AN ASSESSMENT OF THE QUALITY OF SHARED OUTDOOR SPACES IN SOCIAL HOUSING PROJECTS IN THE CITY OF TSHWANE

Dissertation by

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"Outdoor spaces which are merely 'left over' between buildings will, in general, not be used".

(Alexander et al., 1977, p. 518)

DECLARATION

I, Thandi Nosizo Sebake, declare that this research represents original work done by myself, conducted under the supervision of Ms Ida Breed and Mr Tinus Kruger. It is hereby submitted in partial fulfilment of the requirements for the degree of Master of Science in Applied Sciences with a specialization in Architecture (by Research) in the Department of Architecture, University of Pretoria. The works of other authors have been acknowledged and referenced accordingly in the research. Furthermore, the author obtained the necessary authorization and consent to conduct this research (see Appendix A). The author declares that she has observed the ethical standards required in terms of the University of Pretoria's Code of ethics for researchers and the Policy guidelines for responsible research.

This work has not been submitted for any additional degree or diploma to any other institution. But, its portions were submitted for publication as a journal paper and a conference paper. It is anticipated that an article titled "An assessment of the quality of shared outdoor spaces in three South African social housing projects" will be accepted for publication in the Journal of Town and Regional Planning; and that the conference paper titled "Comparison of indicators for assessing outdoor spaces in medium-density housing" will be accepted for presentation at the SASBE2105 conference.

For a report of the researcher's responses to examiners' comments, see Appendix O.

Signed _____ on _____

T.N. Sebake

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My dissertation journey has not been as difficult nor as frightening as the storm you have and continue to face. You have been a great role model of resilience, strength and character during this time. I pray for a miracle of healing, hoping as you always say of a difficult situation that 'This too should pass'. As we wait for this to pass, may our Lord Jesus continue to hide you under the shadow of His wing.

EXECUTIVE SUMMARY

As the global population increases and densities rise within urban environments, the importance of outdoor spaces is increasingly being highlighted because of limited internal living space. The South African Social Housing Policy emphasises the importance of both the units built and the outdoor environments. The internal spaces of units in social housing projects tend to be small; highlighting a need for good quality shared outdoor spaces.

This study seeks to determine to what extent the quality of the shared outdoor spaces in selected City of Tshwane social housing projects aligns with specifications in the Social Housing Policy. A literature review identified criteria and indicators that have been used for assessing the quality of shared outdoor spaces. These were used to guide the Social Housing Policy appraisal, from which the two guiding principles were identified as having the potential to provide guidance for the assessment of the quality shared outdoor spaces in social housing projects. These guiding principles were (i) the creation of quality living environments; and, (ii) the promotion of safe, harmonious and socially responsible environments. The first guiding principle was converted to become the goal of the assessment. The second guiding principle was separated into three components (namely safe environments, harmonious environments and socially responsible environments) which were considered the assessment criteria. These three criteria were neither described nor defined in the Policy. The researcher therefore relied on standard definitions and related research to interpret these.

Following the literature review and policy appraisal, an assessment framework was developed and indicators identified. This framework was used to guide the development of three data collection instruments, including two interview schedules, a spatial analysis and observation schedule and a survey questionnaire. Quantitative and qualitative data was collected from three purposively selected social housing projects, namely Hofmeyr, Kopanong and Litakoemi. The data collected was either statistically or narratively analysed.

The study found that the quality of shared outdoor spaces in the case studies was considered to be average and that it therefore aligned to some extent with the specifications in the Social Housing Policy. The safe environments criterion achieved the highest score as basic security measures (i.e. controlled entrances, boundary walls, additional security above the boundary wall) were in place. The harmonious and socially responsible environments criteria had lower scores as there were instances where hard surfaces dominated the site and the maintenance of the spaces was inadequate whilst the shared outdoor spaces did not fully accommodate children and people with disabilities.

This study concludes that the Social Housing Policy does not provide adequate specifications regarding the design of quality shared outdoor spaces.

Keywords: Housing quality, shared outdoor spaces, social housing, Social Housing Policy, Yeast City Housing

ABBREVIATIONS

BfL	Building for Life
BNG	Breaking New Ground
CBD	Central Business District
CoT	City of Tshwane
CPTED	Crime Prevention through Environmental Design
DETR	Department of the Environment, Transport and the Regions
DHS	Department of Human Settlements
DoH	Department of Housing
DRZ	Designated Restructuring Zone
FAR	Floor Area Ratio
GCIS	Government Communications and Information Systems
GIS	Geographic Information System
HNP	Herenigde Nasionale Party
HDA	Housing Development Agency
HQI	Housing Quality Indicator
IDP	Integrated Development Plan
ISC	Interview Schedule for YCH Caretakers
ISM	Interview Schedule for YCH Management
NASHO	National Association of Social Housing Organisations
NBR	National Building Regulations
NHBRC	National Home Building Registration Council
NHFC	National Housing Finance Corporation
ODPM	Office of the Deputy Prime Minister
OHCHR	Office of the United Nations High Commissioner for Human Rights
POE	Post Occupancy Evaluation

QAM	Quality Assessment Model
RPI	Real Property Inventories
RDP	Reconstruction and Development Programme
RZ	Restructuring Zone
SA	South Africa
SACAP	South African Council for the Architectural Profession
SALI	South African Landscape Institute
SAOS	Spatial Analysis and Observation Schedule
SHF	Social Housing Foundation
SHI	Social Housing Institution
SHiFT	Social Housing Focus Trust
SHRA	Social Housing Regulatory Authority
SQR	Survey Questionnaire for Residents
Stats SA	Statistics SA
UDZ	Urban Development Zone
UFHPU	Urban Foundation Housing Policy Unit
UK	United Kingdom
UN	United Nations
UP	University of Pretoria
US	United States [of America]
USN	Urban Sector Network
YMCA	Young Men's Christian Association
YCH	Yeast City Housing

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CHAPTER 1. INTRODUCTION

Housing quality, concerning the condition of both physical structures and the outdoor spaces that surround them, became an international concern following the Industrial Revolution which occurred roughly between 1740 to 1914 (Filali, 2012). In South Africa, the quality of housing and its locales has been problematic since the Colonial era (Wilkinson, 1998). From the early 1900s, poor urban people (mostly Black) were expected to take care of their own housing needs with limited state support or resources; they subsequently ended up living in "squalid, overcrowded and very unhealthy slum tenements" (Wilkinson, 1998, p. 217). When municipalities attempted to control or improve these commonly poor housing conditions, efforts were irregular, emerging mainly to clear so-called 'plague spots'. New municipal settlements developed for the urban Black poor, referred to as 'Native locations' (Wilkinson, 1998, p. 217), were consistently developed far from the rest of the city or town.

The emergence of the Modern Movement (also referred to as 'Modernism') in architecture and planning during the first few decades of the 20th century strongly influenced the South African government's planning (and housing) strategies (Haarhoff, 2011). In particular, the colonial government partially imported European and American city planning structures, management systems and policies (Dewar, 2000). These city planning and management instruments promoted various Modernist urban principles, such as developing free-standing buildings surrounded by private space, separating the major activities of life (i.e. living, working, playing and movement) and approached settlement building in a quantitative or programmatic manner (Dewar, 2000). The use of these instruments entrenched Modernist principles in the development of South African settlements and, as in other countries, ensured that its use supported and rationalised the country's political objectives and agendas (Haarhoff, 2011).

Internationally, the earliest attempts to measure the quality of housing began in the United States (US) following the Great Depression[1] (1976 in; Fiadzo *et al.*, 2001). These endeavours were undertaken through the Real Property Inventories (RPI), which was part of the US Public Works' attempt to address the impact of the depression. Later, following World War II, numerous countries adopted the 1948 Universal Declaration of Human Rights, which states that "everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, *housing* and medical care and necessary social services..." (UN, 1948, sec. 25(1)) (emphasis added).

[1] The Great Depression, was a severe worldwide economic depression in the decade preceding World War II. The timing of the Great Depression varied across nations, but in most countries it started in 1930 and lasted until the late 1930s or middle 1940s. It was the longest, deepest and most widespread depression of the 20th century.

This entitlement to adequate housing considered more than the roof over one's head; it also highlighted the right low-income communities had to live in environments that were secure, peaceful and dignified (Golay and Özden, n.d.; UN OHCHR, 1991).

Through the adoption of the policy of apartheid in 1951, the South African government rejected the Declaration of Human Rights and effectively disallowed the provision of adequate housing for millions of poor urban people, some of whom were already living in poor housing and housing locales. Apartheid, enforced through the Group Areas Act by a newly elected *Herenigde Nasionale Party*[2] (HNP) government, reinforced the principles of Modernism. Apartheid had at its core the separation of racial groups which dictated the development of the inherent current pattern of South African cities (Osman and Karusseit, 2008). The planning strategies implemented during apartheid, disadvantaged urban Black people by locating them to their respective underserviced 'group areas' and townships in peripheral locations (Adebayo, 2010; Todes *et al*., 2000). This resulted in the exclusion of a large portion of the South African population from economic, social and environmental benefits (Landman, 2002). Within three decades of forced removals from existing formal and informal settlements, more than a million urban Black people were affected (Lemon, 1991) resulting in the destruction of many settlements in the process (Napier, 2007). During the Apartheid era (circa 1951-1991) more than one million hectares of urban land was racially zoned. This had ramifications in relation to huge proportions of the South African population having to be moved in order to fit the population to the plans which had built-in disparities among groups in accessing urban land (Christopher, 1997).

During this period, housing was made a key area of marginalization which further perpetuated inequalities in the South African cities (Adebayo, 2010). When the Group Areas Act was repealed in 1991, there was little practical change in the manner that settlements were developed. For instance, South African cities still exhibited an apartheid planning heritage, with an urban form that remained predominantly racially defined (Christopher, 1997; Dewar and Todeschini, 2004; Schoonraad, 2000). They were characterised by low-density urban sprawl, fragmentation, strong cultural divisions between residential areas, *poor quality public spaces* and long distances between residences and places of work, education, shopping and relaxation (Biermann, 2006; Deckler, 2012; Dewar, 2000; Du Plessis and Landman, 2002; Du Toit, 2007; Kruger *et al*., 2001; Ramashamole, 2011; Tonkin, 2008). In addition to these spatial anomalies, the country faced "dire housing and services backlogs, … high unemployment and many poverty stricken-households" (Pillay *et al*., 2006, p. 2).

At the time of the first democratic elections in 1994, "the housing conditions of many of South Africa's citizens were … unsatisfactory" (Mackay, 1999, p. 387). In line with the newly adopted planning

[2] Translated as 'Reunited National Party'.

paradigm, housing policies were also developed and adopted post-apartheid. Chronologically, the housing policies and strategic documents that have been implemented since the new regime include: the 1994 White Paper: A New Housing Policy and Strategy for South Africa (White Paper on Housing); the 2000 National Housing Code (revised in 2009); the 2004 Comprehensive Plan for the Development of Integrated Sustainable Human Settlements (Breaking New Ground); the 2005 Social Housing Policy; and, the 2007 Inclusionary Housing Policy.

The primary objective of the very first post-apartheid housing policy, the White Paper on Housing, was to reverse housing delivery patterns that had ignored the social, environment and economic consequences of peripheral locations for the poor, non-white people (Adebayo, 2010). Unfortunately, in an effort to address increasing housing backlogs, delivery (primarily through the Reconstruction and Development Programme (RDP)) focussed mostly on quantitatively addressing the basic need for shelter (Bidandi, 2007; Cross, 2008 in; Landman, 2010; Tonkin, 2008). In so doing, government's housing delivery emphasis deviated from the quantitative-qualitative approach set out in the White Paper on Housing.

From the late 1990s the Department of Housing (now the Department of Human Settlements) reaffirmed its vision of holistically delivering housing through an *increased focus* on the *quality*, in addition to the quantity, of the housing delivered (Charlton and Kihato, 2006). However, despite the holistic approach purported in post-apartheid housing policies and government discourse, "… large scale, low density, single-stand, peripheral, low income housing provision [continued] … at the expense of achieving quality objectives such as accessibility and sustainability" (Biermann, 2006, p. 24). Consequently, South African cities continue to be developed in fragmented, unsustainable urban forms despite the development and adoption of policy documents asserting the need for more sustainable settlements (Schoonraad, 2000).

1.1 Problem formulation

Breaking New Ground (BNG) was adopted by the Department of Human Settlements a decade after the White Paper on Housing. It sought to address the "'unintended consequences' of the existing housing programme [namely the RDP, which] included peripheral residential development; *poor quality products and settlements*; … the limited secondary low income housing market; … a slowdown in delivery; underspent budgets; … the increasing housing backlog; and the continued growth of informal settlements" (Tissington, 2011, p. 64) (emphasis added). The BNG presented Social (Medium-Density) Housing as one of the key housing delivery instruments[3]. This housing option was promoted as an intervention that could redress the negative spatial legacy of apartheid, speed up the

[3] Other housing instruments included in the BNG are the Informal Settlements Upgrading Instrument and the Rural Housing Instrument (DoH, 2004).

process of housing delivery, contribute to the creation of sustainable human settlements and improve the quality of life of South Africans (DoH, 2009; Ramashamole, 2011). It is often used to facilitate the acquisition, rehabilitation and conversion of vacant or dilapidated office blocks/buildings, thereby contributing strongly to government's commitment to inner-city regeneration (DoH, 2009; Ramashamole, 2011). To this end, social housing projects generally take the form of medium-density complexes with small self-contained units (i.e. bachelor, 1/2/3-bedroom units) that are located in cities close to social, community and recreational facilities (DoH, 2009).

As the global urban population grows and densities rise within urban environments, the importance of outdoor spaces has increasingly been highlighted due to limited internal living space (Mammon and Paterson, 2005; Tonkin, 2008). The need in particular for green outdoor space has also been highlighted given climate change concerns. The presence of green outdoor spaces, or green infrastructure, in residential projects can help alleviate the impact of climate change by providing cooling, wind breaks, water management, habitats for biodiversity and improved air quality (CLG Neighbourhoods, Cities & Regions Analysis Division of Communities & Local Government, 2009). This is in line with the SA Presidency's (The Presidency, 2012) proposal to introduce common sustainability criteria for giving priority to 'green infrastructure' when considering infrastructure investment.

Despite government discourse (i.e. state of the nation addresses, speeches and housing policies) purporting holistic housing delivery, the provision of adequate housing continues to be based on quantitative issues at the expense of achieving qualitative goals. Furthermore, the criticism of the poor quality of many South African housing environments continues (Khan and Ambert, 2003; Mackay, 1999). It may be argued that this has been no different with respect to social housing delivery, for which large quantities of units are constantly being developed[4]. The BNG and the Social Housing Policy consider the environments within which social housing projects are situated as an important element of social housing delivery. However, the DHS continues to set quantitative goals[5] and reports only on the number of social housing units delivered, with no consideration for the quality of the environment within which each project is located. This indicates that only the quantitative aspects of social housing delivery are monitored, measured and reported on. This situation is problematic because, as Drucker (1990) referring to the performance of non-profit organisations stated, without measuring it [the quality of shared outdoor spaces], it is not possible to improve it.

[4] The DoH reported in 2009 that 30,332 social housing units had been delivered nationally using the institutional subsidy and other funding sources between 1997 and 2005 (DoH, 2009).

[5] An increasing need for rental housing in South African urban environments (Melzer and Moothilal, 2008) has resulted in the DHS (amongst other interventions) rapidly increasing the supply of sustainable and affordable rental housing as a response to 'Outcome 8: Sustainable Human Settlements and Improved Quality of Household' delivery agreement (DHS, 2010). The agreement sets a quantitative target of 80,000 rental housing units, in well located areas, which must be delivered by 2014.

Several South African studies on social housing have been undertaken since this housing option was introduced through the country's Housing Act 107 of 1997. These investigate social housing from numerous perspectives, including reviews of the international social housing lessons that can be learnt (Ngxubaza, 2010; Pohl, 2006), social housing best practice (SHF, n.d.), policy commentaries on social housing (Eglin, 2002; SHF, 2001; USN, n.d.), governance within social housing (Bannister, 1999; Du Plessis and Duncker, 2000; Hayim, 2006; McLean, 2002; Parnell and Poyser, 2002), social housing and urban regeneration (Cheetam, 2001; Ramashamole, 2011), social housing stakeholders (Macagnano, 2005; Sobuza, 2010; Trusler, 2008), social/medium density housing design (Landman *et al.*, 2010; Landman *et al.*, 2009b; SHF, 2010; Sikhumbane, 2002; Tonkin, 2008; Wilson, 2000) and social housing residents (Crofton and Venter, 2000; Martin, 2001; Packery, 2009; Rust, 2001; Social Surveys, 2000). Apart from the social/medium density housing design studies (Landman *et al.*, 2010; Landman *et al.*, 2009b; SHF, 2010; Sikhumbane, 2002; Tonkin, 2008; Wilson, 2000), none of the other social housing studies investigate shared outdoor spaces.

Although the social/medium density housing design studies highlight numerous characteristics of shared outdoor spaces that may be relevant for this dissertation, these studies do not explicitly consider the quality of these spaces. The role of policy in the provision of quality shared outdoor spaces in social housing projects has also not been considered. This provides the researcher with an opportunity to contribute to the discourse on housing quality in South Africa. It is for this reason that this dissertation sought to assess the extent to which the quality of the shared outdoor spaces in three City of Tshwane social housing projects align with specifications in the Social Housing Policy. The policy specifications identified by the Social Housing Policy are considered a relevant point of departure for this assessment.

1.2 The research questions

This study is guided by the following main research question:

To what extent does the quality of the shared outdoor spaces within selected social housing projects in the City of Tshwane align with the specifications of the Social Housing Policy?

Three research sub-questions are posed in order to address this main research question:

i. What criteria and indicators are used locally and internationally for the assessment of the quality of shared outdoor spaces within housing projects?

ii. What specifications from the Social Housing Policy could be used to assess the quality of shared outdoor spaces in social housing projects?

iii. What criteria and indicators are useful for assessing the quality of shared outdoor spaces in the social housing projects selected for this dissertation?

1.3 The research design and methodology

The study adopted the pragmatic research philosophy which committed the researcher to the methods selected for data collection and analysis in this study. The adoption of this paradigm necessitated the use of mixed methods, meaning that both qualitative and quantitative approaches were used within the multiple case study research design. The multiple case study research design was considered appropriate because this study had to investigate the quality of shared outdoor spaces within the real life context of social housing projects.

Three data collection instruments were developed. These instruments were an Interview Schedule for Yeast City Housing (YCH) Management (ISM, see Appendix B), an Interview Schedule for YCH Caretakers/Building Supervisors (ISC, see Appendix C), the Spatial Analysis and Observation Schedule (SAOS, see Appendix D) and the Survey Questionnaire for Residents (SQR, see Appendix E). The quantitative and qualitative data collected were statistically and narratively analysed, respectively.

1.4 Delineations, assumptions and limitations

1.4.1 Delineations

This dissertation has a number of delineations, as listed below. This dissertation will:

i. Review the Social Housing Policy only in terms of the specifications that could be used to assess the quality of the shared outdoor spaces in selected social housing projects;

ii. Assess the quality of the shared outdoor spaces in social housing projects, not the quality of the building, units or the neighbourhood within which the projects are located;

iii. Assess selected social housing projects of CoT Social Housing Institutions that are fully accredited by the Social Housing Regulatory Authority (SHRA);

iv. Assess the quality of shared outdoor spaces, as defined in Section 2.1. No other types of outdoor space, including private, public and semi-private, will be assessed in this dissertation; and,

v. Assess the quality of the shared outdoor spaces in terms of the criteria and indicators defined in Chapter 3.

1.4.2 Assumptions

The following assumptions have been made in this dissertation:

i. The quality of the shared outdoor spaces was typical during the site observation of the selected accredited social housing projects.

ii. The attitudes of the respondents and interviewees were stable and they answered all survey and

interview questions accurately and truthfully.

iii. Accredited social housing projects are constructed to adhere to the Social Housing Policy.

1.4.3 Limitations

The findings of this dissertation are subject to the following limitations:

i. Only the quality of the shared outdoor spaces in three purposively selected social housing projects in CoT was assessed. Therefore, the findings in this dissertation cannot necessarily be generalized to Yeast City Housing's social housing stock, or South African social housing projects in general.

ii. The Survey Questionnaire for Residents (SQR) was completed by a convenience sample of tenants that do not represent the larger population of social housing tenants. Therefore, the findings for this dissertation may not be generalized to YCH's tenant population, or to the South African social housing tenant population.

iii. The SQR was self-administered, therefore respondent bias may exist.

iv. The SQR was administered in English and, although English is widely spoken in CoT, most respondents spoke Zulu and Sepedi. In an effort to mitigate any misinterpretation of the survey, the cover letter for the SQR was presented in Sepedi, Zulu and English. Despite this intervention, the possibility of misinterpreting or misunderstanding questions in the body of the SQR still exists.

v. A complete set of hard and soft copies of the technical documentation for each social housing project was not available from YCH. Only the site plans and some floor plans, with various levels of details, were available for all the projects. The study needed to obtain site, building and shared outdoor spaces areas from these plans. The researcher therefore used the dimensions available from these plans to calculate the required areas. These calculated areas are consequently only estimate areas.

1.5 Definitions of key terms and concepts

The key concepts and terms defined below will carry the following meaning in the context of this dissertation:

- "An *accredited housing institution* is defined as a legal entity established with the primary objective of developing and/or managing housing stock that has been funded through the grant programmes specified in this policy, which institution has been accredited by the designated regulatory body (defined in this policy). The housing stock can be owned by the housing institution, or it can be owned collectively by groups of residents". (DoH, 2009, p. 17)
- "An *accredited project* is a project in which government makes a subsidy contribution in order

to make rental units which are provided by a private sector actor affordable to those eligible for social housing. The project receives accreditation through the designated regulatory body". (DoH, 2009, p. 17)

- "*Amenities* are facilities that are provided for people's convenience and enjoyment, i.e. shops, parks, schools" (SHF, 2000, p. 36).
- *Shared outdoor spaces* are defined as outdoor spaces that are owned by a group and usually accessible only to members of that group (Marcus, 2002).
- "*Social housing* is defined as a rental or co-operative housing option for low income persons at a level of scale and built form which requires institutionalised management and which is provided by accredited social housing institutions or in accredited social housing projects in designated restructuring zones". (DoH, 2009, p. 17)
- *Sustainable human settlements* are well-defined entities in which economic growth and social development are in balance with the carrying capacity of the natural systems on which they depend for their existence and results in sustainable development, wealth creation, poverty alleviation and equity (DoH, 2004).

1.6 Structure of the dissertation

The structure of the chapters in this dissertation is illustrated in Figure 1.1. This figure shows which chapters respond to the research question and sub-questions posed in Section 1.2.

- Chapter 2 responds to the first two research sub-questions. It firstly explores housing quality literature with the intention of identifying criteria and indicators that are used for assessing the quality of shared outdoor spaces in housing projects. Secondly, it identifies specifications for the development of quality shared outdoor spaces in social housing projects from an appraisal of the Social Housing Policy.
- Chapter 3 addresses the third research sub-question. Using the findings from the literature review and Social Housing Policy appraisal, this chapter uses two guiding principles identified from the Social Housing Policy appraisal to identify criteria and indicators that will be used for assessing the quality of shared outdoor space in the selected social housing projects for this study.
- Chapter 4 presents the multiple case study as the research design selected for this dissertation. The chapter details data collection instruments (i.e. document review, observations, surveys and interviews) and analysis methods. Ethical considerations of the selected research methods are also discussed.
- Chapter 5 identifies the social housing projects selected as case studies for this study. This chapter presents and discusses the research findings of three case studies in response to the

fourth research question in this dissertation. These findings are obtained with the data collection instruments described in Chapter 4. The chapter also comparatively analyses and discusses the case study findings.

- Chapter 6 summarises the research findings and contributions. It also provides recommendations for future research and conclusions for this study.

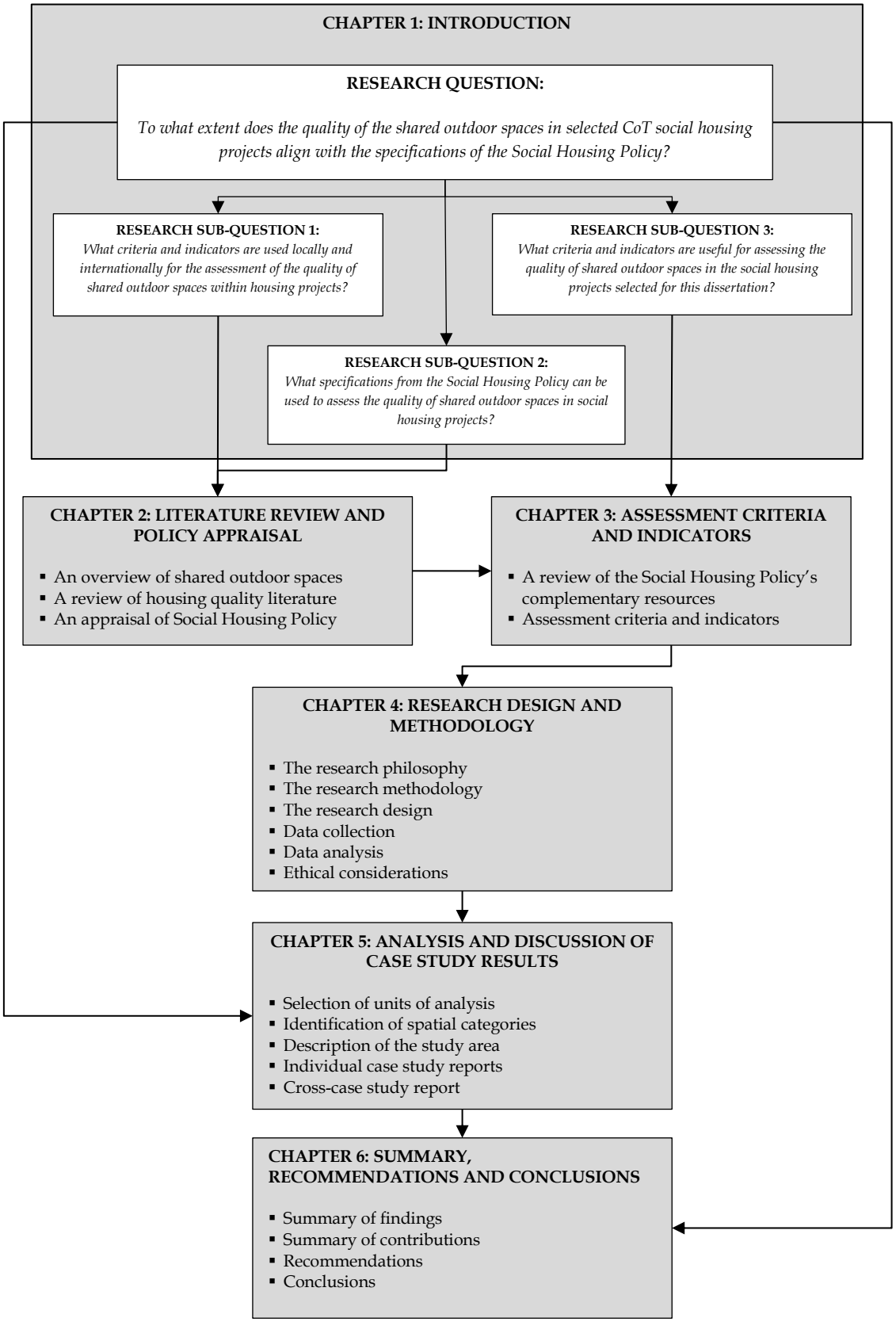


Figure 1.1 Structure of the dissertation

CHAPTER 2. LITERATURE REVIEW AND POLICY APPRAISAL

The previous chapter presented the main research question, which asked to what extent the quality of shared outdoor spaces in selected City of Tshwane social housing projects aligns with specifications in the Social Housing Policy. This chapter responds to two research sub-questions as illustrated in Figure 1.1. To this end, Section 2.1 provides an overview of shared outdoor spaces. This is followed, in Section 2.2, by a review of literature on housing quality which (in response to the first research sub-question) identified the criteria and indicators that were used to assess the quality of outdoor spaces within housing projects. Section 2.3 then appraises the Social Housing Policy to find (in response to the second research sub-question) specifications which could be used to assess the quality of shared outdoor spaces within social housing projects. Lastly, the chapter is summarised in Section 2.4.

2.1 An overview of shared outdoor spaces

According to Grobler (2006), outdoor spaces are formed by an architectural mass which in this dissertation is the building(s) within a social housing project. The Social Housing Policy (DoH, 2009) and Breaking New Ground (DoH, 2004) recommend a number of medium- to high-density typologies for social housing projects, including townhouses, row housing, multi-storey units and walk-ups. Buildings in medium- to high-density housing developments can take the form of any one or a combination of the basic building configurations as proposed by the Urban Foundation Housing Policy Unit (UFHPU, 1988); namely, pavilion, street and court (see Figure 2.1).

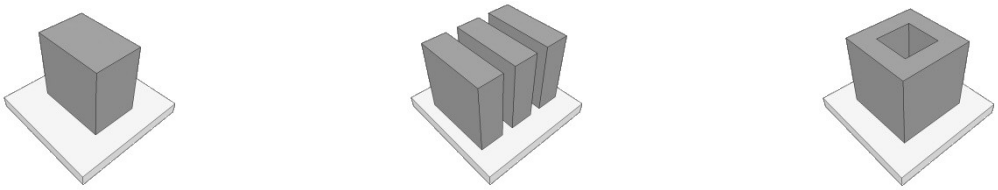


Figure 2.1 Basic building configurations: pavilion, street and court (UFHPU, 1988)

These building configurations result in the formation of different kinds of spaces (Ching, 1979; Grobler, 2006). For instance, in developments with the pavilion configuration, outdoor spaces are created along the site boundary, whilst in developments with the street configuration numerous separated/interlinked outdoor spaces are created between the building blocks and along the site boundary. Housing developments with the court configuration create outdoor spaces in the centre of the built form and along the site boundary. Regardless of how they are formed, Dewar and Uytenbogaardt (1991) argue that public spaces, i.e. outdoor spaces, are the primary elements that affect the quality of people's urban experience. They explain that these spaces are especially

important for the urban poor whose household needs may not be met holistically within small dwelling units. Dewar and Uytenbogaardt (1991) suggest that when shared outdoor spaces are rich social spaces, the entire environment becomes positive regardless of the quality of individual buildings.

Medium-density developments are generally understood to be approximately 40-100 dwelling units per hectare (gross), whilst high-density developments are commonly 100 or more dwelling units per hectare (gross) (CoCT, 1996; in Tonkin, 2008). Wood (1980 in Tonkin, 2008, p. 16) suggests that the open spaces, i.e. shared outdoor spaces, in medium- to high-density developments may be characterised by:

- A high need for open space/amenities;
- Removed access to the ground;
- Problematic issues concerning privacy and quietness;
- An open space that is 'undefensible' (sic) (Tonkin, 2008, p. 16) in nature;
- A common entrance that is not directly linked to the dwelling unit; and,
- Structured parking.

Numerous terms are used to refer to outdoor space, these include urban space (Atkinson, 2003), urban green space (Balram and Dragievi, 2005; Germann-Chiari and Seeland, 2004), defensible spaces (Brunson *et al*., 2001; Mayhew, 1979), communities of space (Day and Reingold, 2010), open spaces (Anderson and West, 2006; Geoghegan, 2002; Irwin and Bockstael, 2004; Kang, 2006; Tonkin, 2008; Wheeler, 2011), outdoor interactional spaces (Huang, 2006), common spaces (Kuo *et al*., 1998) and outdoor space (Aziz *et al*., 2012; Marcus, 2002).

These terms are used to describe outdoor spaces in terms of Newman's hierarchy of spaces, namely public, semi-public, semi-private and private spaces. Marcus' (2002) use of the term stands out because she expands the term "outdoor space" to encompass this hierarchy of spaces. Marcus' hierarchy of outdoor spaces are "private outdoor spaces", "public outdoor spaces", "semi-private outdoor spaces" and "shared outdoor spaces". Within residential areas, the hierarchy of outdoor spaces structures the physical layout, allowing residents varying degrees of control over the spaces that surround their homes (Newman, 1966).

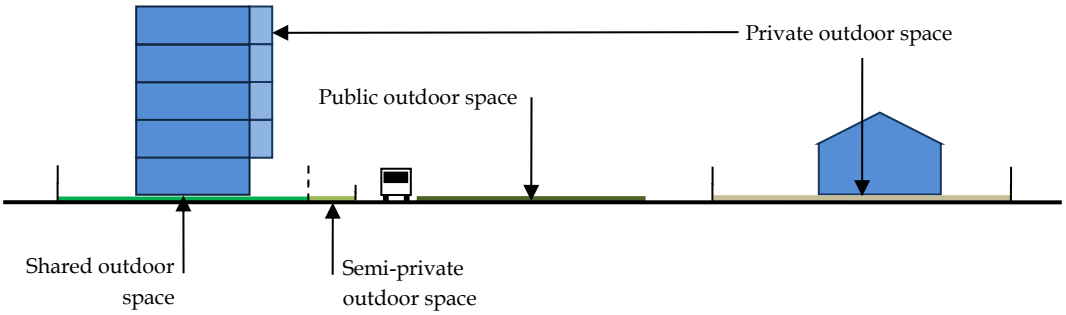


Figure 2.1 Diagrammatic interpretation of the hierarchy of outdoor spaces (Marcus 2002)

Figure 2.2 provides the researcher's interpretation of Marcus' hierarchy of outdoor space (2002). This shows shared outdoor spaces as the spaces that are outside housing units, but within a housing development. Marcus (2002) posits that 'shared outdoor spaces' are owned by a group and typically accessible only to members of that group. According to the Social Housing Policy, social housing is defined as a rental housing option that is developed and managed by a Social Housing Institution (SHI) (DoH, 2009). Since a SHI may manage and at times own a social housing project, it may be regarded as the group to which Marcus refers. Shared outdoor spaces within a social housing project are therefore only accessible to the people whom the SHI allocates to live there. Marcus' definition of shared outdoor spaces (2002) thus provides the most appropriate description for the spaces that will be under investigation in this dissertation.

In her Taiwanese study of three high-rise housing complexes, Huang (2006) divides these shared outdoor spaces into five spatial categories. Through the use of these spatial categories, she was able to see where residents most frequently interact (Huang, 2006). The five spatial categories are listed below with a description of the design elements she associated with them:

- Seating spaces have concave and/or convex seating;
- Scenic spaces have visual foci (i.e. water features and sculptures) and plants (i.e. trees, shrubs, and flowers);
- Circulation spaces have nodes (i.e. recesses) and routes (i.e. primary paths and secondary paths);
- Activity spaces include play areas (i.e. playgrounds) and open areas (i.e. plazas and lawn); and,
- Vague spaces are the undefined areas and border areas. (Huang, 2006)

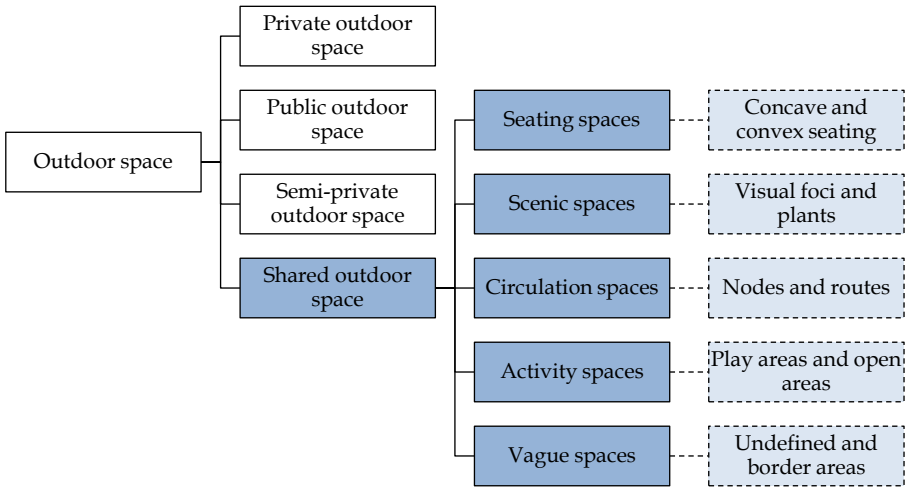


Figure 2.2 Hierarchy of outdoor spaces with categories of shared outdoor spaces (after Marcus 2002 and Huang 2006)

Figure 2.3 presents Marcus' hierarchy of outdoor spaces (2002) with Huang's categorisation of shared outdoor spaces (2006). In seeking to assess the quality of the shared outdoor spaces in social housing projects, this dissertation adopts Huang's approach (2006) of categorising shared outdoor spaces. Through this categorisation, the researcher was able to effectively organise the instruments for and process of collecting data in selected social housing projects during the fieldwork. Specifically, images of the spatial categories were incorporated into the Survey Questionnaire for Residents (SQR, see Appendix E) as visual aids for the residents in the respective social housing projects. Having data concerning the spatial categories organised in this manner also helped the researcher with structuring the discussion of the case study results presented in Chapter 5.

2.2 A review of housing quality literature

2.2.1 Defining housing quality

According to Goodman (1978), approaches to assessing the quality of housing focus on the dwelling unit and the outdoor spaces that surround them. Meng and Hall (2006) define "housing quality" as the level of adequacy of dwelling units and the immediate residential environment, explaining that the level of adequacy includes the design and functionality of residential structures, building materials used, the amount of indoor and outdoor space relating to the dwelling and basic services. In addition to structural adequacy, Kutty (1999) adds that other more common housing quality indicators are neighbourhood quality, residents' perception of neighbourhood safety, level of public services provided, access to work and other amenities, room density and housing affordability. The United Nations (UN) Habitat's consideration of housing quality supports Meng and Hall's (2006) and Kutty's (1999) definitions of this concept. According to UN-Habitat (2006), housing quality includes features such as durability of construction materials, structural soundness, spatial adequacy, and availability of basic services (i.e. water, sewerage and electricity, location in an area with good

connections with other parts of the city and infrastructure, and secured tenure). These features align with UN-Habitat's definition of adequate housing (2006), i.e. housing that has sufficient privacy and space, physical accessibility, adequate security, secured tenure, structural stability and durability, sufficient services and infrastructure, appropriate environmental quality and health related factors.

It is evident from these definitions that housing may be assessed at different built environments levels, including that of unit, outdoor space or neighbourhood. It is also evident that housing quality is a complex concept which is laden with physical, economic, social and cultural meaning. This concept may be measured either quantitatively or qualitatively (Ilesanmi, 2012; Meng and Hall, 2006); however, given its complexity it is difficult to measure. Quantitatively, Meng and Hall (2006) suggest that housing quality mainly considers objective factors, i.e. cost, quantity, tenure, economic impacts, environmental impacts and structural norms of housing standards.

Conversely, Özsoy, Atlas, Ok and Gülçin (1996) consider qualitative assessments as concerning the psycho-social and spatial quality characteristics that may be measured by users' subjective evaluations. The users' subjective evaluations are described by Meng and Hall (2006) as being the perceived meanings and values of factors such as 'comfort' and 'quality of life' that are offered by different dwelling types, lifestyles, and the residents' preferences and expectations. Numerous other authors (Aydinli, 2005; Meng and Hall, 2006; Özsoy *et al*., 1996; Rapoport, 1969 in Aydinli 2005; Weidemann and Anderson, 1985 in Mohit and Azim, 2012) agree that subjective evaluations, such as residential satisfaction, should be considered when the quality of housing is assessed.

In addition to being complex, Meng and Hall (2006) observe that the concept of housing quality is also relative because it concerns local norms and conditions. They explain that what is considered reasonable quality in one context may be considered poor quality in another and vice versa (Meng and Hall, 2006). Lawrence (1995 in Dursun and Saglamer 2009) adds that perceptions of housing quality may even differ between groups of people within a specific context at one point in time or over a long period.

Given the complexity and relativity of the concept, Meng and Hall (2006) argue that it is not possible to define one standardized set of criteria or indicators that is equally applicable to all geographic areas at all times. Dursun and Saglamer (2009) disagree; they posit that there is an urgent need for an integrated definition of housing quality with interrelated sets of architectural, demographic, economic, ecological and political factors. They argue that the urgency for such an integrated definition is due to the numerous collaborative works across different disciplines and research areas that have attempted to develop an understanding of the links between quality and residential spaces (Dursun and Saglamer, 2009). Some of these research areas include economics (Moon & Stotsky 1993; Gyourko & Linneman 1990; Kain & Quigley 1970), psychology (Evans et al., 2001; Evans and Kantrowitz, 2002), health (Keall *et al*., 2010), and the built environment (Altaş and Özsoy, 1998;

Aydinli, 2005; Chen, 2003; Dursun and Saglamer, 2009; Feitjen and Mulder, 2005; Franklin, 2001; Ilesanmi, 2012; Lawrence, 1995; Lelkes and Zólyomi, 2010; Liu, 2003; Mallon and Howard, 1971; Mkuzo, 2011; Özsoy *et al.*, 1996; Sikhumbane, 2002; Yust *et al.*, 1997).

As stated earlier in this chapter, this dissertation was guided by the main research question which sought to determine to what extent the quality of shared outdoor spaces in social housing projects aligns with the specifications in the Social Housing Policy. The researcher therefore developed a bespoke set of criteria and indicators based on the principles identified from the Social Housing Policy appraisal.

2.2.2 Housing quality assessment

The previous section defined the concept of housing quality. It highlighted the complexity and relativity of the concept. This section undertakes a review of housing quality assessment literature with the aim of responding to the first research sub-question, which asked what criteria and indicators were used locally and internationally to assess the quality of shared outdoor spaces in housing projects. A criterion is defined in the Oxford Dictionary as a principle or standard against which something may be judged, whilst an indicator is described as a thing that shows the level of something (Soanes, 2002). Together, criteria and indicators can provide a useful tool for assessing the level of achievement toward an objective or specific goal. Sauvageot (1997) referring to educational planning, further adds that an indicator is a tool that should not only make it possible to have a sense of the state of something, but also to report on that state.

The reviewed literature was selected from over forty housing quality assessment literature sources[6] using one criterion, i.e. literature sources had to have an element of assessing the quality of shared outdoor spaces. Using this criterion nine literature sources were selected for this review (Chen, 2003; City of Melbourne, 2013; Dursun and Saglamer, 2009; Ilesanmi, 2012; Morris et al., 1972; Muoghalu, 1991; Özsoy et al., 1996; Sikhumbane, 2002; Yust et al., 1997). The selected literature sources range in years from the early 1970s (Morris *et al.*, 1972) to the early 2010s (City of Melbourne, 2013; Ilesanmi, 2012). These sources have undertaken studies on different continents, including Africa (Ilesanmi, 2012; Muoghalu, 1991; Sikhumbane, 2002), Asia (Chen, 2003; Dursun and Saglamer, 2009; Özsoy *et al.*, 1996), Australia (City of Melbourne, 2013) and North America (Morris *et al.*, 1972). These literature sources are introduced and then discussed in terms of the research methods before a summary of the

[6] (Altaş and Özsoy, 1998; Aydinli, 2005; Berkoz *et al.*, 2009; Bonaiuto *et al.*, 1999; Castro, 2005; Chen, 2003; Christensen *et al.*, 1992; City of Melbourne, 2013; Coker *et al.*, 2008; Cook and Bruin, 1994; de Matos, 2009; DETR, 2000; Evans *et al.*, 2001; Feitjen and Mulder, 2005; Fiadzo *et al.*, 2001; Franklin, 2001; Galster, 1985; Gideon E. D. Omuta, 1988; Goodman, 1978; Gyourko and Linneman, 1990; Harrison, 2004; Ilesanmi, 2012; Iwata and Yamaga, 2008; Kahlmeier *et al.*, 2001; Kain and Quigley, 1970; Karim, 2012; Keall *et al.*, 2010; Lawrence, 1995; Lelkes and Zólyomi, 2010; Liu, 2003; Maliene and Malys, 2009; Mallon and Howard, 1971; Meng and Hall, 2006; Mkuzo, 2011; Moon and Stotsky, 1993; Morris *et al.*, 1972; Özsoy *et al.*, 1996; Pacione, 1984; Rindfuss *et al.*, 2007; Sidi and Sharipah, 2011; Sikhumbane, 2002; Twichell, 1948; van Kamp *et al.*, 2003)

criteria and indicators identified from the review is given.

The City of Melbourne (2013) used an adapted version of the UK's Building for Life[7] (BfL) tool to assess the quality of 25 Australian apartments developed between 2007 and 2013. This BfL tool is based on policy and standards, including the National Planning Policy, urban design principles and other English standards for housing design, i.e. Building Research Establishment Environmental Assessment Methodology (BREEAM) EcoHomes standard, the Code for Sustainable Homes, Lifetime Homes and Secured by Design.

In the case of the City of Melbourne (2013), approved building plans and relevant GIS data for the selected case studies were analysed through a desktop assessment. The assessment of the design quality was based on the BfL criteria, not on compliance with the Melbourne Planning Scheme and/or the Building Code of Australia. The BfL tool included fourteen criteria which were split into three sections as follows: *Integrating into the Neighbourhood* (i.e. (1) Connections, (2) Facilities and services, (3) Public transport/cycle parking, (4) Meeting local housing requirements); *Creating a Place* (i.e. (5) Character, (6) Working with the site and its context, (7) Creating well defined streets and spaces); and, *Streets and Home* (i.e. (8) Car parking, (9) Public and private spaces, (10) Creating well defined streets and spaces, (11) Design and construction, (12) Size, (13) Internal amenity, (14) Flexibility, adaptability and accessibility (City of Melbourne, 2013). Each criterion scored '1.0' (meets criteria fully), '0.5' (partially meets criteria) or '0.0' (does not meet criteria). Scores led to an overall assessment expressed as a mark out of 14. Case studies were graded as either 'Poor' (0-4), 'Average' (5-9) or 'Good' (10-14). The study found that just under half (48%) of the case studies were of average quality and a little over a third (36%) were of poor quality. Almost a fifth (16%) of the case studies was of good quality. These results help identify and explore emerging issues relating to the quality of housing design in the City of Melbourne (2013). Specifically, the report illustrates how design adds value to social, economic and environmental aspects and how it also helps create neighbourhoods and communities that are robust enough to meet future challenges and change. The study did not elaborate on the indicators associated with the criteria used; however, the researcher found that the BfL tool had a link with the Housing Quality Indicators (HQI) system developed by the Department of the Environment, Transport and the Regions (DETR, 2000).

The HQI system was developed by the DETR (2000) as a measurement and assessment tool for evaluating housing developments both qualitatively and quantitatively. The HQI system incorporated the design standards housing providers had to consider when delivering government funded housing in the UK. The DETR (2000) asserts that it is important that the dwelling is designed to relate not only to the way residents wish to live, but also to the context within which their home is

[7] The BfL tool was developed by the Cabe at the Design Council in partnership with the Home Builders Federation, Design for Homes and Nottingham Trent University (Birkbeck and Kruczkowski, n.d.).

located. The HQI system has ten indicators, including: (1) Location; (2) Site – visual impact, layout and landscaping; (3) Site – open space; (4) Site – routes and movement; (5) Unit – size; (6) Unit – layout; (7) Unit – noise, light, services and adaptability; (8) Unit – accessibility within the unit; (9) Unit – Sustainability; and, (10) External Environment - Building for Life.

Unlike the City of Melbourne (2013) and the DETR (2000), Dursun and Saglamer (2009) and Özsoy *et al*. (1996) developed models for their studies. With the use of their Model for Searching Housing Quality, Dursun and Saglamer (2009) observed quality issues in more than 300 Turkish housing units. Their exploratory model has four aspects, namely contextual aspects, spatial aspects, social aspects and economic aspects. Residents of different housing typologies were selected to participate in a survey that used the aspects identified in this model. This survey was supported by site observations and interviews. They found that housing environments in the observed units were not always experienced as they had been conceptualised during the design process. The Quality Assessment Model (QAM) of Özsoy *et al*. (1996) provided them with a systematic approach for assessing the quality of the built environment which helped them investigate socio-physical quality characteristics in selected housing projects. They conclude that user satisfaction may be maximised by numerous design principles, including the design of an outdoor space for multiple activities and the layout of an outdoor space that allows social interaction and solitude when required (Özsoy *et al*., 1996). The physical environment considers the negative spaces (i.e. shared outdoor spaces) and the positive spaces (i.e. buildings). The spatial quality characteristics are defined by the needs and requirements of human beings and the performance requirements of the built environment. The needs are both basic needs (i.e. human ergonomics, comfort, security, health, etc.) and psycho-social needs (i.e. privacy, personalization, identity, territoriality, status, social interaction, aesthetics, etc.). Neither study elaborated on the detail of their criteria or indicators.

Within the African context, Ilesanmi (2012), Sikhumbane (2002) and Muoghalu (1991) also study housing quality. Ilesanmi (2012) examined the housing and neighbourhood quality of 190 Nigerian housing blocks. He conducted a survey in eight purposively selected estates through expert rating by four independent assessors, using penalty scoring and operating within specific timeframes (Ilesanmi, 2012). He used multiple assessors to reduce the subjectivity of the rating process (Ilesanmi, 2012). He developed a set of criteria derived from the literature on housing quality indicators (Ilesanmi, 2012). These criteria are: (1) External visual quality; (2) Material quality; (3) Structural quality of buildings; (4) Detailing of buildings; (5) Quality of housing services; (6) Quality of neighbourhood roads; (7) Quality of landscaping; (8) Quality of open spaces; (9) Quality of environmental layout; and, (10) Quality of location (Ilesanmi, 2012). Ratings were implemented through observations and recordings, defects were noted and penalty scores assigned to the relevant variables measured (Ilesanmi, 2012). Ilesanmi (2012) uses penalty scoring which indicate the degree of defects evidenced, resulting in three grades of quality, namely: Poor (i.e. 2 or more defects); Fair (i.e. at least one defect); and, Good (i.e. no

defects). Criteria were uniformly weighted. The assessment process is outlined in the following three steps: (i) collection and examination of layout plans and architectural drawings; (ii) determining of the quality indicators and, (iii) preparation of the measurement and evaluators. His study concludes that innovative public housing design; implementation and management systems are needed to provide local solutions that focus on improving existing systems (Ilesanmi, 2012). Ilesanmi (2012) explains that these solutions need to integrate sustainability principles and practices in housing design, construction and planning. Similarly to the previous studies reviewed, he did not specify the indicators he used to measure the criteria identified.

Sikhumbane (2002) investigates whether two housing projects met user needs in terms of shelter provision. He observes that the South African White Paper on Housing has "wonderful visions that it intends to achieve, among them a good built environment that will improve the quality of life" (2002, p. 9). He developed a set of indicators, based on the White Paper on Housing, which assessed whether the quality of the built environment had the potential to improve the Quality of Life for the client communities. These indicators are: (1) integrated planned housing environments; (2) residential quality; (3) suitable building materials; (4) secure housing environments; (5) standard of dwelling units; (6) housing environments that allow flexibility and extensions; and, (7) housing environments that have developed infrastructure and social services (Sikhumbane, 2002). These indicators were developed in response to the City of Tygerberg's request for the identification of Key Performance Indicators as evaluation tools, as outlined in the Municipal Systems Bill of 1999 (Sikhumbane, 2002). His study does not detail the criteria against which his indicators were measured.

Similarly to Dursun and Saglamer (2009), Muoghalu (1991) analyses quality issues in the housing environments of over 300 housing units. He objectively derives housing quality criteria from Beninese legislation and policies, including: the Town Planning Act; the National Council on Standard housing definition; and, the Oredo Local Authority building and adoptive by-laws (Muoghalu, 1991). His assessment criteria measure housing quality in three different areas: (i) Structural material; (ii) Internal unit facilities provided; and, (iii) Environmental or neighbourhood amenities/facilities (Muoghalu, 1991). Similarly to Ilesanmi (2012) and the City of Melbourne (2013), Muoghalu (1991) uses a method of assigning penalties to housing elements that fail to meet accepted minimum standards. On aggregation, 25 variables are used as an indicator of housing quality (Muoghalu, 1991). Scores equal to or above the minimum indicate standard housing, while those below are indicative of deficient housing. In terms of environmental quality, Muoghalu (1991) finds that the quality of the environment in Benin is heavily impacted by poverty.

Yust *et al.* (1997) identify housing quality predictors that may serve to guide the development of future Philippine housing policies. They obtained data from 150 female headed households from ten rural Philippine villages. Logic regression was used to analyse this data. They found that the

household's socio-economic status, the location of the village, the age of the head of the household and tenure was significantly related to housing quality. Conversely, the number of building stories and the overcrowding measure were found to be insignificant when measuring housing quality. Their study provides guidance for assessing equitable housing distribution and economic development programs and policies. Chen (2003) investigates the housing quality achieved in four Chinese experimental housing projects developed as part of the Urban Pilot Housing Estate Programme. His Post Occupancy Evaluation study was undertaken with the intention of improving the planning and design of future Chinese housing programmes (Chen, 2003). He finds a gap between technology development and implementation in construction. He explains that local governments could implement the model of pilot housing set by national government without appropriate contextualisation (Chen, 2003).

Motivated by a lack of a simple method for measuring housing quality, Morris, Woods and Jacobson (1972) approach their study from a land economics perspective to develop a reliable and valid housing index. Litman (2011) describes an index as a set of indicators within a framework that is designed to facilitate the evaluation of a selected unit of analysis. Morris, Woods and Jacobson's study (1972) focuses on testing the feasibility of the standard techniques for data collection and the objectivity of the scoring system for rating the quality of dwellings across different types of neighbourhoods, including 'middle class' neighbourhoods, 'lower class' neighbourhoods and 'slum' neighbourhoods. Although their study focuses on the dwelling unit, their data collection and analysis methods may be beneficial for this dissertation. In addition to the availability of plumbing facilities (i.e. a proxy for other measures), they cite structural quality as important in determining the overall quality of a dwelling (Morris *et al*., 1972). They caution, however, that although highly visible in terms of the presence or lack of defects, structural quality is difficult to measure objectively (Morris *et al*., 1972). They explain that merely measuring the presence of defects is not sufficient, because the extent of a defect is inescapably part of the measurement (Morris *et al*., 1972). They obtained this from the 1940, 1950 and the 1960 census of housing which contains subjective estimates of the structural quality of a dwelling. The Morris *et al*. (1972) indicator set of 26 items is both objective and subjective. Subjective items (i.e. cleanliness and order of the site, state of repair of the furniture and the house in good order) are included in order to elaborate on the concept of quality (Morris *et al*., 1972). The analysis of the data collected is another important aspect of the Morris *et al*. study (1972). The analysis of the data collected included item analysis, correlation with external criterion and factor analysis. The item analysis method may be useful for this study, as it provides the researcher with some direction of how items in her study may be rated and analysed (Morris *et al*., 1972). The Morris *et al*. study (1972) found that the indicators they developed were better suited to measure housing quality than as a proxy measure. They also found that these measures are more reliable than measures used previously because objective scoring is used instead of subjective evaluations (Morris *et al*., 1972).

Table 2.1 Summary of criteria and indicators for assessing the quality of shared outdoor spaces

Author	Criteria / Indicator	Unit/building	Shared outdoor spaces	Neighbourhood/ Community
Morris *et al.*, 1972	Criteria and indicators	▪ Structural quality ▪ Service quality (e.g. presence of toilet facilities)	▪ Quality of caretaking	
Muoghalu, 1991	Indicators	▪ Structural material ▪ Internal unit facilities provided	▪ Environmental amenities/facilities	
Özsoy *et al.*, 1996	Criteria		▪ User needs (i.e. comfort, safety) ▪ Space organisation, flexibility	
DETR, 2000	Indicators	▪ Size ▪ Layout ▪ Noise, light, services ▪ Accessibility within the unit ▪ Sustainability	▪ Visual impact, layout and landscaping ▪ Open space ▪ Routes and movement ▪ External environment	▪ Location
Sikhumbane, 2002	Indicators	▪ Residential quality ▪ Suitable building materials ▪ Standard of dwelling units	▪ Secure housing environments ▪ Provision for flexibility ▪ Social infrastructure	▪ Integrated planned housing environments
Dursun and Saglamer, 2009	Criteria	▪ Quality of construction ▪ Size ▪ Availability ▪ Home ownership ▪ Housing preference ▪ User profile	▪ Spatial organisation ▪ Building characteristics ▪ Nature ▪ Comfort-maintenance ▪ Security ▪ Social relations	▪ Settlement characteristics ▪ Location-neighbourhood ▪ Accessibility-services ▪ Organisation ▪ Integration
Ilesanmi, 2012	Criteria	▪ Material quality ▪ Structural quality of buildings ▪ Detailing of buildings ▪ Quality of housing services	▪ External visual quality ▪ Quality of landscaping ▪ Quality of open spaces ▪ Environmental layout	▪ Quality of neighbourhood roads ▪ Quality of location
City of Melbourne, 2013	Criteria	▪ Internal amenity ▪ Design and Construction	▪ Character ▪ Working with site and context ▪ Well defined streets and spaces ▪ Easy to find your way around ▪ Car parking ▪ Public and private spaces ▪ External storage and space	▪ Connections ▪ Facilities and services ▪ Public transport ▪ Meeting local housing requirements ▪ Streets for all

Table 2.1 summarises the criteria and indicators identified in the literature reviewed. It should be noted that the Chen (2003) and Yust *et al.* (1997) studies were excluded from this summary because they do not have explicit criteria or indicators for assessing the quality of shared outdoor spaces. Numerous criteria and indicators have been identified from the literature reviewed. The criteria and indicators in the fourth column of the table (i.e. shared outdoor spaces) are relevant for this study. The criteria and indicators identified from the literature reviewed will assist the researcher in identifying specifications in the Social Housing Policy that guide the assessment of the quality of

shared outdoor spaces in social housing projects. In addition to this, these studies will be explored further to help the researcher identify indicators for this study.

The studies that have been reviewed show diversity in the criteria and indicators that assess the quality of shared outdoor spaces in housing projects. These vary in number and focus on different qualities. This diversity of criteria supports Meng and Hall's (2006) assertion that it is not possible to define a perfect set of housing quality indicators.

Despite the diversity and inconsistencies observed in the criteria and indicators presented in Table 2.1, a number of similarities are noted. These are concerned primarily with the application of these tools from the literature reviewed.

Morris *et al*. (1972), Muoghalu (1991), Ilesanmi (2012) and the City of Melbourne (2013) use a method of assigning a penalty to housing elements that fail to meet accepted minimum standards. This involves the implementation of ratings through observations and recordings. Defects are noted and penalty scores assigned to the relevant indicators. In the case of the City of Melbourne (2013), each criterion scored '1.0' (meets criteria fully), '0.5' (partially meets criteria) or '0.0' (does not meet criteria). Scores lead to an overall assessment expressed as a mark out of 14. Case studies are graded as either 'Poor' (0-4), 'Average' (5-9) or 'Good' (10-14). Morris *et al*. (1972) caution that although highly visible in terms of the presence or lack of defects, structural quality is difficult to measure objectively. They explain that merely measuring the presence of defects is not sufficient because the extent of a defect is inescapably part of the measurement (Morris *et al*., 1972). This method of assigning scoring and ratings is useful for assessing the quality of shared outdoor spaces in this study.

It is evident from the literature review that there are numerous approaches for assessing the quality of shared outdoor spaces. Table 2.2 summarises the research methods that have been used in the literature reviewed.

The table indicates that a number of literature sources (Dursun and Saglamer, 2009; Özsoy *et al*., 1996; Sikhumbane, 2002) use data collections instruments to undertake their respective studies. These include interview schedules and observation schedules. In general, observations are the main data collection method; in some instances supported by interviews and surveys of the site and layout. During such observations, Chen (2003), Sikhumbane (2002) and Özsoy *et al*. (1996) consider photographs to be a crucial tool for capturing the quality of the spaces under investigation. Chen (2003) explains that photography records housing conditions and user activities, thereby allowing for re-examination following the fieldwork.

Table 2.2 Summary of research methods used for assessing the quality of shared outdoor spaces

Literature source	Data collection	Data analysis
Yust *et al.*, 1997	Interview, spatial analysis	Statistical analysis
Morris *et al.*, 1972	Observational surveys	Statistical analysis
Muoghalu, 1991	Observational surveys	Descriptive analysis
Özsoy *et al.*, 1996	Quality Assessment Model with observations and interviews	Descriptive analysis
Sikhumbane, 2002	Interview, observations, survey	Descriptive analysis
Dursun and Saglamer, 2009	Model for Searching Housing Quality with Survey questionnaire reinforced by site observations and interviews	Descriptive analysis
Ilesanmi, 2012	Household survey, spatial analysis	Descriptive analysis
City of Melbourne, 2013	Observational surveys with the Building for Life tool	Descriptive analysis
Chen, 2003	Interviews, observations, spatial analysis	Descriptive analysis

Table 2.2 also shows the two data analysis methods that are generally used by the literature sources: statistical analysis (Morris *et al.*, 1972; Yust *et al.*, 1997); and, descriptive analysis (Chen, 2003; City of Melbourne, 2013; Dursun and Saglamer, 2009; Ilesanmi, 2012; Muoghalu, 1991; Özsoy *et al.*, 1996; Sikhumbane, 2002).

2.3 Appraisal of the Social Housing Policy

The previous section identified criteria and indicators used locally and internationally to assess the quality of shared outdoor spaces in housing projects (see Table 2.1) in response to the first research sub-question. This section uses the summary in Table 2.1 to identify specifications that could be used to assess the quality of shared outdoor spaces in social housing projects. The identification of these specifications responds to the second research sub-question.

With reference to the summary of criteria and indicators presented in the previous section, two guiding principles that focus on the quality elements of the shared outdoor spaces were identified from a list of sixteen principles that social housing must adhere to (DoH, 2009). These are: "foster the creation of quality living environments for low-income persons"; and, the "promotion of a safe, harmonious, and socially responsible environment both internal to the project and in the immediate environs" (DoH, 2009, p. 24). The researcher considers these guiding principles to have the potential for directing the development of quality shared outdoor spaces within social housing projects. The sub-sections that follow discuss these guiding principles as described or defined in the Social Housing Policy.

2.3.1 Creating quality living environments

Social Housing Institutions and private sector developers are identified in the Social Housing Policy as the social housing implementers that are expected to promote the creation of quality living environments (DoH, 2009). The Policy, however, provides no definition for the term introduced in

this guiding principle, namely "quality living environments". The researcher used the following statement from the policy to help her define this guiding principle:

> *"[T]he quality of units is not the only important focus – the* housing environment *is equally important. The total development encompasses the unit design, common areas such as walkways, staircases; services such as electrical and water reticulation and fire equipment; as well as the amenities that contribute to the social environment such as play areas, landscaping, parking, laundry and drying areas, and community meeting rooms. In project developments where the units are unavoidably small out of financial necessity, the overall environment is particularly important in providing relief in this respect" (DoH, 2009, p. 39).*

From this statement, the researcher deduced that the "quality living environments" social housing implementers were expected to create referred to the "housing environments" cited. "Housing environments" as defined in the statement above encompasses the shared outdoor spaces described by Marcus (2002) in Section 2.1. The researcher therefore considered this guiding principle as referring to the quality of shared outdoor spaces, the assessment of which is the main goal of this dissertation.

According to the Social Housing Policy, the creation of quality living environments may be achieved through the inclusion of "related social facilities and amenities where appropriate" and the provision of "adequate space to accommodate recreation and other needs related to higher density residential living" (DoH, 2009, p. 24). The policy specifies that "explicit attention must be paid to [the] design and construction quality, and the *rental units* must aim to achieve the spatial and physical quality set out in best practice precedents[8], which provide benchmarks for the sector" (DoH, 2009, p. 24 emphasis added). It further states that social housing projects are expected to "conform to and exceed the norms and standards set by the Minister, the National Building Regulations and the standards imposed by the National Home Building Registration Council (NHBRC)" (DoH, 2009, p. 40). Despite the emphasis on both the physical structure and the non-physical environment, the Social Housing Policy does not provide any detail regarding the design, material and development of quality shared outdoor spaces in social housing projects.

2.3.2 Promote a safe, harmonious, and socially responsible environment

The second guiding principle considered by the researcher as providing guidance in the development of quality shared outdoor spaces in social housing projects is the "promotion of a safe, harmonious and socially responsible environment". Unlike the first guiding principle, this guiding principle is not

[8] These best practice precedents refer to the Social Housing Project Reviews on the status of the sector that the Social Housing Foundation was responsible for between 2002 and 2010.

cited in the Social Housing Policy as being one of the social housing implementers' roles and responsibilities. However, it stands to reason that social housing implementers would also be responsible for the promotion of "a safe, harmonious, and socially responsible environment" in the social housing projects they manage. This second guiding principle is neither described nor defined in the Social Housing Policy. The researcher thus deduced that the policy offered no specifications for assessing the quality of shared outdoor spaces in social housing projects.

2.4 Summary of chapter

This chapter commenced with an overview of shared outdoor spaces which provided the researcher with an understanding of the spaces that were under investigation in this dissertation. This overview highlighted the need to sub-categorise the shared outdoor spaces so as to effectively organise data collection and also to provide structure to the discussion of the research findings presented in Chapter 5.

The overview of shared outdoor spaces was followed by a review of housing quality literature which showed the complexity and relativity of the concept. Housing quality literature was further reviewed, this included studies that assessed or had an element of assessing the quality of shared outdoor spaces. This review provides a diverse summary of criteria and indicators that are used locally and internationally to assess the quality of shared outdoor spaces in housing projects (see Table 2.1). This was in response to the first research sub-question. This diversity in the criteria and indicators affirmed Meng and Hall's assertion (2006) that it would not possible to develop a standardised set of housing quality criteria and indicators.

This summary was used to guide the appraisal of the Social Housing Policy. Two guiding principles were identified from this policy appraisal. These guiding principles were: (i) the creation of quality living environments; and, (ii) the promotion of safe, harmonious and socially responsible environments. They are identified as having the potential to provide guidance for the assessment of the quality shared outdoor spaces in social housing projects. The identification of these two guiding principles was in response to the dissertation's second research sub-question.

The summary of criteria and indicators and the guiding principles in this chapter assisted the researcher with the identification of assessment criteria and indicators for this dissertation (see Chapter 3).

CHAPTER 3. ASSESSMENT CRITERIA AND INDICATORS

Chapter 2 responded to two research sub-questions. It firstly provided a summary of the criteria and indicators that have been used locally and internationally to assess the quality of outdoor spaces in housing projects. The chapter then identified two guiding principles, from a Social Housing Policy appraisal, that could be used to assess the quality of shared outdoor spaces in social housing projects. These guiding principles were: (i) the creation of quality living environments; and, (ii) the promotion of safe, harmonious and socially responsible environments (DoH, 2009).

This chapter uses the criteria, indicators and guiding principles identified in the previous chapter to respond to the third research sub-question as illustrated in Figure 1.1. Section 3.1 reviews the resources found in the Social Housing Policy appraisal (see Section 2.3). This review of Social Housing Policy resources is followed by Section 3.2, which identifies the assessment goal, criteria and indicators that were used in this study. A summary of this chapter is then provided in Section 3.3.

3.1 A review of the Social Housing Policy's complementary resources

The appraisal of the Social Housing Policy in Section 2.3 identified two guiding principles that were considered useful for the development of quality shared outdoor spaces in social housing projects. These guiding principles were: (i) the creation of quality living environments for low-income persons: and, (ii) the promotion of a safe, harmonious, and socially responsible environment inside and outside of social housing projects.

No definitions or descriptions of either these guiding principles or the concepts in these guiding principles were presented in the Social Housing Policy. However, reference was made there to best practice precedents, as well as three complementary documents that social housing projects had to conform to. These best practice precedents and complementary documents are reviewed in this section with the intention of defining the concepts in the guiding principles and assisting in the identification of assessment criteria and indicators. These resources are reviewed in the sections that follow.

3.1.1 Best practice precedents

In 2002, the Social Housing Foundation (SHF) initiated the Project Review Series in an effort to document good practice case studies of social housing projects in South Africa (SHF, n.d.). The Social Housing Focus Trust (SHiFT) undertook the research for the Project Review Series and between 2002 and 2010, twenty three project reviews with a wide range of social housing typologies were produced

(SHF, n.d.). The project reviews present information concerning the project, including the background, location, site layout and unit design. Each project review concludes with a list of the key lessons learnt (SHF, n.d.).

In terms of the shared outdoor spaces, the project reviews provide a description of the facilities and amenities that were provided in the social housing projects (SHF, n.d.). In the 'Consolidated review of subsidised rental housing projects,' of which social housing projects were a part, the SHF (2010) acknowledges the variety of solutions across the twenty three projects and the lack of a standard for the provision of communal amenities. The SHF highlights some general principles that could be applied in the housing environments of future social housing developments. These include:

- Communal spaces (i.e. collective laundries, drying yards, venues for parties, meetings, play groups, after-school care, etc.) must be considered important elements of higher density housing developments. Communal amenities and services should work well in order to build a sense of community within social housing projects.
- Refuse collection areas, garden stores, cleaner's stores, etc. are an important part of the management of a project.
- Robust finishes in communal areas are required because these spaces are subjected to high levels of wear-and-tear. (SHF, 2010)

The aspects listed above provide no detail for measuring quality in shared outdoor spaces. However, they do align with several of the criteria and indicators listed in Table 2.1.

3.1.2 Complementary documents in the Social Housing Policy

The complementary documents of the social housing projects must conform to the norms and standards set by the Minister, the standards imposed by the NHBRC and the National Building Regulations. A review of these documents follows.

The norms and standards are provided in the National Housing Code. They are concerned with the construction of stand-alone residential dwellings which are not the focus of this study. Although the Social Housing Policy expects social housing projects to conform to norms and standards, no norms and standards specific to social housing projects were found during the study.

The 'NHBRC standards' are provided in 'The Home Building Manual'. This manual was developed to provide technical requirements and guidelines (NHBRC, 2014). Similarly to the norms and standards, this manual focuses on the design and construction of buildings. Neither the quality of the shared outdoor spaces or the concepts of safe environments, harmonious environments or socially responsible environment are considered.

Quality issues concerning shared outdoor spaces are not explicitly discussed in the NBR. However, unlike the other two complementary documents, there are some parts in the NBR applicable to the quality of shared outdoor spaces in housing projects. These applicable parts are "Part R: Storm water disposal" and "Part U: Refuse disposal". In terms of storm water disposal, the NBR highlights the need for a property owner to provide a suitable means for controlling and disposing of accumulated storm water runoff from the building or paving (Keuter, 1977). With regard to refuse disposal, the NBR requires that adequate storage for refuse containers must be provided (Keuter, 1977). The aspects addressed in these two NBR parts are not addressed in the summary of criteria and indicators presented in Chapter 2.

It is also worth noting that the NBR makes reference to architects and registered persons, i.e. engineers, for the design and construction of buildings. This is significant since the South African Council for the Architectural Profession (SACAP) states that only "SACAP Registered Professionals[9] may submit plans to Local Authorities" (SACAP, n.d.). As designers, architects and landscape architects are responsible for creating sustainable environments within the design and development phase, the role of designers during these initial phases is therefore crucial in the implementation of sustainability and subsequently the creation of quality environments (Edén, 2003). This, as illustrated in Figure 3.1, is because the ability to influence the development of buildings is highest in the initial phase (i.e. upstream), whilst the cost is lowest and vice versa (Sparrius, 1998 in; Conradie and Roux, 2008). Given their significant influence in the initial stages of a building's lifecycle, Muazu and Oktay (2011) assert that designers can greatly influence opportunities for improving buildings and shared outdoor spaces during the latter phases of a building's lifecycle.

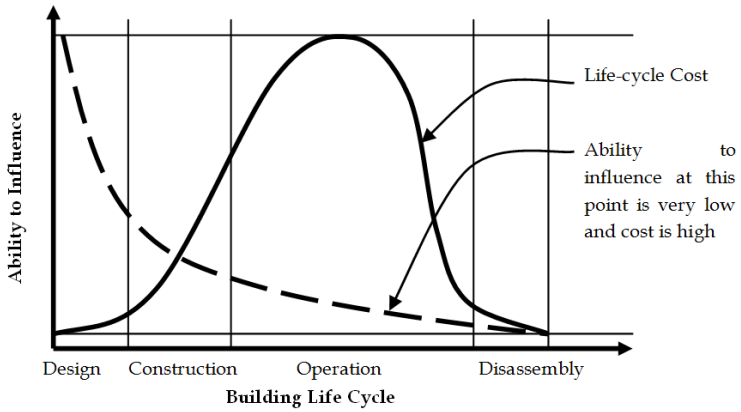


Figure 3.1 Ability to influence building performance (Sparrius, 1998 in Conradie and Roux, 2008)

From this review, it is evident that these complementary documents focus on the design and construction of buildings. Apart from the NBR, which provides some guidelines on the design of

[9] The following documents are required for plan submission: (i) Proof of SACAP Registration - certified copy of original SACAP Registration certificate; and (ii) Original Compliance Certificate which must be signed by the Registered Professional and authorised agent/client submitting the plans.

external environments, these complementary documents do not consider the design or the development of external environments in any housing environment unequivocally. They can thus not be relied on for developing the concept of quality shared outdoor spaces with regard to the criteria and indicators for this dissertation.

3.2 Assessment goal, criteria and indicators

The concept of 'living environments' in the first guiding principle was considered in Section 2.3.1 to include the 'shared outdoor spaces' described in Section 2.1. Since it was also concerned with quality, the first guiding principle is deemed to be aligned with the goal of this dissertation's assessment, which is to assess the quality of shared outdoor spaces in social housing projects. This first guiding principle was therefore converted to the goal of the assessment in this study.

The second guiding principle, 'the promotion of safe, harmonious and socially responsible environments' builds on the assessment goal in response to the third research sub-question. Unlike the first, this second guiding principle is neither defined nor described in the Social Housing Policy. In an effort to better understand it, this guiding principle was separated into three components, namely safe environments, harmonious environments and socially responsible environments. None of these components are described or defined in the policy.

Therefore, in the absence of descriptions and definitions for (the components of) this second guiding principle, the researcher relied on standard definitions and related research to interpret these. The interpretations of these components are discussed in the next three sub-sections. These components of the second guiding principle support the assessment goal identified in the first guiding principle. They are thus deemed to be the assessment criteria for this study.

In addition to presenting the three criteria extracted from the second guiding principle, these sub-sections also identify indicators from the summary of criteria and indicators presented in Table 2.1. The literature reviewed in these sub-sections provides sufficient guidance for the researcher to identify indicators that are relevant and appropriate for this study. This review found that a more in-depth consideration of the summary of indicators was required for the researcher to identify and select indicators. Indicators are regarded as relevant and appropriate if they assess the quality of shared outdoor spaces for a specific criterion or sub-criterion and are observable, unambiguous and easy to understand. The indicators in the Department of the Environment, Transport and the Regions' (DETR, 2000) Housing Quality Indicators (HQI) system fit these criteria and are useful for this study. The researcher thus relied on the HQI system to identify indicators for each criterion from the Social Housing Policy appraisal.

3.2.1 Safe environments

Crime Stats SA (2013) states that over 2 million crimes had been reported in South Africa during 2013. Crimes include 'Contact crimes'[10] (28%), 'Property-related crimes'[11] (25%) and 'Other serious crimes'[12] (24%). These crime statistics affect South African settlements, some of which have consequently been characterised by high walls, alarms, window bars and security gates. Given these high crimes rates in South Africa, it was fitting that safety be considered as one of the factors when developing the shared outdoor spaces of social housing projects.

The concept of safe environments is not defined in the Social Housing Policy; however, the policy states that "social housing … must demonstrate its ability to … reduce crime in an area through quality, well-maintained physical environments and good management practices" (DoH, 2009, p. 24). From this statement, the researcher deduced that, similarly to Kruger, Landman and Liebermann's *"Designing Safer Places: A Manual for Crime Prevention through Planning and Design"* (2001), the policy seeks to reduce the causes of and opportunities for criminal activities. The manual of Kruger *et al.* (2001) aims to address this through the application of sound planning, design and management principles to the built environment. The CPTED guide of Kruger *et al.* (2001) outlines five principles, namely access and escape routes, image and aesthetics, surveillance and visibility, territoriality and target hardening. Descriptions by Kruger *et al.* of these CPTED principles provided sufficient guidance for the researcher to identify indicators from the HQI system described in the previous chapter. These CPTED principles were adopted as sub-criteria for the safe environments criterion. These sub-criteria are discussed below with their associated indicators.

A. Access (and escape routes)

The objective of the *access and escape routes* principle is to "limit opportunities for offenders to utilise access and escape routes such as vacant land [and to] enhance the level of ease with which potential victims could find and access escape routes (Kruger, 2012 with reference to; Kruger et al., 2001).

Table 3.1 presents indicators identified from the HQI system that the researcher considers to be relevant to this sub-criterion.

[10] Murder, sexual crimes, attempted murder, assault with intent, common assault, common robbery and robbery with aggravating circumstances (Crime Stats SA, 2013).

[11] Burglary (residential/non-residential), theft of vehicle/motorcycle, theft from vehicles, stock theft (Crime Stats SA, 2013).

[12] All theft not mentioned elsewhere, commercial crime, shoplifting (Crime Stats SA, 2013).

Table 3.1 Indicators for the sub-criterion: Access (DETR, 2000)

ID	Indicators
A1	Is it easy to understand how to enter and move about the site?
A2	Does layout of site discourage 'cutting corners' across landscaping and/or private space?
A3	Is site route network designed to discourage strangers and hinder escape?
A4	Is main entrance clearly visible and hiding places, near front doors and pedestrian routes avoided?
A5	Is the hierarchy of routes clear?
A6	Is vehicle segregation possible to help pedestrians (e.g. young children) to use safe routes?
A7	Can large, emergency or service vehicles come within 30m of all front doors of units or flats?
A8	Are there spaces for refuse and service/delivery vehicles to stand without blocking routes?
A9	Is there a canopy/porch over main entrance with light?

Chen (2003) uses a permeability diagram (see Figure 3.2) to graphically illustrate the relationships between the rooms in a house for his study.

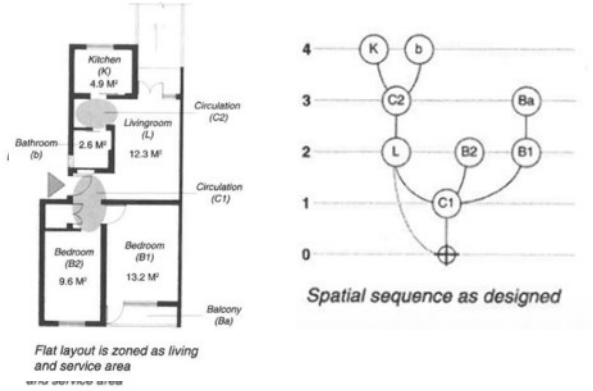


Figure 3.2 Permeability diagram showing relations between rooms in a house

Although his study focused on the housing unit, such a diagram is also useful for communicating the connections between different spatial categories within a housing development, as is the case in this dissertation.

B. Image and aesthetics

The objective of the *image and aesthetics* principle is to "ensure that the physical appearance of an environment [(i)] creates a positive image and [(ii)] instil feelings of safety in users (Kruger, 2012 with reference to; Kruger et al., 2001). According to Wheeler (2011), the quality and maintenance of outdoor spaces can contribute to high levels of satisfaction, use and social interaction.

Table 3.2 presents indicators identified from the HQI system that the researcher considers to be relevant to this sub-criterion.

Table 3.2 Indicators for the sub-criterion: Image and aesthetics (DETR, 2000)

ID	Indicators
IA1	Are elements associated with the overall site (lighting, street furniture, street names and direction signs, curbs, benches/seats, etc.) well detailed, co-ordinated with each other and carefully located?
IA2	Are external elements associated with the dwellings (walls and fences, garages, refuse bin screening, electricity meter boxes, drainpipes, handrails, etc.) well detailed and co-ordinated?
IA3	Are any elements that could confer a special identity to the site used to do so?
IA4	Are refuse and storage bin storage areas convenient and inconspicuous?
IA5	Is communal bin storage serviced by tap and drainage for cleaning?
IA6	Are there hard surfaces or soft landscaping in the scheme?
IA7	Is there varied planting to create visual interest in different seasons using height, colour and texture?
IA8	Are there trees in the public open spaces and streets?
IA9	Has a qualified landscape architect been used to create or assess the landscape design?

Shared outdoor spaces need to be carefully designed to suit its intended purposes and to facilitate natural surveillance (discussed in the next section); this can be enhanced through landscape features such as planting and ground contouring (Wheeler, 2011). As such, careful attention should be given to the size, height and scale of planting (Wheeler, 2011). To this end, advice should be sought during the design stage to prevent problems arising when plants reach maturity (Wheeler, 2011).

C. Surveillance and visibility

The objective of the *surveillance and visibility* objective is to "maximise opportunities for observance of public and private areas by [(i)] users or residents during the course of their normal activities (passive surveillance, "eyes on the street") [and (ii)] police or other security personnel (active surveillance) (Kruger, 2012 with reference to; Kruger et al., 2001). Wheeler (2011) posits that shared outdoor spaces must be carefully designed to enable passive surveillance and visibility within housing projects. *Visibility* is the degree to which an environment is made visible by elements such as lighting and uninterrupted lines of sight (CSIR, 2005).

Table 3.3 presents indicators identified from the HQI system that the researcher considers to be relevant to this sub-criterion.

Table 3.3 Indicators for the sub-criterion: Surveillance and visibility (DETR, 2000)

ID	Indicators
S1	Does building grouping, position of windows or cameras allow surveillance of unexpected visitors?
S2	Does building grouping and position of windows allow supervision of open space and play?
S3	Are vulnerable points on buildings visible to other residents or passers-by?
S4	Are public spaces connected by clear, well lit and hard surface routes?
S5	Is lighting appropriately related to buildings and easy to maintain?
S6	Does position of lighting prevent 'pools' of darkness where people walk both outside and in common parts of flats?
S7	Are public spaces and pedestrian routes overlooked and do they feel safe?

D. Territoriality

The *territoriality* principle aims to "encourage a sense of ownership[13] of, and responsibility for, a space by employing mechanisms that allow residents or users to [(i)] identify with the space and [(ii)] experience it as legible" (Kruger, 2012 with reference to; Kruger et al., 2001). This improves the likelihood of passive surveillance discussed above. According to Dee "spaces are often defined by boundaries of ownership" (Dee, 2012, p. 120). She argues that ownership may be considered the single most influential factor in defining the physical form of landscape spaces (Dee, 2012). Llewelyn-Davies (2000) explains that when people consider (public) spaces as their own, they begin to take responsibility for them. Wheeler (2011) suggests that all spaces need to be clearly defined in terms of use and ownership because ambiguity may lead to inappropriate use and a lack of maintenance.

Madanipour (2003) considers the division of private and public spaces to be the defining feature of built environment levels. The demarcation between the public and semi-private outdoor spaces in the social housing projects is clearer where certain spaces are fenced off and/or locked. This demarcation or division controls movement, as well as access to places and activities; spaces are thus a reflection of power relations as well as the main indicator of how a community arranges itself (Lefebvre, 1992; Madanipour, 2003). In residential environments, the transitional edges between public and private landscapes are significant both socially and aesthetically therefore designers need provide distinct functions for these places (Dee, 2012).

Table 3.4 presents indicators identified from the HQI system that the researcher considers to be relevant to this sub-criterion.

[13] It does not refer to ownership in the sense of a tenure option.

Table 3.4 Indicators for the sub-criterion: Territoriality and ownership (DETR, 2000)

ID	Indicators
T1	Is the private/shared open space enclosed within unit boundaries, well designed in shape, dimension and location?
T2	Do different public areas have specific differentiated characters?
T3	Are spaces between buildings planned for specific uses?
T4	Are boundaries between public and private spaces clear?
T5	Are spaces that are to be shared by residents but not for the general public clearly defined?

E. Target hardening

The *target hardening* principle aims to "reduce the attractiveness or vulnerability of potential targets by [(i)] physically strengthening it [and (ii)] installing mechanisms that will increase the effort required to commit an offence" (Kruger, 2012 with reference to; Kruger et al., 2001). Lemanski (2004) surmises that target hardening elements provide a mechanism for people to use to alleviate fear and mitigate the occurrences of crime. It is important that target hardening elements are neither visually obstructed nor visually intrusive.

Target hardening elements may be visually obstructive and unintentionally provide hiding places for offenders (CSIR, 2005). In addition to being visually obstructive, target hardening elements may be visually intrusive. Llewelyn-Davies argues that it is possible to secure building and outdoor spaces without resorting to 'offensive' security measures or creating 'fortified territories' that undermine a society's quality of life (2000, p. 106). Both sources suggest that target hardening elements may be transformed or designed as works of art.

Table 3.5 presents indicators identified from the HQI system that the researcher considers to be relevant to this sub-criterion.

Table 3.5 Indicators for the sub-criterion: Target hardening (DETR, 2000)

ID	Indicators
T1	Is casual intrusion by non-residents beyond clearly defined public areas discouraged – e.g. using barriers, 'gates', concierges or security systems?
T2	Is there an entry phone or other security system to main entrance of block of flats?

Wheeler (2011) observes that studies show that people who spent time outside perceived their neighbourhood to be safer that those who spent less time outside; creating harmonious environments may promote this.

3.2.2 Harmonious environments

Similarly to safe environments, harmonious environments are not defined in the Social Housing Policy. However, unlike safe environments, there are no statements in the policy that the researcher can use for guidance on what is meant by this concept. Agenda 21 and the Habitat Agenda are two of many international instruments to which South Africa refers in the development of its housing

legislation and policies. They can thus be considered the key guiding documents in the housing sector. The Habitat Agenda for instance states that the aim of sustainable human settlements is to provide "all people, in particular those belonging to vulnerable and disadvantaged groups, with equal opportunities for a healthy, safe and productive life *in harmony with nature* and their cultural heritage and spiritual and cultural values" (United Nations, 2003, chap. 3 (b)). The researcher considers the phrase 'in harmony with nature' as key to this dissertation's definition of the concept of harmonious environments.

From the literature reviewed in Section 2.2.2, one study was considered relevant to the notion of developments that are undertaken in harmony with nature; this was the City of Melbourne's (2013). It cites 'Working with the site and its context,' which is concerned with whether a development took advantage of the existing topography and/or buildings, landscape features, site orientation and microclimates (City of Melbourne, 2013). These four aspects give an indication of the potential areas that may be assessed in terms of harmonious environments.

Table 3.6 Indicators for the criterion: Harmonious environments (DETR, 2000)

ID	Indicators
H	**Hardscaping**
H1	Are hard surfaces varied – to suit relation to buildings or identify larger areas with different uses?
H2	Car space does not dominate elevation – e.g. less than half width of elevation
L	**Landscaping**
L1	Has planting been related to climatic conditions to provide wind protection and/or shade?
L2	Is landscaping able to be easily and cost effectively maintained?
L3	Water metering for all water use
SE	**Site elements**
SE1	Are existing important elements (natural or man-made) protected, to give the site maturity?
SE2	Are units grouped to take best advantage of local topography?
SE3	Has best advantage been taken of sunshine for views, heat and light in outdoor areas and in dwellings?
SE4	More than 50% of the site is 'brownfield' i.e. previously built upon, reclaimed from industrial processes or landfill
SE5	Is public space well designed and does it have suitable management arrangements in place?
SE6	Do buildings or spaces outperform statutory minima, such as Building Regulations?
SE7	Does the development have any features that reduce its environmental impact?

From a review of the HQI system, the researcher identified three elements that consider some of the four aspects from the City of Melbourne (2013). Indicators that assess the quality of shared outdoor spaces were identified in terms of hardscaping, landscaping and natural elements. These three elements are useful for structuring the identified indicators; they will be used as the sub-criteria. Table 3.6 presents these sub-criteria and related indicators identified from the HQI system that the researcher considers to be relevant to this criterion.

3.2.3 Socially responsible environments

Similarly to the other two concepts, socially responsible environments are not defined in the Social Housing Policy. Sreenivasulu (2013) referring to education, suggests that the concept of social responsibility entails the creation of socially responsible environments. Sreenivasulu (2013) defines 'social responsibility' as "an ethical or theory that an entity, be it an organization or individual, had an obligation to act to benefit society at large" (Sreenivasulu, 2013, p. 31). This author also suggests that the term 'social responsibility' refers to a duty every organization or individual has of maintaining a balance between the economic and the natural environments (Sreenivasulu, 2013). The author further explains that this responsibility could either be passive (i.e. avoidance of engagement of socially harmful acts) or active (i.e. the performance of activities that explicitly advance social goals) (Sreenivasulu, 2013).

From Sreenivasulu's definition (2013), the researcher interpreted socially responsible environments to be environments which benefit all the residents of a social housing project. Wheeler (2011) suggests that in considering different user needs, the design of outdoor space could be considered to be inclusive. She observes that in cases where different user needs are understood, a greater sense of ownership and informal stewardship exists.

Gehl observes that people need to have contact with each other within urban contexts; even on the most basic or superficial level (Gehl, 1987). Jacobs (1961) referring to the neighbourhood scale, and Talen (2002) concur that the casual contacts or chance encounters people have with one another can strengthen community bonds – which the researcher considered to be the objective of this criterion (i.e. socially responsible environments). Together with social networks, social interactions form part of the concept of social capital (Putnam, 2001) which may be considered as a measure of the strength of social cohesion (McNeill *et al.*, 2006). Since, as argued by Breed (2008), the activities of designers and planners have an impact on social interaction and community formation, the researcher reasons that a socially responsible environment is one that encourages social interaction between people regardless of the strength of this interaction.

According Gehl (1987) the act of socialising is one of three types of activities that may take place within shared outdoor spaces, namely: necessary activities; optional activities; and, social activities. He describes these outdoor activities as follows:

- Necessary activities are generally compulsory and primarily related to walking to various places (i.e. school, bus, work). There is no choice regarding whether these activities occur or not, their incidence occurs under all conditions and is slightly influenced by the physical environment. Examples include walking, hanging out clothes, tending kids, tending vehicles, putting out rubbish, tending to plants, checking mail (Aziz *et al.*, 2012; Gehl, 1987; Kang, 2006).

- "Optional activities are recreational and fun" (Gehl, 2010, p. 18). These activities include *inter alia* leisure walking, sunbathing and reading. The incidence of these activities is dependent on the quality of the outdoor space and only occurs when the external conditions are optimal. Examples include watching events/views, playing alone, on phone/computer, relaxing/sitting, smoking, reading/writing, eating/drinking, leisure walking, exercising (Aziz *et al.*, 2012; Gehl, 1987; Kang, 2006).

- "Social activities include all types of communication between people in city space and require the presence of other people"; there are two types: active forms (e.g. greetings, talking and meeting) and passive forms (e.g. watching people and what is happening) (Gehl, 2010, p. 22). Examples include conversation/talking, playing in a group, greeting, watching/sitting in group, door to door visit, meeting/gathering, exercising (Aziz *et al.*, 2012; Gehl, 1987; Kang, 2006).

Although the outdoor activities will not be observed in this dissertation, the spatial settings will be. It is therefore important for the researcher to be aware that each type of activity requires certain physical settings and that the physical environments needed for different types of activity are significantly different from each other (Gehl, 1987).

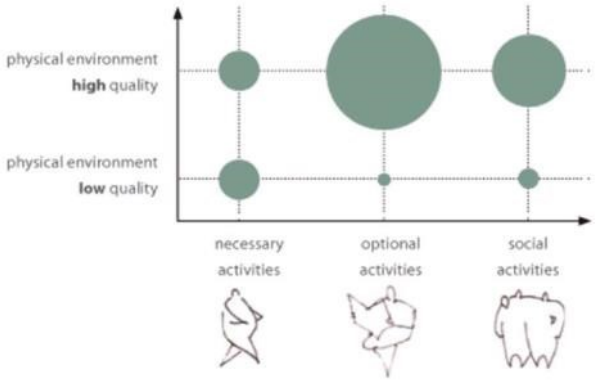


Figure 3.3 An illustration of the connection between the quality of outdoor environments and activities (Gehl, 2010)

Gehl (1987) asserts that each of these activities have different demands on the physical environment. Figure 3.3 explains his assertion by illustrating the connection between the quality of the outdoor environment and outdoor activities (Gehl, 1987). He posits that when the quality of the outdoor spaces is low, only necessary activities occur. Conversely, he adds that when the quality of the outdoor spaces is high, the frequency of necessary activities does not change, but their duration is increased. He adds that where quality of the outdoor spaces is high, optional activities will also occur. Wheeler (2011) supports this notion, adding that good quality open space brings people together, thus increasing informal social activity and surveillance. Table 3.7 presents indicators identified from the HQI system that the researcher considers to be relevant to this criterion.

Table 3.7 Indicators for the criterion: Socially responsible environments (DETR, 2000)

ID	Criteria and indicators
SP	**Spaces for play**
SP1	Is the housing designed for households with children?
SP2	Are play areas provided for 2-5 year olds within sight of 100% of family dwellings?
SP3	Are play areas provided for 5-12 year olds – at a minimum of one for 40 dwellings?
SP4	Are play areas fitted with play equipment for the age group?
SP5	Is energetic play provided for, e.g. by adventure playgroup, cycle paths
SP6	Are play areas and public spaces sited to avoid nuisance to neighbours?
IE	**Inclusive environments**
IE1	Clothes drying facility with access path with no level change
IE2	Are kerbs dropped where foot paths cross roads?
IE3	Pedestrian routes and garden paths – firm, even, slip-resistant finish, distinctive texture/colour
IE4	Paths with minimum width of 1000mm
IE5	Gateways min width 850mm and no step
IE6	Convenient wheelchair accessible parking space within 30m of main entrance for 100% of units

According to Wheway and Millward (1997), the quality of the shared outdoor spaces, particularly the green spaces and individual elements within them can contribute to perceptions of satisfaction, safety and use. Sugiyama (2009 in Wheeler, 2011) explains that unobstructed paths are important for older people's use of spaces, as well as for children's play, including wheeled activities and social activities with other children (Wheway and Millward, 1997).

3.3 Summary of chapter

Two guiding principles from the Social Housing Policy appraisal (see Section 2.3) were identified as having the potential to provide guidance for the assessment of the quality of shared outdoor spaces in social housing projects. These guiding principles were: (i) "the creation of quality living environments"; and, (ii) "the promotion of safe, harmonious and socially responsible environments". The creation of quality living environments is considered to be synonymous with the concept of housing quality. It was thus aligned with the goal of assessing quality of shared outdoor spaces in social housing projects. The researcher therefore considers the first guiding principles to be the goal (i.e. creation of quality living environments). The second guiding principle was separated into three components, namely: (i) safe environments; (ii) harmonious environments; and, (iii) socially responsible environments. These are considered the principles or criteria required for the achievement of the goal. These components are regarded as the assessment criteria or principles for this dissertation. Since the Social Housing Policy provided none, definition of these three guiding principles/criteria were discussed in Sections 3.2.1, 3.2.2 and 3.2.3. Indicators, with their related sub-criteria, were identified from the HQI system. The identification of the criteria, sub-criteria and indicators in this chapter respond to the third research sub-questions.

Gibberd (2003) suggests that assessment frameworks have a hierarchical structure consisting of three

key elements, namely a goal, criteria/principles and indicators. The goal, criteria and sub-criteria identified in this chapter are graphically illustrated in the assessment framework presented in Figure 3.5. This framework together with related indicators identified in Sections 3.1 and 3.2 guided the development of data collection and analysis methods described in Chapter 4. It also helped the researcher structure the analysis and discussion of research results in Chapter 5.

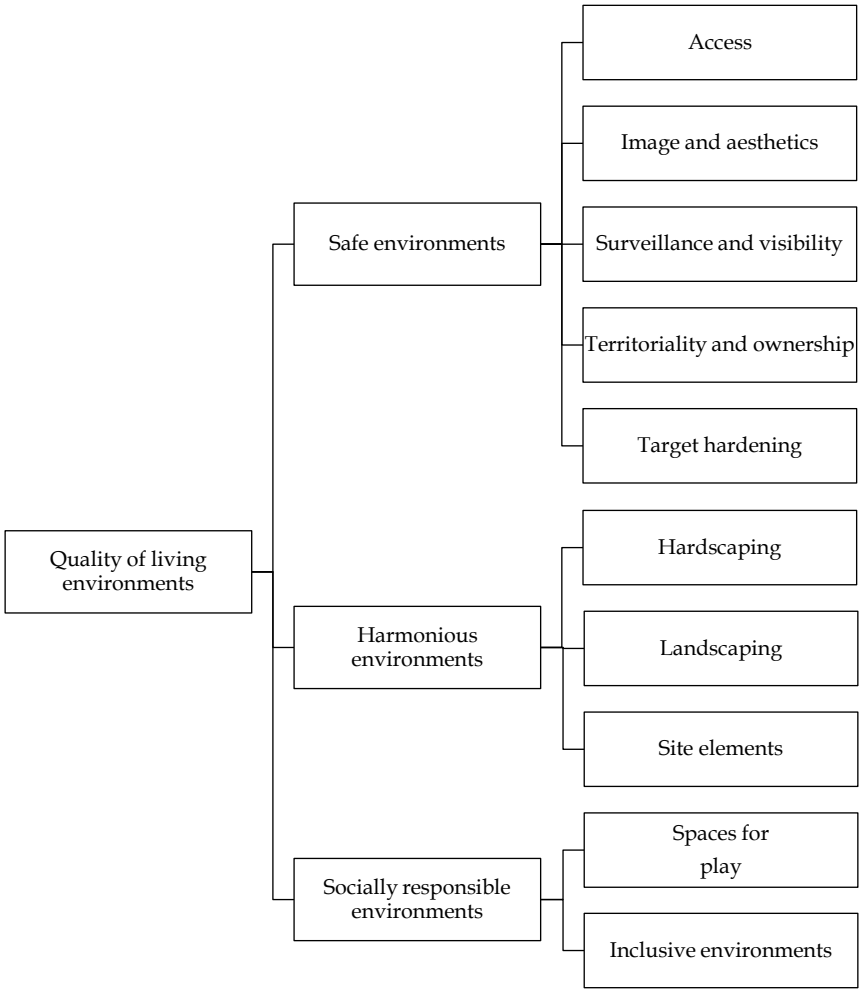


Figure 3.2 An assessment framework showing the goal, criteria and sub-criteria for this dissertation

CHAPTER 4. RESEARCH DESIGN AND METHODOLOGY

This dissertation is guided by the main research question, which asks "to what extent does the quality of the shared outdoor spaces within selected social housing projects in the City of Tshwane aligns with the specifications in the Social Housing Policy?" (see Section 1.2). The previous chapter responded to the second of three research sub-questions. In preparation for the next chapter which will respond to the final research sub-question, this chapter describes the research design and methodology that was applied in this dissertation to get to the findings presented in Chapter 4.

This chapter is presented in five sections. Section 4.1 outlines the researcher's research paradigm; Section 4.2 describes the case study research design implemented; Section 4.3 overviews the data collection instruments and process; Section 4.4 details how the data were analysed; Section 4.5 addresses the ethical considerations for this study; and, Section 4.6 provides a summary of the chapter.

4.1 The pragmatic research philosophy

This dissertation adopts a pragmatic philosophy. Research within this type of philosophy "is driven by anticipated consequences" (Tashakkori and Teddlie, 1998, p. 26). There are underlying philosophical assumptions that helped determine what questions the researcher asked and how these were answered (Terre Blanche and Durrheim, 2006). These assumptions include axiology, ontology, epistemology, and methodology; they committed the researcher to specific methods of collecting, observing and interpreting data (2006). Axiologically, this philosophy seeks to attain knowledge in search of desired ends as influenced by the researcher's values (Mertens, 2009). Ontologically, this philosophy asserts that there is only one reality and that each person has their own unique interpretation of that reality (Mertens, 2009). Aydinli (2005) asserts that the ontological experience allows for an understanding of behaviour and the perceptual significance of image and symbol as communicated by the physical form. Epistemologically, relationships within this philosophy are defined by what the researcher considers to be suitable for a specific study, matching research methods of specific research questions, objectives or purposes (Mertens, 2009).

4.2 The (multiple) case study research design

Pragmatism is one of the philosophies that provides a philosophical framework for the mixed methods approach (Mertens, 2009) which may be used to better understand the research problem. This dissertation adopts the mixed methodology design model, one of Creswell's three models of combination (Schulze, 2003). Within this model, the researcher combines features of the qualitative

and quantitative approaches, taking advantage of both these approaches in some or all the stages of the research undertaken (Mamburu, 2004). This supports the notion that housing quality assessment may be measured either quantitatively or qualitatively (Ilesanmi, 2012; Meng and Hall, 2006). Therefore, in order to investigate the quality of shared outdoor spaces within selected social housing projects, the researcher had to understand not only the shared outdoor spaces, but also the users of that space. Accordingly, this dissertation used the multiple case study approach.

This dissertation focuses on investigating the quality of shared outdoor spaces within the context of selected social housing projects. The multiple-case study research design is the most appropriate to undertake this investigation. Yin defines a case study as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (2003, p. 13-14 as cited by Myers, 2008, p. 74). He argues that a case study allows an investigation to maintain the complete and significant characteristics of real life events (Yin, 2009).

Yin recommends that "the (multiple) case study inquiry copes with the technically distinctive situation in which there will be more variables of interest than data points, and as one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis" (2003, p. 13-14 as cited by Myers, 2008, p. 75).

Figure 4.1 illustrates a three phased case study design (Yin, 2009). This includes three phases, namely (i) define and design; (ii) prepare, collect and analyse; and, (iii) analyse and conclude (Yin, 2009).

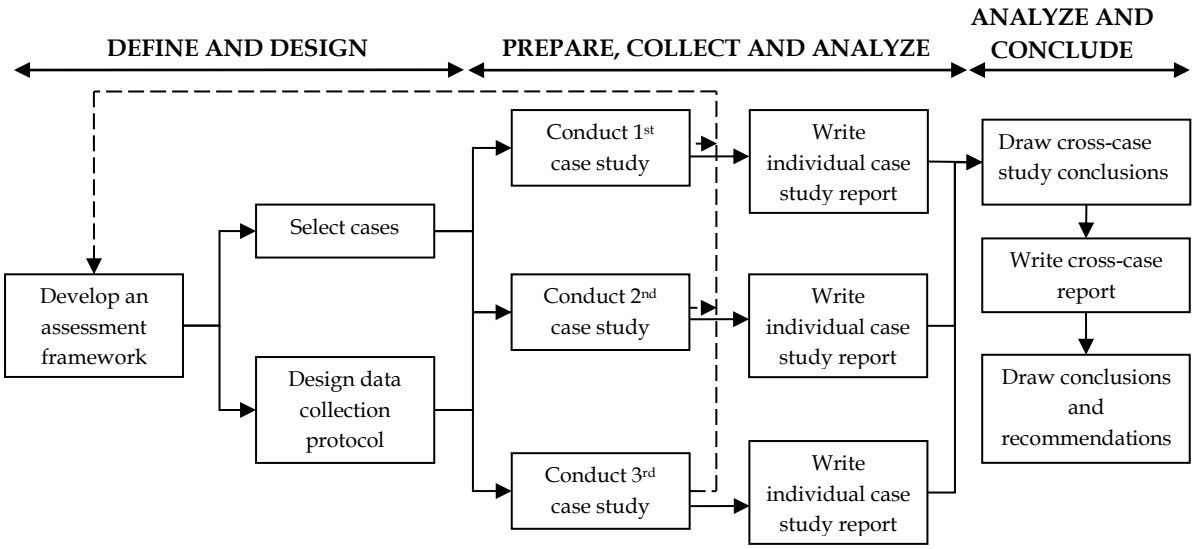


Figure 4.1 The case study design (adapted from Yin 2009)

4.2.1 Units of analysis and sampling

Durrheim (2006), Du Toit (2010) and Johansson (2003) observe that the most common types of units of

analysis in the social sciences are individuals, groups, organisations, social artefacts, built environment or physical artefacts (i.e. buildings, infrastructure). Two units of analysis are identified from the research question and sub-questions posed in Section 1.2, these are the Social Housing Institutions (i.e. organisation) and the social housing projects with shared outdoor spaces (i.e. built environment artefact). As previously stated, social housing projects are developed and managed by Social Housing Institutions (SHI) for low-income persons (DoH, 2009). Consequently, it was important that the views of additional units of analysis were used to support the data collected from the shared outdoor spaces. These additional units of analysis are the SHI management, staff and social housing projects residents (i.e. individuals). Since the target populations (i.e. the units of analysis) had two or more items, they had to be sampled. Figure 4.2 presents the complex form of sampling that was used in this study. This illustrates a combination of non-probability and probability sampling in layered sampling frames.

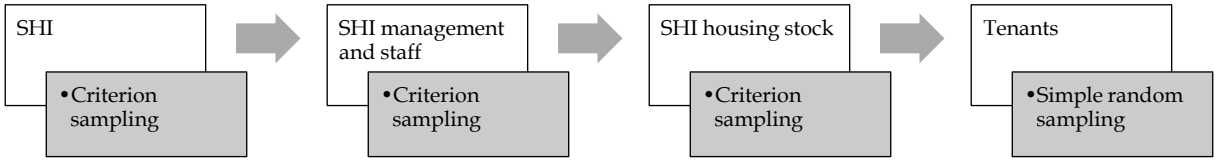


Figure 4.2 Complex sampling used in this dissertation

Henry (1990) explains that in non-probability sampling methods, the selection of samples is based on the researcher's subjective judgments, whilst in probability sampling methods every member of a given target population have an equal probability of being included in the sample.

For this dissertation, in the first three layered sampling frames, non-probability criterion sampling was used. The use of the non-probability sampling method implies that the researcher would not be able to confidently generalise the results of this sample to the SHI's social housing stock.

4.3 Data collection

In general when a case study is conducted, multiple methods of data collection are used. These may include participant observation, direct observation, ethnography, interviews, focus groups, documentary analysis and questionnaires (Hartley, 2004). Through the process of triangulation, the reliability of this dissertation is increased as a result of the convergence of lines of inquiry developed from the use of these multiple sources of evidence. Baxter and Jack (2008) advise that each of these data sources contribute to the researcher's understanding of the phenomenon under investigation and that this convergence of data adds strength to the findings and understanding of the case.

Accordingly, this dissertation uses three data collection instruments, each designed to address a research sub-question posed in Section 1.2. The data collection instruments used in this study are:

- Interview schedules, one for the YCH management (ISM, see Appendix B), and the other for

the caretakers (ISC, see Appendix C);

- A self-administered Survey Questionnaire for Residents (SQR, see Appendix E);
- A Spatial Analysis and Observation Schedule (SAOS, see Appendix D) designed to direct observations made during site visits as well as review the technical documentation of each case study.

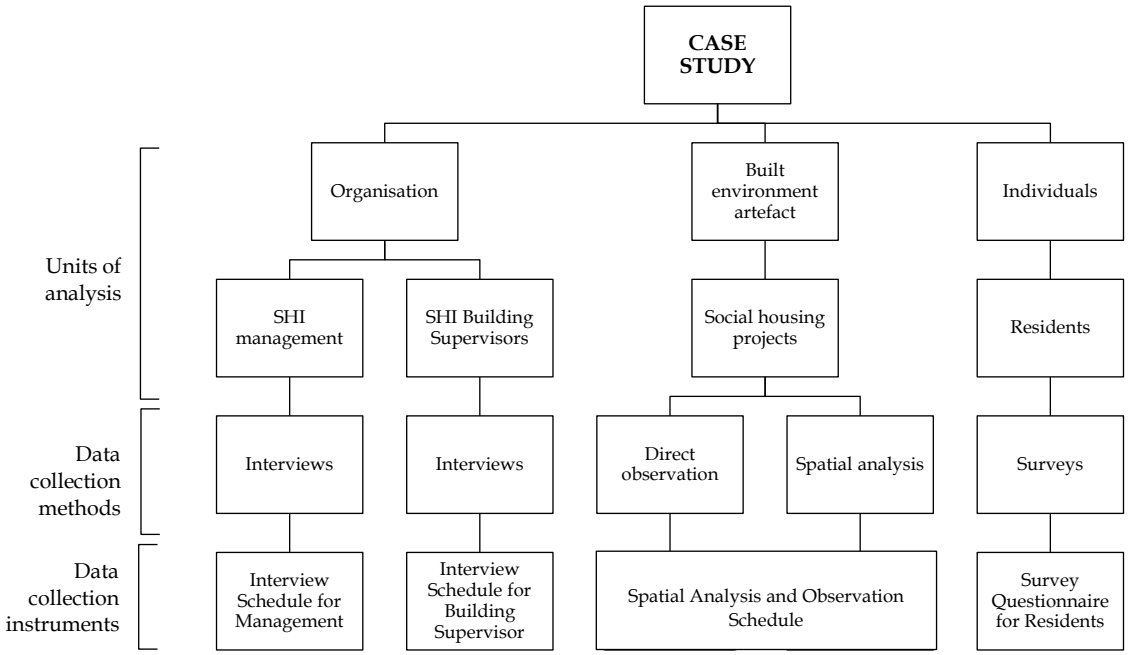


Figure 4.3 Relationships between units of analysis, methods and instruments

Figure 4.3 summarises the relationships between the units of analysis, data collection methods and instruments. The data collection instruments, designed for this dissertation, are described in the sections that follow.

A. Interview Schedules for YCH Management and Caretakers

Two interview schedules were prepared to guide the interviews, one for the YCH management (ISM, see Appendix B) and the other for the caretakers (ISC, see Appendix C), at each selected accredited social housing project. The Interview Schedule for Yeast City Housing (YCH) Management (ISM, see Appendix B) was prepared to guide the interviews with YCH's Development, Housing and the Operations managers. Some questions are worded in a predetermined manner (i.e. structured); however, the interviews adopted a standardised format that also enabled flexibility in probing and gauging where issues requiring more in-depth exploration were raised.

The Interview Schedule for YCH Caretakers (ISC, see Appendix C) was prepared to guide the interviews with the Building Supervisors from each social housing project. This instrument adopted a semi-structured approach and had two parts, one formal and the other informal. The formal part of the interview schedule was used to collect information about the Building Supervisor. The informal

part of the interview schedule contains open ended questions (i.e. unstructured) which serve to investigate the Builder Supervisor's perception of the shared outdoor spaces.

Interviews are a useful data collection method for acquiring insight and context into a topic; however, they too are susceptible to researcher bias and may be time consuming to undertake (Russ-Eft, 2009; Finn and Jacobson 2008 and Jacobson, Pruitt Chapin & Rugeley 2009; two latter sources both in servemontanta, 2010).

B. Spatial Analysis and Observation Schedule

A Spatial Analysis and Observation Schedule (SAOS, see Appendix D) was prepared to guide the researcher's analysis of YCH's technical documentation and the recording of observations made during the site visits to each case study.

As a data collection method, the review of the documentation (including reports, documents, brochures, web pages, technical documentation and dissertations/study related documents) sourced from the YCH should provide a good source of background information and is relatively inexpensive. Google Maps was also in this review. Although useful, a number of disadvantages are noted: some of the documentation may be disorganized, unavailable or out of date, it may also be biased as a result of the selective survival of information, some documents may be incomplete or inaccurate and the process of collecting, reviewing and analysing the numerous documents may be time consuming (Russ-Eft, 2009; Finn and Jacobson 2008 and Jacobson, Pruitt Chapin & Rugeley 2009; both latter two sources in servemontanta, 2010).

The SAOS was also used to guide the direct observations that were undertaken during the site visits to the selected projects. Data was collected through photographs and field notes. According to Hancock, Windridge and Ockleford (2009) photographs provide a useful method of collecting information that may be captured in a single or multiple shots. In this study, photographs of the shared outdoor spaces in social housing projects was primarily used as a visual aid to support the discussion of the research findings concerning the quality of the shared outdoor spaces observed. This data collection method gives the research direct contact with shared outdoor spaces as a unit of analysis; however, this may be susceptible to researcher bias (Russ-Eft, 2009; Finn and Jacobson 2008 and Jacobson, Pruitt Chapin & Rugeley 2009; both latter two sources in servemontanta, 2010).

C. Survey Questionnaire for Residents

A self-administered survey questionnaire was prepared for the residents of the selected accredited social housing projects. The Survey Questionnaire for Residents (SQR, see Appendix E) instrument was designed as a colour brochure, which had a cover letter in English that was translated into Sepedi

and Zulu[14]. This SQR is structured, as it mostly has close ended questions, with one open-ended question at the end of the SQR. The close-ended questions include requests for demographic information, matrices that seek to determine the location of different type of outdoor activities within the shared outdoor spaces. This part of the questionnaire also uses the Likert scale to determine frequency of use, satisfaction and perceptions of safety. A Likert scale is a rating scale that indicates levels of measurements, e.g. level of agreement or disagreement, or level of satisfaction with the shared outdoor spaces. The open-ended question allowed respondents to provide any comments they may have related to shared outdoor spaces. The SQR was tested on two individuals who were not familiar with this study.

The use of the SQR should reduce chances of evaluator bias, also the respondents may be familiar with surveys and respondents may feel more comfortable responding to a survey than partaking in an interview (Russ-Eft, 2009; Finn and Jacobson 2008 and Jacobson, Pruitt Chapin & Rugeley 2009; both latter two sources in servemontanta, 2010). In addition to the advantages of surveys, a number of disadvantages are also observed. Firstly, survey respondents may decide not to take part in the survey resulting in low response rates; secondly, questions may not have the same meaning to all respondents; thirdly, the researcher is not able to probe a respondent for additional details; and, lastly it is difficult to write good survey questions and the development of a survey questionnaire is time consuming (Russ-Eft, 2009; Finn and Jacobson 2008 and Jacobson, Pruitt Chapin & Rugeley 2009; both latter two sources in servemontanta, 2010).

4.3.1 Data collection protocols

In order for the case study method to be reliable and repeatable, measures were put in place to ensure that the procedures used are well-documented and may be easily repeated with similar results when carried out again. The following protocols were observed and recorded during the data collection:

i. The organisation's documentation was used to identity interviewees and case studies.

ii. Contact with organisation made through the highest possible level and permission requested to undertake study.

iii. When consent to undertake the study was granted, interviews and relevant fieldwork was conducted within a restricted period of time.

iv. Notes were taken during all interviews. In addition, the interviews were tape recorded.

[14] The presence of English, Sesotho sa Leboa and isiZulu as the most spoken languages supports the Housing Manager's and the building supervisors' earlier assertions that Zulu and Sotho were the most spoken languages in Hofmeyr, Kopanong and Litakoemi. The confirmation that these are amongst the most spoken languages in Hofmeyr, Kopanong and Litakoemi also affirms the use of these languages in the cover letter that introduced the survey.

v. Additional organisation documentation, including the technical documentation for each case study was requested following the interview management.

vi. Multiple interviews and site visits were secured to save on travelling time.

vii. Access to respondents was made through a trusted intermediary wherever possible.

viii. Visits to case studies and photographs taken as a means of recording the quality of shared outdoor spaces.

4.4 Data analysis

Glesne and Peshkin assert that qualitative data analysis "involves organizing what you have seen, heard, and read so that you can make sense of what you have learned. Working with the data, you create explanations, pose hypotheses, develop theories, and link your story to other stories. To do so, you must categorise, synthesize, search for patterns and interpret the data you have collected" (1992, p. 127 in Brown, 2001). Yin (2009) purports that the analysis of the qualitative data will depend on the researcher's way of thinking about the data, her consideration of alternative interpretations and the presentation of evidence. He also cautions that the analysis of the case study evidence is the most difficult part of undertaking a case study (Yin, 2009).

The quantitative and qualitative data collected with the SAOS instrument is the main source of evidence. This SAOS data was captured in an MS Excel spreadsheet (see Appendix J) following the field work and spatial analysis. This spreadsheet was used to assist the researcher in reporting on the quality of the shared outdoor spaces in the case studies. The structure of the assessment was useful for structuring the discussion of the results.

Similar to the Housing Quality Indicators system described in Section 2.2.2, indicators were subjectively assigned points which were summed up to provide the sub-totals and totals for each sub-criterion and criterion, respectively. The design of the spreadsheet is based on the assessment framework developed in Section 2.4. Each indicator is scored as 0.0, 0.5 or 1.0, see descriptions in Table 4.1.

Table 4.1 Scoring for indicators

Score	Description
0.0	Indicator does not meet target (i.e. has more than two defects)
0.5	Indicator meets target (i.e. has one or two defects)
1.0	Indicator fully meets target (i.e. has no defects)

Scores were compiled for each criterion, namely safe environments, harmonious environments, socially responsible environments. These led to an overall assessment expressed as a mark out of 11.0. The rating and alignment with the specifications in the Social Housing Policy, for each criterion and sub-criterion, is based on the proportions indicated in Table 4.2.

Table 4.2 Rating for the assessment

Score	Rating (quality)	Alignment with the Social Housing Policy
20%>	Very poor quality	Not at all
21% – 40%	Poor quality	To a limited extent
41% – 60%	Average quality	To some extent
61% – 80%	Good quality	To a great extent
81%<	Very good quality	To the maximum extent possible

The qualitative and quantitative data collected from the responses of the interviews with YCH management and staff members were used to support the data that directly relates to the quality of shared outdoor spaces of social housing projects.

4.5 Ethical considerations

Written permission to conduct this research was requested and obtained from the Ethics Committee of the University of Pretoria (Appendix A). In addition to this, the study observed the following ethical observations of the rights to self-determination and informed consent, anonymity and confidentiality as follows:

i. The ethical principle of self-determination was maintained. By being informed of the study and the aims of the survey, respondents were treated as independent agents. They were informed of their voluntary rights to participate in the interviews and the survey.

ii. The researcher's and her study leader's contact details were cited on the survey questionnaires in the event that respondents required additional information or had questions, queries or complaints related to the survey.

iii. Anonymity was maintained by the absence of questions requesting the provision of any personal information (i.e. name, ID no. or contact details), nor of any other information that could be used to identify respondents (i.e. unit no. or physical address).

iv. Confidentiality will be maintained by keeping the collected data confidential and safely stored. In addition, the researcher will only use the collected data for research purposes.

4.6 Summary of chapter

This chapter has outlined the research design of and methodology applied to this study. It provided the details of the research paradigm, research design used in the study, including sampling methods applied, data collection instruments developed, data collection and analysis methods implemented.

The chapter adopted the pragmatic research philosophy which committed the researcher to the methods selected for data collection and analysis in this study. The adoption of this paradigm necessitated the use of mixed methods, meaning that both qualitative and quantitative approaches were used within the multiple case study research design. The case study methodology was selected

for this study because it had to investigate the quality of shared outdoor spaces within the real life context of social housing projects.

Three data collection instruments were developed. These instruments were an Interview Schedule for Yeast City Housing (YCH) Management (ISM, see Appendix B), an Interview Schedule for YCH Caretakers/Building Supervisors (ISC, see Appendix C), the Spatial Analysis and Observation Schedule (SAOS, see Appendix D) and the Survey Questionnaire for Residents (SQR, see Appendix E). The quantitative and qualitative data collected were statistically and narratively analysed, respectively.

Lastly, the chapter discussed the ethical considerations addressed in this study

The next chapter discusses how the research design was implemented, this includes discussion of the selected units of analysis and the process undertaken to collect data. Chapter 5 presents and analyses the case study results of the individual and cross-case reports.

CHAPTER 5. ANALYSIS AND DISCUSSION OF CASE STUDY RESULTS

Chapter 4 identified the case study method as the research design for this dissertation. It presented three data collection instruments that were developed to collect data in selected social housing projects. The data collection instruments are an Interview Schedule for Yeast City Housing (YCH) Management (ISM, see Appendix B), an Interview Schedule for YCH Caretaker/Building Supervisors (ISC, see Appendix C), the Spatial Analysis and Observation Schedule (SAOS, see Appendix D) and the Survey Questionnaire for Residents (SQR, see Appendix E). These data collection instruments were used in the assessment of the quality of shared outdoor spaces in the selected case studies.

This chapter presents, discusses and analyses the case study results obtained through the application of the research design described in Chapter 4. Section 5.1 discusses the application of the research design, selecting the units of analysis for this study with the sampling techniques presented in the previous chapter. Section 5.2 identifies spatial categories for the case studies. Following this discussion, the study area is described in Section 5.3 and the individual case study reports of three social housing projects are presented in Sections 5.4, 5.5 and 5.6. After the presentation of these individual case study reports, a cross-case report is presented in Section 5.7. The chapter is then summarised in Section 5.8.

5.1 Selection of the units of analysis

The complex sampling used to select the units of analysis in this dissertation is described in Section 4.2.1. Four units of analysis were identified, namely the Social Housing Institution, the SHI management and staff; the SHI's social housing stock and the tenants. The following sub-sections describe the selection of the units of analysis for this study.

5.1.1 The Social Housing Institution

In the first layer, two key criteria were used to select the Social Housing Institution (SHI), these include:

i. The SHI must be located in the City of Tshwane (CoT); and,

ii. The SHI must be fully accredited by the Social Housing Regulatory Authority (SHRA).

There were only two SHIs in the CoT during the fieldwork (i.e. September 2011 to April 2014). These were the Tshwane Housing Company and Yeast City Housing. Of the two, Yeast City Housing

(YCH)[15] was the only fully accredited SHI that was permitted by the Social Housing Regulatory Authority (SHRA) to develop social housing projects. YCH was therefore the SHI selected for this dissertation.

5.1.2 The SHI management and staff

YCH documentation was reviewed. These included reports, documents, brochures, webpage, technical documentation and other relevant external documents (i.e. dissertations). YCH's organogram (see Figure 5.1) presenting the SHI's management structure was obtained from a brochure. This was used to identify potential interviewees for this dissertation.

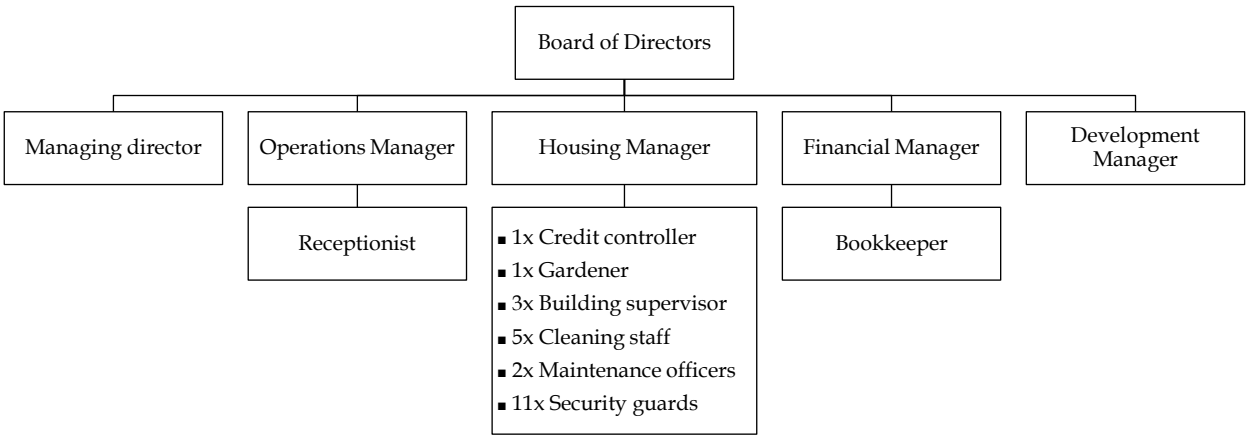


Figure 5.1 Yeast City Housing's organisational structure (YCH, n.d.)

In the second layer of the layered sampling frame, non-probability sampling (i.e. criterion sampling) was used to select respondents (i.e. the Development and the Housing Manager) with direct developmental or managerial access to YCH projects. The Development Manager was responsible for all aspects related to the development of new YCH housing stock, whilst the Housing Manager was responsible for the management and maintenance of existing social housing projects. It should be noted that during her interview, the Development Manager invited the Operations Manager to participate. In total three YCH managers, i.e. the Development, the Housing and the Operations Managers, were interviewed.

Following his interview, the Housing Manager assisted the researcher with contacting relevant building supervisors and conducting the fieldwork in selected social housing projects. There were

[15] YCH is a community based housing association that was created through the work of the Tshwane Leadership Foundation (TLF). The TLF was formerly known as Pretoria Community Ministries. It was registered, in terms of Section 21 (Not for profit) of the Companies Act, as a separate legal entity in 1998. YCH has a vision to "see healthy communities and neighbourhoods, with access to decent, quality and affordable housing" (YCH, n.d.). To this end it has five objectives, *inter alia* the management of "social housing in conjunction with tenant committees towards ensuring that there are healthy living conditions and regeneration of the inner city as a whole" (YCH, n.d.).

two building supervisors. One was responsible for Hofmeyr, whilst the other was responsible for Kopanong and Litakoemi. The Housing Manager suggested that, in addition to the building supervisors, the gardener also be interviewed since he worked in all the selected social housing projects. Three staff members were therefore interviewed.

5.1.3 The social housing stock

The third layer of the layered sampling frame selected the social housing projects from YCH's housing stock of fourteen projects. Criterion sampling was used to select the cases based on the most dissimilar non-probability sampling technique (Henry, 1990). A set of criteria was developed to select these case studies. This was based on the Social Housing Policy's definition of 'social housing' (DoH, 2009, p. 17) and the definition of medium-density housing of Landman *et al.* (2009b) (see Section 2.1). The selection criteria that have been developed are that the social housing project should:

i. Have more rental units than units for people with special needs;

ii. Be located within the City of Tshwane's Designated Restructuring Zone (DRZ);

iii. Have three to four storeys;

iv. Have been operational for at least one year (at the time that fieldwork is undertaken);

v. Have a medium-density housing configuration (i.e. pavilion, street or court); and,

vi. Be located in close proximity to other YCH projects.

Projects which did not meet these criteria were automatically rejected from the selection. The building configuration and proximity to other projects determined the final case studies selected.

Table 5.1 Selection of YCH social housing projects for the study

Name of project	More rental units	Within DRZ	Operational for more than a year	More than one storey	Building configuration
Litakoemi	Yes	Yes	2000	3-storey	Pavilion
The Jubilee Centre	No	Yes	2000	4-storey	Court
Hofmeyr	Yes	Yes	2002	3-storey	Court
Living stones	Yes	Yes	2003	1-storey	Street
Kopanong	Yes	Yes	2004	4-storey	Street
Sebida House	Yes	Yes	2004	6-storey	Pavilion
Rivoningo Care Centre	No	Yes	2004	1-storey	Detached
Tswelelang Foster Care Home	No	Yes	2009	1-storey	Detached
Tau Village	Yes	Yes	2011	4-storey	Court
Gilead	No	Yes	2011	1-storey	Detached
Inkululeko Community Centre	Yes	No	No	1-storey	Detached
Thembelihle Village	Yes	Yes	No	4-storey	Court
Leyds street development	No	No	No	1-storey	Detached
Aslan's village	Yes	No	No	6-storey	Court

Using the above listed criteria, nine social housing projects were rejected (see shaded rows in Table 5.1). The remaining five projects were Litakoemi, Hofmeyr, Kopanong, Sediba House and Tau Village. Litakoemi, Hofmeyr and Kopanong had different building configurations and were found to be located within close proximity of each other (see blocked rows in Table 5.1 and Figure 5.2). They were thus selected as the case studies in this dissertation.

Figure 5.2 Map of the study area indicating the location of the case studies (Google Maps, 2011)

5.1.4 The social housing tenants

In the fourth and final layer of the layered sampling frame, probability sampling was used to select respondents (i.e. tenants in selected accredited social housing projects) for the dissertation. The researcher opted to use probability sampling by including all units in the survey. This will enable the researcher to generalise the finding to the population in the selected case studies.

5.2 Identification of spatial categories

Following the analysis of the technical documentation for each case study, spatial categories were identified based on Huang's study (2006) described in Section 2.1 and presented in Figure 2.3. Some spatial categories were common to all of the case studies, whilst others are only available in one or two of the case studies, see Table 5.2.

Table 5.2 Spatial categories for this study

Spatial category	Key (design) element	Hofmeyr	Kopanong	Litakoemi
Children's play area	Play structures		■	
Clothing line	Clothing lines	■	■	■
Dustbin area	Dustbin	■	■	■
Garden	Planting, trees and bush	■	■	■
Laundry basins	Laundry bins	■	■	
Lawn	Lawn	■	■	
Open spaces	Paving	■	■	■
Parking	Demarcated parking bays	■	■	
Seating spaces	Seating		■	
Vegetable garden	Vegetables	■	■	■
Walkways	Covered, but open to other spatial categories	■	■	

Huang's spatial categories were used in three high rise complexes with site ranging from 3,165m² (i.e. 15 storeys) to 39,100m² (i.e. 18 storeys). Given the large scale of Huang's study (2006), her five spatial categories (i.e. seating spaces, scenic spaces, circulation spaces, activity spaces and vague spaces) will not be used in this study as they were too broad. Based on the elements that were present in the spatial categories identified, the researcher deduced that specific outdoor activities could be catered for within these spaces. Table 5.3 illustrates the spatial category in which Gehl's necessary, optional and social outdoor spaces (1987) are most likely to take place in.

Table 5.3 Possible spatial category catering for Gehl's outdoor activities (1987)

Spatial category	Necessary[16]	Optional[17]	Social[18]
Children's play area		■	
Clothing line	■		
Dustbin area	■		
Garden		■	
Laundry basins	■		
Lawn			■
Open spaces			■
Parking	■		
Seating spaces		■	
Vegetable garden		■	
Walkways	■		

5.3 Description of the study area

Figure 5.1 Google Earth 3D image of the study area indicating the location of the case studies (AfriGIS and Google 2013)

The selected social housing projects were Hofmeyr, Kopanong and Litakoemi. They are located in the

[16] Examples of necessary activities include walking, hanging out clothes, tending kids, tending vehicles, putting out rubbish, tending to plants, checking mail (Gehl, 1987).

[17] Examples of optional activities include watching events, playing alone, on phone/computer, relaxing/sitting, smoking, reading/writing, eating/drinking (Gehl, 1987).

[18] Examples of social outdoor activities include conversation/talking, playing in a group, greeting, watching/sitting in group, meeting/gathering (Gehl, 1987).

Pretoria Central Business District[19] (CBD) in the City of Tshwane. The CBD overlaps with the City of Tshwane UDZ. The Government Notice No. 27077 identified the City of Tshwane as an area in which an UDZ should be demarcated (SARS, 2004). Hofmeyr is located in Lillian Ngoyi Street[20], Kopanong is in Scheiding Street and Litakoemi is in Visagie Street. Figure 5.3 shows the location of these social housing projects. This figure also shows the close proximity of the projects to one another.

According to the Social Housing Policy, social housing projects must be located within Designated Restructuring Zones (DRZs) in order to access the social housing grant targeted at low income households (DoH, 2009). DRZs are defined in the policy as "geographic areas identified by local authorities and supported by provincial government for targeted, focused investment. Within these areas, the Capital Grant … will apply. This is a significant capital contribution from government for the development of social housing in these defined localities as part of a broader goal of social restructuring in South Africa … Outside of these restructuring zones (and within them if desired) the institutional subsidy may be used for rental or other forms of development" (DoH, 2009, pp. 19, 74). DRZs are intended to align with the Urban Development Zones (UDZ) which were developed by National Treasury in 2003 as an amendment to the Income Tax Act 58 of 1962 (SHRA, 2012). Figure 5.4 illustrates the CoT's UDZ[21] and indicates the locations of the three case studies.

Given their location within the DRZs, social housing projects are generally located within a 1000mm radius to social, community and recreational facilities. The selected social housing projects have access to a number of different amenities, including (an estimated): twelve medical facilities; seven filling stations[22]; eight shopping centres/malls; six educational facilities (including primary and secondary schools); two public outdoor spaces, including Burgers Park[23]; and, one police station.

There are three main types of public transport within an 800m radius of each of the social housing project, these are: buses (the City of Tshwane and Gautrain bus routes with stops along Lillian Ngoyi and Paul Kruger Streets, and at the Paul Kruger bus/train station); taxis (taxi routes along Nana Sita, Lilian Ngoyi and Scheiding Streets and the Bosman taxi rank); and, trains (the Paul Kruger bus/train station).

[19] The CBD is bordered by the Apies River in the east, the railway system on the south, Steenhoven Spruit in the west and the valley of the Apies River (i.e. the Bell Ombre Station, Pretoria Zoo) in the north (Spies, 2006).
[20] Previously Van der Walt Street (SAACI, 2012).
[21] The CoT UDZ was identified in the Government Notice No. 27077 (RSA, 2004). It has an area of 582ha, which consists of parts of the following townships and farm portions: Asiatic Bazaar and its extensions, Pretoria, Arcadia, Daspoort, Elandspoort and Pretoria Town and Townlands (RSA, 2004). The UDZ area roughly extends from Boom Street, the Bell Hombre Station and Pretoria Zoo in the north to Schutte Street in the west, the railway line up to Nelson Mandela Drive in the south and the continuation of Nelson Mandela Drive in the east (SHRA, 2012).
[22] The filling stations' shops provide a convenient alternative to the shopping centres/malls that are located further from the projects.
[23] Burgers Park is a public outdoor spaces located within 200m from each social housing project. This public outdoor space is part of the City's Museum Park precinct (DPW, DPSA and CoT, 2008).

Figure 5.2 Map indicating the City of Tshwane Urban Development Zone (SARS 2004) and the location of the case studies

Understanding the climatic conditions for this study area is important because it provides context to the study. This will be useful when the quality of shared outdoor spaces in social housing projects is assessed and analysed. The CoT falls within a region that is characterised by summer rainfall and intense thunderstorms that may or may not be accompanied by hail. The CoT has a warm and moderate climate with an average of 8.7 hours of sunlight per day (Ackerman, 2009). The average annual rainfall is 674mm with January having the highest average rainfall levels (136mm). The maximum daily air temperature ranges from 19°C (June) to 29°C (January). During the winter months, rainfall is less than 17mm (WeatherSA, 2003 in; Ackerman, 2009). The dominant wind direction is from a north-easterly (NE) direction at an average speed of 2m/s. The strongest winds occur between the months of September and December.

5.4 Case study report: Hofmeyr

Figure 5.5 Google Earth 3D image of Hofmeyr in context (AfriGIS and Google, 2013)

The Hofmeyr social housing project was constructed in the 1940s. It is owned by the Young Men's Christian Association (YMCA) but has been under a long-term lease agreement between the association and YCH for sixteen years. When YCH took on the management of the building in 1998, Hofmeyr only had an occupancy rate of 60%. (YCH, 2011)

There are 56 one room units (floor areas range from 18m² to 25m²) in this three-storey court building which is located at 460 Van der Walt Street. The areas of the site and building are presented in Table 5.4.

Table 5.4 Site and building areas of the Hofmeyr social housing project

	Area
Site area	1,573m²
Estimated floor area	± 1,449m²
Estimated area of footprint	± 116m²
Estimated area of shared outdoor spaces	± 986m²

Most household activities, such as cooking, relaxing, dining, ironing, sleeping and storage, take place in the units. Other household activities, such as bathing and ablutions, take place in the shared bathroom facilities. Laundry may be done in either the shared bathroom facilities or in the laundry basins located on the eastern building façade that have been provided for residents. Hofmeyr is bordered in the north by a six-storey apartment block, single storey buildings toward the east and south and Lilian Ngoyi Street toward the west.

In 2002, the building (then approximately sixty years old) was upgraded with R418,400, almost 60% (R248,000) of this was obtained from the Gauteng Housing Department, and the balance was a loan. This funding was used to upgrade the individual units. There is no evidence in the project documentation that this funding was used to develop or improve the shared outdoor spaces.

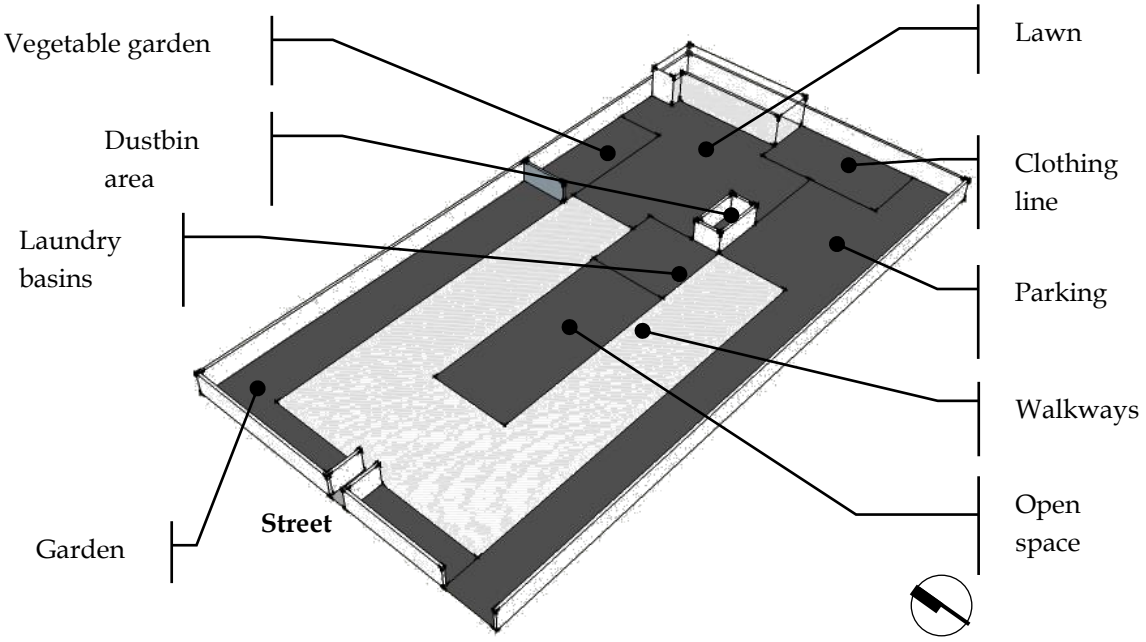


Figure 5.3 Hofmeyr's shared outdoor spaces spatial categories

The longest elevation of Hofmeyr's three-storey court configuration faces north and south. This has resulted in the formation of shared outdoor spaces in the centre and around the building. Nine spatial categories were identified in Hofmeyr's shared outdoor spaces (see Section 5.2). The spatial categories were the clothing line, the dustbin area, the garden, the laundry basins, the lawn, an open space, the parking (with seven parking bays), the vegetable garden and covered walkways. Figure 5.5 illustrates the positions of these spatial categories. Five spatial categories, the clothing line, the dustbin area, laundry basins, parking and walkways, were considered to cater for necessary outdoor activities (i.e. walking, hanging out clothes, tending kids, tending vehicles, putting out rubbish, tending to plants, checking mail). Two spatial categories, the garden and the vegetable garden, were considered to cater for optional outdoor activities (i.e. watching events, playing alone, on phone/computer, relaxing/sitting, smoking, reading/writing, eating/drinking). The researcher observed that the garden in this case study was locked during the site visit. The Hofmeyr Building Supervisor (hereafter "Building Supervisor 1") confirmed that this spatial category was always locked to ensure that it remained well kept. The last two spatial categories, the open space and the lawn, were considered to cater for social outdoor activities (i.e. conversation/talking, playing in a group, greeting, watching/sitting in group, meeting/gathering). According to Building Supervisor 1, to ensure that the courtyard was always clean, tenants were not allowed to use the open space.

5.4.1 Hofmeyr respondent profile

The Survey Questionnaire for Residents (SQR, see Appendix E) data collection instrument was distributed to all the units in Hofmeyr (n = 56). Twenty-seven (48%) surveys were returned. The

distribution of the Hofmeyr respondents' characteristics is described in this section with reference to Appendix I. The respondents' characteristics are age, gender, population group, language, disabilities, marital status, employment status, highest level of education attained, previous housing type, length of stay, and planned length of stay. This information was gathered to help the researcher understand the users of Hofmeyr's shared outdoor spaces. Respondents were also asked how they used the shared outdoor spaces, what their perceptions on safety and security were and what aspects they wanted to change about Hofmeyr's shared outdoor spaces. The responses for these additional questions are presented in the sub-sections that follow to support the findings obtained with the SAOS instrument concerning the quality of the shared outdoor spaces in Hofmeyr.

Almost two-thirds (64%) of the Hofmeyr respondents were 36-64 years old, whilst the remaining proportion of respondents (36%) was comprised of 19-35 year olds. None of the respondents were pensioners (i.e. over 65 years), implying that all the respondents were economically active. In terms of gender, just over half (53%) of the surveys returned were from male respondents, whilst the rest (47%) were from female respondents (questionnaires were completed by the head of the household). This implies that there are more female headed households in Hofmeyr than in the CoT, which only has 35,8% female headed households (StatsSA, 2011). Almost all (93%) of the respondents were Black, there was only one White respondent (7%). The most spoken languages in Hofmeyr are English (20%), Sesotho sa Leboa (20%), Sesotho (15%) and Tshivenda (12%). Other languages spoken include Afrikaans, isiXhosa, Setswana and Xitsonga (see Appendix I). It should however be noted that nearly a third of the respondents indicated that they spoke more than one language. Almost a quarter (22%) spoke two languages and almost a tenth (7%) spoke four languages. Apart from English, Sesotho sa Leboa was the most spoken language in Hofmeyr, this lends support to the Housing Manager's and the building supervisors' assertions that Zulu and Sotho were the most spoken languages in Hofmeyr, Kopanong and Litakoemi. Language is the dominant element of culture (Prah, 2007). The variety of languages spoken in Hofmeyr is an indication that diverse cultures exist within the case study. Rapoport (1969 in Aydinli, 2005) observed that different cultural groups could have differing notions of what environmental quality is. This is in line with Meng and Hall's assertion that quality not only differs between countries, but also between different groups of people (2006). The respondents indicated that they did not have any disabilities. This means that the study does not reflect the viewpoint of people with disabilities in regard to Hofmeyr.

Almost two-thirds (63%) of the Hofmeyr respondents were single, nearly a fifth (15%) were married, close to a fifth (15%) were either divorced (11%) or separated (4%), and about a tenth (7%) selected "Other". One of the two respondents, who selected 'Other' as a response, specified that they were cohabiting. The case study results for Hofmeyr therefore mainly represent the viewpoint of single people, including unmarried, divorced and separated people.

More than half (56%) of the Hofmeyr respondents were employed on a full-time basis, whilst over a tenth (13%) were employed on a part-time basis and more than a tenth (13%) were self-employed. Although the economically active population age group constitutes 100% of the respondents, close to a fifth (19%) of the respondents were unemployed. More than a third (38%) of the respondents had a higher qualification. Just over a third (35%) had a Matric, whilst almost a quarter (23%) had some primary school and less than a tenth (4%) had only primary schooling.

Over half (56%) of the Hofmeyr respondents' previous housing type was that of blocks of flats. Almost a quarter (24%) had previously lived in a house on a stand. One respondent (4%) previously lived in an informal settlement, whilst three respondents (12%) selected 'Other'. It may be deduced from this that just over half of the respondents were familiar with medium density living.

More than a tenth (11%) of the respondents had lived in Hofmeyr for less than a year. Nearly a third (30%) had lived in Hofmeyr for between one and three years, whilst close to two-thirds (59%) had lived in this social housing project for more than four years. The length of stay is an indication of the occupancy rates in Hofmeyr. The high proportion of respondents who have lived in Hofmeyr supported the Housing and Development managers' assertions that YCH's housing stock had a 0% vacancy rate – a significant change since the 1990s when it had a 40% vacancy rate. The length of stay may indicate that the respondents have collectively formed "a meaningful relationship with the locales they occupy [and have transformed] 'space' into 'place'" (Low and Lawrence-Zúñiga, 2003, p. 185). It may thus be expected that most of the respondents were familiar with the condition of Hofmeyr's shared outdoor spaces. Asked how long they intended to stay in Hofmeyr, more than three quarters (78%) of the respondents were not sure, whilst almost a quarter (22%) indicated that they may stay in Hofmeyr for another four years or more.

5.4.2 The quality of Hofmeyr's shared outdoor spaces

The SAOS data collection instrument, developed in Chapter 2, was used to collect data concerning the quality of Hofmeyr's shared outdoor spaces. With an overall score of 5.1/11.0, the quality of Hofmeyr's shared outdoor spaces was considered to be average, meaning that it aligned to some extent with the specifications in the Social Housing Policy. In terms of the three criteria, the quality of the shared outdoor spaces in Hofmeyr is average for safe environments, good for harmonious environments and poor for socially responsible environments.

Figure 5.7 shows a radar diagram indicating the quality of Hofmeyr's shared outdoor spaces in terms of the criteria and related sub-criteria introduced in Section 3.2. This figure also shows that the quality of Hofmeyr's shared outdoor spaces was considered to be good or very good (i.e. more than 0.6) in terms of hardscaping. Conversely, the figure shows that the quality of Hofmeyr's shared outdoor spaces was considered to be poor or very poor (i.e. less than 0.4) in terms of target hardening,

landscaping, spaces for play and inclusive environments.

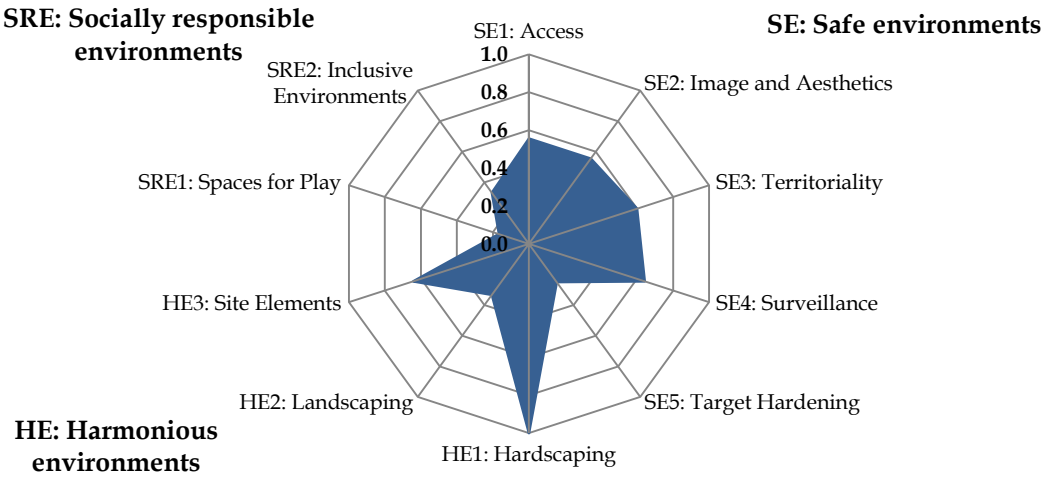


Figure 5.4 Radar diagram for the quality of Hofmeyr's shared outdoor spaces

The sections that follow discuss these results in terms of the three criteria identified from the Social Housing Policy, namely (the promotion of): (i) safe environments; (ii) harmonious environments; and, (iii) socially responsible environments. The discussion of these results is supported by data collected with the other data collection instruments described in Chapter 4, namely the Interview Schedule for Yeast City Housing (YCH) Management (ISM, see Appendix B), the Interview Schedule for YCH Caretakers (ISC, see Appendix C) and the Survey Questionnaire for Residents (SQR). This discussion is undertaken with reference to Appendix J, which presents a spreadsheet indicating how each indicator was rated, and subsequent to this how each sub-criterion and criterion was scored.

5.4.2.1 Safe environments

Thirty-two indicators were used to assess the safe environments criterion (see Table 3.1, Table 3.2, Table 3.3, Table 3.4 and Table 3.5). These were divided into five sub-criteria, namely: (i) access; (ii) image and aesthetics; (iii) surveillance and visibility; (iv) territoriality and ownership; and, (v) target hardening. With a score of 2.4/5.0, the quality of Hofmeyr's shared outdoor spaces was average for the safe environment criterion. This discussion is undertaken with reference to Appendix J, which shows how the scores for each indicator, the sub-criterion and criterion were achieved with the spreadsheet that was developed.

A. Access

Hofmeyr scored 0.6 for this sub-criterion. The entrance to the site, and the pedestrian and vehicular movement within the site were assessed.

Hofmeyr had two entrances (see Figure 5.8); a pedestrian entrance (see Figure 5.9) and an entrance for

vehicles (see Figure 5.10). These entrances were clearly visible from the street and provide no hiding place for potential intruders. These entrances were located on Hofmeyr's western boundary wall along Lilian Ngoyi Street. The pedestrian entrance had a double gate system; however, only one gate was locked during the site visit. Building Supervisor 1 explained that tenants kept one gate locked during the day, only opting to lock both gates in the evening. The vehicular entrance was locked during the site visit. The unlocking of the external pedestrian gate (see Figure 5.9) provides residents and their visitors with cover prior to entering the site. This is particularly useful during rainy periods.

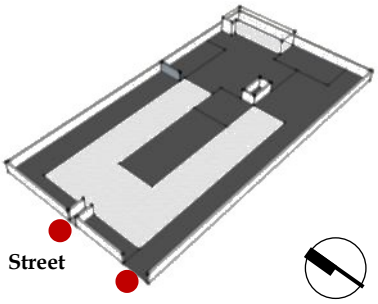


Figure 5.5 Hofmeyr site plan indicating entrances

Figure 5.6 Hofmeyr's pedestrian entrance

Figure 5.7 Hofmeyr's vehicle entrance

Figure 5.12 illustrates movement between Hofmeyr's different spatial categories. Pedestrian movement is represented by a solid line, whilst vehicular movement is represented by a dashed line. This figure shows that when accessing Hofmeyr through the Pedestrian Entrance, one is led to the covered walkways, from where one may either enter a unit or go into the open space. From the open space, one enters at the laundry basins and has access to the lawn, from where the dustbin area, the vegetable garden, the clothing line, parking and two other residential units. From the vegetable garden, the locked garden may be accessed with permission from Building Supervisor 1. As the only two spatial categories that cater for social outdoor activities, the lawn and open space are what Llewelyn-Davies (2000) refers to as "go through" places, which users walk through on the way to another spatial category. In such places, any optional or social outdoor activities would be continuously interrupted by other tenants *en route* to other spatial categories. The other spatial categories, mostly along the boundary wall, were considered 'go to' places.

When accessing the site through the vehicular entrance, vehicles immediately have access to the parking, from where individuals have direct access to the lawn and the clothing line. Vehicles are restricted to the parking area. The separation of these entrances implies that the paths of the tenants and the vehicles do not cross.

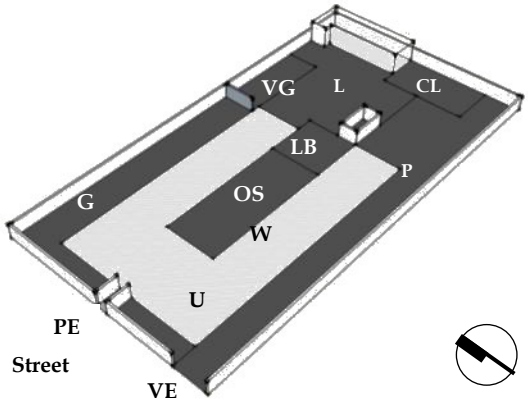
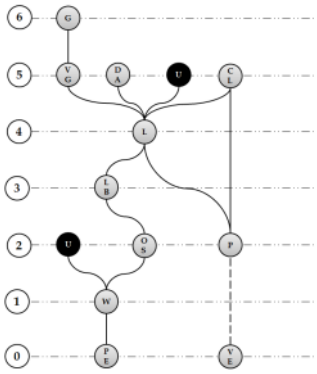


Figure 5.8 Hofmeyr site plan



LEGEND:
CL – Clothing line
DA – Dustbin area
G – Garden
L – Lawn
LB – Laundry basins
OS – Open space
P - Parking
PE – Pedestrian entrance
U - Units
VG – Vegetable garden
VE – Vehicle entrance
W - Walkways

Figure 5.9 Movement between Hofmeyr's spatial categories

However, Building Supervisor 1 stated that children play in the parking space south of the building (see Figure 5.10). This was confirmed by one SQR respondent who said their child(ren) played in this area. This was, therefore, the only spatial category where pedestrians and vehicles met. However, children played in the parking area during the day when it is deduced that most cars are not there since as most respondents are employed. Emergency and service vehicles have access to the units; however, given the narrow panhandle, they will block vehicular access to the parking.

B. Image and aesthetics

Hofmeyr scored 0.6 for this sub-criterion. The general condition of six key external vertical and horizontal site elements was assessed. These site elements include the boundary wall and entrances, the building façades, the trees, the dustbin area and the ground cover of the spatial categories.

Figure 5.13 Images showing the defects in Hofmeyr's boundary walls (A & B) and the parking's ground cover (C)

Hofmeyr has a 1,8m high boundary wall with additional security measures, in the form of barbed wire, on all sides. The boundary wall is a precast concrete panel wall on the northern and southern sides, a combination of a building and a precast concrete panel wall on the eastern side and steel palisade fencing on the western side along Lillian Ngoyi Street. The southern boundary wall has numerous panels that are cracked and/or missing (see Figure 5.13 A & B). The entrances to the site had no defects, but the paint was peeling (see Figure 5.9 and Figure 5.10).

Hofmeyr's façades have a combination of brick face and painted cement plaster. The paint in some plastered and painted portions of the building façades was peeling. In addition to a coat of paint, the drainage pipes (see Figure 5.14 A & B), frames and panes in some windows of the ground floor units were broken (see Figure 5.14 C). The original metal drain pipes have, according to Building Supervisor 1, been recently replaced (see Figure 5.14 A & B), however their condition particularly along the southern façade remained poor. The Building Supervisor 1 explained that the parking was favoured for play by the children in the project, who constantly rode on the drainage pipes and damaged them.

Figure 5.14 Images showing the defects in Hofmeyr's building façade

Hofmeyr's spatial categories have a combination of hard surfaces and soft landscaping. The hardscaping in the walkways around the open space (see Figure 5.18), the open space (see Figure 5.17), and the circulation path leading from the laundry basins to the clothing line is in good condition; however, the parking has numerous defects (see Figure 5.13). Hofmeyr's soft landscaping includes the lawn (see Figure 5.15 C) and a number of trees that are concentrated in the garden (see Figure 5.15 A & B), with fewer on the borders of the lawn (see Figure 5.15 C & D). The site visit took place in autumn when the colour of the leaves of some trees change and leaves fall off. Most of the trees and planting in Hofmeyr were green during the site visit. Despite a lack of variation in the colour of the trees and planting in Hofmeyr, the height of the trees and planting in the garden was varied and added interest to this spatial category (see Figure 5.15 A & B and Figure 5.19 F). From the lack of variety in the colour and in some instances the height of the trees and planting, the researcher deduced that a landscape architect had not designed the landscaping. This confirms the earlier deduction that the landscaping had not been funded when the case study was upgraded.

Figure 5.15 Images showing Hofmeyr's soft landscaping

The dustbins in the dustbin area were hidden from the lawn by a screen wall (see Figure 5.16) and the dustbin area is conveniently located for residents on their way to the clothing line or the parking. It

was observed that the dustbin area did not have a tap or a drain directly linked with it.

Figure 5.10 Hofmeyr's dustbin area

Figure 5.11 Hofmeyr's open space

Figure 5.12 A walkway in Hofmeyr

There was no furniture (i.e. benches or tables) in Hofmeyr. This, together with the concentration of the trees in the locked garden and at the edges of the lawn may have contributed to some of the respondents (40%) never using the lawn for outdoor activities (see Appendix N).

C. Territoriality and ownership

Hofmeyr scored 0.4 for this sub-criterion. The demarcation of Hofmeyr's spatial categories was assessed.

Figure 5.19 The demarcation of shared outdoor space in Hofmeyr

Figure 5.19 shows images of the open space (A), the laundry basins (B), the clothing line (C), the walkways (D & E) and the garden (F). Other spatial categories are the parking (see Figure 5.13) and the lawn (see Figure 5.15). Each of these spatial categories is demarcated by a different ground cover material. Hard surfaces were used for the walkways, the open space, the dustbin area, the laundry basins, the parking and the clothing line, whilst lawn and sand were found in the lawn area, the vegetable garden and garden, respectively. Two of these spatial categories were further vertically defined. The dustbin area was demarcated by a solid brick wall, whist the garden was fenced and locked.

The personalisation of space in Hofmeyr was represented in two main ways, i.e. the presence of planting in the walkways (see Figure 5.19 D) and the murals painted on the eastern façade (see Figure 5.15 D) and the southern boundary wall (see Figure 5.20).

Figure 5.13 Boundary wall personalised with a mural in Hofmeyr

The presence of well-maintained planting outside one unit indicated that tenant's ownership of that space. However, although this adds interest to the walkways, it poses a tripping hazard during emergency exits and for people with visual disabilities. The presence of the murals exudes ownership to a lesser degree as it appeared that they had not been repainted for some time.

D. Surveillance and visibility

Hofmeyr scored 0.6 for this sub-criterion. The number of units with visual contact to the different spatial categories was assessed.

The court configuration of Hofmeyr allowed units visual contact of most spatial categories. Based on an analysis of Hofmeyr's building plans, the number of units with visual contact to different spatial categories was obtained. Fourteen Hofmeyr units (25%) were found to have visual contact to both entrances. All of the units overlooked the open space in the building's centre which was surrounded by the walkways used for circulation. Nearly half of the units had visual contact to the handle portion of the parking south of the building, whilst almost another half could view the garden to the north. The laundry basins, lawn and vegetable garden were only visually accessible to four units, whilst only six units had direct visual contact to the clothing line and the pan portion of the parking (adjacent to the clothing line).

The findings of four SQR questions (see Appendix E) show the possible effects of the limited visual contact to the clothing line, laundry basins, lawn, the pan portion of the parking and vegetable garden. Respondents were asked whether they had been victims of or witness to crime, what type of crime they had fallen victim to or witnessed and where this had occurred in Hofmeyr. Most crimes that respondents were victim of or witness to were predominantly theft. The thefts respondents were victims of personally took place in different areas within the site, including the clothing line (75%), laundry basins (50%) and parking (50%). Other unspecified types of crimes occurred in the vegetable

garden (50%) and dustbin area (50%). The thefts respondents witnessed occurred at the clothing line, walkways (50%) and the parking (50%). Other unspecified types of crime have occurred at the vegetable garden (50%), in the dustbin area (50%), the garden (50%) and the lawn (50%). An incident of violent assault was also witnessed in the open spaces (25%).

Almost half (48%) of the Hofmeyr respondents indicated that they felt safe in the shared outdoor spaces during the day, whilst less than this (44%) indicated that they sometimes felt safe in these spaces at night. Only two respondents indicated that they felt absolutely safe in Hofmeyr's shared outdoor spaces at night.

The site visit was undertaken during the day. The external lighting was observed on the eastern façade and in the walkways. No lighting was observed in the parking south of the building and the garden. The researcher therefore deduced that these spatial categories had limited lighting at night. The combination of limited lighting, absence of tenants working during the day and limited visual contact to the clothing line, laundry basins, lawn, the pan portion of the parking and vegetable garden make these spaces particularly vulnerable to criminal opportunities.

E. Target hardening

Hofmeyr scored 0.3 for this sub-criterion. The presence and condition of burglar bars, security gates and the additional security measures above the boundary wall were assessed.

It was evident on entering the site that there was no security guard in Hofmeyr. Both the Housing Manager and Building Supervisor 1 confirmed that YCH was discussing the possibility of acquiring a security guard with the Hofmeyr tenants. The Housing Manager stated that as a tentative measure, one of the Building Supervisor's roles was to monitor the project, particularly during the day when most residents were at work. A number of respondents highlighted the need for a security guard in the closing comments of the SQR. One respondent stated:

> *We need a security at the gate to avoid criminals, because our staff* (sic) *stolen in the rooms also washing line. (Hofmeyr tenant)*

Additional security measures above the boundary wall on all sides of the Hofmeyr property were observed. There were no defects in these additional security measures.

There was inconsistency regarding burglar bars on windows and security gates on doors. The inconsistency is, firstly, in terms of these security measures not being present in all windows and doors and, secondly, the structure and designs of these security measures varying considerably. Less than 50% of the units had burglar bars and/or security gates.

5.4.2.2 Harmonious environments

Twelve indicators were used to assess the harmonious environments criterion. These were divided into three sub-criteria, namely: (i) hardscaping; (ii) landscaping; and, (iii) site elements. With a score of 2.0/3.0, the quality of Hofmeyr's shared outdoor spaces was good for this criterion. This discussion is undertaken with reference to Appendix J, which shows how the scores for each indicator, the sub-criterion and criterion were achieved with the spreadsheet that was developed.

A. Hardscaping

Hofmeyr scored 1.0 for this sub-criterion. The diversity of hard surfaces and the dominance of parking were assessed.

There were six spatial categories with impervious hard surfaces in Hofmeyr. These were the walkways, the dustbin area, the open space, laundry basins, parking and the clothing line. The walkways around the open space were covered and mostly used for circulation within the building, but one respondent used this space to hang washing. The open spaces, at the centre of the court building, were used for watching children/people, playing, sitting and relaxing, and talking to other residents. The laundry basins area, at the building's eastern façade, was used to hang washing, sit and relax, braai, greet other residents and visiting with other residents. The parking area was used for washing cars, watching people, playing, talking on the phone, braaiing and talking. The clothing line area was used for hanging washing, watching children, reading and writing, braaiing, and talking. The width of the parking was less than half the width of the elevation, the parking therefore did not dominate the site.

B. Landscaping

Hofmeyr scored 0.3 for this sub-criterion. The soft landscaping was assessed.

In addition to contributing to an increase in urban temperatures, hard surfaces also affect storm water runoff. Landscaping, or green infrastructure, can help not only in the reduction of the urban heat island, but can also retain and slow storm water runoff rates. A number of trees had been provided in the lawn and the garden. In the lawn, the trees were concentrated at the edges and did not offer adequate shading on the lawn for tenants. The trees in the garden offered shading close to the building; however, this spatial category was not frequently accessible to tenants. The trees provided also did not provide any wind protection.

Without an external tap and given the size and shape of the lawn and garden the researcher deduced that the maintenance and management of Hofmeyr's landscaping was not water efficient. The water usage was not monitored and from the interview with the YCH management it appeared that water usage was generally high. Water metering was not used for measuring water usage.

C. Site elements

Hofmeyr scored 0.6 for this sub-criterion. Hofmeyr was built in the 1940s and was refurbished in the late 1990s. As a Brownfield development, Hofmeyr has protected its building and landscaping which gives the site maturity. Hofmeyr partially conforms to the CoT's Town Planning Scheme for Pretoria Central which requires residential developments in the area to have a density of 130 du/ha, 40% coverage, 2.4 FAR, 0.8 parking bays/unit and a maximum of four storeys (CoT, 2008). This three court configured building has a density of 356 du/ha, a 37% coverage, an FAR of 0.92 and a parking bays to units ratio of 0.48 bays/unit. The upgrading of this building for social housing is part of government's commitment to inner-cities regeneration. However, in acquiring this ageing building, YCH inherited all its positive and negative characteristics.

5.4.2.3 Socially responsible environments

Twelve indicators were used to assess the socially responsible environments criterion (see Table 3.7). These were divided into two sub-criteria, namely: (i) spaces for play; and, (ii) inclusive environments. With a score of 0.5/2.0, the quality of Hofmeyr's shared outdoor spaces was poor for this criterion. The sections that follow discuss the quality of Hofmeyr's shared outdoor spaces with regard to this criterion. This discussion is undertaken with reference to Appendix J, which shows how the scores for each indicator, the sub-criterion and criterion were achieved with the spreadsheet that was developed.

A. Spaces for play

Hofmeyr scored 0.2 for this sub-criterion. The spaces designed for children to play in were assessed.

There were no spaces that were specifically designed for children to play in at Hofmeyr. However, according to Building Supervisor 1, children in Hofmeyr generally played in the handle portion of the parking south of the building. He explained that the broken drainage pipes (see Figure 5.14 A & B) had been caused by children who rode on them. The building façade facing this area had a number of windows, allowing visual contact to the space. In response to an SQR question asking where their children opted to play, just over two-thirds (67%) of the respondents indicated that their children played on the lawn, whilst less than half (34%) of the respondents stated that their child(ren) played in the parking area (17%) or the open spaces (17%). The use of the open space is contrary to Building Supervisor 1's claim that tenants were not permitted to use this space. One Hofmeyr respondent highlighted the need for a safe play area in the closing comments of the SQR. The respondent stated:

> *… Since we have children make it safer for our children to be able to play on the veranda. We are forced not to live with them because it's not safe at all. (Hofmeyr respondent)*

This concern was echoed in the comments of two other respondents:

> *Make playground for the children. (Hofmeyr respondent)*
>
> *Play space for kids to be upgraded … (Hofmeyr respondent)*

The parking provides a hard surface for children to play with wheeled toys, whilst the lawn's soft surface may be attractive for children wanting to play soccer or with smaller toys. The number of children the respondents had and their ages could not be established from the SQR. Without this information, it was not possible to know which spatial categories were used by the different age groups.

B. Inclusive environments

Hofmeyr scored 0.3 for this sub-criterion. The accessibility of Hofmeyr's shared outdoor spaces for people with disabilities and the aged was assessed.

The pedestrian entrance was less than 850mm wide. This may make entering and exiting Hofmeyr difficult for people using wheelchairs. There were a number of level changes within the site, from the walkways to the open space and from the parking to the lawn and the clothing line. The defects in the ground cover of the parking would make it difficult for tenants with disabilities to move in this space. The walkways were smooth and polished, posing a risk for injury due to slipping. There were no ramps to help a person using a wheelchair to move between these spatial categories. Hofmeyr was therefore not fully accessible for people using wheelchairs.

5.5 Case study report: Kopanong

Figure 5.21 Google Earth 3D image of Kopanong in context (AfriGIS and Google, 2013)

The Kopanong social housing project was constructed in 2003/04. The land on which this project is situated was purchased by YCH from the Gereformeerde Kerk (Pretoria). (YCH, 2011)

There are 62 units in this four-storey building, these include forty-four 1-bedroom units, two 1½ bedroom units and sixteen 2-bedroom units (floor areas range from 36m² to 47m²). It is located at 292 Scheiding Street. The areas of the site and building are presented in Table 5.5.

Table 5.5 Site and building areas of the Kopanong social housing project

	Area
Site area	2,552m²
Estimated floor area	± 2,976m²
Estimated area of footprint	± 827m²
Estimated area of shared outdoor spaces	± 1,725m²

Most household activities, such as cooking, relaxing, dining, ironing, sleeping, storage, bathing and ablutions, take place in the units. Other household activities, such as doing laundry may take place either in the units or in the laundry basins between blocks A and B that have been provided for residents. This project is bordered from the north by two seven-storey apartment blocks, a single storey building, a double storey building and a nine-storey building toward the east, Scheiding Street toward the south while Melrose House is west of the project.

In 2003, the Kopanong buildings were constructed for R5,036,120, almost a quarter (R1,140,800) of this funding was sourced from the Gauteng Housing Department; the balance was a loan. Similarly to Hofmeyr, the funding for this project was primarily focused on developing the individual units.

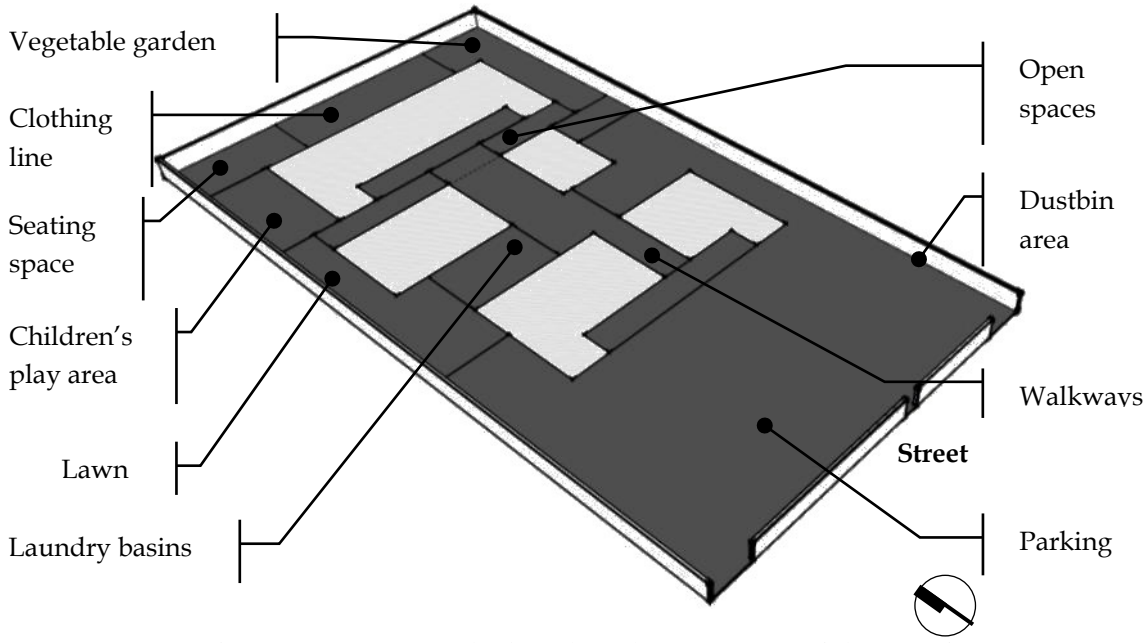


Figure 5.14 Kopanong's shared outdoor spaces spatial categories

The longest elevation of Kopanong's four-storey street configuration faces north and south. This has resulted in the formation of numerous interlinked shared outdoor spaces between and around Kopanong's three buildings. Ten spatial categories were identified in Kopanong's shared outdoor spaces (see Section 5.2). The spatial categories were the children's play area, clothing line, the dustbin

area, the laundry basins, the lawn, an open space, the parking (with 30 parking bays), the seating space, the vegetable garden and the covered walkways. Figure 5.22 illustrates the positions of these spatial categories. Five spatial categories, the clothing line, the dustbin area, laundry basins, parking and walkways, were considered to cater for necessary outdoor activities (i.e. walking, hanging out clothes, tending kids, tending vehicles, putting out rubbish, tending to plants, checking mail). The clothing line area was locked during the site visit. Three spatial categories, the children's play area, the seating space and the vegetable garden, were considered to cater for optional outdoor activities (i.e. watching events, playing alone, on phone/computer, relaxing/sitting, smoking, reading/writing, eating/drinking). The researcher observed that one of the open spaces was locked during the site visit. The last two spatial categories, the open space and the lawn, were considered to cater for social outdoor activities (i.e. conversation/talking, playing in a group, greeting, watching/sitting in group, meeting/gathering).

5.5.1 Kopanong respondent profile

The SQR (see Appendix E) data collection instrument was distributed to all the units in Kopanong (n = 62). Twenty (32%) surveys were returned. The distribution of the Kopanong respondents' characteristics is described in this section with reference to Appendix I. The respondents' characteristics described are age, gender, population group, language, disabilities, marital status, employment status, highest level of education attained, previous housing type, length of stay, and planned length of stay. Similarly to Hofmeyr, this information was gathered to help the researcher understand the users of Kopanong's shared outdoor spaces. Respondents were also asked how they used the shared outdoor spaces, what their perceptions on safety and security were and what aspects they wanted to change about Kopanong's shared outdoor spaces. The responses for these additional questions are presented in the sub-sections that follow to support the findings obtained with the SAOS instrument concerning the quality of the shared outdoor spaces in Kopanong.

Nearly two-thirds of Hofmeyr's respondents were 36-64 years old; the remainder were 19-35 year olds. In contrast to Hofmeyr, almost two-thirds (62%) of the Kopanong respondents with valid responses were between the ages of 19-35 years, whilst the remaining proportion of respondents (38%) was between the ages of 36-64 years. As was the case with Hofmeyr, none of the respondents were pensioners (i.e. over 65 years), implying that all the respondents were economically active. However, unlike at Hofmeyr, almost two-thirds of the respondents were younger in Kopanong. In terms of gender, just over half (56%) of the valid surveys returned were from female respondents, whilst the rest (44%) were from male respondents. Similarly to Hofmeyr, there are more female-headed households in Kopanong. All the respondents were Black. The most spoken languages in Kopanong are Setswana (28%), isiZulu (20%), and Tshivenda (16%). Other spoken languages include English, Sesotho sa Leboa, Sesotho, Xitsonga, isiNdebele (see Appendix I). It is noted, however, that respondents selected more than one language. In Kopanong more than three-thirds (80%) of the

respondents only spoke one language, almost a fifth (15%) spoke two languages and less than a tenth (5%) spoke three languages. The most spoken languages in Kopanong supported the Housing Manager's and the building supervisors' assertions that, apart from English, Zulu and Sotho were the most spoken languages in Hofmeyr, Kopanong and Litakoemi. Similarly to Hofmeyr, the diversity of languages spoken in this case study indicates that various cultures exist within Kopanong. There were no respondents with disabilities. This means that the study does not reflect the viewpoint of people with disabilities with regard to Kopanong.

Almost two-thirds (65%) of the Kopanong respondents were single, almost a third (29%) were married and less than a tenth were divorced (6%). As with Hofmeyr, the results for this case study primarily represent the view of single people, including unmarried, divorced and separated people.

More than three-quarters (79%) of the Kopanong respondents were employed on a full-time basis, less than a tenth (5%) were employed on a part-time basis and just over a tenth (11%) were self-employed. All respondents may be considered to be in the economically active age bracket, with less than a tenth (5%) of the respondents being unemployed. Two-thirds (67%) of the respondents had a higher qualification. Almost a fifth (17%) had a Matric, whilst less than a fourth (23%) had some secondary school and just over a tenth (11%) had only primary schooling.

More than two-thirds (68%) of the Kopanong respondents' previous housing type were blocks of flats and almost a third (32%) had previously lived in a house on a stand. It may be deduced from this that just more than two-thirds of the respondents were familiar with medium density living.

Less than a tenth (6%) of the respondents had lived in Kopanong for less than a year. Nearly three-quarters (72%) of the respondents had lived in this YCH project for between one and three years, whilst close to a quarter (22%) of the respondents had lived in the YCH project for more than four years. The length of stay indicates the occupancy rates in Kopanong. Given the high percentage of respondents who have lived in this case study building it was expected that most of the respondents would be familiar with the condition of Kopanong's shared outdoor spaces. Asked how long they intended to stay in Kopanong, almost a third (28%) of the respondents were not sure, whilst a third (33%) indicated that they may stay in the YCH project for another one to three years and more than a third (39%) thought they may stay for another four years or more.

5.5.2 The quality of Kopanong's shared outdoor spaces

The SAOS data collection instrument, developed in Chapter 2, was used to collect data concerning the quality of Kopanong's shared outdoor spaces. With an overall score of 5.4/11.0, the quality of Kopanong's shared outdoor spaces was average, meaning that it aligned to some extent with the specifications in the Social Housing Policy. In terms of the three criteria, the quality of the shared outdoor spaces in Kopanong was average for safe environments, poor for harmonious environments

and good for socially responsible environments.

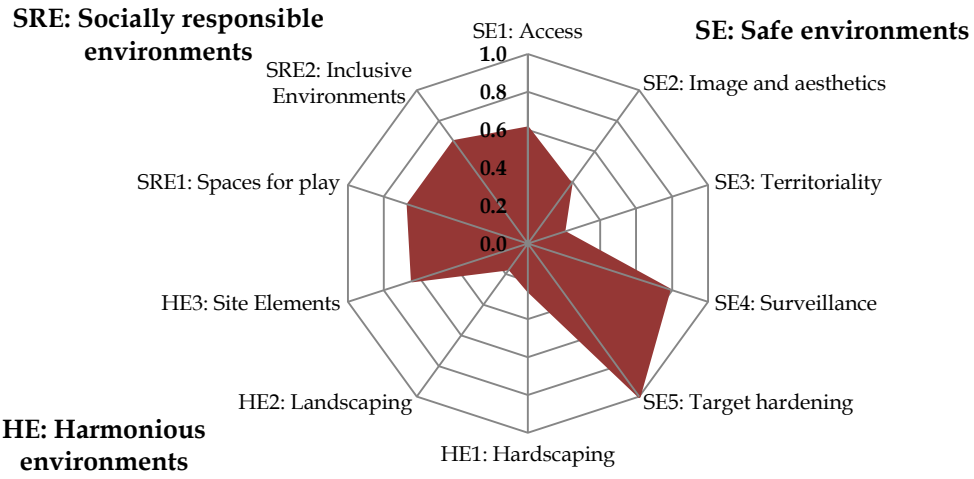


Figure 5.15 Radar diagram for the quality of Kopanong's shared outdoor spaces

Figure 5.23 shows a radar diagram indicating the quality of Kopanong's shared outdoor spaces in terms of the criteria and related sub-criteria introduced in Section 3.2. This figure also shows that the quality of Kopanong's shared outdoor spaces was good or very good (i.e. more than 0.6) in terms of surveillance and visibility, target hardening, spaces for play, and inclusive environments. Conversely, the figure shows that the quality of Kopanong's shared outdoor spaces performed poorly and was considered to be poor or very poor (i.e. less than 0.4) in terms of territoriality and ownership, hardscaping, and landscaping.

The sections that follow discuss these results in terms of the three criteria identified from the Social Housing Policy, namely: (i) safe environments; (ii) harmonious environments; and, (iii) socially responsible environments. The discussion of these results is supported by data collected with the other data collection instruments described in Chapter 4, namely ISM (see Appendix B), the ISC (see Appendix C) and the SQR. This discussion is undertaken with reference to Appendix J, which presents a spreadsheet indicating how each indicator was rated, and subsequent to this how the sub-criterion and criterion scored.

5.5.2.1 Safe environments

Thirty-two indicators were used to assess the safe environments criterion (see Table 3.1, Table 3.2, Table 3.3, Table 3.4 and Table 3.5). These were divided into five sub-criteria, namely: (i) access; (ii) image and aesthetics; (iii) surveillance and visibility; (iv) territoriality and ownership; and, (v) target hardening. With a score of 3.1/5.0, the quality of Kopanong's shared outdoor spaces was good for the safe environment criterion. This discussion is undertaken with reference to Appendix J, which shows

how the scores for each indicator, the sub-criterion and criterion were achieved with the spreadsheet that was developed.

A. Access

Kopanong scored 0.6 for this sub-criterion. The entrance to the site, and the pedestrian and vehicular movement within the site were assessed.

Kopanong had two entrances (see Figure 5.24); a pedestrian entrance (see Figure 5.25) and an entrance for vehicles (see Figure 5.26). These entrances were clearly visible from the street and provided no hiding place for potential intruders. Kopanong's entrances were on the northern boundary along Scheiding Street. Kopanong was accessed through the pedestrian gate, where the researcher was requested by the security guard to sign in (and later to sign out) of Kopanong. Of the three, Kopanong was the only case study with a security guard. The vehicular entrance was locked during the site visit.

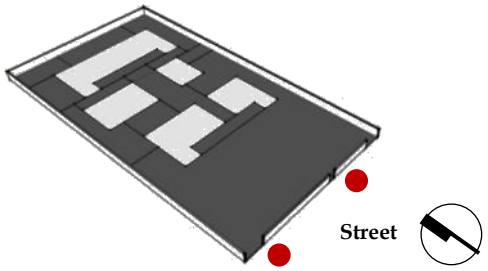


Figure 5.16 Kopanong site plan indicating entrances

Figure 5.17 Kopanong's pedestrian entrance

Figure 5.18 Kopanong's vehicle entrance

Figure 5.28 illustrates movement between Kopanong's different spatial categories. Pedestrian movement is represented by a solid line, whilst vehicular movement is represented by a dashed line. This figure shows that when entering Kopanong through the pedestrian entrance, one walks on the walkway. From the parking one has direct access to the laundry bins, units and the dustbin area. Using the walkways (covered in some parts) one could go to the units, open space, the lawn and the vegetable garden. From the open space, one could access the lawn and the units. One could access the children's play area, then the seating space and, lastly, the clothing line from the lawn and open space. As the only spatial category that caters for social outdoor activities, the lawn, the seating space

and the open space are what Llewelyn-Davies (2000) referred to as 'go through' places, which users walk through on the way to another spatial category. In such places, any optional or social outdoor activities would be continuously interrupted by residents *en route* to other spatial categories. Apart from the dustbin area, the clothing line and the vegetable garden, all the other spatial categories in Kopanong are also 'go through' places. The dustbin area, the clothing line and the vegetable garden are mostly situated along the boundary wall and since they do not form part of the circulation route may be considered 'go to' places.

When accessing the site through the vehicular entrance, vehicles immediately have access to the parking. Vehicles were restricted to the parking area.

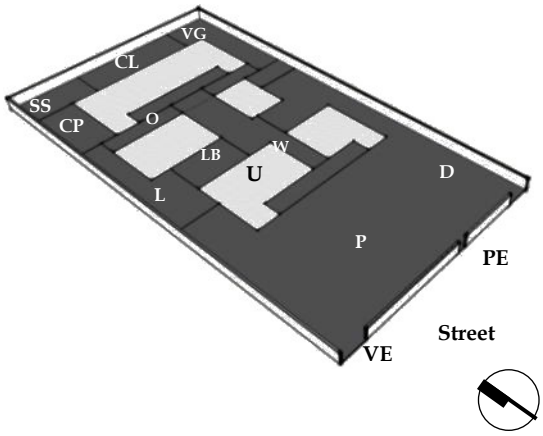


Figure 5.19 Kopanong site plan

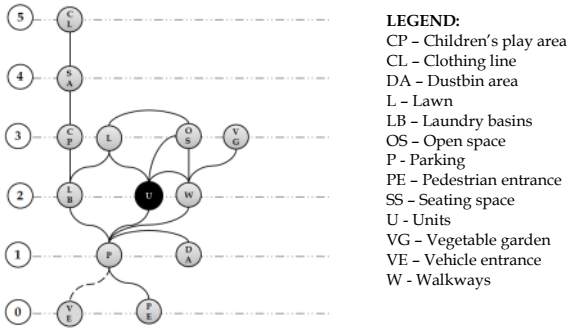


Figure 5.20 Movement between Kopanong's spatial categories

The pedestrian and vehicular entrances are separated; however, the walkway cuts across the parking area (see Figure 5.26). Similarly to Hofmeyr, in Kopanong this was the only spatial category where pedestrians and vehicles met. Emergency and service vehicles can have access to the units without blocking vehicular access to the parking.

B. Image and aesthetics

Kopanong scored 0.4 for this sub-criterion. The general condition of six key external vertical and horizontal site elements was assessed. These site elements include the boundary wall and entrances, the building façades, the trees, the dustbin area and the ground cover of the spatial categories.

Kopanong is bordered by a combination of a 1,8m high precast concrete panel wall and buildings on the eastern and western sides, a combination of a 1,8m high steel palisade fence (on Kopanong's side) and a precast concrete panel wall/no boundary wall (on Kopanong's northern neighbours' side) on the eastern side and a 1.8m high steel palisade fencing on the western side. Additional security measures, in the form of barbed wire and steel palisade fencing, is provided on top of the concrete panel wall and steel palisade fencing (see Figure 5.29). The entrances to the site had no defects, but their paintwork was peeling.

Figure 5.29 Images showing Kopanong's entrance, northern and western boundary wall

Kopanong's building façades are a combination of painted cement plaster and exposed concrete. The paint on the plastered and painted portions of the building façades was peeling. Figure 5.30 shows some elements that had defects in Kopanong.

Figure 5.30 Elements that require repair in Kopanong

The first noticeable element was that, unlike Hofmeyr and Litakoemi, Kopanong had no signage at the entrance. According to the Kopanong Building Supervisor (hereafter "Building Supervisor 2"), who is also responsible for Litakoemi, signage had initially been positioned at the entrance, on Kopanong's northern wall (i.e. less than 2m high); however, it had been stolen (A). The second image of the Kopanong entrance confirms his assertion of the existence of a sign at the entrance (B). The paving blocks in the open space had been loosened (C) and there was graffiti at various locations throughout the site (D). There were cracks where the wooden column is connected to the brick balustrade (E). There was also a leakage from one of the ducts during the Kopanong visit (F).

Another element that had an impact on the image and aesthetics of the Kopanong was the presence of satellite dishes on the northern façades of the buildings (see Figure 5.31), thus not visible from the street.

Figure 5.31 Satellite dishes on the northern façades of the Kopanong buildings

The YCH Housing and Development managers mentioned that the instalment of satellite dishes was a concern in Kopanong. Respondents from Hofmeyr and Litakoemi complained that they had a poor TV signal and needed to install satellite dishes to improve their signals. The YCH management were aware of the poor quality TV reception, but were concerned about the appearance of the growing number satellite dishes on the Kopanong building façades. In an effort to control the scourge, an item relating to DSTVs has been added to the Kopanong house rules. It states that the tenants promise that:

> *"… I will not attach TV aerials or satellite dishes to … a Yeast City Housing building… unless I have asked for permission to do that and have been given permission in writing by Yeast City Housing" Tau Village House Rule no. 8.*

The presence of the satellite dishes affects the aesthetics of the Kopanong buildings. In addition, the position of the satellite dishes below windows may compromise visual contact to the shared outdoor spaces for some units.

Kopanong's spatial categories have a combination of hard surfaces and soft landscaping. The hardscaping in the seating space (A), the walkways (B) and the clothing line (C) is in good condition (see Figure 5.32). Kopanong's soft landscaping is limited to the lawn (see Figure 5.33). The site has a number of trees, one in the parking (B), a few young ones in the lawn (A) and several others in the vegetable garden (C). The site visit took place in autumn when the colour of the leaves of some trees change and leaves fall off. Similarly to Hofmeyr, most of the trees and planting in Kopanong was green during the site visit. There was a lack of variation in the colour of the trees but planting in Kopanong varied in height. From the lack of variety in the colour and in some instances the height of the trees and planting, the researcher deduced that a landscape architect had not designed the landscaping. This confirmed the earlier deduction that the landscaping had not been funded when the case study was developed. The YCH management said that in 2009, various interventions and improvements in the shared outdoor spaces were undertaken by the BSc Landscaping students, under the supervision of Ms Ida Breed, to improve the Kopanong landscaping. These interventions and improvements were undertaken through a partnership between YCH, the University of Pretoria and the South African Landscape Institute (SALI).

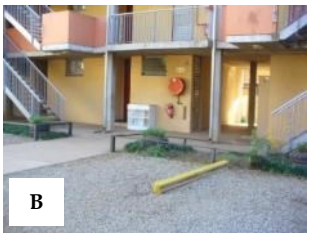


Figure 5.32 Images showing Kopanong's hardscaping

Figure 5.33 Images showing Kopanong's soft landscaping

The dustbin area was located in the parking area. It was accessible to tenants on their way in and out of Kopanong. The dustbins in the dustbin area were not hidden in the parking area but could not be seen from the other spatial categories where outdoor activities took place. It was observed that the dustbin area did not have a tap or a drain directly associated with it.

Figure 5.21 Kopanong's dustbin area

Unlike in Hofmeyr, there was seating furniture in Kopanong. This was shaded and located close to the clothing line and children's play area. The combination of the shading and seating may have contributed to the majority of the respondents (64%) using the seating space for outdoor activities sometimes (see Appendix N).

C. Territoriality and ownership

Kopanong scored 0.3 for this sub-criterion. The demarcation of Kopanong's spatial categories was assessed.

Figure 5.35 shows images of the use of lawn and paving to demarcate between the lawn and laundry basins spaces (A). The walls and roof over the laundry basins further served to demarcate this space. The vegetable garden, clothing line (see Figure 5.32 C) and an area previously used as a play area for older children (D & E) was fenced off. The vegetable garden was not locked during the visit; however, the clothing line and the play area for older children were locked away. With regard to the locked away clothing line, Building Supervisor 2 explained that this measure had been enforced after several thefts had taken place in this spatial category. It was to ensure that tenant's clothes were safe whilst drying. Tenants had to obtain a key from the security guard at the gate to use this resource. The children's play area (F), provided by Rotary Pretoria Capital, is demarcated by edges that are raised slightly to hold the sand. This area is visually demarcated from the lawn by a wooden screen.

Two seating spaces (see Figure 5.32 A), located close to the children's play area and the clothing line, are demarcated with seating furniture, one of these is also covered by roof sheeting.

Gravel is used to demarcate the parking and vehicular circulation on the site, whilst the concrete in the walkways demarcate the pedestrian circulation (see Figure 5.32 B).

Figure 5.35 The demarcation of shared outdoor space in Kopanong

The personalisation of space in Hofmeyr is represented in three main ways, including the presence of planting in the walkways (see Figure 5.19 D), the murals painted on the western façade of Block C (see Figure 5.15 D) and the eastern boundary wall (see Figure 5.35 and Figure 5.37) and the hanging of clothing in walkways (see Figure 5.36).

Figure 5.36 Washing left to dry in a Kopanong walkway

Figure 5.22 Mural on Kopanong building façade

The presence of well-maintained planting outside some units showed that the tenants' ownership of the walkways. However, although this adds interest to the walkways, the planting poses a hazard to tenants in two ways. Firstly, the planting on the floor may, like in Hofmeyr, trip up people with visual disabilities or during emergency exits. Secondly, the planting on the ledges may fall off the ledge causing various injuries to anyone walking below. The presence of the mural exudes ownership to a lesser degree, because it was not painted by the tenants, but by the Rotary Pretoria Capital. The presence of washing in the walkways also indicated a sense of the tenants' ownership of the space outside their units. Building Supervisor 2 complained that tenants were not permitted to hang their washing out in this way. The inconvenience of going to the security guard at the pedestrian entrance

to obtain the key for the clothing line may be the cause of some tenants ignoring the rule in this regard.

D. Surveillance and visibility

Kopanong scored 0.8 for this sub-criterion. The number of units with visual contact to the different spatial categories was assessed.

The street configuration of the buildings allowed units visual contact to most spatial categories. Based on an analysis of Kopanong's building plans, the number of units with visual contact to different spatial categories was obtained. Twenty-three Kopanong units (37%) had visual contact to the entrances. Two-thirds of the units had a view of the lawn and laundry basins. Another two had visual contact to the open spaces and the entrance to the vegetable garden. A few units could see the children's play area and the seating space and a third of the units had views of the seating space, the clothing line and the vegetable garden. The majority of the crimes that respondents of the SQR were either victims of, or witness to, took place in these least visually accessible spatial categories.

The findings of four SQR questions (see Appendix E) show that the majority of crimes that respondents were victims of, or witnesses to, were predominantly thefts that took place at the clothing line. The thefts respondents were victims of, took place mainly at the clothing line (35%). Other unspecified types of crimes were experienced in the clothing line area (5%). The thefts respondents witnessed occurred at the clothing line (40%) and in the parking area (5%). Other unspecified types of crime have occurred at the clothing line area (15%). The crime in Kopanong is not as prominent as in Hofmeyr; this may possibly be due to the presence of the security guard.

More than two-thirds (70%) of the Kopanong respondents indicated that they felt safe in the shared outdoor spaces during the day, whilst just under two-thirds (60%) indicated that they sometimes felt safe in these spaces at night. Only two respondents indicated that they felt always safe in Kopanong's shared outdoor spaces at night.

The site visit was undertaken during the day. The external lighting was observed in the walkways. No lighting was observed in the parking south of the building and in the children's play areas, the seating space, clothing line and vegetable garden. It was therefore deduced that these spatial categories had limited lighting at night. The combination of the limited lighting and the absence of tenants during the day because of work make this spatial category particularly vulnerable to criminal opportunities.

E. Target hardening

Kopanong scored 1.0 for this sub-criterion. The presence and condition of burglar bars, security gates and additional security measures above the boundary wall were assessed.

Kopanong was the only case study with a security guard at the entrance. The researcher had to sign a visitors' book on entering and exiting the site. The Housing Manager stated that in Kopanong, one of the Building Supervisor's roles was to support the security guard by monitoring the project, particularly during the day when most residents were at work.

Additional security measures above the boundary wall on all sides of the Hofmeyr property were observed. There were no defects in these additional security measures.

Similar to Hofmeyr, there were inconsistencies regarding burglar bars on windows and security gates on doors. The inconsistency was, firstly, in terms of these security measures not being present in all windows and doors and, secondly, the structure and designs of these security measures vary considerably. Less than 50% of the units had burglar bars and/or security gates.

Despite the presence of the security guard, three respondents were concerned about security in Kopanong. In the closing comments of the SQR, they stated:

> *New security system at the gate. (Kopanong respondent)*
>
> *Security should be intensified specially at night, and should have 2 way radios, cameras should be installed. (Kopanong respondent)*
>
> *It would be better if you put butlers on our windows so that it could be safe for kids and even reduce house breakings. (Kopanong respondent)*

5.5.2.2 Harmonious environments

Twelve indicators were used to assess the harmonious environments criterion. These were divided into three sub-criteria, namely: (i) hardscaping; (ii) landscaping; and, (iii) site elements. With a score of 1.1/3.0, the quality of Hofmeyr's shared outdoor spaces was good for this criterion. This discussion is undertaken with reference to Appendix J, which shows how the scores for each indicator, the sub-criterion and criterion were achieved with the spreadsheet that was developed.

A. Hardscaping

Kopanong scored 0.3 for this sub-criterion. The diversity of hard surfaces and the dominance of parking were assessed.

There were five spatial categories with impervious hard surfaces in Kopanong. These were the walkways, laundry basins, seating space, parking and the clothing line area. The walkways were covered and mostly used for circulation between the buildings. The laundry basins were used to hang washing, sit and relax, greet and socialise with other residents. The seating space was used mainly for reading and writing. The parking area was used for washing cars, playing, talking on the phone and talking to others. The clothing line was used for hanging washing, watching children, taking out

rubbish, greeting other residents, and sitting and relaxing. The width of the parking was less than half the width of the elevation, the parking therefore did not dominate the site.

B. Landscaping

Kopanong scored 0.2 for this sub-criterion. The soft landscaping was assessed.

In addition to contributing to an increase in urban temperatures, hard surfaces also affect storm water runoff. Landscaping, or green infrastructure, not only helps in the reduction of the urban heat island, but it can also retain and slow storm water runoff rates. A number of trees had been provided in the parking area and vegetable garden. Similarly to Hofmeyr, the trees provided did not afford any wind protection, nor shading for the tenants.

Without an external tap and given the size and shape of the lawn and garden the researcher deduces that the maintenance and management of Kopanong's landscaping was not water efficient. The water usage was not monitored and from the interview with the YCH management water usage was considered to be generally high. Water metering was not used for measuring water usage.

C. Site elements

Kopanong scored 0.6 for this sub-criterion. The Kopanong buildings were constructed in 2003 after buildings already on the site at that time were demolished. Similarly to Hofmeyr, Kopanong partially conforms to the CoT's Town Planning Scheme for Pretoria Central which requires residential developments in the area to have a density of 130 du/ha, 40% coverage, 2.4 FAR, 0.8 parking bays/unit and a maximum of four storeys (CoT, 2008). This four-storey street configured building has a density of 243 du/ha, 32% coverage, an FAR of 1.17 and a parking bays to units ratio of 0.13 bays/unit. The development of the building for social housing was part of government's commitment to inner-cities regeneration. However, in acquiring the land, YCH inherited all its positive and negative characteristics.

5.5.2.3 Socially responsible environments

Twelve indicators were used to assess the socially responsible environments criterion (see Table 3.7). These were divided into two sub-criterion, namely: (i) spaces for play; and, (ii) inclusive environments. With a score of 1.4/4.0, the quality of Kopanong's shared outdoor spaces was good for this criterion. The sections that follow discuss the quality of Kopanong's shared outdoor spaces with regard to this criterion. This discussion is undertaken with reference to Appendix J, which shows how the scores for each indicator, the sub-criterion and criterion were achieved with the spreadsheet that was developed.

A. Spaces for play

Kopanong scored 0.7 for this sub-criterion. The spaces designed for children to play in were assessed.

Kopanong was the only case study with a space specifically designed for children to play in. In response to an SQR question asking where their children opted to play, three-quarters (75%) of the respondents indicated that their children played in the open spaces, whilst a quarter of the respondents stated that their child(ren) played in the parking area (8.3%), the dustbin area (8.3%) and the children's play area (8.3%). The limited use of the children's play area may be explained by one of the respondents' complaint (in the closing comments of the SQR) that the play area provided was small. This respondent's reference to size may concern the age of the children, i.e. that the play area was only intended for children between the ages of 2 to 12 years.

B. Inclusive environments

Kopanong scored 0.7 for this sub-criterion. The accessibility of Kopanong's shared outdoor spaces for people with disabilities and the aged was assessed.

Similarly to Hofmeyr, the pedestrian entrance was less than 850mm wide. There was also a step at this entrance (see Figure 5.25). The combination of the narrow opening and the step at the pedestrian entrance will definitely make entering and exiting Kopanong difficult for people using wheelchairs. The walkway from the entrance to the units and other spatial categories in Kopanong was concrete, making it slip resistant. There were a few low level changes and numerous routes one could take as illustrated in Figure 5.28. There was therefore no need for ramps between these spatial categories.

5.6 Case study report: Litakoemi

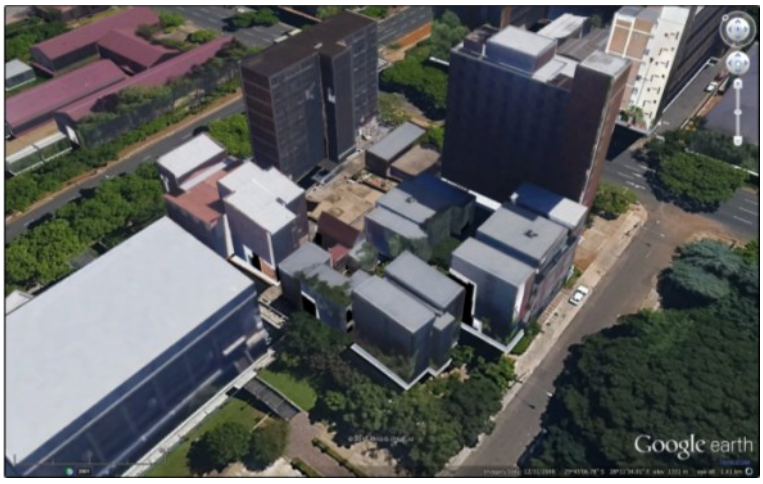


Figure 5.38 Google Earth 3D image of Litakoemi in context (AfriGIS and Google, 2013)

Similarly to Hofmeyr, the Litakoemi social housing project was constructed in the 1940s. (YCH, 2011)

There are 31 one room units (floor areas range from 12m² to 28m²) in this three-storey pavilion building located at 287 Visagie Street. The areas of the site and building are presented in Table 5.4.

Table 5.6 Site and building areas of the Litakoemi social housing project

	Area
Site area	740m²
Estimated floor area	± 757m²
Estimated area of footprint	± 290m²
Estimated area of shared outdoor spaces	± 450m²

As was the case at Hofmeyr, most household activities, such as cooking, relaxing, dining, ironing, sleeping and storage, take place in the units, whilst other household activities, such as bathing and ablutions, take place in the shared bathroom facilities. Laundry may also be done in the shared bathroom facilities. Litakoemi is bordered from the north by Visagie Street, an eight-storey apartment block toward the east, two other four-storey YCH social housing projects (Potter's House and Burgers Park) toward the south and south and the Doxa Deo Inner City Campus further west.

In 2000, the nearly sixty-year old building was purchased and upgraded by YCH with R705,000, almost 60% (R406,000) of this project value was from the Gauteng Housing Department; the balance was a loan, grant and equity funds. The upgrading of this project may therefore be considered to be a Brownfield development. The project value was primarily focused on the upgrading of the individual units.

The longest elevation of Litakoemi's four-storey pavilion configuration faces east and west. This has resulted in the formation of shared outdoor spaces surrounding the Litakoemi building. Four spatial categories were identified in Litakoemi's shared outdoor spaces (see Section 5.2). The spatial categories were the clothing line area, the dustbin area, the garden and the open space. Figure 5.39 illustrates the positions of these spatial categories. Two spatial categories, the clothing line and the dustbin area, were considered to cater for necessary outdoor activities (i.e. walking, hanging out clothes, tending kids, tending vehicles, putting out rubbish, tending to plants, checking mail). One spatial category, the garden, was considered to cater for optional outdoor activities (i.e. watching events, playing alone, on phone/computer, relaxing/sitting, smoking, reading/writing, eating/drinking). Similarly to Hofmeyr, the researcher observed that the garden in this case study was locked during the site visit. The Litakoemi Building Supervisor (hereafter "Building Supervisor 2"), who was also responsible for Kopanong, confirmed that this spatial category was always locked to ensure that, as in the case of Hofmeyr, it remained well kept. The last spatial category, the open space, was considered to cater for social outdoor activities (i.e. conversation/talking, playing in a group, greeting, watching/sitting in group, meeting/gathering).

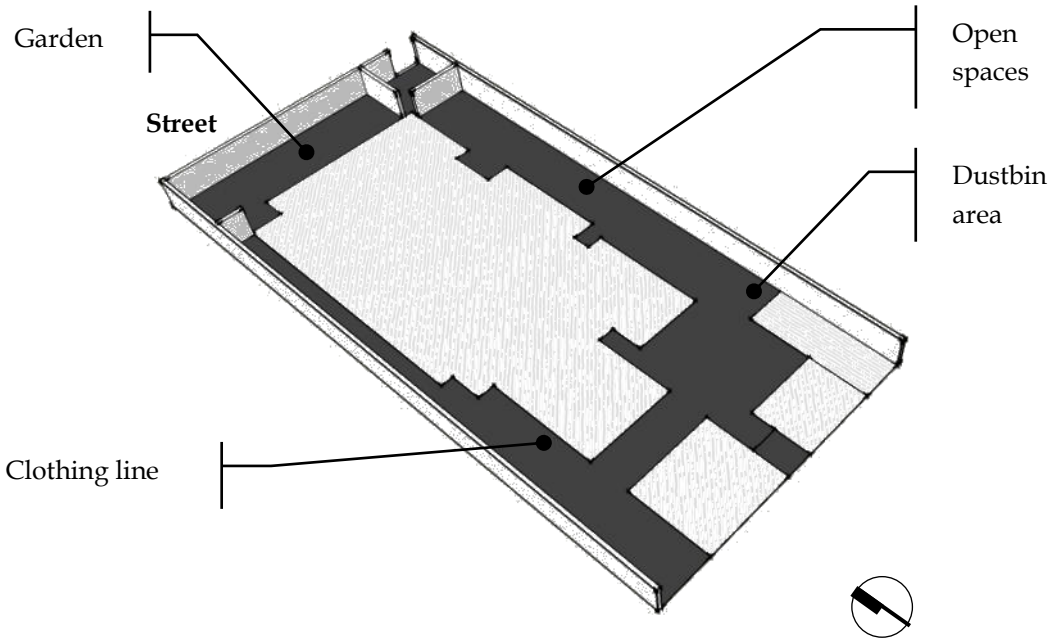


Figure 5.23 Litakoemi's shared outdoor spaces spatial categories

5.6.1 Litakoemi respondent profile

The SQR (see Appendix E) data collection instrument was distributed to all the units in Litakoemi (n = 31); however, only four (13%) surveys were returned. The distribution of the Litakoemi respondents' characteristics is described in this section with reference to Appendix I. The respondents' characteristics described are age, gender, population group, language, disabilities, marital status, employment status, highest level of education attained, previous housing type, length of stay, and planned length of stay. Similarly to Hofmeyr and Kopanong, this information was gathered to help the researcher understand the users of Litakoemi's shared outdoor spaces. Respondents were also asked how they used the shared outdoor spaces, what their perceptions on safety and security were and what aspects they wanted to change about Litakoemi's shared outdoor spaces. The responses for these additional questions are presented in the sub-sections that follow to support the findings obtained with the SAOS instrument concerning the quality of the shared outdoor spaces in Litakoemi.

All of the Litakoemi respondents were between the ages of 19-35 years. Similarly to the other case studies, this implies that all the respondents were economically active. In terms of gender, two of the surveys returned were from female respondents, whilst the remainder was from a male respondent. As in the other case studies, there were more female-headed households in Litakoemi. All the respondents were Black. The four respondents in Litakoemi indicated either that they spoke English (25%), isiNdebele (25%), isiZulu (25%) or Sesotho (25%). All of the Litakoemi respondents only spoke one language. The diversity of languages spoken in this case study indicates the various cultures that exist within Litakoemi. There were no respondents with disabilities. This means that the study does

not reflect the viewpoint of people with disabilities in respect to Litakoemi.

Only one Litakoemi respondent was single, a second was separated and the remaining two did not respond to this question. Similarly to the other case studies, the results for Litakoemi primarily represent the perspective of single people, including unmarried and separated people.

Two of the Litakoemi respondents were employed on a full-time basis and the other two were employed on a part-time basis. All respondents were considered to be economically active.

One Litakoemi respondent's previous housing type was a blocks of flats. One respondent previously lived in a house on a stand. One respondent previously lived in an informal dwelling and another respondent selected 'Other'. The specification for 'Other' was "Letakume (sic)", which is a flat in a block of flats. It may be deduced from this that only a quarter of the respondents were familiar with medium density living.

One of the respondents had lived in Litakoemi for less than a year. The other three of the respondents had lived in this YCH project for between one and three years. The length of stay indicates the occupancy rates in Litakoemi. Since there was a higher percentage of respondents who have lived in this case study building for more than a year, it was expected that most of the respondents would be familiar with the condition of Kopanong's shared outdoor spaces. Asked how long they intended to stay in Litakoemi, one respondent indicated that he/she may stay another year in the YCH project, whilst the remaining three respondents were not sure.

5.6.2 The quality of Litakoemi's shared outdoor spaces

The SAOS data collection instrument, developed in Chapter 2, was used to collect data concerning the quality of Litakoemi's shared outdoor spaces. With an overall score of 4.9/11.0, the quality of Litakoemi's shared outdoor spaces was average, meaning that it aligned to some extent with the specifications in the Social Housing Policy. In terms of the three criteria, Litakoemi was average for safe environments, average for harmonious environments and average for socially responsible environments.

Figure 5.40 shows a radar diagram indicating the quality of Litakoemi's shared outdoor spaces in terms of the criteria and related sub-criteria introduced in Section 3.2. This figure also shows that the quality of Litakoemi's shared outdoor spaces was considered good to very good (i.e. more than 0.6) in terms of access, target hardening and inclusive environments. On the other hand, the figure also shows that the quality of Litakoemi's shared outdoor spaces was poor or very poor (i.e. less than 0.4) in terms of landscaping and spaces for play.

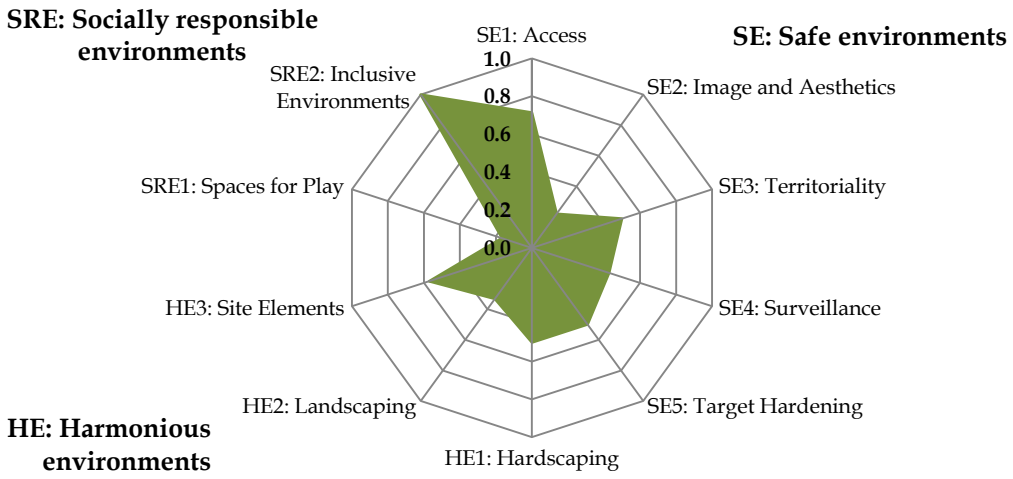


Figure 5.24 Radar diagram for the quality of Litakoemi's shared outdoor spaces

The sections that follow discuss these results in terms of the three criteria identified from the Social Housing Policy, namely (the promotion of): (i) safe environments; (ii) harmonious environments; and, (iii) socially responsible environments. The discussion of these results is supported by data collected with the other data collection instruments described in Chapter 4, namely: ISM (see Appendix B), the ISC (see Appendix C) and the SQR. This discussion is undertaken with reference to Appendix J, which presents a spreadsheet indicating how each indicator was rated, and subsequent to this how the sub-criterion and criterion scored.

5.6.2.1 Safe environments

Thirty-two indicators were used to assess the safe environments criterion (see Table 3.1, Table 3.2, Table 3.3, Table 3.4 and Table 3.5). These were divided into five sub-criteria, namely: (i) access; (ii) image and aesthetics; (iii) surveillance and visibility; (iv) territoriality and ownership; and, (v) target hardening. With a score of 2.6/5.0, the quality of Litakoemi's shared outdoor spaces was average for the safe environment criterion. This discussion is undertaken with reference to Appendix J, which shows how the scores for each indicator, the sub-criterion and criterion were achieved with the spreadsheet that was developed.

A. Access

Litakoemi scored 0.6 for this sub-criterion. The entrance to the site, and the pedestrian and vehicular movement within the site were assessed.

Unlike Hofmeyr and Kopanong, Litakoemi only had two pedestrian entrances (see Figure 5.41 and Figure 5.42), one on its northern boundary along Visagie Street and the other on its southern boundary adjoining two other Yeast City Housing projects, Potter's Housing and Burgers Park Lane.

Litakoemi's southern gate was locked during the site visit. Litakoemi was accessed via the Potter's House entrance along Burgers Park Lane, then through Litakoemi's southern pedestrian gate. Tenants access Litakoemi through a double pedestrian system on the northern boundary. Both gates were locked during the study, raising a question as to why this was not the case in Hofmeyr.

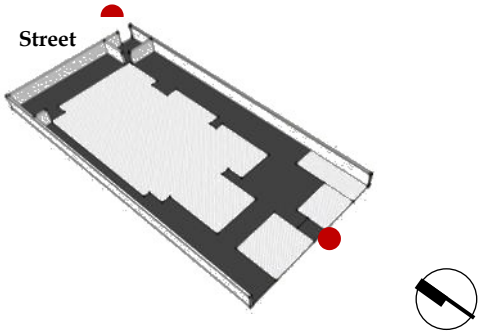


Figure 5.25 Litakoemi site plans indicating entrances

Figure 5.26 Litakoemi's pedestrian entrance

Litakoemi was bordered by a combination of a 1,8m high face brick wall and buildings on the eastern and western sides, Potter's House buildings on the southern side and a 1,8m high steel palisade fencing on the northern side. Additional security measures, in the form of barbed wire, were provided on top of the brick wall and steel palisade fencing. (see Figure 5.43)

Figure 5.43 Images showing Litakoemi's entrance, the western boundary and the southern gate

Figure 5.45 illustrates movement between Litakoemi's different spatial categories. This figure shows that when accessing Litakoemi through the Pedestrian Entrance from Visagie Street, one was led to the open space. From the open space, one had access to the garden; the units, dustbin area, clothing line and the entrance adjoining the Burgers Park social housing project (see Figure 5.43 C). As was the case in Hofmeyr, the garden was locked during the site visit. It could only be accessed with permission from Building Supervisor 2. The open space was considered to cater for social outdoor activities; however, similarly to Hofmeyr, this spatial category was what Llewelyn-Davies (2000) refers to as 'go through' places which users walk through on the way to another spatial category. In such places, any optional or social outdoor activities would be continuously interrupted by residents *en route* to other spatial categories. The other spatial categories, mostly along the boundary wall, are considered 'go to' places.

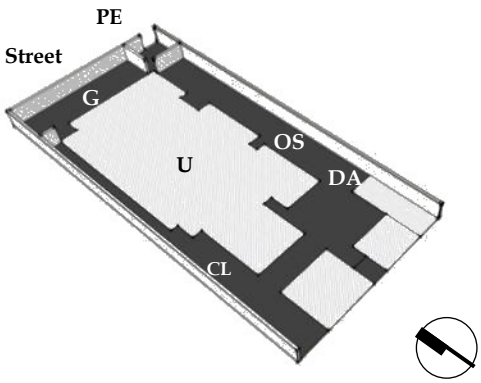


Figure 5.27 Litakoemi site plan

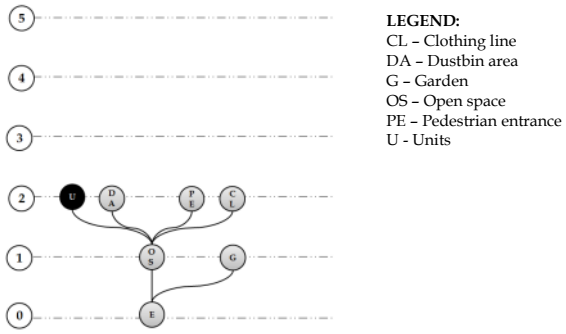


Figure 5.28 Movement between Litakoemi's spatial categories

Vehicles had no access to the site. With no vehicular entrance, access to Litakoemi would prove problematic for emergency vehicles.

B. Image and aesthetics

Litakoemi scored 0.2 for this sub-criterion. The general condition of six key external vertical and horizontal site elements was assessed. These site elements include the boundary wall and entrances, the building façades, the trees, the dustbin area and the ground cover of the spatial categories.

The structural condition of Litakoemi's brick boundary wall was very good, see Figure 5.46.

Figure 5.46 Images of the condition of Litakoemi's boundary walls

The entrances to the site had no defects, but the paintwork was peeling (see Figure 5.43). Litakoemi's spatial categories (i.e. open space (see Figure 5.47 A & B) and clothing line (see Figure 5.47 C)) had hard surfaces. The open space (see Figure 5.47 A) had a minor defect.

Figure 5.47 Images showing Litakoemi's hardscaping

The site visit took place in autumn when the colour of the leaves of some trees change and leaves fall off. Most of the trees and planting in Litakoemi were green during the site visit. Despite a lack of

variation in the colour of the trees and planting in Litakoemi, the height of the trees and planting in the garden varied thus adding interest to this spatial category. Once again, similarly to Hofmeyr and Kopanong, because of the lack of variety in the colour and in some instances the height of the trees and planting, the researcher deduced that a landscape architect had not designed the landscaping. This confirmed the earlier deduction that the landscaping had not been funded when the case study was developed.

The dustbins in the dustbin area are located in the open space (see Figure 5.48), on the way to the clothing line area. The dustbin area did not have a tap or a drain directly associated with it.

Figure 5.29 Litakoemi's Dustbin Area

As for Hofmeyr, there was no furniture (i.e. benches or tables) provided in Litakoemi.

C. Territoriality and ownership

Litakoemi scored 0.4 for this sub-criterion. The demarcation of Litakoemi's spatial categories was assessed.

Figure 5.49 shows images of Litakoemi's shared outdoor spaces. The majority of the Litakoemi site was paved. There was a garden (see Figure 5.49 C) that was fenced off. Two ground finishes were used for the clothing line area; one was paved whilst the other was not (see Figure 5.47 B & C). The site adjoins another YCH project and was separated from this by a gate that was locked at all times.

Figure 5.49 The demarcation of shared outdoor spaces in Litakoemi

There was no evidence of personalisation of space in Litakoemi's shared outdoor spaces.

D. Surveillance and visibility

Litakoemi scored 0.6 for this sub-criterion. The number of units with visual contact to the different

spatial categories was assessed.

The pavilion configuration of the building allowed units visual contact to most parts of the site. Based on an analysis of Litakoemi's building plans, the number of units with visual contact to different spatial categories was obtained. Six Litakoemi units (19%) have visual contact to the pedestrian entrance. All of the units overlook the shared outdoor spaces. Eleven units have visual contact to the open space where children play. The clothing line area is not fully visible. The crimes that respondents were either victims of, or witness to, took place in the clothing line area and the garden.

The responses to the questions (see Appendix E) show that the majority of crimes that respondents were victims of or witnessed were predominantly thefts that took place in the clothing line area. Other unspecified types of crimes occurred in the garden. According to the YCH Housing Manager, a Litakoemi tenant had a television set stolen during the year. This was confirmed by the following comment from a respondent who had not indicated in response to the set questions that she had been a victim of crime:

> *You have to put security guard, so that we can be secured with our children, as in month of March they break my room they took my plasma TV and ID documents. [Female, no age specified]*

Half (2) of the Litakoemi respondents indicated that they did not feel safe in the shared outdoor spaces during the day, and half (2) indicated that they also did not feel safe in these spaces at night.

The site visit was undertaken during the day. No external lighting was observed on building façades. It was therefore deduced that these spatial categories had limited lighting at night. The combination of the limited lighting and absence of tenants during the day because they are at work make the clothing line area and the garden a spatial category particularly vulnerable to crime.

E. Target hardening

Litakoemi scored 0.8 for this sub-criterion. The presence and condition of burglar bars, security gates and additional security measures above the boundary wall were assessed.

It was evident during the site visit that Litakoemi did not have a security guard. Both the Housing Manager and Building Supervisor 2 confirmed that YCH was discussing the possibility of acquiring a security guard with the Litakoemi tenants.

There was inconsistency regarding burglar bars on windows and security gates on doors. The inconsistency was, firstly, in terms of these security measures not being present at all windows and, secondly, the structure and designs of these security measures varied considerably. Similarly to Kopanong, less than 50% of the units had burglar bars.

5.6.2.2 Harmonious environments

Twelve indicators were used to assess the harmonious environments criterion. These were divided into three sub-criteria, namely: (i) hardscaping; (ii) landscaping; and, (iii) site elements. With a score of 1.2/3.0, the quality of Litakoemi's shared outdoor spaces was good for this criterion. This discussion is undertaken with reference to Appendix J, which shows how the scores for each indicator, sub-criterion and criterion were achieved.

A. Hardscaping

Litakoemi scored 0.5 for this sub-criterion. The diversity of hard surfaces and the dominance of parking were assessed.

There were three spatial categories with impervious hard surfaces. These were the open spaces, dustbin area and the clothing line area. The open spaces, at the centre of the court building, were used for watching children/people, checking mail, talking on the phone, reading and writing, walking, braaiing, greeting other residents, playing, sitting and relaxing, and talking to other residents. There was no parking area in Litakoemi.

B. Landscaping

Litakoemi scored 0.2 for this sub-objective. The soft landscaping was assessed.

Landscaping, or green infrastructure, not only helps in the reduction of the urban heat island, but it can also retain and slow storm water runoff rates. Unlike Hofmeyr and Kopanong, there was no lawn at Litakoemi. The soil in the garden provided the only pervious space on the site. Similarly to Hofmeyr and Kopanong, the trees there did not provide any wind protection, nor shading for the tenants.

Without an external tap and given the size of the garden, the researcher deduces that the maintenance and management of Litakoemi's landscaping was not water efficient. The water usage was not monitored and from the interview with the YCH management it was deduced that water usage was high. Water metering was not used for measuring water usage.

C. Site elements

Litakoemi scored 0.6 for this objective. Similarly to Hofmeyr, it was built in the 1940s and was refurbished in the late 1990s. As a Brownfield development, Litakoemi has protected its building and landscaping, which gives the site maturity. Similarly to Hofmeyr and Kopanong, Litakoemi partially conforms to the CoT's Town Planning Scheme for Pretoria Central which requires residential developments in the area to have a density of 130 du/ha, 40% coverage, 2.4 FAR, 0.8 parking bays/unit and a maximum of four storeys (CoT, 2008). This pavilion configured building has a

density of 419 du/ha, 39% coverage and an FAR of 1.02. There is no parking in this three-storey building. The upgrading of this existing building for social housing is part of government's commitment to inner-cities regeneration. However, in acquiring this ageing building, YCH inherited all its positive and negative characteristics.

5.6.2.3 Socially responsible environments

Twelve indicators were used to assess the socially responsible environments criterion (see Table 3.7). These were divided into two sub-criteria, namely: (i) spaces for play; and, (ii) inclusive environments. With a score of 1.2/2.0, the quality of Litakoemi's shared outdoor spaces was average for this criterion. The sections that follow discuss the quality of Litakoemi's shared outdoor spaces with regard to this criterion. This discussion is undertaken with reference to Appendix J, which shows how the scores for each indicator, the sub-criterion and criterion were achieved with the spreadsheet that was developed.

A. Spaces for play

Litakoemi scored 0.2 for this sub-criterion. The spaces designed and provided for children to play in were assessed.

Similarly to Hofmeyr, there were no spaces that were specifically designed for children to play in Litakoemi. However, according to Building Supervisor 2, children in Litakoemi generally played in the open spaces. The building façade facing this area had a number of windows, allowing visual contact to this space. In response to an SQR question asking where their children opted to play, two respondents indicated that their children played in the open space. One Litakoemi respondent highlighted the need for a safe play area in the closing comments of the SQR. He/she stated:

> *… Our children must have a play to play together as one when they come from school are not safety bcause* (sic) *they alone in flat. As parent we sticll* (sic) *work antil* (sic) *come back at late 5:30. (Litakoemi respondent)*

B. Inclusive environments

Litakoemi scored 1.0 for this sub-criterion. The accessibility of Litakoemi's shared outdoor spaces for people with disabilities and the aged was assessed.

Similarly to Hofmeyr and Kopanong, the pedestrian entrance in Litakoemi was less than 850mm wide. There was no step at this entrance (see Figure 5.42). There were no level changes within the site; however, there were two obstructions that could pose a tripping hazard, i.e. steps in the open space (see Figure 5.47 B) and a bath with a vegetable garden in the clothing line area (see Figure 5.47 C). There was no need for ramps between these spatial categories.

5.7 Cross-case report

This section is preceded by three individual case study reports (see Sections 5.4, 5.5 and 5.6) presenting the quality of shared outdoor spaces in Hofmeyr, Kopanong and Litakoemi. The first part comparatively analyses the quality of the shared outdoor spaces across all three case studies. This comparative analysis helped the researcher in identifying assessment criteria and sub-criteria that were of either 'Very good or good quality' or 'Very poor or poor quality'. The second part discusses the possible reasons for these good and poor qualities of the shared outdoor spaces in all the case studies. The third part of each sub-section considers the implications of the good and poor quality of the shared outdoor spaces for YCH and the residents. Lastly, where possible, recommendations for improving poor quality or maintaining good quality in the shared outdoor spaces in the social housing projects are suggested by the researcher.

Figure 5.50 presents the radar diagrams from the individual case study reports. These graphically illustrate the quality of the shared outdoor spaces in the three cases studies. This shows that the quality of the shared outdoor spaces in the three case studies was very good in terms of target hardening in Kopanong, hardscaping in Hofmeyr and inclusive environments in Litakoemi.

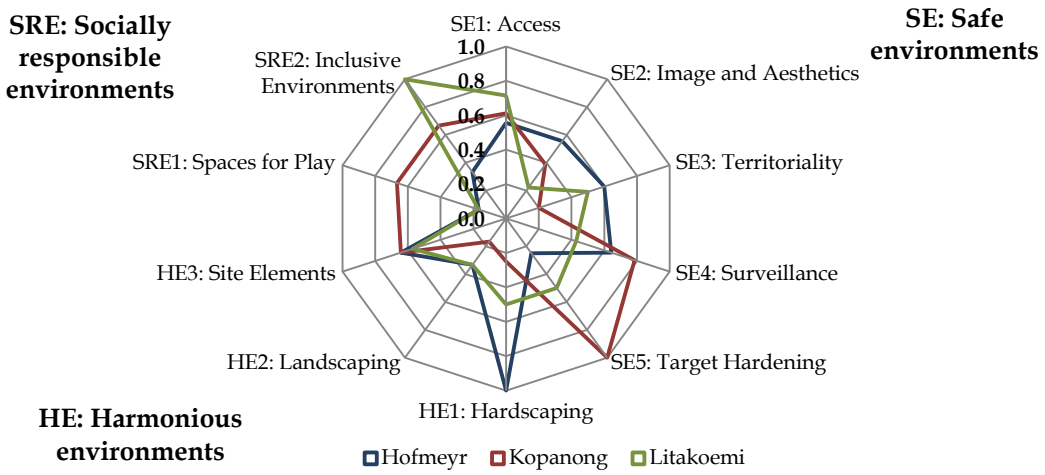


Figure 5.30 Radar diagram for the quality of the case studies' shared outdoor spaces

Table 5.7 Building elements as assessed in terms of the assessment sub-criteria

	Criteria and sub-criteria	Entrance and boundary wall	Shared outdoor spaces	Building façades
SE	**Safe environments**			
SE1	Access	■		
SE2	Image and aesthetics	■		
SE3	Territoriality and ownership		■	
SE4	Surveillance and visibility			■
SE5	Target hardening	■		■
HE	**Harmonious environments**			
HE1	Hardscaping		■	
HE2	Landscaping		■	
HE3	Site elements			■
SRE	**Socially responsible environments**			
SRE1	Spaces for play		■	
SRE2	Inclusive environments		■	

Shared outdoor spaces are formed by an architectural mass, which in the instance of this study are the buildings in the selected social housing projects. They are the outdoor spaces that are owned and accessible to members of a group who in this study are the tenants of the social housing projects managed by Yeast City Housing (YCH).

Table 5.8 Linkages between the sub-criteria

	Criteria and sub-criteria	Access	Image and aesthetics	Territoriality and ownership	Surveillance and visibility	Target hardening	Hardscaping	Landscaping	Site elements	Spaces for play	Inclusive environments
SE	**Safe environments**										
SE1	Access		■			■				■	■
SE2	Image and aesthetics	■		■		■				■	■
SE3	Territoriality and ownership		■				■	■			
SE4	Surveillance and visibility								■		
SE5	Target hardening	■	■						■		
HE	**Harmonious environments**										
HE1	Hardscaping	■		■						■	■
HE2	Landscaping			■							
HE3	Site elements				■	■					
SRE	**Socially responsible environments**										
SRE1	Spaces for play	■	■				■				
SRE2	Inclusive environments	■	■				■				

Two built-environment planes were considered in the assessment of the quality of shared outdoor

spaces in the three case studies. These were the vertical (i.e. entrances, boundary walls, trees and building façades) and horizontal planes (i.e. the spaces created). This cross-case report discusses the findings from the previous three individual case study reports (see Sections 5.4, 5.5 and 5.6) making reference to these planes because (as illustrated in Table 5.7) they were assessed by indicators in all the sub-criteria. In addition to considering the building elements, the linkages between the sub-criteria are considered (see Table 5.9). Table 5.7 and Table 5.9 helped the researcher in making sense of the comparative analysis in the sub-sections that follow. These sub-sections are structured in terms of the three criteria identified in this study, namely safe environments, harmonious environments and socially responsible environments.

5.7.1 Safe environments

With a score of 3.1/5.0, the quality of Kopanong's shared outdoor spaces was good, whilst with scores of 2.6/5.0 and 2.4/5.0, the quality of the shared outdoor spaces in Litakoemi and Hofmeyr respectively, was average. The safe environments criterion had the highest scores of the three criteria identified in Chapter 3. The high score for this criterion implies that YCH is most concerned about keeping its tenants safe in an area where crime is very high.

All the case studies had controlled access to the sites. Each case study had two entrances with a pedestrian entrance accessed from the street and an entrance allowing vehicle access. Two case studies had a double pedestrian entrance, i.e. Hofmeyr and Litakoemi; however, only one, i.e. Litakoemi, was using both gates as intended.

Each social housing project site had several spatial categories, i.e. Kopanong (10), Hofmeyr (7) and Litakoemi (4). Movement within these spatial categories was illustrated with the permeability graphs (see Figure 5.12, Figure 5.28 and Figure 5.45). These showed the number of routes available between the spatial categories in each project. The tree-like pattern of Litakoemi indicated an inefficient network; whilst some parts of Hofmeyr and Kopanong could be considered to be more efficient because they had more route choices.

Each case study was bordered by boundary walls on four sides. The entrances and boundary walls in all the case studies had some peeling paint. There were broken window panes and drainage pipes in Hofmeyr and some parts of Hofmeyr's and Kopanong's boundary walls had defects. The hard surfaces in all the case studies had varying degrees of defects. The presence of the defects in the boundary walls compromise the target hardening efforts that YCH has enforced in its projects. The defects in the hard surfaces, on the other hand, are likely to affect the ease of use for children, people with mobility and visual disabilities, and the aged. These defects indicate poor maintenance. For children with their wheeled toys and for people with mobility and visual disabilities and the aged, the defects pose a tripping hazard and generally make movement in these spatial categories difficult for

people in wheelchairs.

Hofmeyr had a mural on one boundary wall face. This signified a form of ownership; however, it is unclear whether the residents were responsible for this mural or not. There were no visible forms of ownership on the boundary walls of Kopanong and Litakoemi. On the other hand, in addition to the murals, Hofmeyr and Kopanong also had planting in the walkways (i.e. Hofmeyr and Kopanong) and on ledges (i.e. Kopanong).

Several satellite dishes were observed on the northern facades of all three buildings in Kopanong. The satellite dishes were located at different positions outside the windows of some Kopanong units. From the number of satellite dishes observed and the comments from the respondents, it was deduced that there was a demand for DSTV and subsequently the installation of satellite dishes. In and of itself, this demand was insignificant. However, the haphazard manner in which these dishes have been installed shows that YCH may have limited control over how this demand is addressed within its projects. Their locations can potentially compromise the visual links from some units to the shared outdoor spaces.

Most crimes, which respondents were either victims of or witness to, were theft. In each case study, the thefts mainly took place in the clothing line area. This spatial category for all three sites was located at the back of the site along the boundary wall and had limited visual links from the units. It also had no or limited lighting and surveillance was limited when clothing was hung on the clothing lines.

5.7.2 Harmonious environments

With a score of 2.0/3.0, the quality of Hofmeyr's shared outdoor spaces was good, whilst with a score of 1.2/3.0 the quality of the shared outdoor spaces in Litakoemi was average and with a score of 1.1/3.0 the quality of the shared outdoor spaces in Kopanong was poor. The Harmonious environments criterion had the second lowest scores of the three criteria identified in Chapter 3.

The lawn and garden spatial categories in the case studies required significant amounts of watering. The trees in the case studies were concentrated in the locked gardens (i.e. Litakoemi and Hofmeyr) and the lawn areas (i.e. Kopanong and Hofmeyr).

All the case studies had various form of hard surfaces which had little or no shading; this may contribute to an increase in urban temperatures. Litakoemi had no parking area. Kopanong's parking area dominated the site, whilst due to its narrower width the parking area in Hofmeyr was not dominant.

Social housing requires the acquisition, rehabilitation and refurbishment of existing buildings in the

city centre. This is likely to increase as the need for affordable rental accommodation provision remains an emphasis in the National Development Plan (The Presidency, 2012). The use of existing buildings means that certain characteristics of shared outdoor spaces are inherited. The size and form of shared outdoor spaces can for instance not be easily changed, whilst design elements such as furniture and landscaping may be added to these spaces to create attractive shared outdoor spaces.

5.7.3 Socially responsible environments

With a score of 1.3/2.0, the quality of shared outdoor spaces in Kopanong was good, whilst with a score of 1.2/2.0 Litakoemi was average and with a score of 0.5/2.0 Hofmeyr was poor. The socially responsible environments criterion had the lowest scores of the three criteria identified in Chapter 3.

All the case studies had controlled access to the sites, i.e. entrances were narrower than 850mm. In addition to this, Kopanong had a step at the entrance. The narrowness of the pedestrian entrances, and the step at the entrance of Kopanong, makes entering and exiting the social housing projects difficult for people with mobility disabilities. It thus impacted on the inclusive environments sub-criterion.

Although the planting in walkways (Hofmeyr) and on ledges (Kopanong) shows a sense of the tenants' ownership of the spaces outside their units, the location of planting in both instances poses a potential hazard to tenants. The planting on the ledges curtails the support a ledge could provide to passers-by and as it may be accidently pushed off the ledge the planting poses a 'falling' hazard. The planting in the walkways of Hofmeyr and Kopanong limits the safe usage of the shared outdoor spaces for people with mobility and visual disabilities. In the walkways, the planting poses a tripping hazard for people with visual disabilities. The territoriality and ownership exhibited by the presence of planting in the walkways therefore affects the socially responsible environments criterion, which includes the spaces for play and inclusive environments criteria.

In general, people using wheelchairs would be able to easily move within Kopanong and Litakoemi, which had a few small level changes that did not require ramps. Hofmeyr, on the other hand, had numerous level changes and kerbs that were used to define spatial categories. This implies that there are aspects of the sites that were not fully accessible to people with visual and mobility disabilities.

In terms of spaces for play, only Kopanong had a children's play area with play structures, it thus achieved the highest score. It was found, however, that despite the presence of such an amenity, children in Kopanong mostly preferred to play in the open spaces, the lawn area and the parking area. The preference for these spatial categories was also evident in Hofmeyr and Litakoemi where there was no space specifically designed for children to play in. The hard surfaces in the parking and open spaces provided children with a space where they could play with their wheeled toys, whilst the softness of the lawn provided a space where children could play with smaller toys.

There were elements from other assessment sub-criteria which had an impact on the spaces children play in. These include the defects in the hard impervious surfaces of all the case studies and the presence of trees and shading in the open spaces and the lawn where most children in the cases studies opted to play. The defects in the ground cover limit children's ability to play with wheeled toys in the the parking and open spaces. The absence of trees for shading and shading in general may discourage some children from playing in these spaces. Despite the positivity of children proactively selecting these spaces for play, a number of negative consequences were observed in Hofmeyr and Kopanong. In Hofmeyr, children's constant riding of the drainage pipes has resulted in a cycle of break and repair, i.e. each time the pipes are broken, they are repaired by YCH. In Kopanong, the loose paving blocks were removed by children for play.

5.8 Summary of chapter

This chapter commenced with a description of the application of the research design. The units of analysis were selected; these included the Yeast City Housing (i.e. the Social Housing Institution), the interviewees (i.e. the Yeast City Housing (YCH) management and staff), the social housing projects and residents. It presented the results of the assessment of the quality of shared outdoor spaces in the three selected social housing projects, namely Hofmeyr, Kopanong and Litakoemi. These case study results were obtained with the use of three data collection instruments as described in Chapter 4. The data collection instruments were an Interview Schedule for Yeast City Housing (YCH) Management (ISM, see Appendix B), an Interview Schedule for YCH Caretakers/Building Supervisors (ISC, see Appendix C), the Spatial Analysis and Observation Schedule (SAOS, see Appendix D) and the Survey Questionnaire for Residents (SQR, see Appendix E). The SAOS instrument sought to determine the quality of the shared outdoor spaces in the three case studies. The data collected with this instrument was supported by the other two data collection instruments.

The quality of the shared outdoor spaces in the three case studies was determined with the use of criteria and indicators identified in Chapter 3. Indicators were scored and subtotalled per sub-criterion and criterion as shown in Appendix J. The final scores were graded as either 'Very poor quality', 'Poor quality', 'Average quality', 'Good quality' and 'Very good quality' (see Table 4.2). The case study results indicated that despite the differences between the social housing projects (i.e. building configurations, age of building), the quality of the shared outdoor spaces in all three case studies was average (see Appendix J). The quality of these spaces therefore aligned to some extent with the specifications in the Social Housing Policy. All the case studies performed well in terms of the safe environments (i.e. Hofmeyr = Average, Kopanong = Good, and Litakoemi = Average), but poorly in terms of the socially responsible environments (i.e. Hofmeyr = Poor, Kopanong = Average, and Litakoemi = Poor). The use of the spatial categories identified in the three case studies structured the collection of data and discussion of case study results. With these spatial categories, the researcher was able to understand which parts of the shared outdoor spaces were used most frequently by the

residents and which the residents were most satisfied with.

The case study results from the individual reports were collated into a cross-case report, which gave insight into the similarities and differences of the quality of shared outdoor spaces in the three case studies. The understanding of these case study-specific issues is a critical step towards the creation of quality shared outdoor spaces in the development of new, or upgrading of existing, social housing projects.

Chapter 6 is the final chapter of this dissertation. It presents the conclusions of the research in terms of the main research question and three research sub-questions. Lastly, recommendations for future research are discussed.

CHAPTER 6. SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

Chapter 5 presented, discussed and analysed the results of the assessment of the quality of shared outdoor spaces in Yeast City Housing's Hofmeyr, Kopanong and Litakoemi social housing projects. The case study results were collated into a cross-case study report.

This final chapter commences in Section 6.1 with a summary of findings, which illustrates how the researcher responded to the three research sub-questions and the main research question. Section 6.2 then presents the implications arising from the research findings. This is followed by a summary of the contributions in Section 6.3, the recommendations for future research in Section 6.4 and finally the conclusions to the study in Section 6.5.

6.1 Summary of findings

This study was guided by a main research question (see Chapter 1) which asked "*to what extent does the quality of the shared outdoor spaces within selected social housing projects in the City of Tshwane align with the specifications of the Social Housing Policy?*" Three research sub-questions were posed to address the main research question. The findings of these research questions are presented below.

6.1.1 Research sub-question 1

The first research sub-question sought to identify the criteria and indicators which were used locally and internationally for assessing the quality of shared outdoor spaces within housing projects. The following findings were observed in responding to this research sub-question (see Chapter 2):

i. None of the literature (on housing quality) reviewed assessed the quality of shared outdoor spaces exclusively.

ii. A long list of criteria and indicators was found from the literature reviewed. These were categorised into three built-environment levels, i.e. unit, shared outdoor spaces and community/neighbourhood (see Table 2.1).

iii. Twenty-eight criteria and indicators for assessing the quality of shared outdoor spaces in housing projects were identified following this categorisation. These focussed on different qualities of shared outdoor spaces. Their diversity highlights their complexity and relativity and supports Meng and Hall's assertion that it would not be possible to define a perfect set of housing quality indicators.

6.1.2 Research sub-question 2

The second research sub-question sought to identify, from the Social Housing Policy, the specifications which could be used to assess the quality of the shared outdoor spaces in social housing projects. The following findings were observed in responding to this research sub-question (see Chapter 2 and Chapter 3):

i. Although it emphases the importance of the housing environment, including both the unit and the shared outdoor spaces, the Social Housing Policy does not provide any detail concerning the design and development of quality shared outdoor spaces in social housing projects.

ii. Two guiding principles were identified as the specifications for assessing the quality of shared outdoor spaces. These were (i) the creation of quality living environments; and, (ii) the promotion of safe, harmonious and socially responsible environments. These included concepts such as quality living, safe, harmonious and socially responsible. The Social Housing Policy was vague regarding these concepts, providing no definitions or descriptions. The assessment therefore lacked direction from the Social Housing Policy. Franklin suggests that this lack of specificity reveals a "lack of disciplinary power" (2001, p. 81), which can be problematic when implementers are left to make their own varied interpretations of these concepts. The researcher, subsequently, relied on standard definitions and related literature to interpret the criteria. The two guiding principles were used to form the basis for an assessment framework for this study (see Figure 3.5). The first guiding principle was considered to be the goal of the assessment as it aligns with the main research question. The second guiding principle was separated into three components, namely safe environments, harmonious environments and socially responsible environments to better understand these concepts which were considered to be the assessment criteria for this study.

iii. Citing Social Housing Institutions and privates sector developers, the Social Housing Policy was unambiguous about who should implement the delivery of social housing projects (DoH, 2009). However, designers are excluded from this process. Macagnano has also observed that designers "are sidelined (sic) in the production of affordable houses [in South Africa]" (2005, sec. Abstract). This exclusion of designers in the process of social housing delivery highlights a gap between policy-makers and designers. Burton, Weich, Blanchard & Prince suggest that this gap "has become greater and that buildings and urban places have increasingly failed to meet the needs of users, both for themselves and the well-being of their communities and cities" (2001 as cited in Karina Landman et al., 2009a, p. 15).

6.1.3 Research sub-question 3

The third research sub-question sought to identify the criteria and indicators which would be useful for assessing the quality of shared outdoor spaces in the social housing projects selected for this

study. In response to this research sub-question, Chapter 3 built on the findings of the first two research sub-questions in Chapter 2. The guiding principles were defined as the assessment goal and criteria. For each of the three criteria, sub-criteria and indicators were identified. The following findings which responded to this research sub-question were observed:

i. From the literature reviewed for this study, only one source provided detailed information related to its indicators. This was the British Housing Quality Indicators (HQI) system. The indicators in this tool were used to identify indicators and, in some instances, sub-criteria in relation to the three criteria from the Social Housing Policy.

ii. The indicators from the HQI system were used to develop the data collection instruments. Data from these instruments were captured in an MS Excel spreadsheet to analyse the collected data.

iii. Fifty-six indicators were identified from the HQI system to be used in assessing the quality of shared outdoor spaces in the three case studies. The indicators were organised in accordance with the three criteria identified from the Social Housing Policy appraisal, i.e. safe environments, harmonious environments and socially responsible environments.

6.1.4 Main research question

The main research question sought to determine to what extent the quality of the shared outdoor spaces within social housing projects in the City of Tshwane aligned with the specifications of the Social Housing Policy. It was found (as mentioned in Section 6.1.2) that the Social Housing Policy did not provide clear specifications for the quality of shared outdoor spaces in housing projects. In view of this and in response to the main research question, the following findings were made:

i. The overall quality of the shared outdoor spaces in all the three case studies is considered to be average and as such it aligns with the Social Housing Policy to some extent. This is based on the rating system outlined in Table 4.2. In general, these results may be attributed to the design and maintenance of these spaces. In all the case studies, the shared outdoor spaces was not designed, resulting in landscaping that lacked variety in terms of the colour and, in some instances, the height of the trees and planting.

ii. The quality of shared outdoor spaces in the case studies was best in terms of the safe environments criterion. Basic security measures were in place (i.e. controlled entrances, boundary walls, additional security above the boundary walls). There was clear evidence however of a lack of regular maintenance.

iii. The quality of shared outdoor spaces in the case studies ranged from poor to good in terms of the harmonious and socially responsible environments criteria. Given that buildings and shared outdoor spaces were inherited in two instances, it is worth noting that the shared outdoor spaces were already formed when the social housing projects were created. The spaces had to be

adapted to suite a residential need.

In terms of harmonious environments, the parking in one instance dominated the site; however, in another instance there was no onsite parking which may be problematic for residents. Two of the three case studies had a useable lawn; however, in both cases the lawn area was not well shaded. The other case study had no lawn.

In terms of socially responsible environments, only one case study had a space dedicated for children to play in. This was however not used as intended. There was evidence that children played in other areas of the site. In general, the shared outdoor spaces were not fully accessible for people with disabilities.

6.2 Implication of the research findings

There are a number of implications for the development of quality shared outdoor spaces in future social housing projects arising from the research findings. These are:

i. The Social Housing Policy needs to provide clear unambiguous guidance regarding the design and development of quality shared outdoor spaces in social housing projects. This should explicitly consider the inclusion of designers in the development of social housing projects.

ii. Designers, i.e. architects and landscape architects, need to be involved in the process of developing new, or upgrading existing, building for social housing projects.

iii. There is a need for funding to develop quality shared outdoor spaces in social housing projects. An understanding of how the funding is apportioned to the different elements of a social housing project is required to determine current practices.

iv. Social Housing Institutions require funding to not only develop quality shared outdoor spaces, but to also ensure that these are adequately managed and maintained. An understanding of how the rental income is apportioned to the different elements of a social housing project is required to determine current practices.

6.3 Summary of contributions

This study makes a number of contributions. It:

i. Contributes to the South African discourse on the quality of shared outdoor spaces in housing. It does this through the assessment of the quality of shared outdoor spaces in three social housing projects based on the Social Housing Policy. This assessment used specifications from the Social Housing Policy.

ii. Highlights the need for the Social Housing Policy to be unambiguous in its consideration of the quality of shared outdoor spaces and the inclusion of the designers who should be involved in their development or creation.

iii. Developed spatial categories for the shared outdoor spaces in the selected case studies and connected these to three different types of Gehl's outdoor activities. Connecting these elements provided a mechanism for structuring the data collection and analysis, which could be useful for assessing shared outdoor spaces in similar housing studies.

iv. Identified assessment criteria, sub-criteria and indicators which formed the basis of a framework for assessing the quality of shared outdoor spaces. This framework was used in combination with an MS Excel spreadsheet which graphically illustrated the quality of the shared outdoor spaces in the case studies. This could be useful for undertaking similar research in the future.

6.4 Recommendations for future research

Owing to the wide scope of the subject of housing quality, one MSc research project is restricted in scope and time. An important result of such a project is a set of new questions that can be used as ideas for future research. Therefore, the following areas are recommended for future research:

i. A similar study could be conducted in more social housing projects for the purpose of generalising findings concerning the quality of shared outdoor spaces. Such a study could contribute to the development of general theories concerning the quality of housing in South Africa.

ii. The indicators used for the harmonious environments criterion, identified from the HQI system, have elements which relate to environmental sustainability. This potential relationship between the quality of shared outdoor spaces and environmental sustainability could be explored to identify opportunities for improving the quality of social housing.

iii. This study used existing indicators aligned with the Social Housing Policy to respond to the main research question. There were subsequently issues in national and other housing policy and legislative documents that have been not considered in this study. Issues include global issues such as climate change, regional issues of material and methods (selected from local sources) used for developing quality shared outdoor spaces, and site specific issues such as the need for external storage for garden areas and cleaners' sheds. Future studies could consider assessing shared outdoor spaces with indicators that encompass aspects that are broader than the concept of quality. In the development of such indicators, a greater scope of documents should be considered.

iv. A future study could also be broadened to include the assessment of the quality of the units as well as the neighbourhood/community. Such an assessment would provide a holistic view of the quality of social housing and how the quality of social housing and the settlements within which these are located can be improved.

v. A similar approach may be undertaken in the research of other housing types. Such research

could use various legislation and policies to assess the quality of South African human settlements with the intention of monitoring not only the quantity, but also the quality of housing and ultimately improving the quality of South African human settlements.

6.5 Conclusions

Based on the findings, the study concludes that:

i. Despite emphasising the importance of the quality of the physical infrastructure and shared outdoor spaces, the Social Housing Policy does not provide any specifications for the design and development of quality shared outdoor spaces. The Social Housing Policy therefore did not provide adequate specifications for assessing the quality of shared outdoor spaces in selected case studies.

ii. Funding for the design and development of quality shared outdoor spaces is not considered in the Social Housing Policy. The lack of funding for shared outdoor spaces is reflected in the quality of these in the assessed case studies. Only the very basic elements have been provided; these include clothing lines and landscaping.

iii. The Social Housing Policy's exclusion of designers from the social housing delivery process has contributed to the current quality of shared outdoor spaces in the assessed case studies. The spatial layouts of buildings and their exterior contextual environments need to be carefully considered by designers, particularly when existing buildings are refurbished or upgraded for residential use.

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APPENDICES

Appendix A. UP Ethics Clearance Letter

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

Reference number: EBIT/32/2012 30 August 2012

Mrs TN Sebake
CSIR
Building 2 (Room A240)
PO Box 395
Pretoria
0001

Dear Mrs Sebake,

FACULTY COMMITTEE FOR RESEARCH ETHICS AND INTEGRITY

Your recent application to the EBIT Ethics Committee refers.

1 I hereby wish to inform you that the research project titled "Formulating a qualitative assessment of medium density social housing projects in Pretoria inner-city, South Africa" has been approved by the Committee.

This approval does not imply that the researcher, student or lecturer is relieved of any accountability in terms of the Codes of Research Ethics of the University of Pretoria, if action is taken beyond the approved proposal.

2 According to the regulations, any relevant problem arising from the study or research methodology as well as any amendments or changes, must be brought to the attention of any member of the Faculty Committee who will deal with the matter.

3 The Committee must be notified on completion of the project.

The Committee wishes you every success with the research project.

Prof. J.J. Hanekom
Chair: Faculty Committee for Research Ethics and Integrity
FACULTY OF ENGINEERING, BUILT ENVIRONMENT AND INFORMATION TECHNOLOGY

Appendix B. Interview Schedule for YCH Management (ISM)

Date _____

Time [start time] [end time]

Name of Interviewer _____

A. DEVELOPMENT MANAGER AND HOUSING MANAGER

1. How long have you been with YCH? And in your current position?
2. Please describe your role in YCH.
3. Where you involved in the development of the selected projects? What was your role?
4. Are these projects Greenfield or Brownfield sites?
    a. If they were Brownfield, what was the original function of the buildings?
    b. If they were Greenfield, what was the original function of the site?
5. Date of original construction
6. Date of refurbishment
7. Date of occupancy for Litakoemi and Hofmeyr
8. Was a landscape architect (or other professionals) consulted to design the outside spaces during the refurbishment of the selected social housing projects?
    a. If yes, please describe their role.
    b. If no, why not?
9. Has a landscape architect (or other professionals) been consulted on aspects related to the outside spaces of the selected social housing projects since they were occupied?
    a. If yes, please describe their role.
    b. If no, why not?
10. YCH's vision is to see "healthy communities and neighbourhoods, with access to decent, quality and affordable housing". How does YCH describe quality housing?
11. What purpose does YCH want the outside spaces in social housing projects to achieve?
    a. Do the outside spaces in the selected social housing projects achieve this purpose? How has YCH achieved this? **OR** How does YCH plan to achieve this?
12. From a YCH brochure, women with children are highlighted as YCH's most prominent tenant.
    a. What are the numbers currently? Have these changed since the projects were occupied?
    b. Main spoken languages

13. What is the maximum number of people allowed in the different unit types?

14. Are there pensioners or people with disabilities living in the selected projects? How many? What types of disabilities do they have?

15. Are tenants permitted to work from home? What types of businesses are there? How do they impact on other residents?

16. What are the key barriers that YCH has in designing/developing outside spaces in social housing projects?

B. HOUSING MANAGER

17. In terms of the YCH organisation structure, you manage a number of staff including a gardener, building supervisor, cleaning staff, maintenance officers, and security guards. Are these staff members involved in the social housing projects selected for this study?

    a. What are their roles and responsibilities?

    b. Are caretakers and building supervisors the same?

    c. Do the caretakers from the selected projects live in YCH social housing project?

18. Are there any rules and regulations concerning the use of the shared outdoor spaces in social housing projects? **Please provide a copy of these.**

19. Types of outside space related complaints received from the caretakers/tenants?

20. Ease of maintaining the landscaping in the social housing project

    a. What aspects are frequently considered when maintaining shared outdoor spaces?

    b. Affordability of maintaining the landscaping in the social housing project

21. Does YCH have a maintenance and repairs schedule?

22. Does YCH have income to improve or upgrade (i.e. paint, planting, paving, grass, furniture, food garden, children's play area) the outside spaces for the selected projects?

23. How do projects compare to other YCH projects in terms of density and coverage?

24. Should there be areas that are controlled in the outside spaces of the selected social housing projects? Why? Alternatives?

25. Have any crime related incidences (i.e. theft, robberies/muggings, assaults, assaults with intent to cause grievous bodily harm, and sexual assault) been reported by the caretakers/tenants in (outside spaces) and immediately outside the selected social housing projects?

    a. Does YCH have an incident record?

    b. Where did these incidences occur?

    c. When did they occur?

    d. Do you know whether these incidences also reported to the police?

e. When was the last incident?

26. Please describe the current security measures that have been in place in the selected social housing projects. Have these been in place since projects were occupied? What informed this decision?

    a. If cameras are available: Operational? Location? Monitored? Type (day/night/moving)?

27. Do tenants have monthly meetings? Who leads these? How often do they meet? Who attends? Where are these held?

28. Does YCH have any social programmes? Please list

    a. Do residents attend any of YCH's social programmes? Are these open to other members of the community?

29. Do tenants attend Tshwane Leadership Foundation (TLF) social programmes like the 'festival of the clowns'? Describe others.

30. Occupancy rate of the three social housing projects

    a. Is there a waiting list of people wanting to move to social housing projects?

31. Is there anything you are specifically interested in finding out /confirming through this study?

32. Additional comments

Appendix C. Interview Schedule for YCH Caretaker (ISC)

Date _____

Time [start time] [end time]

Name of Interviewer _____

A. PROFILE OF THE CARETAKER

1. Indicate social housing project within which caretaker works (By observation)
   [ ] Hofmeyr
   [ ] Kopanong
   [ ] Litakoemi

2. Indicate gender of caretaker (By observation)
   [ ] Male
   [ ] Female

3. Indicate population group of caretaker (By observation)
   [ ] Black/African
   [ ] Coloured
   [ ] Indian/Asian
   [ ] White
   [ ] Other, please specify _____

4. Please indicate your age range
   [ ] 20 – 24 years
   [ ] 25 – 29 years
   [ ] 30 – 34 years
   [ ] 35 – 39 years
   [ ] 40 – 44 years
   [ ] 45 – 49 years
   [ ] 50 years or more
   [ ] No response

5. Do you live in any of Yeast City Housing's social housing projects?
   [ ] Yes
   [ ] No

6. If yes, please indicate which social housing project you live in
   [ ] Hofmeyr
   [ ] Kopanong
   [ ] Litakoemi
   [ ] Living stones
   [ ] The Jubilee Centre
   [ ] Sebida House
   [ ] Rivoningo Care Centre
   [ ] Tswelelang Foster Care Home
   [ ] Tau Village
   [ ] Gilead

7. Please indicate how long you have been living in this social housing project

[ ] Less than 12 months
[ ] 1 – 3 years
[ ] 4 – 5 years
[ ] More than 5 years

8. How long have you been working as the caretaker of this social housing project?

9. Is this the only social housing project you are a caretaker for?

[ ] Yes
[ ] No

10. What are your responsibilities as caretaker of this social housing project? Describe a typical day as caretaker.

B. QUALITY LIVING ENVIRONMENTS

11. What types of outside space related complaints have you received from the tenants?

12. As the caretaker, how often have you received complaints about the quality or condition of the outside spaces of Kopanong?

    a. Where complaints are received, please provide examples of the complaints generally received regarding the quality or condition of the shared outdoor spaces in this social housing project.

13. Which areas in the outside spaces need most of your attention? Describe?

14. What do you think should be done to improve or maintain the current quality or condition of the shared outdoor spaces in this social housing project?

15. Who is responsible for maintenance, cleaning and gardening?

16. How is the landscaping in the social housing project maintained?

17. Can the roof space be used by tenants?

C. SAFE ENVIRONMENTS

18. Are there outside spaces that are off limits to tenants? Why are these areas off limits? Who has legitimate access to these areas?

19. Have any crime related incidences (i.e. theft, robberies/muggings, assaults, assaults with intent to cause grievous bodily harm, and sexual assault) been reported by the tenants in (outside spaces) and immediately outside the selected social housing projects?
    a. Do you know if by-standers helped the victim?
    b. Does YCH have an incident record?
    c. Where did these incidences occur?
    d. When did they occur?
    e. Do you know whether these incidences also reported to the police?
    f. When was the last incident?

20. Have there been incidences of vandalism or graffiti in the social housing project? Where? How were these managed? When was the last one? Do you know who the offenders are/were?

21. Have people been injured in the outside spaces of the social housing project? How and where?

D. SOCIALLY RESPONSIVE ENVIRONMENTS

22. Which age group have you observed uses the outside spaces in this social housing project the most?

    [ ] Children (less than 12 years)
    [ ] Teenagers (13 – 18 years)
    [ ] Young adults (19 – 35 years)
    [ ] Adults (36 – 64 years)
    [ ] Pensioners (more than 65 years)

23. When do they use the outside spaces the most?
    a. Weekdays | Weekend days | School holidays | Public holidays
    b. Early morning (00:00 – 06:00) | Morning (06:00 – 12:00) | Afternoon (12:00 – 18:00) | Evening (18:00 – 00:00)

24. What do the tenants do in the outside spaces?

    [ ] Hang washing on the clothing line
    [ ] Watching children play
    [ ] Wash the car
    [ ] Taking out rubbish bags
    [ ] Tend the vegetable garden
    [ ] Checking mail
    [ ] Watching people in the street
    [ ] Playing
    [ ] Talking on the phone
    [ ] Sitting and relaxing, reading or writing
    [ ] Smoking
    [ ] Eating or drinking
    [ ] We greet each other
    [ ] We talk with each other
    [ ] Our children play together
    [ ] We sit together in a group
    [ ] We visit each other's homes

25. Which areas in the outside space do they use?

26. Are there any age groups that do not use the outside spaces of Kopanong?

27. Additional comments

Appendix D. Spatial Analysis and Observation Schedule (SAOS)

Date	
Time	[start time] [end time]
Name of observer	
Climatic conditions	[ ] Sunny [ ] Cloudy [ ] Windy [ ] Rainy
Name of social housing project	[ ] Hofmeyr [ ] Kopanong [ ] Litakoemi

NB: *All items with the glasses symbol (👓) indicate observations on site. Those with no such symbol are items that will be analyzed from technical drawings, Google maps or calculations.*

A. SOCIAL HOUSING PROJECT PROFILE

1. Type of social housing project
   [ ] Self-contained
   [ ] Communal/transitional

2. Housing configuration
   [ ] Court
   [ ] Pavilion
   [ ] Street

3. Building orientation _____ (degrees)

4. Site area _____ (m^2)

5. Area of building footprint _____ (m^2)

6. Area of total building _____ (m^2)

7. Number of units _____ (no.)

8. Number of units on ground floor _____ (no.)

9. Number of storeys _____ (no.)

10. Number of units/storeys _____ (no./storey)

11. Socio-demographic statistics for the area (Population group, language, employment)

12. Crime statistics for the area

B. LOCATION OF SOCIAL HOUSING PROJECT

Locate on Google map where locations are within the Urban Development Zone.

13. Distance to work [input from SQR] _____ (m)

14. Distance to and number of government schools _____ (m) and _____ (no.)
15. Distance to and number of nearest public transport stops _____ (m) and _____ (no.)
16. Distance to and number of play and leisure facilities _____ (m)
17. Distance to and number of community halls _____ (m)

C. QUALITY LIVING ENVIRONMENTS

18. Site is more than 50m from a major road _____ (m)
19. Site is more than 150m from a noise generating industry _____ (m)
20. Site is more than 150m from an outdoor leisure facility _____ (m)
21. Site is more than 500m from ground contamination _____ (m)
22. Site is more than 500m from industry generating smells _____ (m)
23. Site is more than 500m from a derelict site _____ (m)
24. Site is more than 250m from polluted ground sources _____ (m)
25. ✍ Do the outside spaces have numerous views?
26. ✍ Characteristics of the shared outdoor spaces:
    a. Area of total outside spaces
        i. Area of hard surfaces
            1. Type/purpose of hard surfaces (routes, nodes)
            2. Structural condition of surface
            3. State of repair
        ii. Area of soft landscaping
            1. Presence of trees
            2. Varied planting in terms height, texture and colour
    b. ✍ Location, shape and dimension outside space
    c. ✍ General cleanliness of outside space

27. ✍ List of facilities in outside spaces; describe whether this is on a hard surface or soft landscaping.

[ ] Drying yard
[ ] Children's play area
[ ] Waste management area
[ ] Communal/individual garden plots
[ ] Open general play area
[ ] Seating space
[ ] Braai/outdoor dining area
[ ] Car wash area
[ ] Parking
[ ] Visitor parking

28. ✍ Roof space, additional outdoor space? Describe use

29. ✍ Services available in outside spaces

[ ] Tap water with drainage
[ ] Electricity
[ ] Other, specify _____

30. ✍ Building material, structural condition and state of repair

Building material	Structural condition	State of repair
[ ] Face brick finish	[ ] Very poor	[ ] Very poor
[ ] Plaster & paint brickwork	[ ] Poor	[ ] Poor
[ ] Plaster & paint block work	[ ] Average	[ ] Average
[ ] Other	[ ] Good	[ ] Good
	[ ] Very good	[ ] Very good

D. SAFE ENVIRONMENT

31. ✍ Observe general access procedures during site visit

32. ✍ Observe location and type of physical hazards on the site

33. ✍ Observe areas that are locked

34. ✍ Height of site boundary _____ (m)

35. ✍ Material of site boundary and additional security on top of site boundary

Site boundary material	Material of additional security	Structural condition	State of repair
[ ] Face brick finish	[ ] Electric fence	[ ] Very poor	[ ] Very poor
[ ] Plaster & paint brickwork	[ ] Spikes	[ ] Poor	[ ] Poor
[ ] Precast concrete	[ ] Other	[ ] Average	[ ] Average
[ ] Cast-iron work		[ ] Good	[ ] Good
[ ] Steel palisade fencing		[ ] Very good	[ ] Very good
[ ] Other			

36. ✍ Description of way finding elements

Location of signage	Type of signage	State of repair
[ ] At entrance	[ ] Directional	[ ] Very poor
[ ] In passages	[ ] Information	[ ] Poor
[ ] Above doors	[ ] Other	[ ] Average
[ ] Along circulation routes		[ ] Good
[ ] Number of outside spaces		[ ] Very good

37. ✍ Description of active security measures

a. Number of entrances _____ (no.)

b. What kind of access control is there at the entrance(s)?

c. Are there cameras?

[ ] Yes
[ ] No

d. If yes, where are they located, condition and state of repair?

e. Confirm presence of lighting, condition of lighting

Presence of lighting in these areas	Condition of lighting	State of repair
[ ] At entrance	[ ] Working	[ ] Very poor
[ ] In passages	[ ] Not working	[ ] Poor
[ ] Along circulation routes		[ ] Average
[ ] Number of outside spaces		[ ] Good
		[ ] Very good

38. ✍ Burglar bars on windows

[ ] Yes
[ ] No

39. ✍ Security gates on external doors

[ ] Yes
[ ] No

40. Description of passive surveillance measures

a. Number of units overlooking entrance _____ (no.) and _____ (%)

b. Number of units overlooking outside spaces _____ (no.) and _____ (%)

c. Number of units overlooking the children's play areas _____ (no.) and _____ (%)

41. ✍ Do emergency vehicles have access to the site?

[ ] Yes
[ ] No

E. HARMONIOUS ENVIRONMENTS

42. Density

43. Building coverage

44. Floor Area Ratio

45. ✍ Hierarchy of routes

    a. Separation of vehicular and pedestrian routes

    b. Routes connect to surrounding neighbourhood

46. ✍ Description of accessibility

    a. Ramps, rails

    b. Wheelchair access to outside spaces

F. SOCIALLY RESPONSIVE ENVIRONMENTS

47. ✍Is there a notice board?
    [ ] Yes
    [ ] No

48. If yes:

    a. What condition is it in?

    b. Where is it located?

    c. What type of information is on it?

49. Where do tenants generally socialize? [input from SQR]

G. GENERAL OBSERVATIONS AND COMMENTS

50. Additional observations

51. Additional comments

Appendix E. Survey questionnaire for Residents (SQR)

LENANEO LA DINYAKIŠIŠO LA BADUDI BA KOPANONG

6 Juni 2013

Go modudi wa Kopanong,

Leina laka ke Nosizo Sebake, ke moithuti wa Unibesithi ya Pretoria. Ka sebaka se ke dira mošomo wa dinyakišišo ka thekgo ya ba modirong waka, Council for Scientific and Industrial Research (CSIR).

Lenaneo la dinyakišišo le tla swarwa ka polelo ya Seisimane, gomme le tla tlatšwa ke hlogo ya lapa (motho yo a tšeago diphetho nako le nako ka lapeng). Dipotšišo mo lenaneong le la dinyakišišo di tla tšea metsotso e ka bago ye 20 go di araba. Bjalo ka hlogo ya lapa, o tla swanela ke go kgopela maloko a lapa go go thuša go araba dipotšišo tšeo di amanago le bona. Dipotšišo tše di mabapi le wena, maloko a lapa la gago, le maikutlo a gago ka mafelo ao o a abelanago le ba bangwe mo Kopanong. Leina le tshedimošo ya boitsebišo ga di bohlokwa, ka fao dikarabo tša gago di tla šomišwa fela go tšweletša morero wa dinyakišišo. Go tšea karolo mo dinyakišišong tše ke kgetho ya gago.

Ge o nyaka go tšea karolo mo lenaneong le la di nyakišišo, ke kgopela gore o arabe dipotšišo ka moka gomme o tsentšhe foromo yeo e arabilwego ka gare ga enfolopo o e filwego. Ke kgopela gore o tswalele enfolopo o e lahlele lepokising leo le tswaletšwego la go ngwalwa **'SURVEY ON COMMONS AREAS'** mo monyakong wa Kopanong ka di **20 Juni 2013**. Tshedimošo yeo ke e filwego ke wena le baagišani ba gago e tla thuša gore ke kwešiše ge eba mafelo ao le a abelanago a kgotsofatša dinyakwa tša lena bjalo ka badudi ba Kopanong. Tshedimošo yeo re e humanago mo dikarabong tša gago e tla šomišetšwa fela morero wa dinyakišišo. Ka morago ga dinyakišišo tše, ye nngwe ya dikgatišo e tla humanega go ba Yeast City Housing.

Geo o nyaka tshedimošo ka botlalo goba o na le dipotšišo, o ka ikopantšha le Nosizo Sebake [012 841 2084, ssebake@csir.co.za], goba mookamedi-wa-dinyakišišo, Ida Breed [012 420 4536, Ida.Breed@up.ac.za].

Wa lena,

Nosizo Sebake

ID CODE:

UNIVERSITEIT VAN PRETORIA
UNIVERSITY OF PRETORIA
YUNIBESITHI YA PRETORIA

CSIR
our future through science

6 June 2013

Dear Kopanong resident,

SURVEY QUESTIONNAIRE FOR KOPANONG RESIDENTS

My name is Nosizo Sebake, I am a student at the University of Pretoria. I am currently doing a research project that is funded by my employer, the Council for Scientific and Industrial Research (CSIR).

The survey is done in English and must please be completed by the head of the household (i.e. the person who makes decisions for the household on a day-to-day basis). The questions in this survey will take you approximately 20 minutes to complete. As the head of the household, you will need to ask members of your household to help you complete the questions that relate to them. The questions are about you, members of your household and how you use Kopanong's common areas. Your name and contact details are not requested, therefore your response will be anonymous. Participating in this survey is voluntary.

Should you choose to complete the survey, I would greatly appreciate that you answer all the questions and place your completed form in the envelope provided. Please seal the envelope and place in the sealed box marked **'SURVEY ON COMMONS AREAS'** at the Kopanong entrance by **20 June 2013**. The information provided by you and your neighbours' responses will help me understand whether or not these common areas currently meet your needs and requirements as a resident of Kopanong. This information obtained will only be used for research purposes. A copy of the research report will be available to Yeast City Housing when the study has been completed.

If you require additional information or have any questions, please contact me, Nosizo Sebake [012 841 2084, ssebake@csir.co.za], or my supervisor, Ida Breed [012 420 4536, Ida.Breed@up.ac.za).

Sincerely,

Nosizo Sebake

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6 zikaJuni 2013

Mhlali waseKopanong,

INHLOLOMIBUZO YABAHLALI BASEKOPANONG

Igami lama nguNosizo Sebake, ngifunda eNyuvesi yasePitoli. Okwamanje, ngiyenza ucwaningo lwasemsebenzini wami, Council for Scientific and Industrial Research (CSIR).

Lenhlolomibuzo inemibuzo ibhalwe ngesingisi, kumele iphendulwe yinhloko yekhaya (umuntu othatha izinqumo zomdeni). Lemibuzo engakuthatha imizuzu ewu20 ukuphendula. Kuzodingeka umbono wabobonke abantu emdenini. Lemibuzo iphathelene nokusetshenziswa kwezindawo ezingaphandle lapho eKopanong. Igama lakho nemininingwane yakho ayidingekile, ngakho ke izimpendulo ngekezikhombise ukuthi zibhalwe ngubani. Ukuphendula noma ukungayiphenduli lenhlolomibuzo kuyisinqumo sakho.

Uma ukhetha ukuphendula lenhlolomibuzo, ngicela uphendule yonke imibuzo, bese ufaka lenhlolomibuzo yakho kwimvilophu ophiwe yona, bese uyifaka ebhokisini elibhalwe **'SURVEY ON COMMON AREAS'** ngezi **20 zikaJuni 2013**. Lelibhokisi lingasegeyithini. Izimpendulo zakho nezomakhelwane bakho zizongisiza ukuqonda ukhuthi ingadi yaseKopanong iyazihlangabeza yini izidingo zenu. Lezimpendulo zenu bahlali baseKopanong, zizo setshenziswa kulolu cwaningo kuphela.

Uma ufuna ukwazi ngabanzi noma unemibuzo ngalenhlolomibuzo, ungangithinta [012 841 2084, ssebake@csir.co.za], ungathinta nesupervisor yami u-Ida Breed. [012 420 4536, Ida.Breed@up.ac.za].

Ozithobayo,

Nosizo Sebake

A. ABOUT THE HEAD OF THE HOUSEHOLD

1. How long have been living in Kopanong?

[ ] Less than 1 year
[ ] Between 1 – 3 years
[ ] 4 years or more

2. In which unit type do you live?

[ ] Bachelor unit
[ ] 1 bedroom unit
[ ] 2 bedroom unit
[ ] 3 bedroom unit

3. What kind of house did you live in before moving to Kopanong?

[ ] House on a stand/yard
[ ] Flat in a block of flats
[ ] Townhouse in a complex
[ ] Informal dwelling (i.e. shack)
[ ] Other _____

4. Why did you choose to live in Kopanong? **[Tick all that apply]**

[ ] It is affordable
[ ] It is close to the city
[ ] It is close to schools
[ ] It is close to my place of work
[ ] It is close to my family and friends
[ ] It was the only available type of accommodation
[ ] Other _____

5. How long do you plan to live in Kopanong?

[ ] Less than 1 year
[ ] Between 1 – 3 years
[ ] 4 years or more
[ ] Not sure

6. What is your marital status?

[ ] Single
[ ] Married
[ ] Divorced
[ ] Separated
[ ] Widowed
[ ] Other _____

7. What is the highest level of education you have completed?

[ ] No schooling
[ ] Some primary school
[ ] Completed primary school
[ ] Some secondary
[ ] Grade 12/ Std 10
[ ] Higher

B. ABOUT MEMBERS OF YOUR HOUSEHOLD

8. Please provide the age and indicate the gender and population group (race) of everyone who lives with you in your household. **[Circle all that apply]**

	Age 1 = 0 – 5 yrs 2 = 6 – 12 yrs 3 = 13 – 18 yrs 4 = 19 – 35 yrs 5 = 36 – 64 yrs 6 = 65+ yrs	Gender 1 = Male 2 = Female	Population Group 1 = Black 2 = Coloured 3 = Indian/Asian 4 = White 5 = Other
Adult 1 (You)	1 2 3 4 5 6	1 2	1 2 3 4 5
Adult 2	1 2 3 4 5 6	1 2	1 2 3 4 5
Adult 3	1 2 3 4 5 6	1 2	1 2 3 4 5
Adult 4	1 2 3 4 5 6	1 2	1 2 3 4 5
Child 1	1 2 3 4 5 6	1 2	1 2 3 4 5
Child 2	1 2 3 4 5 6	1 2	1 2 3 4 5
Child 3	1 2 3 4 5 6	1 2	1 2 3 4 5
Child 4	1 2 3 4 5 6	1 2	1 2 3 4 5

9. If there is anyone with disabilities in your household, what type of disability do they have? **[Circle all that apply]**

	[1] None	[2] Sight (blind/severe visual limitation)	[3] Hearing (deaf, cannot hear well)	[4] Communication (difficulty with speech)	[5] Physical movement (uses wheelchair, crutches)	[6] Intellectual (serious difficulties in learning)	[7] Emotional (behavioral, psychological)
Adult 1 (You)	1	2	3	4	5	6	7
Adult 2	1	2	3	4	5	6	7
Adult 3	1	2	3	4	5	6	7
Adult 4	1	2	3	4	5	6	7
Child 1	1	2	3	4	5	6	7
Child 2	1	2	3	4	5	6	7
Child 3	1	2	3	4	5	6	7
Child 4	1	2	3	4	5	6	7

10. Please indicate how the adults in your household are employed, what mode of transport they use to travel to work and how long they travel to work. **[Circle all that apply]**

	Employment status 1 = Full-time 2 = Part-time 3 = Self-employed 4 = Unemployed	Mode of transport 1 = Walk 2 = Cycling 3 = Car 4 = Taxi 5 = Bus 6 = Train 7 = Not applicable	Length of travel 1 = 0 – 30 mins 2 = 31 – 60 mins 3 = 61 – 90 mins 4 = 91+ mins 5 = Not applicable
Adult 1	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4 5
Adult 2	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4 5
Adult 3	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4 5
Adult 4	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4 5

11. If there are any children (18 years or less) in your household, please indicate what school level they attend, what mode of transport they use to travel and how long they usually take to travel to school. **[Circle all that apply]**

	School level attending 1 = Crèche 2 = Primary school 3 = Secondary sch. 4 = Not applicable	Mode of transport 1 = Walk 2 = Cycling 3 = Car 4 = Taxi 5 = Bus 6 = Train 7 = Not applicable	Length of travel 1 = 0 – 30 mins 2 = 31 – 60 mins 3 = 61 – 90 mins 4 = 91+ mins 5 = Not applicable
Child 1	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4 5
Child 2	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4 5
Child 3	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4 5
Child 4	1 2 3 4	1 2 3 4 5 6 7	1 2 3 4 5

12. Which language(s) do you and members of you household speak?

[ ] Afrikaans
[ ] English
[ ] isiNdebele
[ ] isiXhosa
[ ] isiZulu
[ ] Sesotho sa Leboa
[ ] Sesotho
[ ] Setswana
[ ] siSwati
[ ] Tshivenda
[ ] Xitsonga
[ ] Other _____

C. USE OF KOPANONG'S COMMON AREAS


Parking


Vegetable garden


Lawn (Green open space)


Seating space


Clothing line


Dustbin area


Children's play area


Walkways and/ or stairs


Open spaces


Laundry basins

13. In which of the common areas (shown in the photographs above) do you and members of your household do the following activities? **[Circle all that apply]**

Common areas in Kopanong	[1] Parking	[2] Veg. garden	[3] Cloth. line	[4] Dustbin area	[5] Lawn	[6] Seating sp.	[7] Play area	[8] Walkways	[9] Open spaces	[10] Laundry basins
Hang washing	1	2	3	4	5	6	7	8	9	10
Watch children play	1	2	3	4	5	6	7	8	9	10
Wash the car	1	2	3	4	5	6	7	8	9	10
Take out rubbish bags	1	2	3	4	5	6	7	8	9	10
Tend garden/plants	1	2	3	4	5	6	7	8	9	10
Check the mail	1	2	3	4	5	6	7	8	9	10
Watch people in street	1	2	3	4	5	6	7	8	9	10
Play	1	2	3	4	5	6	7	8	9	10
Talk on the phone	1	2	3	4	5	6	7	8	9	10
Sit and relax	1	2	3	4	5	6	7	8	9	10
Read or write	1	2	3	4	5	6	7	8	9	10
Walk	1	2	3	4	5	6	7	8	9	10

D. SOCIALISING IN KOPANONG'S COMMON AREAS

14. Who do you usually socialize with in Kopanong? **[Tick all that apply]**

[ ] We don't socialise in Kopanong at all
[ ] Neighbours
[ ] Family
[ ] Friends

15. In which of Kopanong's common areas do you and members of your household usually socialize with your neighbours, family and/or friends? **[Circle all that apply]**

Common areas in Kopanong	[1] Parking	[2] Vegetable garden	[3] Clothing line	[4] Dustbin area	[5] Lawn	[6] Seating space	[7] Play area	[8] Walkways	[9] Open spaces	[10] Laundry basins
We braai	1	2	3	4	5	6	7	8	9	10
We greet each other	1	2	3	4	5	6	7	8	9	10
We talk	1	2	3	4	5	6	7	8	9	10
We sit and relax	1	2	3	4	5	6	7	8	9	10
Our children play	1	2	3	4	5	6	7	8	9	10
We celebrate special occasions	1	2	3	4	5	6	7	8	9	10
We visit each other	1	2	3	4	5	6	7	8	9	10
We have meetings	1	2	3	4	5	6	7	8	9	10

16. Where else do you and members of your household usually socialize with your neighbours, family and/or friends? **[Tick all that apply]**

[ ] In my flat
[ ] In neighbour's, family's or friend's flat
[ ] In other Yeast City Housing social housing projects
[ ] In Burgers Park and other public parks
[ ] In shopping malls
[ ] At sporting events
[ ] At school events
[ ] At community meetings/events
[ ] Other _____

E. SAFETY AND SECURITY IN KOPANONG'S COMMON AREAS

17. Do you and members of your household feel safe in Kopanong's common areas **during the day**?

[ ] Yes
[ ] Sometimes
[ ] No

18. Do you and members of your household feel safe in Kopanong's common areas **at night**?

[ ] Yes
[ ] Sometimes
[ ] No

19. How many times have you been a victim of crime in Kopanong? _____ / [ ] Not applicable

20. When last where you a victim of crime?

[ ] Less than 12 months ago
[ ] Between 1 – 3 years ago
[ ] 4 years ago or more
[ ] Not sure
[ ] Not applicable

21. In which common area and what type of crime were you a victim of in Kopanong? **[Circle all that apply]**

Common areas in Kopanong	[1] Robbery	[2] Mugging	[3] Violent assault	[4] Sexual assault	[5] Other	[6] None
Parking	1	2	3	4	5	6
Vegetable garden	1	2	3	4	5	6
Clothing line	1	2	3	4	5	6
Dustbin area	1	2	3	4	5	6
Lawn (Green space)	1	2	3	4	5	6
Seating space	1	2	3	4	5	6
Children's play areas	1	2	3	4	5	6
Walkways/stairs	1	2	3	4	5	6
Open space	1	2	3	4	5	6
Laundry basins	1	2	3	4	5	6

22. Who did you report this incident to? **[Tick all that apply]**

[ ] Building supervisor/ caretaker
[ ] Yeast City Housing, Housing Manager
[ ] SAPS / Metro police
[ ] Other tenants
[ ] No one
[ ] Other _____
[ ] Not applicable

23. How many times have you seen criminal activity in Kopanong? _____ / [ ] Not applicable

24. In which common area and what type of crime did you see take place in Kopanong? **[Circle all that apply]**

Common areas in Kopanong	[1] Robbery	[2] Mugging	[3] Violent assault	[4] Sexual assault	[5] Other	[6] None
Parking	1	2	3	4	5	6
Vegetable garden	1	2	3	4	5	6
Clothing line	1	2	3	4	5	6
Dustbin area	1	2	3	4	5	6
Lawn (Green space)	1	2	3	4	5	6
Seating space	1	2	3	4	5	6
Children's play areas	1	2	3	4	5	6
Walkways/stairs	1	2	3	4	5	6
Open space	1	2	3	4	5	6
Laundry basins	1	2	3	4	5	6

F. LAST COMMENTS

25. If you could change anything in Kopanong's common spaces, what would you change? *(You can use the paper in the envelope for more space)*

THANK YOU FOR YOUR TIME!

Appendix F. Reminder poster

14 June 2013

Dear Kopanong residents,

Thank you for your participation in the "SURVEY OF COMMON AREAS". If you have not yet completed the questionnaire and would still like to participate in this survey, please place your completed survey questionnaire in the sealed box marked "SURVEY OF COMMON AREAS" by Thursday, 20 June 2013.

Once again, please contact me, Nosizo Sebake [012 841 2084, ssebake@csir.co.za] or my supervisor [012 420 4536, ida.breed@up.ac.za] should you need additional information or have any questions.

Kind regards,

Nosizo Sebake

Appendix G. Letter of commendation

Dear [YCH Housing Manager],

COMMENDATION FOR YEAST CITY HOUSING BUILDING SUPERVISORS

Subsequent to my interview with you, on 20 May 2013, I requested your assistance regarding undertaking a survey in Hofmeyr, Kopanong and Litakoemi. The survey is related to my MSc studies, which aims to assess the quality of the shared outdoor spaces in social housing projects in the City of Tshwane. You referred me to [name of building supervisor] (Hofmeyr), [name of building supervisor] (Kopanong and Litakoemi) and [name of gardener] (the YCH gardener).

I interviewed [name of YCH building supervisors and gardener] on 30 May 2013. Following my interviews with them, [name of building supervisors], took me to Hofmeyr and Kopanong & Litakoemi, respectively, for a site visit. I was able to not only view the projects and take photographs, but also to ask more questions where the need arose. Both [name of building supervisors] were helpful and patient during the visits. Following the site visits, we made arrangements for the distribution and collection of the surveys to and from Hofmeyr, Kopanong and Litakoemi.

The survey was undertaken over a two week period, from 5 June 2013 to 21 June 2013. Completed surveys were collected at the end of each week. The data capturing has been completed. I am currently analysing this data and will share the results with the YCH management team in due course.

One hundred and nine (149) surveys were sent to all the households in Hofmeyr, Kopanong and Litakoemi. Completed surveys were submitted as directed either to the respective building supervisors (i.e. Hofmeyr and Litakoemi) or they were placed in a marked sealed box (i.e. Kopanong). Fifty-one of the surveys were returned with various levels of completion. The response rate was therefore 34%.

Given the 'busyness' and subsequent unavailability of the respondents at times, the time taken by [name of building supervisors] in the distribution and collection of the surveys is valued and deeply appreciated. I believe that their tenacity was instrumental in the higher than expected response rate.

I would therefore like to commend this excellent performance by [name of staff] and look forward to more fruitful collaborations in the future.

Sincerely,

Nosizo Sebake

Appendix H. Thank you poster

[Date]

Dear Kopanong residents,

Thank you for your participation in the "SURVEY OF COMMON AREAS" that took place between 5 June 2013 and 21 June 2013. Given your busyness, I really value and deeply appreciate the time you took to read through and complete the survey. Twenty surveys were returned by you.

As previously indicated, a copy of the research report will be available to Yeast City Housing when the study has been completed.

Kind regards,

Nosizo Sebake

Appendix I. User characteristics

	Hofmeyr	Kopanong	Litakoemi	Frequency	Percentage
Sent	56	62	31	149	100%
Returned	27	20	4	51	34%
Age group					
19 – 35 years	5	8	2	15	52%
36 – 64 years	9	5	0	14	48%
Total	14	13	2	29	100%
No answer	9	3	0	12	
Error	4	4	2	10	
Total	27	20	4	51	
Gender					
Male	8	9	1	18	50%
Female	9	7	2	18	50%
Total	17	16	3	36	100%
No answer	10	3	1	14	
Error	0	1	0	1	
Total	27	19	4	51	
Population group					
Black	14	17	4	35	97%
White	1	0	0	1	3%
Total	15	17	4	36	100%
No answer	10	3	0	13	
Error	2	0	0	2	
Total	27	20	4	51	
Languages					
Afrikaans	2	0	0	2	4%
English	8	2	1	11	22%
isiNdebele	0	1	1	2	4%
isiXhosa	2	0	0	2	4%
isiZulu	3	5	1	9	18%
Sesotho sa Leboa	8	2	0	10	20%
Sesotho	6	2	1	9	18%
Setswana	2	7	0	9	18%
siSwati	0	0	0	0	0%
Tshivenda	5	4	0	9	18%
Xitsonga	2	2	0	4	8%
Other	3	0	0	3	6%
Total	41	25	4	70	100%

	Hofmeyr	Kopanong	Litakoemi	Frequency	Percentage
No. of languages spoken					
1 language	18	16	4	38	75%
2 languages	6	3	0	9	18%
3 languages	1	1	0	2	4%
4 languages	2	0	0	2	4%
Total	27	20	4	51	
Disability					
None	9	18	2	29	100%
Total	9	18	2	29	100%
No answer	1	0	0	1	
Error	17	2	2	21	
Total	27	20	4	51	
Marital status					
Single	17	11	1	29	63%
Married	4	5	0	9	20%
Divorced	3	1	0	4	9%
Separated	1	0	1	2	4%
Other	2	0	0	2	4%
Total	27	17	2	46	100%
No answer	0	2	2	4	
Error	0	1	0	1	
Total	27	20	4	51	
Employment status					
Full-time	9	15	2	26	67%
Part-time	2	1	2	5	13%
Self employed	2	2	0	4	10%
Unemployed	3	1	0	4	10%
Total	16	19	4	39	100%
No answer	11	1	0	12	
Error	0	0	0	0	
Total	27	20	4	51	

	Hofmeyr	Kopanong	Litakoemi	Frequency	Percentage
Highest education level					
Primary	1	2	0	3	6%
Some secondary	6	1	0	7	15%
Grade 12	9	3	2	14	29%
Higher	10	12	2	24	50%
Total	26	18	4	48	100%
No answer	1	1	0	2	
Error	0	1	0	1	
Total	27	20	4	51	
Previous housing type					
Informal dwelling	1	0	1	2	4%
House on stand	6	6	1	13	27%
Townhouse	1	0	0	1	2%
Flat in block of flats	14	13	1	28	58%
Other	3	0	1	4	8%
Total	25	19	4	48	100%
No answer	1	1	0	2	
Error	1	0	0	1	
Total	27	20	4	51	
Unit type					
Bachelor	9	0	2	11	24%
1 Bedroom	14	15	2	31	67%
2 Bedroom	0	4	0	4	9%
Total	23	19	4	46	100%
No answer	2	1	0	3	
Error	2	0	0	2	
Total	27	20	4	51	

Appendix J. Results of the housing quality assessment of the selected case studies

		Hofmeyr		Kopanong		Litakoemi	
	SAFE ENVIRONMENTS	**Average**	**2.4**	**Good**	**3.1**	**Average**	**2.6**
A	**Access**		**0.6**		**0.6**		**0.6**
A1	Is it easy to understand how to enter and move about the site?	Partially	0.5	Partially	0.5	Partially	0.5
A2	Does layout of site discourage 'cutting corners' across landscaping and/or private space?	Partially	0.5	Yes	1.0	Yes	1.0
A3	Is site route network designed to discourage strangers and hinder escape?	Partially	0.5	Partially	0.5	Partially	0.5
A4	Is main entrance clearly visible and hiding place, near front doors and pedestrian routes avoided?	Yes	1.0	Yes	1.0	Partially	0.5
A5	Is the hierarchy of routes clear?	Partially	0.5	Partially	0.5	Yes	1.0
A6	Is vehicle segregation possible to help pedestrians (e.g. young children) to use safe routes?	Partially	0.5	No	0.0	N/A	0.0
A7	Can large, emergency or service vehicles come within 30m of all front doors of units or flats?	Yes	1.0	Yes	1.0	Yes	1.0
A8	Are there spaces for refuse and service/delivery vehicles to stand without blocking routes?	No	0.0	Yes	1.0	N/A	0.0
A9	Is there a canopy/porch over main entrance with light?	Partially	0.5	No	0.0	No	0.0
IA	**Image and aesthetics**		**0.6**		**0.4**		**0.2**
IA1	Are elements associated with the overall site (lighting, street furniture, street names and direction signs, curbs, benches/seats etc.) well detailed, co-ordinated with each other and carefully located?	Partially	0.5	Partially	0.5	Partially	0.5
IA2	Are external elements associated with the dwellings (walls and fences, garages, refuse bin screening, electricity meter boxes, drainpipes, handrails etc.) well detailed and co-ordinated?	Partially	0.5	Partially	0.5	Yes	1.0
IA3	Are any elements that could confer a special identity to the site used to do so?	Partially	0.5	Partially	0.5	No	0.0
IA4	Are refuse and storage bin storage areas convenient and inconspicuous?	Yes	1.0	No	0.0	No	0.0
IA5	Is communal bin storage serviced by tap and drainage for cleaning?	Partially	0.5	No	0.0	No	0.0
IA6	Are there hard surfaces or soft landscaping in the scheme?	Yes	1.0	Yes	1.0	Partially	0.5
IA7	Is there varied planting to create visual interest in different seasons using height, colour and texture?	Partially	0.5	No	0.0	No	0.0
IA8	Are there trees in the public open spaces and streets?	Yes	1.0	Partially	0.5	No	0.0
IA9	Has qualified landscape architect been used to create or assess the landscape design?	No	0.0	Partially	0.5	No	0.0
T	**Territoriality and ownership**		**0.4**		**0.3**		**0.4**
T1	Is the private/shared open space enclosed within unit boundaries, well designed in shape, dimension and location?	Partially	0.5	Partially	0.5	Partially	0.5
T2	Do different public areas have specific differentiated characters?	Partially	0.5	Partially	0.5	No	0.0
T3	Are spaces between buildings planned for specific uses?	Partially	0.5	No	0.0	Yes	1.0
T4	Are boundaries between public and private spaces clear?	Partially	0.5	Partially	0.5	Partially	0.5
T5	Are spaces that are to be shared by residents but not for the general public clearly defined?	No	0.0	No	0.0	No	0.0

S	Surveillance and visibility		0.6		0.8		0.6
S1	Does building grouping, position of windows or cameras allow surveillance of unexpected visitors?	Yes	1.0	Yes	1.0	Yes	1.0
S2	Does building grouping and position of windows allow supervision of open space and play?	Yes	1.0	Partially	0.5	Yes	1.0
S3	Are vulnerable points on buildings visible by other residents or passers-by?	Partially	0.5	Yes	1.0	No	0.0
S4	Are public spaces connected by clear, well lit and hard surface routes?	Partially	0.5	Yes	1.0	Partially	0.5
S5	Is lighting appropriately related to buildings and easy to maintain?	Partially	0.5	Yes	1.0	Partially	0.5
S6	Does position of lighting prevent 'pools' of darkness where people walk both outside and in common parts of flats?	No	0.0	No	0.0	No	0.0
S7	Are public spaces and pedestrian routes overlooked and do they feel safe?	Partially	0.5	Yes	1.0	Yes	1.0
T	Target hardening		0.3		1.0		0.8
T1	Is casual intrusion by non-residents beyond clearly defined public areas discouraged – e.g. using barriers, 'gates', concierges or security systems?	Partially	0.5	Yes	1.0	Yes	1.0
T2	Is there an entry phone or other security system to main entrance of block of flats?	No	0.0	Yes	1.0	Partially	0.5
	HARMONIOUS ENVIRONMENTS	Good	2.0	Poor	1.1	Average	1.2
H	Hardscaping		1.0		0.3		0.5
H1	Are hard surfaces varied – to suit relation to buildings or identify larger areas with different uses?	Yes	1.0	Partially	0.5	Partially	0.5
H2	Car space does not dominate elevation – e.g. less than half width of elevation	Yes	1.0	No	0.0	N/A	0.0
L	Landscaping		0.3		0.2		0.2
L1	Has planting been related to climatic conditions to provide wind protection and/or shade?	Partially	0.5	No	0.0	No	0.0
L2	Is landscaping able to be easily and cost effectively maintained?	Partially	0.5	Partially	0.5	Partially	0.5
L3	Water metering for all water use	No	0.0	No	0.0	No	0.0
SE	Site elements		0.6		0.6		0.6
SE1	Are existing important elements (natural or man-made) protected, to give the site maturity?	Partially	0.5	Partially	0.5	Partially	0.5
SE2	Are units groups to take best advantage of local topography?	Yes	1.0	Yes	1.0	Yes	1.0
SE3	Has best advantage been taken of sunshine for views, heat and light in outdoor areas and in dwellings?	Partially	0.5	Partially	0.5	No	0.0
SE4	More than 50% of the site is 'brownfield' i.e. previously built upon, reclaimed from industrial processes or landfill	Yes	1.0	Yes	1.0	Yes	1.0
SE5	Is public space well designed and does it have suitable management arrangements in place?	Partially	0.5	Partially	0.5	Partially	0.5
SE6	Do buildings or spaces outperform statutory minima, such as Building Regulations?	Yes	1.0	Yes	1.0	Yes	1.0
SE7	Does the development have any features that reduce its environmental impact?	No	0.0	No	0.0	No	0.0

	SOCIALLY RESPONSIBLE ENVIRONMENTS	Poor	0.5	Good	1.3	Average	1.2
C	**Spaces for play**		**0.2**		**0.7**		**0.2**
C1	Is the housing designed for households with children?	No	0.0	Yes	1.0	No	0.0
C2	Are play areas provided for 2 – 5 year olds within sight of 100% of family dwellings?	N/A	0.0	Partially	0.5	N/A	0.0
C3	Are play areas provided for 5 – 12 year olds – at a minimum of one for 40 dwellings?	N/A	0.0	Partially	0.5	N/A	0.0
C4	Are play areas fitted with play equipment for the age group?	N/A	0.0	Yes	1.0	N/A	0.0
C5	Is energetic play provided for - e.g. by adventure playgroup, cycle paths	Partially	0.5	Partially	0.5	Partially	0.5
C6	Are play areas and public spaces sited to avoid nuisance to neighbours?	No	0.0	Partially	0.5	No	0.0
IE	**Inclusive environments**		**0.3**		**0.7**		**1.0**
IE1	Clothes drying facility with access path with no level change	Partially	0.5	Yes	1.0	Yes	1.0
IE2	Are kerbs dropped where foot paths cross roads?	No	0.0	Partially	0.5	N/A	0.0
IE3	Pedestrian routes and garden paths – firm, even, slip-resistant finish, distinctive texture/colour	Partially	0.5	Yes	1.0	Yes	1.0
IE4	Paths with minimum width of 1000mm	Partially	0.5	Yes	1.0	Yes	1.0
IE5	Gateways min width 850mm and no step	Partially	0.5	No	0.0	Yes	1.0
IE6	Convenient wheelchair accessible parking space within 30m of main entrance for 100% of units	No	0.0	Partially	0.5	N/A	0.0
		Average	**5.1**	**Average**	**5.4**	**Average**	**4.9**

Appendix K. Necessary activities

Necessary activities	Hofmeyr	Kopanong	Litakoemi	Frequency	Percentage
Hanging washing					
Clothing line	12	12	4	28	85%
Walkways	1	0	0	1	3%
Laundry basins	1	2	0	3	9%
Open spaces	0	1	0	1	3%
	14	**15**	**4**	**33**	
Error	2	2	0	4	
No answer	11	3	0	14	
Watch children					
Clothing line	0	1	0	1	4%
Open spaces	5	3	2	10	37%
Children's play areas	0	10	0	10	37%
Lawn	6	0	0	6	22%
	11	**14**	**2**	**27**	
Error	0	2	0	2	
No answer	16	4	2	22	
Washing car					
Open spaces	1	1	1	3	25%
Parking	2	7	0	9	75%
	3	**8**	**1**	**12**	
Error	0	0	0	0	
No answer	24	12	3	39	
Taking out rubbish					
Clothing line	0	1	0	1	3%
Dustbin area	15	11	3	29	94%
Open spaces	0	1	0	1	3%
	15	**13**	**3**	**31**	
Error	1	1	0	2	
No answer	11	6	1	18	
Tending garden/plants					
Garden	2	0	1	3	20%
Open spaces	0	1	0	1	7%
Vegetable garden	2	2	0	4	27%
Lawn	0	7	0	7	47%
	4	**10**	**1**	**15**	
No answer	23	9	3	35	
Error	0	0	0	0	
Checking mail					
Garden	0	0	1	1	8%
Open spaces	0	5	1	6	46%
Walkways	3	3	0	6	46%
	3	**8**	**2**	**13**	
No answer	23	9	3	35	
Error	0	0	0	0	

Appendix L. Optional activities

Optional activities	Hofmeyr	Kopanong	Litakoemi	Frequency	Percentage
Watch people					
Walkways	0	3	0	3	25%
Parking	1	0	0	1	8%
Open spaces	1	5	2	8	67%
	2	8	2	12	
N/A	1	0	0	1	
No answer	24	12	2	38	
Play					
Dustbin area	0	1	0	1	5%
Parking	1	1	0	2	10%
Open spaces	1	9	2	12	60%
Children's play areas	0	1	0	1	5%
Lawn	4	0	0	4	20%
	6	**12**	**2**	**20**	
N/A	0	0	0	0	
No answer	21	8	2	31	
Talk on phone					
Open spaces	0	9	1	10	45%
Parking	1	7	0	8	36%
Walkways	1	3	0	4	18%
	2	**19**	**1**	**22**	
N/A	1	0	0	1	
Error	0	0	0	0	
No answer	24	12	3	39	
Sit and relax					
Children's play areas	0	1	0	1	6%
Laundry basins	2	0	0	2	13%
Lawn	3	0	0	3	19%
Open spaces	1	8	1	10	63%
	6	**9**	**1**	**16**	
Error	0	1	0	1	
No answer	20	9	3	32	
Read and write					
Clothing line	1	0	0	1	8%
Open spaces	1	8	1	10	77%
Seating space	0	1	0	1	8%
Lawn	1	0	0	1	8%
	3	**9**	**1**	**13**	
No answer	23	11	3	37	
Error	0	0	0	0	
Walk					
Lawn	1	0	0	1	5%
Open spaces	1	8	1	10	53%
Walkways	3	5	0	8	42%
	5	**13**	**1**	**19**	
No answer	20	6	3	29	
Error	2	1	0	3	

Appendix M. Social activities

Social activities	Hofmeyr	Kopanong	Litakoemi	Frequency	Percentage
Braai					
Parking	1	0	0	1	8%
Clothing line	1	0	0	1	8%
Lawn	0	3	0	3	25%
Open spaces	0	5	1	6	50%
Laundry basins	1	0	0	1	8%
	3	**8**	**1**	12	
N/A	1	0	0		
No answer	23	12	3		
Greet					
Clothing line	0	1	1	2	8%
Walkways	2	1	0	3	12%
Open spaces	0	4	1	5	19%
Laundry basins	3	0	0	3	12%
	5	**6**	**2**	13	50%
No answer	16	9	2	26	
Error	6	5	0		
Talk					
Parking	1	0	0	1	3%
Clothing line	1	0	1	2	7%
Walkways	3	2	0	5	17%
Open spaces	1	5	1	7	23%
	6	**7**	**2**	15	50%
No answer	17	10	1	30	
Error	4	3	1		
Sit and relax					
Lawn	2	0	0	2	20%
Open spaces	0	7	1	8	80%
	2	**7**	**1**	10	
N/A	1	0	0		
No answer	22	11	3		
Error	2	2	0		
Children play					
Lawn	2	0	0	2	13%
Open spaces	1	1	2	4	27%
Children's play areas	0	9	0	9	60%
	3	**10**	**2**	15	
No answer	22	8	2		
Error	2	2	0		
Celebrate special occasions					
Open spaces	0	8	1	9	100%
	0	**8**	**1**	9	
N/A	1	0	0		
No answer	25	12	3		
Error	1	0	0		
Visit					
Lawn	1	0	0	1	7%
Open spaces	1	9	1	11	79%
Children's play areas	0	1	0	1	7%
Laundry basins	1	0	0	1	7%
	3	**10**	**1**	14	
No answer	24	10	3		
Meetings					
Open spaces	6	10	1	17	94%
Children's play areas	0	1	0	1	6%
	6	**11**	**1**	**18**	
No answer	20	9	3		
Error	1	0	0		

Appendix N. Frequency of use of shared outdoor spaces

	Hofmeyr	Kopanong	Litakoemi	Frequency	Percentage
Parking					
Never	7	3	0	10	48%
Sometimes	0	1	0	1	5%
Almost every day	0	1	0	1	5%
Every day	2	7	0	9	43%
	9	**12**	**0**	**21**	
N/A	0	0	4	4	
Error	0	1	0	1	
No answer	18	7	0	25	
Vegetable garden					
Never	8	2	0	10	43%
Almost never	0	1	0	1	4%
Sometimes	1	8	0	9	39%
Almost every day	0	2	0	2	9%
Every day	1	0	0	1	4%
	10	**13**	**0**	**23**	
N/A	0	0	4	4	
No answer	17	7	0	24	
Clothing line					
Almost never	0	0	1	1	3%
Sometimes	10	6	1	17	52%
Almost every day	2	2	1	5	15%
Every day	3	6	1	10	30%
	15	**14**	**4**	**33**	
No answer	12	6	0	18	
Dustbin area					
Sometimes	2	1	2	5	16%
Almost every day	7	4	1	12	38%
Every day	8	7	0	15	47%
	17	**12**	**3**	**32**	
N/A	0	0	0	0	
Error	1	0	0	1	
No answer	9	8	1	18	
Garden					
Sometimes	2	1	2	5	16%
Almost every day	7	4	1	12	38%
Every day	8	7	0	15	47%
	17	**12**	**3**	**32**	
Error	1	0	0	1	
No answer	9	8	1	18	
Lawn					
Never	4	3	0	7	33%
Almost never	0	2	0	2	10%
Sometimes	2	1	0	3	14%
Almost every day	2	5	0	7	33%
Every day	2	0	0	2	10%
	10	**11**	**0**	**21**	
N/A	0	0	4	4	
No answer	17	9	0	26	
Seating space					
Never	0	1	0	1	9%
Sometimes	0	7	0	7	64%
Almost every day	0	2	0	2	18%
Every day	0	1	0	1	9%
	0	**11**	**0**	**11**	
N/A	27	0	4	31	
No answer	0	9	0	9	

Walkways					
Almost never	0	1	0	1	4%
Sometimes	1	0	0	1	4%
Almost every day	1	5	0	6	25%
Every day	10	6	0	16	67%
	12	**12**	**0**	**24**	
N/A	0	0	4	4	
Error	2	0	0	2	
No answer	13	8	0	21	
Open spaces					
Never	1	0	1	2	8%
Almost never	2	0	0	2	8%
Sometimes	2	3	0	5	20%
Almost every day	1	4	0	5	20%
Every day	5	5	1	11	44%
	11	**12**	**2**	**25**	
Error	1	0	0	1	
No answer	15	8	2	25	
Children's play area					
Never	0	1	0	1	8%
Sometimes	0	3	0	3	25%
Almost every day	0	2	0	2	17%
Every day	0	6	0	6	50%
	0	**12**	**0**	**12**	
N/A	27	0	4	31	
No answer	0	8	0	8	
Laundry basins					
Never	1	4	0	5	19%
Almost never	0	1	0	1	4%
Sometimes	12	0	0	12	46%
Almost every day	1	3	0	4	15%
Every day	1	3	0	4	15%
	15	**11**	**0**	**26**	
N/A	0	0	4	4	
Error	1	0	0	1	
No answer	11	9	0	20	

Appendix O. Researcher's responses to examiners' comments

COMMENT A

1. *The dissertation reveals important and wide review of the literature concerning the theme. Somehow this review should be organized aiming a publication.*

2. *However, without any demerit of the excellent work presented, I suggest the author should know other approaches if new researches on the subject continue. There are contemporary architectural approaches that see the resident as an active agent of transformation of space and they can appear as a theoretical and methodological counterpoint of the current research developed (rather than evaluation of pre-determined indicators). Authors like John Habraken and Manuel Gausa, among other architects involved in the issue.*

3. *Further to suggesting that designers ought to be involved in the improvement of shared areas, it would be useful if the candidate could explain what proposed design guidelines would have to take into consideration, both on a quantitative and qualitative level.*

Response to Comment A.1:

The positive comment is greatly appreciated - Thank you.

Response to Comment A.2:

Quality shared outdoor spaces form part of the adequate housing[24] that was promised for lower income communities in the Universal Declaration of Human Rights adopted nearly seven decades ago. A statement by Eleanor Roosevelt, delivered at the United Nations in New York on 27 March 1958, attests to the significance of an individual's experience of the housing and related outdoor spaces. She stated "Where, afterall, do universal rights begin? In small places, close to home – so close and so small that they cannot be seen on any maps of the world. Yet they are the world of the individual person; the neighborhood he lives in; the school or college he attends; the factory, farm or office where he works. Such are the places where every man, woman, and child seeks equal justice, equal opportunity, equal dignity without discrimination. Unless these rights have meaning there, they have little meaning anywhere. Without concerned citizen action to uphold them close to home, we shall look in vain for progress in the larger world".

[24] This concept of 'adequate housing' is enshrined in the Constitution of the Republic of South Africa Act 108 of 1996 (RSA, 1996, sec. 26 (1)).

This statement strongly supports the notion of the resident as an active agent in the transformation of urban space. It is deduced, that the environments she describes in this statement should be created for the benefit of the individual. Within the South Africa context, the creators of the housing, primarily social housing implementers (i.e. SHI and private sector developer), seldom capture the experiences of the resident to inform their designs. This often results in the creation of environments that cannot fully address user needs or preferences. In order to broaden the perspective and understanding of urban space, the development of urban space needs to be analysed through three dimensions, namely (i) representations of space (conceived space), (ii) the spatial practices (perceived space), and (iii) the spaces of representation (lived space) (Breed, 2008; Merrifield, 1993; Watkins, 2005). These dimensions are briefly described below:

i. The representation of space refers to space that is conceptualised by professionals like, inter alia, planners, developers and architects (Merrifield, 1993).

ii. Spatial practices refer to the way space is organised and used (Breed, 2008) to "ensure societal cohesion" (Merrifield, 1993).

iii. The space of representation refers to "directly lived space, (or) the space of everyday life", which is "experienced through the complex symbols and images of its 'inhabitants' and 'users.'" (Merrifield, 1993)

These three dimensions are essential for understanding urban space within its proper context (Merrifield, 1993). However, although they should be familiar to designers - who play a critical role in the development of urban space - these dimensions, particularly the 'space of representation', are not equally considered during the design process (Breed, 2008).

Given this obvious need, the researcher supports the notion of the user as an active agent in the transformation of urban space and in the instance of this study, the development of good quality shared outdoor spaces. The suggestion that the literature review could be further developed for a publication is therefore welcomed and will be further explored. In developing such a publication, more contemporary architectural approaches, including those of Habraken and Gausa, will be considered.

COMMENT B

Response to Comment B.1

The researcher has considered the recommendations presented in this study need to go beyond the statement that designers need to be involved. The examiner's request that recommendations reflect

on both quantitative and qualitative aspects, has also been considered.

The quantitative aspects of improving the quality of shared outdoor spaces in the case studies pertain to objective factors, i.e. costs, quantity, tenure, economic impacts, environmental impacts and structural norms and standards (Meng and Hall, 2006). Since this research was predominantly qualitative, the researcher is not able to confidently respond to this comment. A future study assessing the technical and quantitative aspects of a larger social housing project sample would sufficiently address this comment. Quantitative recommendations will therefore not be presented.

For considerations of the qualitative aspects, please refer to Response to Comment B.2.

COMMENT C

1. *This document speaks of rigorous and disciplined research, supported by on exhaustive and relevant use of appropriate literature. There is a pertinent use of indicators to create research instruments. The research process is diligent. Well structured and well presented.*

2. *The conclusions are modest and reigned in to the research questions. More specific recommendations could follow from the dissertation, such as proposing how the shared outdoor areas could be improved (apart from the suggestion that designers ought to be involved). The researcher could be encouraged to proposed specific guidelines as they are related to the indicators that have been used for the research.*

Response to Comment C.1:

The compliment is highly appreciated - Thank you.

Response to Comment C.2:

The researcher has reflected on the assertion that the recommendations presented in this study are modest and need to be more specific. Given their similarity, these reflections and considerations for Comment A.3 are simultaneously presented below.

The study showed that the quality of shared outdoor spaces in the case studies was rated as "poor" (0.3 - 0.4) and "very poor" (<0.2) for several sub-criteria (see Figure 5.30), including image and aesthetics (Litakoemi and Kopanong), landscaping, spaces for play (Hofmeyr and Litakoemi), territoriality and ownership, target hardening (Hofmeyr), Hardscaping (Kopanong) and inclusive environments (Hofmeyr). Improving this poor quality would require operational strategies, such as maintenance (e.g. painting building façades, and boundary walls and fences) and repairs (e.g. hardscaping, boundary walls, windows, drainage pipes).

In the event that any of these case studies are upgraded, the design guidelines (in no particular order)

that follow could be applied to ensure that good quality shared outdoor spaces are created. To this end, shared outdoor spaces should be designed:

- With the use of robust materials that will require low maintenance.
- With the use of construction methods that are easy to replicate.
- To be water efficient, i.e. use of indigenous planting. The installation of a rainwater harvesting system could be investigated for the irrigation of the landscaping. The advice and/or assistance of a landscape designer should be sought prior to the development of these spaces.
- To be adaptable to meet the changing needs of the residents and climate.
- To provide residents with an unobstructed space for planting (i.e. box gardens).
- To ensure that vehicular and pedestrian paths do not cross.
- To have appropriate lighting in all external spaces.
- To provide a safe area for young children to play.
- To be fully accessible to people in wheelchairs and/or other disabilities, particularly people with visual disabilities.

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