for night-time tours. This illustrates the point that multiple meanings can be ascribed to cemeteries.

There is also a related counter argument that points to the gradual loss of significance of the graves due to changes in cultural values. This could be fruitfully employed as with such changes, the single-use approach to cemetery design could be abandoned in favour of the multiple-use approach with urban cemeteries playing a role in providing open space, as a sanctuary for wildlife or in the provision of recreation space. These arguments bring to the fore an insight that cemeteries offer a valuable narrative of social and cultural life, as of political and economic concerns.

4.2 Environmental and legislative aspects concerning existing cemetery and new cemetery planning

Santarsiero⁴ *et al* (2000) conducted a study in Italy in order to revise the law in the field of cemeteries, funeral services and all that concerns disposal of human remains. This is because it is one of the countries that have space limitation for existing cemeteries or difficulty finding new suitable areas for cemetery planning. Therefore a need to re-examine all the systems of disposal of human remains (cremation, burial by ground and by walled graves) and all the parameters involved in the process of the bodies' decomposition became essential.

The major issue for Italy in cemetery planning was the absence of a comprehensive body of legislation dealing with this matter since some countries have no-space limitation for existing cemeteries or difficulty finding new suitable areas for the disposal of human remains. Many rules and problems arise in countries which do have a shortage of suitable areas for cemetery planning. The lack of available space for the disposal of human remains in cemeteries is a concerning issue for city authorities and local health authorities, especially in medium-large cities, which are encountering difficulties in providing burial sites. The delay between the increasing demand for burial, arising from population which generally refuses cremation and the supply of available burial sites may lead to serious conditions, also from a hygienic and sanitary point of view.

There are also other causes for lack of available burial spaces in Italy: lack of norms regarding identification of the best conditions for internment methods. In addition there are also lack of norms and standards regarding tombs and coffins characteristic with regard to their permeability to air. The Italian legislation gives some general conditions on the planning of new cemeteries and/or on the expanding of existing ones which cover the characteristics of the topography of the area; chemical and physical characteristics of the soil; hydrogeological characteristics of the area especially of that portion designated to burial inhumation. However, no specific conditions are given on the cemetery plan-length and its capacity to face burial demand.

Some solutions brought to the fore in terms of insufficient supply of burial sites are by means of the following three courses:

- Interfering in parameters directly related to the process of decomposition of the body

⁴ Santarsiero. A., Cutilli D., Cappiello, G and Minelli L., 2000. Environmental and legislative aspects concerning existing and new cemetery planning

- Interfering in the extension of present areas used as cemeteries, and
- Spreading of cremation as a main system of burial

In essence, due to an increasing demand for burial in Italy and shortage of space, there is a need to take into account the decomposition process which occurs in a burial site and a need to increase efforts in the cemeteries to realise the best micro-environment conditions in order to reduce the percentage of undecomposed corpses at the fixed expiry of burial right. In order to recover the same burial sites for new burials it is necessary to establish the expiry of burial rights granted on the basis of realised microenvironment characteristics. This usually calls for the use eco-cemetery concept discussed below.

4.3 *Eco-cemetery concept*

This has come as a result of rapid urbanisation and environmental concerns arising from impacts of cremation or burial under the ground in a coffin. This is an approach, originating from Europe supporting environmental transformation taking place in the ecological cycle (Uslu *et al*, 2009)⁵. Eco-cemetery represents the idea of rapid return of the corpses to the nature and non-polluting burial methods and cemetery planning. It envisages environmental sustainability and recycling in natural ways. It proposes new methods that decrease the amount of wood, steel or other metals used in making coffins and to prevent pollution of the environment with chemical treatments of the corpse during burial. It also encourages protection of the natural landscape as well as the fauna and the flora at the time of planning the cemetery and choosing its location. The method often uses grave markers that do not intrude on the landscape. Graves are marked with markers native to the landscape like trees, shrubs or flat stones. In some cases, graves are unmarked and the plots are identified by surveying techniques like a GIS (Geographic Information System).

The main purpose of eco-cemeteries is to decrease the negative impacts of the cemeteries on the underground water, natural vegetation and fauna existing in the burial area, to use materials biodegrading more rapidly and minimise the ecological footprint of the individual. Bodies in eco-cemeteries are usually buried in a casket made of cardboard or wicker, or simply in a shroud.

4.4 *Cemetery and religion relations*

Worldwide, religion provides important tenets for social attitudes and protective approaches of the communities towards environment as noted by Uslu *et al* (2004). It is claimed that attitudes of different religions all over the World with respect to environment are important instruments in solving the environmental problems. Attitudes and views of the religion with respect to cosmos and environment determine, in a sense, the shape of the cemeteries as well as the form and ceremonies of burial.

Each religion has a different tenor. According to Islamic burial, the deceased is taken for burial. The style of the grave and that of the burial may vary from place to place due to different methodologies surrounding funeral procedures. The Islamic directive is restricted to respectful burial ground. It is requested not to construct buildings over the graves and not to harm the trees and plants in the cemeteries (even if they are wild-grown plants). Islam requires respect to graves and recommends cemeteries with rich vegetation. No pesticide or insecticide is used on the soil although the street trees and green areas in the cemeteries are treated with such chemicals. The dead body must be buried directly to the ground (soil) without a casket for decomposition to occur at a faster rate. In Christianity, on the other hand, the deceased can

⁵ Uslu, A., Baris, E., Erdogan, E., 2009. Ecological concerns over cemeteries

be directly buried under the ground in a coffin, or be cremated. The choice of the method of burial grounds depends on the individuals, beliefs, and economic factors.

5. RESEARCH OUTCOMES: AN IMMINENT SHORTAGE OF CEMETERIES IN URBAN MUNICIPALITIES

This section engages with the findings of the study on the challenges facing the cemetery sector and responses made thereof to such challenges by municipalities.

5.1 Cemetery land shortage, illegal and informal burials

Figures 1 and 2 below indicate that cities are in dire need of suitable land for cemeteries. Most municipalities have less than 50% of cemeteries that still have capacity for more burials. Apart from high demand for in-ground burial that has caused this, other cemeteries are located on unsuitable landscapes. The main reason for having cemeteries on unsuitable landscapes is related to absence or non-enforcement of environmental legislation when the cemeteries concerned were established. As a result, many geological factors regarding the suitability of the soil and the gradient of the land for burials were not considered leading to cemeteries being established on unsuitable soil and on slopes with steep gradients. In some municipalities, cemeteries are located near water sources and this is compounded by non-adherence to standards of burial relating to depth of the grave among others.

Fig 1: Capacity of cemeteries in different municipalities for in-ground burial

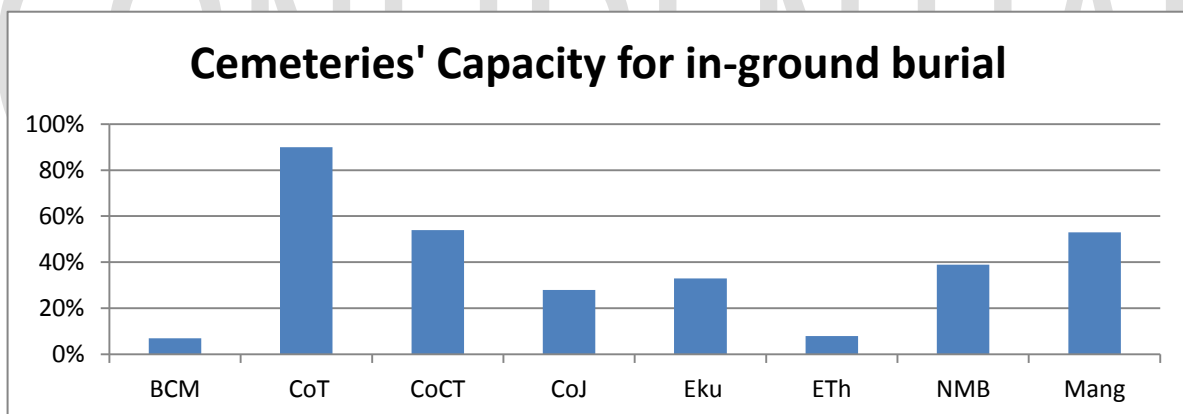
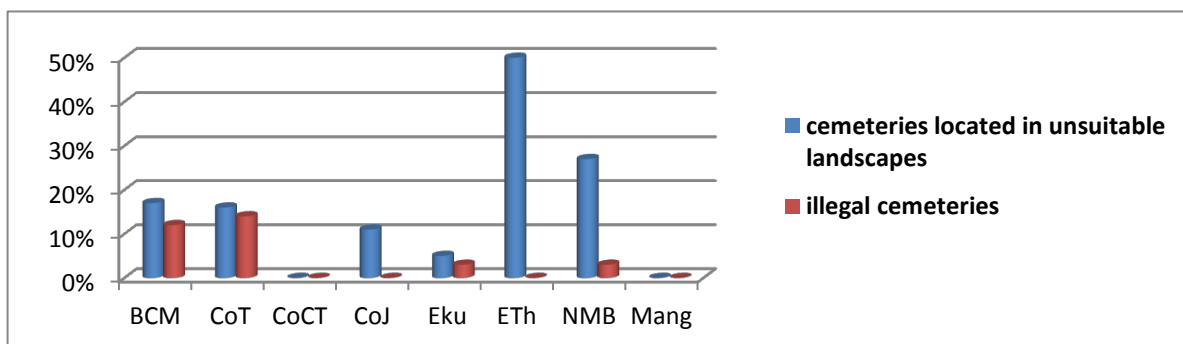
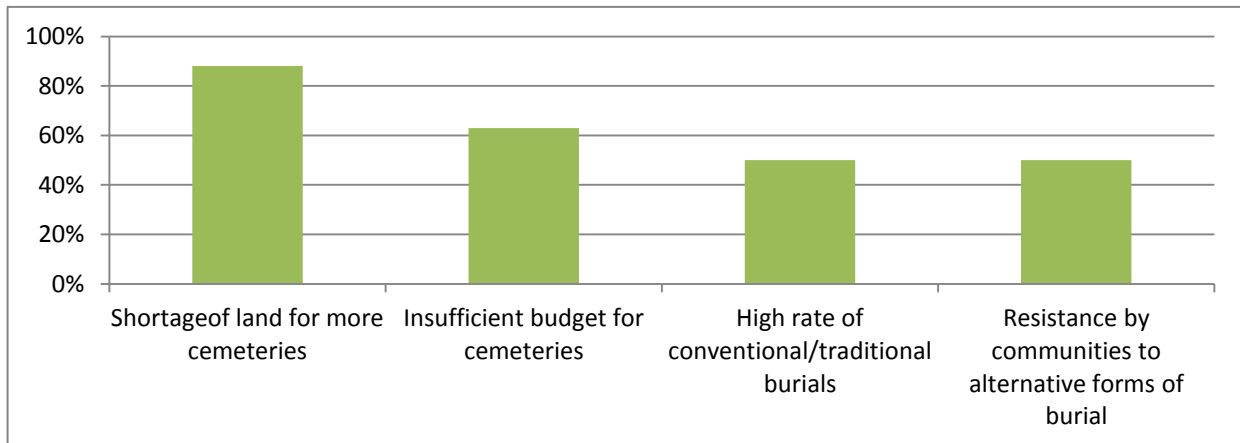


Fig 2: Illegal cemeteries and Cemeteries located on unsuitable landscapes



Municipalities with most cemeteries that have reached capacity (Fig 1) attribute this problem to the reasons shown on Fig 3 below:

Fig 3: Major challenges facing the Cemetery sector



More than 80% of municipalities that participated in the study indicated that land for cemeteries is in short supply as large tracts of land which are better suited for cemeteries are prioritised for developmental needs such as housing. The other reason attributed to this is that most the suitable land is privately owned and it usually gets expensive to acquire as this involves cumbersome processes.

In cases of illegal and informal cemeteries, some are caused by illegal acts of informal settlement dwellers who try to avoid paying tariffs charged on burial processes while others are caused by factors associated with travel costs to areas where formal cemeteries are located. One municipality, eThekweni Metro expressed concern that the numbers of funerals processed by the municipality were far below deaths that had been registered with the Department of Home Affairs for the municipal area (12000 funerals compared to 80000 deaths registered). This indicates there could be a number of unknown illegal burials taking place in the municipality. Another municipality attributed illegal and informal cemeteries to deaths of undocumented or illegal migrants.

The challenges of shortage of land, informal and illegal cemeteries as indicated in Fig 3 above have been compounded by insufficient budget for cemeteries, high rate of conventional and traditional burials as compared to other methods of interment and resistance by communities to adopt alternative forms of burial such as cremation, recycling among others.

5.2 High rate of conventional / traditional burial

Fig 4: Conventional burial vs Cremation - 2009/10

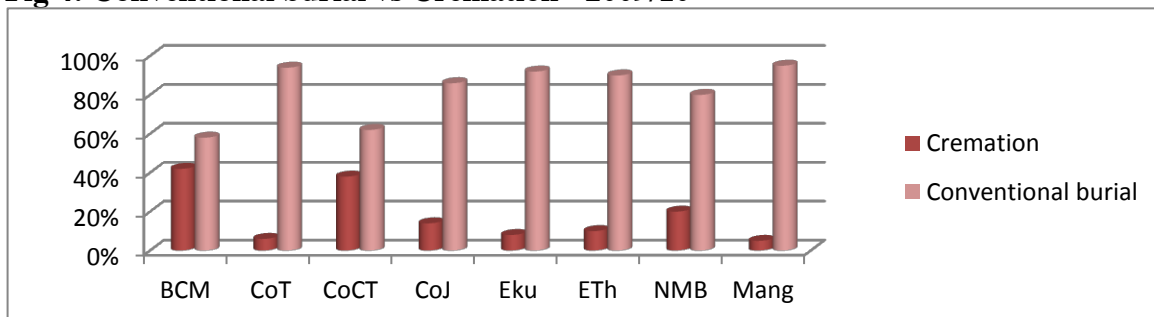


Fig 5: Conventional vs Cremation 2010/11

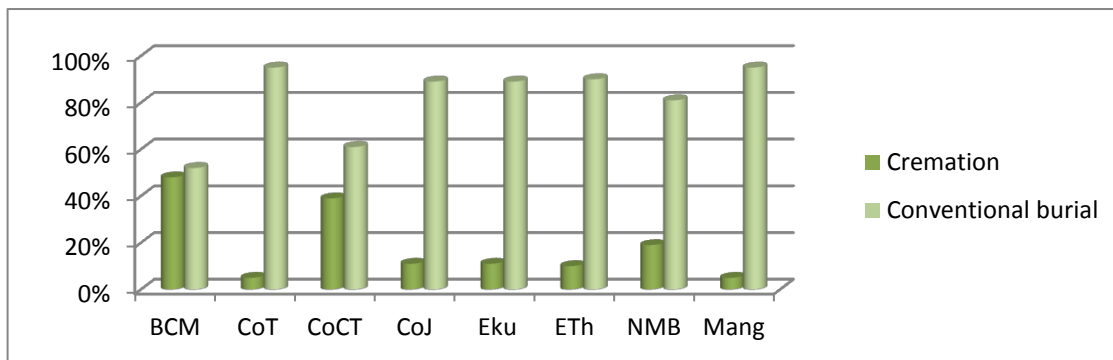


Fig 6: Conventional burial vs Cremation 2011/12

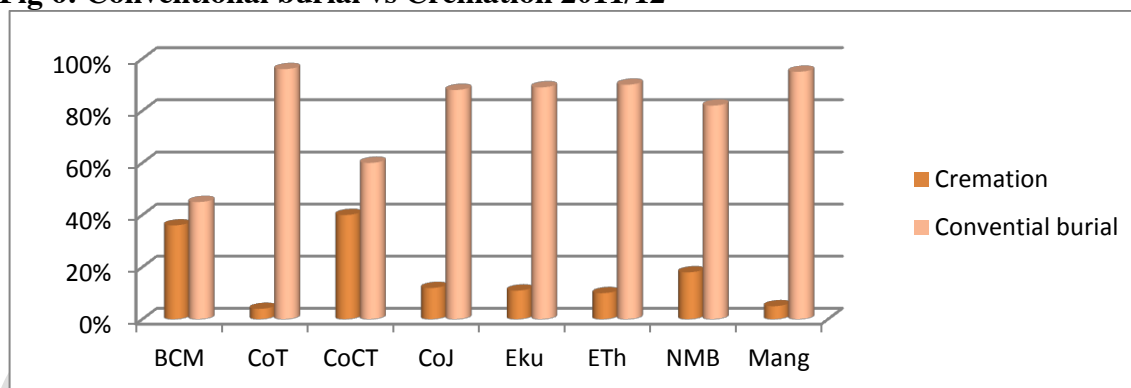
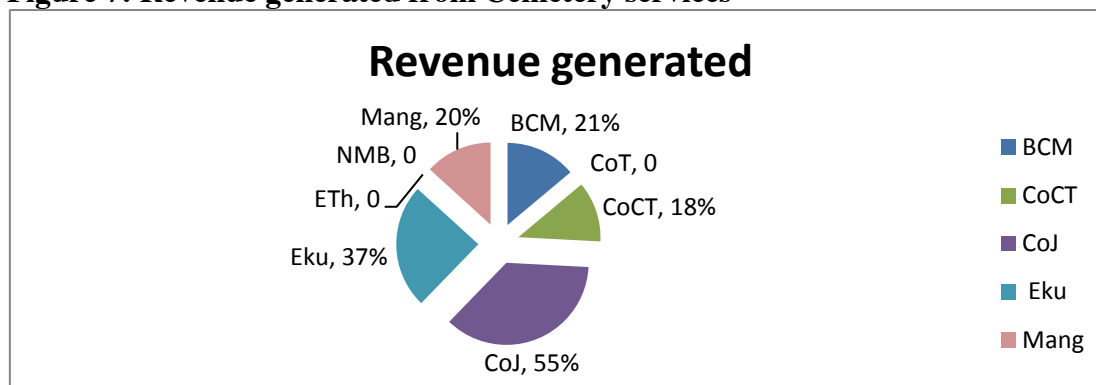


Fig 4, 5 and 6, show that the conventional/traditional burial method is very prevalent in the South African context as, comparatively, one other widely known method of internment like cremation is practised at a very small scale. While City of Cape Town has maintained their considerable number of cremation outputs, Buffalo City Metro had a significant increase in cremation output between 2009/10 and 2010/11 but dropped in 2011/12. This indicates, as reported by most municipalities, that most communities in South Africa are still very much accustomed to traditional and conventional burial and that resistance to adopt other methods of internment is pervasive.

5.3 *Insufficient budget for cemetery services*

Figure 7: Revenue generated from Cemetery services



Cemetery services are heavily subsidised by municipalities as revenue generated from this sector is significantly low compared to the total budget allocated. Only CoJ, with particular reference to 2011/12 financial year as shown in Fig 7 above, generated revenue of above 50% of the total budget. Budgetary constraints, undoubtedly, have implications on the ability of the municipalities to purchase land for building new or extending cemeteries as well as maintenance of both operating and fully capacitated municipalities. This exacerbates challenges of informal and illegal burials among other land shortage related problems.

6. MUNICIPAL RESPONSES TO CEMETERY RELATED CHALLENGES

In a bid to curb challenges associated with cemeteries, municipalities have employed different strategies. For example, City of Cape Town offers Berm burial (only allowing headstones) at a much lower price than Full Monumental private graves (40% of the price). Cremation is also kept at a low premium (R1000 per cremation (2011 price)). Buffalo City Municipality encourages, more so, cremation than traditional burial although they also continue lobbying for more budget allocation to erect and maintain cemetery infrastructure which is currently in poor condition. Additional budget is also required for extending the existing cemeteries to cater for most community members who prefer traditional burials. Mangaung Metro reported that in order to meet the demands of communities, they had to purchase privately owned land for building more cemeteries. eThekweni Metro and Ekurhuleni have allocated a specific budget for awareness and education around different methods of internment in a bid to encourage communities to opt for other methods other than in-ground, traditional burial although success of such an approach has not been measured yet. City of Tshwane intends to close cemeteries that are found to be located on unsuitable landscapes while CoJ uses undertakers and their internal marketing department to encourage communities to adopt alternative methods of burial.

Figure 9: Municipalities who conducted surveys on communities' views

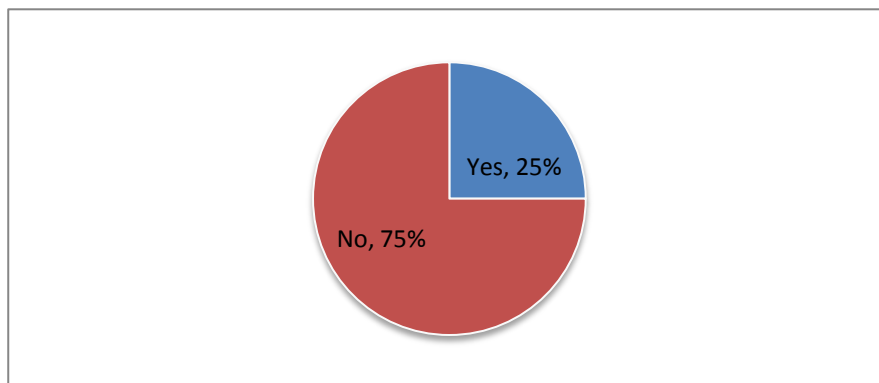
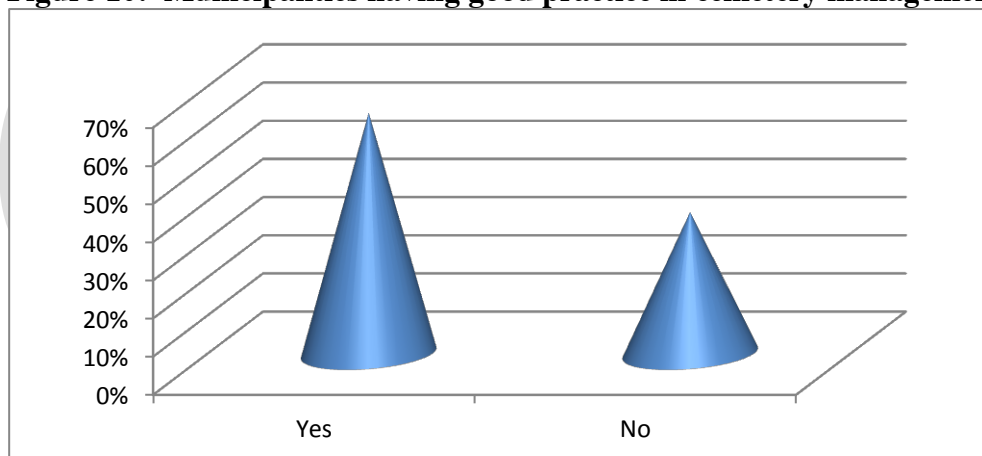


Fig 9 above indicates that only a few municipalities, 25% of the 8 metro municipalities namely City of Tshwane and City of Johannesburg conducted surveys to establish community views on internment or burial methods. This could indicate that municipalities are convinced of their communities' position on burial methods but more so it could mean that cemeteries are not given priority attention in most municipalities and therefore budget is rarely allocated for such an activity. Municipalities that conducted surveys reported that their communities were very much accustomed to cultural traditions of in-ground burial and showed no willingness to change their mind-set on burial methods. One municipality highlighted this as the major current obstacle in addressing challenges associated with cemeteries.

Figure 10: Municipalities having good practice in cemetery management



Above 60% of the 8 metro municipalities reported that they consider themselves as having good practice in the management of cemeteries. Some attributed their good practice to good maintenance standards guided by existing norms and standards while others attributed it to a good set of by-laws, an active cemetery research as well as an electronic cemetery management software programme that assists in improving the management of cemeteries. One municipality attributed their good practice to cemetery layouts that are properly planned and densified to allow for more graves per hectare, thus use of a more space intensive burial method. Municipalities (37% of them) that reported that they had no good practice attributed this to non –existence of burial records, poor cemetery related infrastructure and institutional issues such as the departmental structure which failed to provide adequate attention to issues of cemeteries. Lack of good practice was also mentioned to be a result of irregular auditing which allowed for corruption to take place in the cemetery sector mainly through unregistered undertakers.

7. TOWARDS SUSTAINABLE MUNICIPAL RESPONSES

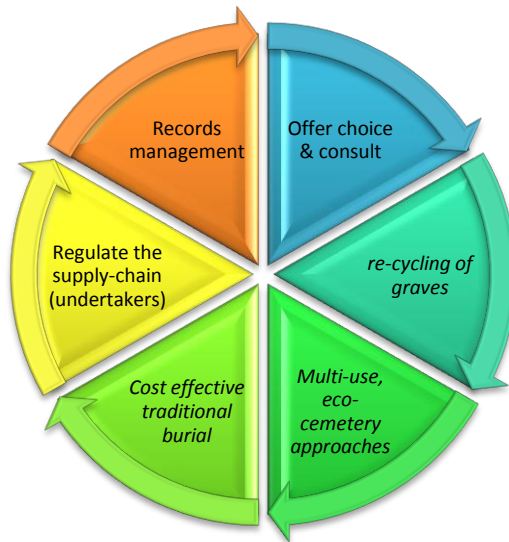
Cemeteries remain one of the sectors faced with challenges that municipalities often grapple to deal with yet not much attention has been paid to it on a national scale. Budget for the sector is evidently constrained and this is worse in non-metro municipalities as the Public infrastructure component (P-component) of the Municipal Infrastructure Grant (MIG), a conditional grant allocated annually by National Treasury through the Division of Revenue Act, which was previously allocated for cemeteries and other community facilities is now ring-fenced for sport and recreation facilities only. Illegal, informal burials and cemeteries located on geological unsuitable landscapes are the most problematic as these pose a huge threat on the sustainable development of communities. The developmental mandate of municipalities is hugely compromised mainly because their ability to meet the basic needs of communities such as water and shelter is adversely affected by such burials as water sources become contaminated and land continually gets in short supply and expensive for other developmental related needs to be met.

Although the demand for more land for cemeteries is high, it is important to note that the cultural and religious beliefs attached to cemeteries and burial methods of communities cannot be undermined. The balance needs to be struck and as has been argued in international experiences section above, this balance can only be achieved if the demand for land for burial practices does not exceed supply and also if burial methods used are not a threat to the development of sustainable communities. In countries where the balance has not been struck, the options are only available in the adoption of environmentally friendly interment, space intensive methods and in the multiple use of cemetery spaces.

7.1 *Challenges faced by the industry:*

- Fraudulent deaths / burial order duplication recorded for personal gains
- Availability of suitable land. The population is growing at a rapid pace, therefore there is huge residential and industrial demand for land to respond to the population growth. There is also a current backlog for housing, electricity, roads etc, largely within informal settlements. It will take a number of years to address current housing backlog, without taking into account the anticipated population growth.
- Lack of registers
- Graves with high mounds should be stopped – these will be washed away with heavy rains. Serious potential for soil erosion. Maintenance is also an issue if mound remains as you cannot use ordinary grass mowing machines.
- Poor or no record keeping
- Monitoring of burials in private cemeteries
- No reconciliation of records to actual burials
- No reconciliation of death statistics to burials
- Lack of a central register for municipalities

Undoubtedly, the South African context reflects the same picture as elsewhere in the world's cities. It is therefore recommended that the following be considered in cemetery planning at municipal level:



The above recommendations, however, require political willingness and community buy-in for them to have an impact on the sustainable development trajectory of municipalities.

South Africa is faced with a number of challenges, sustainability being one of the major factors. The rest of the world is confronted with the problem of land, South Africa is no exception. In England for instance, space could run out in 20 years. In New South Wales same applies within 25 years.

South African land is not expanding, population on the other hand is increasing at a rapid pace. Communities need other services which are competing for land in cities – housing for the living for instance, but burial sites are also needed. As a result, one needs to consider more options, and viable options; options which respond to communities' needs and which are culture-sensitive.

In South Africa, the majority of the population prefers conventional burial. The Hindu religion and some of the European descent practice cremation. The practice of conventional burial is unsustainable in the cities due to burial sites that are diminishing. Therefore, there is the need for optimal utilisation of available space. A change of mindset regarding funeral practices is required, whilst remaining sensitive to cultures, religions and beliefs.

It would be a mistake to de-contextualize one's services from the kind of beliefs that people hold.

7.2 CASE STUDIES

a. Ekurhuleni Municipality (costing and pricing)

The Ekurhuleni Municipality is on the East Rand. Population is growing. There are 62 cemeteries. Currently 19 are active. Between 2005 and today – 29 were active in 2005, now only 19. There has been a recent decline in statistics. There are a lot of unauthorised burials.

Over the years, it has been noted that the culture of burials has been changing – people are no longer allowed to reserve graves, and cremations are on the increase.

There have been some internal challenges, particularly insufficient staff, insufficient capacity at crematoria.

Grave re-use is underway, and looking at restructuring tariffs as well as increasing mausoleums and cremation. The challenge is attitudes of people towards burial alternatives.

Also illegal burials, and illegal multiple body graves. There are some illegal cemeteries which are not yet been registered.

Another challenge is vandalism in cemeteries, lack of space availability. Some of active cemeteries will become inactive very soon.

Alternative burial strategy was investigated from 2007 in Ekurhuleni to enable survival in the “underground explosion” which is resulting in a scarcity of burial land. Cost implications were focused on.

The Municipal Costs for a single body in a grave (R3110) vs cremation (R840). This means 27% saving with cremations. The cost to the public: R1000 for burial, R500 for cremation – a significant saving for public. Municipal cost for Multi-use (3 bodies or more) burial: R5130 vs. R2520 for cremation. 49% cheaper for cremation. The costs are used as incentives to encourage the community to make use of alternative methods of burial.

b. Maluti-a-phofung Local Municipality (informal cemeteries)

Maluti-a-phofung municipality is situated in the Eastern Free State. There are two types of cemeteries – Formal and Informal. There are 9 formal cemeteries situated in towns. These have registers that are different from those in the rural areas and townships. To amalgamate the registers, a unit was introduced in the municipality into one administration.

The greatest challenge is in the farm areas, each of which have 4 or 5 cemeteries which were administrated by the Chief, which have no registers.

It is very difficult to monitor these burials. The practice is to approach the Chief who will demarcate a site without municipal intervention. There are also backyard burials where families bury their loved ones at their homes. This presents a health hazard.

The municipality is in the process of formalizing the informal cemeteries, including farms. A consultant has been employed to identify the various sites to give a clear picture of the number of informal burial grounds. Once these records are available, an integrated register can be introduced. It is assumed there are already around 50 informal cemeteries. 4 of these have already been piloted to formalize them.

Informal cemeteries often belong to traditional families – however, municipalities are trying to open these up to others, by building roads etc. People are being encouraged to make use of formal cemeteries so they can be properly registered. The water table is high in the region, so some of the informal gravesites are on unsuitable land.

c. eThekweni (re-use of older cemeteries)

eThekweni has 65 cemeteries which have spanned 150 years of development. There is a dire need to deal with the lack of burial space and to address the issues of cemetery policy, regulations, standard operating procedures and consistent management of the service. By looking at distribution of cemeteries, many are close to coastline which indicates a potential for ground water seepage.

There will also be steady increase in SA overall to about 50 million. This will impact on capacity to provide burials, especially traditional ones. Therefore, the re-use of old cemeteries is being looked at. Database of legal and illegal undertakers is being investigated, as well as actual number of graves. Accurate figures are difficult to establish.

d. Mangaung (vandalism and theft)

Mangaung is a municipality in the Free State. There are 18 cemeteries and 45 rural cemeteries which fall under jurisdiction of tribal authorities. In Bloemfontein only 3 of the 12 are still active. There are 2 new cemeteries that are not yet operational. There is one crematorium which caters for the whole region.

Challenges the municipality face: Vagrancy and theft of tombstones. Also fences, taps, and robbery of visitors. The wall of remembrance is also vandalized. Dumping is a problem inside and outside the cemetery. One of the cemeteries is next to a dumping site and the refuse sometimes is blown over. This is not an ideal situation. There is lack of security and access control. Insufficient budget leads to poor maintenance, landscaping and access. There is a high rate of indigents, tighter screening is needed. There is a resistance of communities to alternative burial methods. There is a challenge of integrating rural cemeteries with formal cemeteries. There is a shortage of land due to competing needs from other sectors.

e. Rising number of Paupers

Paupers – policy is that must be removed within 7 days and local municipality must provide pauper burials. If not identified, police will be notified, fingerprints and DNA samples. Fingerprints will be sent to home affairs. If no match, then will be declared a pauper and municipality will bury. Long process

There are more than 374 paupers in KZN alone each year. Councillors are asked to encourage communities to report missing persons to police.

The challenge is that one cannot register death of an unknown person. The SAPS delay in taking fingerprints and authorizing burial of unknown persons. Which places stress on the capacity of mortuary. Often, decomposed bodies make fingerprinting impossible. There is insufficient budget for pauper burials.

7.3 CEMETERIES AND THE RISKS POSED TO WATER SOURCES

Cemetery investigations have been done in order to look at contamination. Decaying bodies produce a lot of organic and inorganic material through leaching into subsurface. Poorly situated graves cause a problem as contamination can build up over decades and then be released in one major precipitation event. This can contaminate the ground water table.

People tend to work with easy material in cemeteries, even in suitable land. When anaerobic conditions exist, the decomposing body can reach the water table. Worst case scenario is to site a cemetery near a gaining stream, or near a flood plain. Best site is where there is no interaction with a hydrological interaction zone.

At present, investigation of site for suitability for cemetery should exceed 1.8 metre. Surface drainage should be at least half a kilometre from cemetery. There are also engineering parameters to be considered regarding stability and workability. Sanitary requirements to consider water table, subsoil permeability and backfill permeability. Hydrological pathways are of importance when siting cemeteries.

7.4 UNDERSTANDING COMMUNITY BELIEFS AND ATTITUDES TOWARD ALTERNATIVE BURIAL METHODS

A study Education of the public is important to ensure we meet needs of the real world. Currently using 781.53 metres of burial space. 63 cemeteries currently. 46 are closed. 24000

burials recorded annually. Proposed alternatives: burial cells, mausoleums, and cremation, 2nd and 3rd burials.

Ekurhuleni conducted a study to understand community beliefs. The study included 1604 respondents of all ages. Face to face and group interviews done.

During the study, challenges were experienced – non-responses, refusals, hostile reception, Non-contact, Hierarchical communication breakdowns, scheduling of appointments, database not updated. Most respondents were aware of shortage of burial space. 69% were aware of alternative burial methods. 68% said they were open to alternatives. Most preferred (38%) were open to 2nd and 3rd interments, 32% said yes to cremation.

CONFIDENTIAL



SALGA

South African Local Government Association

FRAMEWORK FOR STANDARD BY-LAWS ON CEMETERIES, CREMATORIA AND UNDERTAKERS

Further consultation needed on a number of recommendations in the document -

1. PREAMBLE

[Indicate that

Part B of schedule 5 of the Constitution of the Republic of South Africa 1996 cemeteries, crematoria and funeral parlours are local government matters and section 73 of the Local Government Municipal Systems Act, 2000 (Act No. 32 of 2000) places a general duty on municipalities to give effect to the provisions of the Constitution.]

2. INDEX

Definitions

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Miscellaneous

Repeal of By-Laws

1. Definitions

In these by-laws, unless the context otherwise indicates:-

“adult” means a deceased person over the age of 12 years and any deceased person the dimensions of whose coffin cannot be accommodated in an excavation of 1,40m in length and 400 mm in width;

“above-ground burial” means when a structure is employed for the interment of a body and such a structure is located above normal ground level;

“after-hours fee” means a fee over and above the set norm of fee for burial or cremation outside normal week day cemetery operating hours, save in the case of cremations or burials,

which, because of religious belief, are undertaken after such hours, or in the case of burial, where the mourners undertake to close the grave;

“approved” means approved by the Council;

“ashes” means the cremated remains of a body;

“ash grave” means a grave for the burial of cremated remains, with such grave covered by a memorial plaque or slab;

“authorised official” means an official of the Council authorised to implement and enforce the provisions of this By-law;

“berm section” means a grave section in a cemetery set aside by the Council where memorial work is restricted to a headstone only with ground cover planted over the length of the grave;

“biodegradation” means a process whereby the corpse is disposed of by bio-friendly chemical dissolution;

“Births and Deaths Registration Act” means the Births and Deaths Registration Act, 1992 (Act No. 51 of 1992);

“body” means any dead human body, including the body of a stillborn child;

“burial order” means an order issued in terms of the Births and Deaths Registration Act;

“burial” means burial or inhumation into earth or any other form of burial and includes a tomb and any other mode of disposal of a body; Methods of disposal of a body-

- (a) in-ground burial;
- (b) above-ground burial;
- (c) cremation; or
- (d) freeze reduction and biodegradation.

“cemetery” means any land or part thereof within the municipal area set aside by the Council or approved by the Council as a cemetery;

“child” means a deceased person who is not an adult;

“Commonwealth war grave” means any grave, tombstone, monument or memorial connected with a Commonwealth war burial in terms of the Commonwealth War Graves Act, 1992 (Act No. 8 of 1992);

“corpse” means the remains of a deceased person and includes a still-born child and foetus;

“corpse reduction” means any process used to reduce corpses including cremation, freeze reduction and biodegradation;

“Council” Municipality established in terms of section 12 of the Local Government: Municipal Structures Act, 1998 (Act No. 117 of 1998) or any structure, political office bearer, councillor or any staff member acting under council's delegated or sub-delegated authority

“cremation” means the process of disposing of a human body by fire;

“crematorium” means a crematorium as defined in section 1 of the Ordinance and includes the buildings in which the ceremony is conducted and the cremation carried out;

“crematorium section” means a section of a cemetery or crematorium set aside by the Council for the burial of ashes;

“cremated remains” means all recoverable ashes after the cremation process;

“exhumation” means the removal of a body from its grave;

“freeze reduction” means the process whereby the corpse is disposed of by freeze drying

“garden of remembrance” means a section of a cemetery or crematorium set aside for the erection of memorial work , placing or scattering of ashes, but does not include a columbarium;

“grave” means any piece of land excavated for the burial of a body within a cemetery and includes the contents, headstone or other marker of such place and any other structure on or associated with such place;

“grave of conflict” means the grave of a person who died while defending the country;

“hero” means a person who performed a heroic act for the country and is given the status of a hero by the Council;

“indigent person” means a destitute person who has died in indigent circumstances, or if no relative or other person, welfare organisation or non governmental organization can be found to bear the burial or cremation costs of such deceased person and includes a pauper;

“indigent relief” means assistance received for the burial or cremation of an indigent person;

“in ground burial” means when land is excavated for the interment of a body;

“interment” means to commit a corpse or ashes to its final resting place

“landscape section” means a grave section in a cemetery set aside by the Council where memorial work is restricted to a horizontally placed plaque or a memorial slab, with a ground cover planted over the length of a grave

“mausoleum” means an above-ground burial chamber or chambers to accommodate a body and a coffin with such chambers stacked vertically in varying forms and heights

“medical officer of health ” means the officer appointed by Council or any other person acting in the capacity of the medical officer of health;

“memorial section” means a section of a cemetery set aside for the erection of memorials;

“memorial wall” means a wall in a cemetery or crematorium section provided for the placement of inscribed tablets commemorating deceased persons;

“memorial work” means any headstone, monument, plaque, or other work, or object, erected or intended to be erected in any cemetery or crematorium to commemorate a deceased person, and includes a kerb demarcating a grave, and a slab covering a grave;

“monumental section” means a grave section in a cemetery set aside for the erection of memorial work

“multiple burial” means subsequent interments in the remaining depth of the grave

“municipal area” means the area under the control and jurisdiction of the Council;

“next of kin” means the surviving spouse, unless otherwise determined by customers, or if there is no surviving spouse, the surviving child or children, or where there is no surviving child, the closest surviving descendant or descendants, or if there are no surviving descendants, the surviving parent or parents, or where there is no surviving parent or parents, the surviving sibling or siblings, or where there is no surviving sibling or siblings, the other blood relation or blood relations of the deceased who are related to him or her in the next degree, provided that where this By-law requires the consent of the next of kin, and the next of kin refers to more than one person, in terms of this definition, then the consent of all these persons shall be required;

“niche” means a compartment in a columbarium or garden of remembrance for the placing of ashes;

“notifiable disease” means any disease that is required by law to be reported to government authorities when diagnosed even at death;

“officer-in-charge” means the person in the employ of the Council who, from time to time, is in control of any cemetery.

“ossuary” means a chest, building, well or site made to serve as the final resting place of human skeletal remains

“prescribed” means prescribed by the Council;

“prescribed fee” means a fee determined by the Council by resolution of that Council or its successor.

“private cemetery” means land which is used as a cemetery but not owned by the Council

“private crematorium” means a building where deceased persons are cremated but is not owned or managed by the Council

“public grave” means a grave in which a second burial of any member of the public may take place after a period of five years and on which the erection of a headstone is not permitted for either the first or second burial;

“reduction burial” refers to the making of a grave available for a subsequent interment after a specific period;

“**South African Heritage Resources Agency**” means the South African Heritage Resources Agency, established in terms of section 11 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999)

“**stone mason**” means a person carrying on business as a stone mason;
UNDERTAKERS

"regulations" means the regulations governing Funeral Undertakers' Premises, made under sections 33 and 39 of the Health Act, 1977 (Act No. 63 of 1977)⁶;

“**victim of conflict**” means a person defined in section 1 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999).

CHAPTER 2

ESTABLISHMENT AND MANAGEMENT OF CEMETERIES

2. Establishment of cemeteries

(1) The Council may from time to time set aside and reserve suitable municipal land within the municipality for the establishment and management of a cemetery. The Council may consider and approve an application for the establishment and management of a cemetery. The Council may consider and approve an application for the establishment and maintaining of a private cemetery or a private columbarium on private land on the conditions that the Council may deem necessary.

(2) The Council may set aside, reserve and demarcate within a cemetery, in accordance with an approved layout plan, such areas as the Council may deem necessary for exclusive use by the members of a particular religion or denomination, or for the burial of adults, children, security forces or war heroes, or for the creation and management of the following sections:

(a) Berm-section where memorial work of a restricted size may be erected only on a concrete base provided by the Council at the top or bottom end of a grave the top surface of graves are level and the Council will cut planted as well as natural grass as part of its maintenance program;

(b) Monumental-section where memorial work erected shall cover the entire grave area,

(c) Semi-monumental section where memorial work, without a restriction on the size, may be erected only on a concrete base at the top end of a grave, which base will not be provided by the Council;

(d) Natural-grass section where the surface of graves are levelled. Graves are identified by numbers affixed on top of the graves in such a way that lawnmowers can be used to cut the natural grass without damaging the numbers;

(e) Traditional-section where memorial work does not have to cover the entire grave area, and may be erected on graves that are not supplied with a concrete base as required in the Berm-section. The surfaces of graves are level;

(f) Columbarium-section where ashes may be buried in a niche in a memorial wall or wall of remembrance provided by the Council;

⁶ Please note that this act has been repealed and replaced. I am not sure yet which section it would be in the new Health Act of 2003 which came into effect in 2012. Lets Check - SG

3. Official hours

- (1) The cemetery and the office of the caretaker shall be open during the hours as determined by the Council. The cemetery office of the caretaker shall be open from Monday to Friday.
- (2) Burials shall take place on the days and during the hours as determined by the Council.
- (3) The Council has the right to close a cemetery or any portion thereof to the public for such periods and for such reasons as the Council may deem fit
- (4) No person shall be or remain in a cemetery or part thereof before or after the official hours as determined by the Council or during any period when it is closed for the public, without the permission of the caretaker.
- (5) The Council may, if the case is one of emergency or the custom or conventions of a religious or cultural group, permit internment outside the times contemplated in subsection (1).

4. Register

- (1) A register of graves and burials shall be kept by the caretaker.
- (2) Such register shall be completed as far as possible immediately after a burial has taken place, with reference to the prescribed particulars contained in the burial order concerned.

(3)⁷

5. Numbering of graves

- (1) All graves in a cemetery that are occupied or for which a burial has been authorised in terms of the provisions of this by-law shall be numbered by the Council.
- (2) The number shall be affixed to the grave and indicated on a plan to be kept available in the caretaker's office.

6. Reservation of graves

- (1) No reservation of a grave in a cemetery shall be allowed.
- (2) Reservation of graves made and recorded in the official records of the Council in terms of any previous by-laws shall still be valid and the Council shall honour such reserved rights.

7. Transfer of reserved rights

- (1) A reserved right as contemplated in section 6(2) may not be transferred without the prior approval of the Council.
- (2) Application to transfer such right shall be made to the caretaker in writing by completing and submitting a prescribed application form.

⁷ Consultations needed on a centralized database and mandatory digital programme

(3) If the application is granted, a certificate will be issued in favour of the transferee who will become the holder

(4) The reserved right may be cancelled on request of the holder and if the request is approved by the Council, the amount paid by the holder (if any) minus 10% administration fees, will be refunded to the holder.

8. Number of corpses in a grave

(1) Only one corpse may be buried in a grave with measurements as contemplated in this by-law.

(2) Only two corpses may be buried in a grave with measurements as set out in sub-section 15(4): Provided that application for the burial of two corpses has been made to the caretaker in writing by completing and submitting the required application form before the first corpse is buried.

(3) After the re-opening of a grave for the purpose of the burial of a second corpse as mentioned in sub-section 9(2) in that grave, a concrete layer of not less than 25 mm thick shall be cast above the coffin previously buried.

(4) If on re-opening any grave, the soil is found by the Medical Officer of Health to be offensive or dangerous to the general health of people, the situation will be handled in consultation with the Medical Officer of Health.

9. Number of Corpses in a coffin

(1) A deceased stillborn child and his or her deceased mother may be buried in the same coffin at the fee for a single interment of an adult.

(2) Still-born twin babies may be buried in the same coffin at the fee for a single interment of a stillborn child.

(3) Subject to subsection (1) and (2), only one corpse may be contained in a coffin, unless this is contrary to the tradition, customs or religious beliefs of the deceased person or the next of kin, or where there is no next of kin any other closest family member.

(4) If there is more than one body in a coffin, each must be contained in a separate body bag

CHAPTER 3

BURIALS

10. Application for a burial

(1) Application for permission for a burial in a cemetery shall be made to the caretaker in writing by completing and submitting a prescribed application form. An application shall be accompanied by:

(a) a burial order issued in terms of the Births and Deaths Registration Act, 1992 (Act No. 51 of 1992)

- (b) the prescribed fees; and
- (c) a reservation certificate, if applicable;
- (d) the death certificate of the corpse
- (e) an affidavit by the next of kin of the deceased, or where not applicable, other close relative, consenting to the disposal of the corpse when such corpse is to be buried in the manner requested;
- (f) in the instance where a person was suffering from a notifiable disease, this must be indicated in the application
- (g) details of cultural or religious practices that need to be adhered to.

(2) No person shall, without the prior written approval of the Council, execute, cause, or allow a burial in any other place in the municipality than in a cemetery established and managed by the Council. This includes the burial of a corpse, of ashes and of a cadaver.

(3) An application for permission for a burial must be submitted to the caretaker at least 24 working hours prior to the planned burial, failing which the caretaker may refuse the application.

(4) No person shall execute a burial or cause or allow a burial to be executed in a cemetery, unless written permission for the burial has been obtained, a specific grave has been allocated for the purpose of the burial and a date, and time for the burial has been arranged with the caretaker.

(5) In allocating a date and time for a burial, the caretaker shall have regard to the customs of the deceased's relatives and their religion or church affiliation.

(6) In allocating a grave the caretaker shall as far as practicable possible allow the responsible person access to a plan of the cemetery showing the various sections, and allow him or her to select the section of his choice, but not the individual grave of his or her choice. The allocation of a specific grave is the sole responsibility and discretion of the caretaker and a burial shall be executed only in a grave allocated by him or her.

(7) The Council may allow in its discretion a burial without payment of the prescribed fees in a part of a cemetery set aside for such purposes and in such manner as it may deem fit.

(8) Notice of cancellation or postponement of a burial must be submitted to the caretaker at least 4 working hours before the time set for the burial.

(9) The granting of permission for a burial and the allocation of a specific grave in a cemetery, does not give the applicant, the responsible person or any other person any right in respect of such grave other than to bury a corpse in the grave.

(10) Except with the permission of the Council, no person shall place or cause any coffin constructed of any material other than natural wood or other perishable material to be placed in any grave.

(11) The Council reserves the right to inspect the contents of a coffin before interment, in the event of there being any irregularities in the paperwork.

(12) The Council may refuse a person, including a funeral undertaker, permission to inter a corpse if the relevant documentation required by the Council has not been submitted prior to the interment.

11. Burial of a corpse

(1) All graves shall be provided by the caretaker with the exception of brick-lined or concrete-lined graves, in which cases the brickwork or concrete work shall be carried out by the undertaker under the supervision of the caretaker and in conformity with the specifications applicable to ordinary graves.

(2) There shall be at least 1200 mm of soil between the top of an adult coffin and the ground surface, and at least 900 mm of soil between the top of a child coffin and the ground surface.

(3) All corpses shall be placed in a coffin for the burial thereof, except as provided for the Muslim community.

(4) No person shall without the prior permission of the caretaker conduct any religious ceremony or service according to the rites of one denomination in any portion of a cemetery reserved by the Council in terms of the provisions of this by-law, for the use of some other denomination.

(5) No person shall permit any hearse in a cemetery to leave the roads provided, and every hearse shall leave the cemetery as soon as possible after the funeral for which it was engaged.

(6) Every person taking part in any funeral procession or ceremony shall comply with the directions of the caretaker as to the route to be taken within the cemetery.

(7) No person shall convey or expose a corpse or any part thereof in an unseemly manner in any street, cemetery or public space.

(8) Every application and every document relating to any burial shall be marked with a number corresponding to the number in the register referred to in section 4 and shall be filed and preserved by the Council for a period of not less than ten years.

(9) Every coffin or body upon being placed in any grave shall, at once, be covered with 500 mm of earth.

(10) No person shall disturb any human remains or any soil adjacent thereto in any cemetery, except where such disturbance is expressly permitted by this bylaw or by an order of court.

(11) On completion of interment, the person referred to in subsection (1) or persons who dug the grave must clear the surrounding areas including pathways and graves of all soil, debris and other matter or material exposed by the digging of the grave.

(12) The person who arranged the interment must take all reasonable steps to ensure that no damage occurs to surrounding property during the interment ceremony, including any collapse of grave walls and take steps to prevent such collapse.

(13) The Council has the right to flatten any area on, or surrounding any grave including the grave mound three months after the burial has taken place.

12. Indigent persons

(1) A person making application for the burial of an indigent person, must make a declaration to that effect.

13. Burial of ashes

(1) Ashes may be buried in a coffin and only two such coffins containing ashes may be buried in an extra deep grave; provided that a coffin does not exceed the average body weight of 70 kg, and further-more that the grave is re-adjusted to the prescribed depth and measurements.

(2) No person shall execute a burial or cause a burial of ashes to be executed in a cemetery, unless written permission for the burial has been obtained, a specific grave or niche has been allocated for the purposes of the burial and a date, and time for the burial has been arranged with the caretaker.

(3) Application for the burial of ashes for definite periods or in perpetuity, or for the provision of memorial tablets of approved material to be fixed on the building, columbarium or other facility shall be made to the caretaker in writing by completing and submitting a prescribed application form.

(4) Niches will be allocated by the caretaker strictly in the order in which the applications therefore are received and no reservations for future use will be made.

(5) An application for permission for a burial must be submitted at least 24 working hours prior to the planned burial, failing which the caretaker may refuse the application.

(6) An urn or casket containing ashes that has been deposited in a building, columbarium, or other facility shall not be removed without the caretaker's prior written consent.

(7) Every niche containing ashes shall be sealed by a tablet approved by the Council and shall only be opened for the purpose of withdrawing an urn or casket contained therein for disposal elsewhere, or for the purpose of depositing an additional urn or casket therein where after it will once again be sealed.

(8) Application for the opening of a niche shall be made to the caretaker in writing by completing and submitting a prescribed application form.

(9) No person shall introduce any material into the columbarium for the purpose of constructing or erecting any memorial work therein unless and until:

- (a) approval for the burial has been obtained from Council;
- (b) approval for the erection of the memorial work has been obtained from Council; and,
- (c) the prescribed fees have been paid which shall be determined by Council from time to time.

(10) Any person engaged upon any work on the columbarium, shall execute such work to the satisfaction of the caretaker, and such work shall be undertaken during the official office hours of the cemetery.

(11) No permanent wreaths, sprays, flowers, or floral tributes may be placed in or on a columbarium.

(12) The columbarium may be visited daily during the official cemetery hours as determined by Council.

(13) Plaques shall be made of material approved by the Council and shall be affixed simultaneously with the placing of the ashes and within 30 days of the obtaining of the consent.

14. Burial of a cadaver

The remains of a corpse used at an educational institution for the education of students, generally known as a cadaver, may be buried in one coffin and two such coffins containing cadavers may be buried in an extra deep grave as contemplated in sub-section 15(4) : Provided that a coffin does not exceed the average body weight of 70 kg, and furthermore that the grave is re-adjusted to the prescribed depth and measurements.

15. Persons dying outside the municipal area

The provisions of these by-laws shall apply *mutatis mutandis* to any burial in a cemetery of a person who has died outside the municipality

16. Grave measurements

(1) The excavation of a grave for an adult shall be at least 1820 mm deep, 2300 mm long, and 760 mm wide.

(2) The excavation of a grave for a child shall be at least 1400 mm deep, 1520 mm long, and 610 mm wide.

(3) In the event that a grave of a greater depth, length or width than those specified above is required, application in respect thereof, together with extra prescribed fees that are due, shall be made to the caretaker together with the application to obtain permission for a burial.

(4) The excavation of an extra deep grave for the burial of two corpses shall be at least 2400 mm deep 2300 mm long and 760 mm wide.

(5) Deviations from measurements of graves shall be as follows:

Extra wide : 2300 mm long
: 840 mm wide

Extra long : 2530 mm long
: 760 mm wide

Rectangular small : 2300 mm long
: 900 mm wide

Brick-nogging : 2600 mm long
: 1050 mm wide

(6) The area of a rectangular grave for an adult shall be 1500 mm wide by 2600 mm long.

(7) The area of a grave for an adult shall be 1210 mm wide by 2430 mm long.

(8) The area of a grave for a child shall be 1210 mm wide by 1520 mm long. If a coffin is too large, an adult grave shall be used.

CHAPTER 4

CREMATIONS

17. Applications for Cremation

(1) Applications for cremation must be made upon terms, at times and places and upon payment of fees as determined by the Council.

(2) A person may only cremate or cause to be cremated any body within any crematorium after –

- (a) Complying with applicable legislation
- (b) Obtaining approval from the Council
- (c) Complying with the conditions as determined by the Council

18. Cremations

(1) Where a member of the public desires to be present at a cremation, a request for such member to be present must be made to the Council, which will consider the request as it deems fit.

(2) Any corpse which contains a cardiac pacemaker or radio-active implant of any kind or any other material which may result in an explosion or harmful emissions when incinerated may not be cremated unless it is removed.

(3) A crematorium shall be fitted with equipment in order to prevent the dispersion of ash into the atmosphere

19. Coffins for cremation

(1) When cremated a corpse must be contained within a coffin

(2) A coffin in which a corpse is cremated shall be made of wood or other non-toxic material.

(3) Non-toxic varnish, paint or glue shall be utilized in the manufacturing of the coffin in which a corpse is cremated.

(4) When cremated, a coffin may only contain combustible material, including clothing, shoes and other adornments of whatsoever nature, and the Council shall have the right to remove non-combustible material from the coffin.

(5) Before a cremation is permitted to take place, the applicant or his or her representative shall be obliged to produce a certificate certifying that the coffin complies with subsections (2) and (3) above.

(6) No corpse may be removed from any coffin for the purpose of incineration and a coffin may not be opened in the crematorium except with the permission of the Council, which shall not be unreasonably withheld.

CHAPTER 5

PRIVATE CEMETERIES AND CREMATORIA

20. Duties of proprietors

(1) The proprietor of a private cemetery or crematoria for which the consent of the Council has been obtained must –

(a) comply with:

(i) any special conditions which may be determined by the Council in respect of private cemeteries and crematoria from time to time; and

(ii) the relevant provisions of this By-law and any other applicable law;

(b) maintain the grounds, fences, gates, roads, paths and drains in good order and condition and clear of weeds and overgrowth;

(c) allow an authorised official of the Council to enter or inspect the cemetery or crematoria and all records kept in connection therewith;

(d) appoint a suitably qualified person to manage the cemetery and to keep the records.

(2) The owner of a private cemetery, a private crematorium, or private property may on reasonable grounds, refuse permission to have a corpse interred or cremated in the cemetery or crematorium.

CHAPTER 6

SECTIONS IN A CEMETARY

21. The Council may establish sections in a cemetery

(1) The Council may establish one or more of the following sections in its cemeteries:

- (a) Monumental section
- (b) Berm section
- (c) Landscape section
- (d) Memorial square
- (e) Garden of remembrance
- (f) Crematoria or corpse reduction facility
- (g) Mausolea
- (h) Surface grave units
- (i) Denominational section

22. Monumental section

(1) A monumental section is a grave section in a cemetery set aside for the erection of memorial work at graves.

(2) The Council may in the course of time level all graves and plant grass thereon.

(3) Flowers, foliage, wreaths or any adornment may be placed upon the berm only of graves, except in the case of graves which have not yet been levelled.

23. Berm section

- (1) A berm section is a grave section in a cemetery set aside by the Council where memorial work is restricted to a headstone only, with ground cover planted over the extent of the grave
- (2) Headstones may contain two receptacles for flowers
- (3) Headstones must be erected on the concrete plinth supplied by the Council or on a suitable foundation to support the headstone, which shall be embedded horizontally at ground level in the position indicated by the Council.
- (4) No kerb or frame demarcating the grave or a slab covering is permitted
- (5) Flowers, foliage, wreaths or any adornment may be placed upon the berm only of graves, except in the case of graves which have not yet been levelled.

24. Landscape section

- (1) A landscape section is a grave section in a cemetery set aside by the Council where memorial work is restricted to a horizontally placed plaque or memorial slab only, with ground cover planted over the extent of the grave.
- (2) No object other than the memorial plaque or slab may be placed on the grave
- (3) No kerb or frame demarcating the grave or slab covering is permitted
- (4) Flowers, foliage, wreaths or any adornment may be placed upon or beside the plaque or memorial slab, except in the case of graves that have not yet been levelled.

25. Gardens of remembrance

- (1) A garden of remembrance is a section in a cemetery set aside for the erection of memorials to an individual, a group of people or an event, memorial walls, niche walls, the establishment of ash graves and the scattering of ashes;
- (2) Flowers and wreaths may be placed only on the places provided therefore.

26. Crematorium and corpse reduction facility

- (1) The Council may set aside sections in a cemetery for the establishment of a crematorium and a corpse reduction facility

27. Memorial Square

- (1) A memorial square is a grave section in a cemetery set aside for the interment and memorialisation of heroes and celebrated persons
- (2) No person may be interred or commemorated in this section unless the status of a hero or celebrated person has been confirmed by the Council in writing.

28. Mausolea

- (1) A mausolea section may be established in a cemetery in which corpses are interred in mausolea.

29. Surface grave units

(1) A surface grave unit may be established in a cemetery in which corpses are interred in surface grave units.

30. Denominational section

(1) The Council may set aside denominational sections in its cemeteries for the exclusive use of a specific faith, religious or cultural group where the burial requirements of such group dictates a physical arrangement of graves with reference to orientation, density and depth other than be the norm.

(2) The allocation of such sections may not be to the detriment of the burial requirements of the general residents.

CHAPTER 7

ERECTION AND MAINTENANCE OF MEMORIAL WORK AND CARE OF GRAVES

31. Consent of the Council

(1) No person may bring any memorial into a cemetery or erect, alter, paint, renovate, decorate, remove or otherwise interfere with any memorial work or cut any inscription thereon in a cemetery without the written consent of the Council and payment of the required fee, other than for the purpose of routine maintenance work.

(2) Before erecting memorial work an application must be submitted to the Council for approval at least five working days prior to the proposed erection, such an application must include –

- (a) a plan which gives an indication of its measurements and its position
- (b) specification of the material which the memorial work is to be constructed, and;
- (c) the wording of the epitaph

(3) The Council may approve the application referred to in subsection (2) with or without conditions as it deems necessary, and may refuse the application if it does not comply with the requirements in respect of memorial work as determined by the Council.

(4) No person may bring into the cemetery any material for the purpose of constructing therewith any memorial work on any grave unless –

- (a) the provisions of subsection (1) to (3) have been complied with; and
- (b) proof of payment in respect of the work to be carried out has been submitted

(5) The consent for the proposed work is valid only for a period of twelve months from the date on which it is approved, and in the event of the memorial work not being erected within the prescribed time a new application must be submitted.

32. Requirements for the erection of memorial work

(1) A person erecting a memorial work must comply with the following:

- (a) proceedings must be of such a nature that no damage may be caused to any structure or offence given
- (b) with the applicants permission, the name of the maker or manufacturer can be displayed on a memorial work, but no address or any particulars may be added thereto, and the space utilised for it may not be larger than 40 x 100 mm
- (c) all unused material after the completion of the work must be removed and the adjoining areas must be left neat and clean
- (d) any damage caused must be repaired at the cost of the person responsible for such damage and should the responsible person fail to affect such repair, after due notice, the Council may undertake the remedial work at the cost of the person who erected the memorial work

33. Position, movement and removal of memorial work

- (1) No person may erect a memorial work on a grave before the position in which such memorial work is to be placed has been indicated in terms of an approved plan.
- (2) Should the condition referred to in subsection (1), the Council may on written notice to such person, alter the position of the memorial work and recover the costs of the alteration from the person who erected the remedial work.
- (3) In the instance where a memorial work has originally been placed in a certain position with the express consent of the Council, any alteration of the position in terms of the provisions of this section executed at the expense of the Council.

34. Work and maintenance in respect of memorial work

- (1) Any person engaged in any work, shall effect such work under the supervision of the Council.
- (2) Should the person who erected a memorial work allow such memorial work to fall into such a state of disrepair that it may cause danger or deface the cemetery, the Council may serve a notice of compliance on such a person.
- (3) The Council may, after due notice, at any time change or alter the position of a memorial work in a cemetery placed without the express consent of the Council and recover the cost thereof from the owner of the memorial work.
- (4) A memorial work placed, built, altered, decorated, painted or otherwise dealt with in a cemetery in such a manner that any of the provisions in this By-law are contravened, may be removed by the Council at the cost of the person responsible, after due notice, without payment of any compensation.

35. Damaging of a memorial work

- (1) The Council is not responsible for any damage that may occur to a memorial work that is not due to the negligence of the authorised officials of the Council.

36. Vehicle and tools

- (1) Every person engaged with work upon a grave or plot must ensure that the vehicles, tools or appliances comply with the provisions of this By-law and any other applicable law, and do not block roads or pathways.

(2) No person may convey any materials, stone, brick or memorial work or a portion thereof within a cemetery upon a vehicle or truck which may cause damage to paths or grounds or structures of the cemetery.

37. Complying with the directives of the Council

(1) A person carrying out work within a cemetery must in all respects comply with the directives of the Council.

38. Times for bringing in material and doing work

(1) No person may bring memorial work or material in connection therewith, or do any work other than the dismantling of memorial work for the interment purposes within a cemetery except during the times determined by the Council.

(2) No person may engage in work which may disturb or intrude upon a funeral for the duration of the funeral.

39. Subsiding soil conditions

(1) The Council is not liable for damage to memorial work resulting from any subsiding soil.

40. Production of written consent

(1) A person charged with performing work or on his or her way to or from work within a cemetery must upon demand from the Council or its authorised official, produce the written consent issued to him or her.

CHAPTER 8

RE - OPENING OF GRAVES AND EXHUMATIONS

41. Application for exhumation

(1) An application for exhumation must be submitted to the Council and must include the following:

- (a) the completed application form
- (b) a copy of the death certificate
- (c) a letter or affidavit from the next of kin of the deceased consenting to the exhumation

42. Conditions of exhumations

(1) No person may exhume or cause to be exhumed a body without the written consent of the

- (a) Premier of the Provincial Government;
- (b) the Council;

- (c) the provincial Department of Health;
- (d) the Administrator of cemeteries;
- (e) the Council's Medical Officer of Health or
- (f) by an order of a court having jurisdiction over such matters.

(2) Whenever an exhumation is to take place, the officer-in-charge must inform the Provincial Commissioner of the South African Police Services.

(3) A member of the South African Police Services must always be present when an exhumation is being conducted.

(4) The written consent referred to in subsection (1) must be submitted to the environmental health practitioner at least five working days prior to the approved exhumation date.

(5) The environmental health practitioner may impose conditions with respect to the exhumation and the exhumation may only proceed when such conditions have complied with.

(4) An exhumation must not take place when the cemetery is open to the public and must take place under the supervision of the officer-in-charge.

(5) If remains are to be exhumed from any grave, only the undertaker under the supervision of the officer-in-charge, may cause the grave to be excavated for such exhumation;

(6) (a) If a grave is to be excavated for exhumation, the officer-in-charge must be given 48 hours written notice before the time of exhumation, and

(b) The authority referred to in paragraph (1)(d) of this Section and the prescribed fee must accompany such notice.

(7) A person who wishes to exhume the remains of an indigent person must pay the costs incurred by the Council at the time of burial, to the Administrator of Cemeteries.

(8) The person carrying out the exhumation must ensure that the body and grave are properly disinfected and deodorized.

(9) The remains of the deceased person must, pending reburial or cremation be kept at a registered funeral undertakers premises.

(11) The person carrying out the exhumation must provide a suitable receptacle for each body or remains.

- (9) The South African Police Services must -
(a) if there is proof of illegal burial immediately exhume the body; and
(b) take it to a government mortuary for investigation.

(10) A grave of victims of conflict and a grave which is older than 60 years may only be exhumed with the permission of the South African Heritage Resources Agency.

(11) A Commonwealth war grave may only be exhumed in accordance with the provisions of section 3 of the Commonwealth War Graves Act, 1992.

43. Exhumation and reburial

(1) The Council may, if a body has been buried in contravention of these By-laws, cause the body to be exhumed and re-buried in another grave.

- (2) The relatives of the deceased must be -
(a) notified of the intended exhumation and re-burial; and
(b) allowed to attend.

44. Screening of exhumation

(1) A grave from which a body is to be exhumed must be screened from the view of the public during the exhumation.

(2) The person carrying out the exhumation must provide a suitable receptacle for each body or remains.

45. Emergency exhumations

(1) No body may be exhumed less than eighteen months after burial, other than in compliance with a court order.

46. Reduction burial

(1) The Council may, after a lapse of a minimum period of 10 years after the most recent burial in a grave, exhume the remains of a corpse for the purposes of the reduction of the corpse and rebury the remains of that corpse in the same grave, in a smaller coffin, or at a greater depth subject to the conditions that –

(a) any holders of private rights in that grave and the next of kin or closest surviving relative of the deceased have given their consent.

(b) in respect of any grave where no private rights have been acquired, where the next of kin, or the closest surviving relative have given their consent

CHAPTER 9

THE ADMINISTRATION AND CONTROL OF CEMETERIES

47. Appointment of an officer in charge

(1) The Council must appoint an officer in charge for each cemetery to control and administer the cemetery

(2) The officer in charge must take into account the customs of the deceased person and the persons responsible for the interment and must accommodate these within the framework of this By-law.

48. Children

(1) No child under 12 years of age may enter a cemetery unless he or she is under the supervision and care of a responsible adult person.

49. Keeping to path

(1) All persons are required to keep to the paths indicated in a cemetery, where such paths exist.

50. Prohibited conduct within a cemetery

(1) No person may –

(a) commit or cause a nuisance within a cemetery

(b) ride an animal, cycle, or skateboard for recreational purposes or partake in any other form of recreational or sporting activity within any cemetery, unless otherwise determined by the Council.

(c) With the exception of a blind person, bring into or allow an animal to wander inside any cemetery, provided that dogs on leashes shall be permitted unless otherwise determined by the Council;

(d) Plant, cut, pick or remove a tree, plant, shrub or flower without the permission of the Council;

(e) Hold or take part in a protest in any cemetery

(f) Interrupt or disrupt –

a. the performance of duties of an authorised official or workman employed by the Council

b. a funeral undertaken in a cemetery

(g) obstruct, resist or oppose the officer in charge on the course of his or her duty, or refuse to comply with an order or request which the officer in charge is entitled under this By-law to make;

(h) mark, draw, scribble, paint or place an object on a wall, building, fence, gate, memorial work or other erection within any cemetery other than for official purposes;

(i) use water for any form of gardening without the permission of the Council;

- (j) leave any rubbish, soil, stone, debris, garbage or litter within any cemetery;
- (k) in any way damage, deface or desecrate any part of a cemetery or anything therein;
- (l) enter or leave a cemetery, except by an entrance or exit provided for these purposes
- (m) solicit or conduct any business, order, exhibit, distribute or leave a tract, business card or advertisement within a cemetery, other than in the area designated for such purposes by the Council and with the prior permission of the Council;
- (n) treat a grave or memorial work with disrespect, such as climbing or sitting on a grave or memorial work;
- (o) enter an office, building or fenced place in a cemetery except in connection with lawful business;
- (p) expose a corpse or part thereof in a cemetery;
- (q) exceed the prescribed limit of 20 km per hour in a cemetery;
- (r) use any cemetery as thoroughfare
- (s) allow or cause any animal to enter any cemetery with the exception of an officer in charge, living on site and who is keeping pets with the prior approval of the Council
- (t) bring any alcohol into or consume any alcohol in a cemetery or discharge any firearms in a cemetery except in the case of the police, state or military funeral;

- (u) make or ignite a fire in a cemetery without the prior permission of the Council;
- (v) hunt or harm any animals or birds;
- (w) graze domestic animals in unused areas amongst the graves or;
- (x) bring into a cemetery excavation equipment, saws or metal detecting equipment, other than with the permission of the Council;
- (y) conduct driving lessons in a cemetery.

(2) An authorised official of the Council working in any cemetery may not enter into an agreement with a member of the public for the purpose of undertaking work in a cemetery on behalf of such a person, such as maintaining or digging a grave or any other related work.

(3) The Council may impound an animal found in any cemetery

(4) Gazebos larger than two metres by three metres may not be erected in a cemetery without the prior permission of the Council.

CHAPTER 10

USE AND CLOSURE OF DISUSED CEMETERIES

49. Use and closure of disused cemeteries

(1) Despite any provision of this By-law, and subject to the provisions of subsection (6) the Council may use any cemetery or portion thereof, of which it is the cemetery authority, which has been disused for a period of not less than 20 years for such a purpose as will not desecrate the ground and any human remains or any memorials in such a cemetery.

(2) Despite any provision of this By-law, and subject to the provisions of subsection (6), the Council may close any cemetery or any part thereof, of which it is the cemetery authority, which has been disused for a period of not less than 20 years, or if good closure for such closure exists.

(3) Despite any provision in this By-law, and subject to the provisions of subsection (6), the Council may use a cemetery or portion thereof, which has been used for another purpose in terms of subsection (1), or reopen any cemetery or portion thereof, which has been closed in terms of subsection (2).

(4) The Council may, subject to the provisions of subsection (6), remove to another cemetery the human remains, memorials and other structures from a cemetery of which it is the cemetery authority, which has been closed or disused for a period of not less than 20 years and which has been approved for other usage by the competent authority or authorities as the case may be.

(5) All rights possessed or enjoyed by any person in respect of a cemetery contemplated in subsection (1) and (2) shall thereupon cease.

(6) Before acting in terms of subsection (1), (2), (3) and (4) the Council must give notice of its intention to do so.

CHAPTER 11

MISCELLANEOUS

52. Injuries and damages

(1) A person using a cemetery do so at his own risk, and the Council accepts no liability whatsoever for any personal injuries sustained by such person or for any loss of or damage to such person's property relating to or resulting from the aforementioned usage of the cemetery.

(2) A person using a cemetery accepts full responsibility for any incident, damages or injuries that may be caused by or that may result from the aforementioned use of the cemetery and he or she accordingly indemnifies the Council, its members, employees or agents, whether in personal or official capacity, against liability for all claims from whichever nature by himself, his or her dependants or third parties in respect of any patrimonial loss, consequential damages, injuries or personal prejudice that may be suffered or sustained in connection with or resulting from such a person's use of a cemetery. The aforementioned indemnity also applies to injuries sustained by employees of the Council while on duty at the cemetery, as well as damages to Council property at the cemetery.

53. Fire-arms and traditional weapons

No fire-arms and traditional weapons shall be allowed in a cemetery.

54. Offences and penalties

(1) Any person contravening or failing to comply with any of the provisions of these by-laws shall be guilty of an offence and shall upon conviction by a court be liable to a fine not exceeding R 60 000, or imprisonment for a period not exceeding three years or both a fine as well as period of imprisonment, or such other fine or period of imprisonment which the Minister of Justice may from time to time determine in terms of the provisions of section 92 of the Magistrate's Courts Act. 1944 (Act No 32 of 1944).

(2) Any expense incurred by the Council as a result of a contravention of these by-laws or in the doing of anything which a person was directed to do under these by-laws and which he or she failed to do, may be recovered by the Council from the person who committed the contravention or who failed to do such thing.

55. Complaints

Any person wishing to lodge a complaint shall lodge such complaint, in writing with the Director.

56. Charges

The charges set forth in "the tariff" in respect of the various items therein contained, shall be paid to the Council in advance.

57. Rights on Graves

No person shall acquire any right to or interest in any ground or grave in any cemetery.

58. Consents, Notices and Orders

Any written consent, notice or other order issued by the Council in terms of these by-laws, with the exception of consent by the Director or any officer authorised by him and shall be prima force evidence of the contents of such a signed consent, notice or other order.

59. Notice of compliance and representations

(1) A notice of compliance must state –

- (a) the name, residential and postal of the address of the person;
- (b) the nature of the state of disrepair;
- (c) sufficient detail to enable compliance with the notice, the measures required to remedy the memorial work;
- (d) that the person must, within a specific time period, take the measures to comply with the notice, to diligently continue with the measures, and to complete the measures before a specific date;
- (e) that failure to comply with the requirements of the notice within the period contemplated in subsection (d) is an offence;

(f) that written representations, as contemplated in subsection (3) may within the time period stipulated in subsection (d) , be made to the Council at a specified place.

(2) The Council, when considering any measure or time period envisaged in subsections (1)(d) and (e) must have regard to –

- (a) the principles and objectives of this By-law;
- (b) the cause and state of disrepair;
- (c) any measures proposed by the person by the person on whom measures are to be imposed; and
- (d) any other relevant factors.

(3) A person may within the time period contemplated in subsection (1) (f) make representations, in the form of a sworn statement or affirmation to the Council at the place specified in the notice.

(4) Representations not lodged within the time period will not be considered, except where the person has shown good cause and the Council condones the late lodging of the representations.

(5) The Council must consider the representations and any response thereto by an authorised official or any other person.

(6) The Council may, on its own volition, conduct any further investigations to verify the facts necessary, and the results of the investigation must be made available to the person, who must be given an opportunity of making a further response if he or she so wishes, and Council must also consider the further response.

(7) The Council must, after consideration of the representations and responses, make an order in writing and serve a copy of it on the person.

(8) The order must –

- (a) set out the findings of the Council;
- (b) confirm, alter or set aside in whole or in part, the notice of compliance; and
- (c) specify a period within which the person must comply with the order made by the Council.

(9) If the notice of compliance is confirmed, in whole or in part, or is altered but not set aside, the Council will inform the person that he or she must discharge the obligations set out in the notice within the time specified therein.

(10) Where there has been no compliance with the requirements of the notice within the time specified therein, the Council may take steps as it deems necessary to repair the monumental work and the cost thereof must be paid to the Council by such person.

60. Religious Ceremonies

(1) The members of any religious denomination may conduct religious ceremonies in connection with any interment of memorial service subject to the control and by-laws of the Council.

(2) No animal may be slaughtered on the premises of the cemetery regardless of any religious ceremony which may require an animal to be slaughtered.

61. Hearses and vehicles at Cemeteries

(1) No person shall cause any hearse or vehicle, as defined by the Road Traffic Act, while within a cemetery to depart from the carriage drives or certain any hearse within any cemetery after the removal of the body from such hearse or vehicle. Every hearse or vehicle such removal shall leave the cemetery by the route indicated by the caretaker.

(2) The cemetery is a public place and all laws applicable to the driving of a vehicle and the use of a public road will be applicable inside the premises of the cemetery.

62. Exposure of Bodies

No person shall convey a dead body, which is not covered, or whose any such body or any part thereof in any street, cemetery or public place.

63. Instruction of Caretaker

Every person taking part in any funeral procession or ceremony shall comply with the directions of the caretaker while such person is within a cemetery.

64. Music Inside Cemetery

Only sacred singing shall be allowed in any cemetery, except in the case of police and military funerals.

65. Interments Attended by large Numbers of People

In any case where it is probable that an unusually large number of persons will be present at any interment, the person giving notice of such interment shall notify the caretaker the day before the funeral.

66. Appeal

(1) A person whose rights are affected by a decision delegated by the Council may appeal against that decision by given written notice of the appeal and the reasons therefore in terms of section 62 of the Local Government: Municipal Systems, 2000 (Act No. 32 of 2000) to the Council within 21 days of the date of the notification of the decision.

67. Exemptions

(1) Any person may by means of a written application, in which the reasons are given in full, apply to the Council for exemption from any provision of this By-law.

(2) The Council may –

- (a) grant an exemption in writing and the conditions in terms of which, if any, and the period for which such exemption is granted must be stipulated therein;
 - (b) alter or cancel any exemption or condition in an exemption; or
 - (c) refuse to grant an exemption.
- (3) An exemption does not take effect before the applicant has undertaken in writing to comply with all conditions imposed by the Council under subsection (2). If any activity is commenced with before such undertaking has been submitted to the Council, the exemption granted shall be of no force of effect.
- (4) If any condition of an exemption is not complied with, the exemption lapses immediately.
- (5) The failure to comply with a condition of an exemption in terms of subsection (2) constitutes an offence.

CHAPTER 6

REPEAL OF BY-LAWS

Repeal of existing By-laws

68. The Council's existing by-laws are hereby repealed.

Short title and commencement

33. These by-laws shall be called the Cemetary and Crematoria By-Laws By-laws, 200..., and shall come into operation on