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Creating Sustainable Human Settlements using Integrated Housing Developments on Infill sites

A case study of Fleurhof, Johannesburg

By
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A research report submitted to the School of Architecture and Planning, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Bachelor of Science with Honours in Urban and Regional Planning.

26 November 2014

Supervisor:

Dr Brian Boshoff

بسم الله الرحمن الرحيم

"In the name of God, most Gracious, most Compassionate"

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Declaration

I, Mohamed Mubeen Khan, declare that this research report is my own work. The research report is submitted to the School of Architecture and Planning, Faculty of Engineering and the Built Environment, of the University of the Witwatersrand in partial fulfilment of the requirements for the degree, Bachelor of Science (Honours) in Urban and Regional Planning, in the year 2014

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Signature

Date: 26 November 2014

Abstract

In the past twenty years since South Africa has become a democratic country, there have been countless efforts with regards to overcoming the problems created during apartheid. These problems stemmed from a spatial, social, economic and political background. In recent years South African cities have also been faced with environmental issues which are imperative to the future development in the country. With all of these spheres in mind, we see that the many efforts that are put in place by government always fall short of solving the issues. This research report will look at the Breaking New Ground Policy of 2004, to assess whether governments efforts of redistribution and equality have been sufficient to overcome the problems.

The research looks into creating Sustainable Human Settlements as pointed out in the Breaking New Ground (BNG) policy of 2004. Taking into account the period since the Breaking New Ground (BNG) policy has been in place, problems of housing delivery still persist. The South African government uses housing as a means of giving citizens an equal chance at creating sustainable livelihoods. However, we are still faced with a backlog of 2.1-2.5 million housing units promised to residents. Along with this, is the problems of poor constructed housing, housing on the periphery of the city, unserviced or under serviced housing settlements, lack of amenities and a lack of many other amenities that would allow people to develop and grow.

In recent years we have witnessed the development of Integrated Housing Developments, which take into account the guidelines and principles stipulated in the BNG policy. The research being carried out looks at these guidelines and principles in order to create the linkage between sustainable human settlements and integrated housing developments. With use of the Fleurhof Integrated Housing Development as a case study, the research looks at whether people are accounted for in the correct manner which will allow them a chance of creating sustainable livelihoods. With use of the case study and stakeholder perspectives, the researcher gives recommendations on how sustainable human settlements can be achieved in Johannesburg. The research also draws on infill development as a possible spatial intervention to achieve integration in the city.

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CHAPTER 1

Introduction

Background

In the past 20 years since South Africa was declared a democratic country, the government has looked at ways of providing housing for many of those left neglected under the apartheid government. The apartheid city comprised; racially segregated suburbs, buffer zones separating suburbs, monofunctional land use, a dispersed city characterized by low density urban sprawl, and racially divided urban growth patterns; all of which led to a highly fragmented city (Donaldson, 2001). This endeavor of overcoming the apartheid practices has seen the ANC government change its housing policies and mandates to aid housing delivery, but also to overcome some of the social issues facing the country (eg. poverty, homelessness, crime and other forms of social exclusion). An important policy that looks at this evolution of housing in SA is the "Breaking New Ground" policy (1994). This policy looks at ways of delivering sustainable human settlements to residents of South Africa (DoH, 2004). The principles of Sustainable Human Settlements are seen as a means of creating integration between the environment, social and economic factors on a "micro-scale" (ibid). "Micro-scale" means that each person will be given equal advantage in creating a livelihood that would be suitable for current residents, as well as for future generations by safeguarding the environment (ibid). However, due to the complexities facing the country in terms of race, finances, environmental problems among others, the delivery of sustainable human settlements has seemingly become an issue that the state does not have the capacity to deal with currently (Tissington and Dugard, 2013).

> *"A programme is required that is achievable, sustainable and meets the objectives of freedom and an improved standard of living and quality of life for all South Africans within a peaceful and stable society characterised by equitable economic growth" (RDP White Paper, 1994).*

The first democratic attempt at development and growth in SA was envisioned in the Reconstruction and Development Programme (RDP) (Wessels, 1999). This policy aimed at overcoming some of the problems caused by the apartheid government. The main objectives were to overcome poverty, as well as create sustainable livelihoods for all citizens, regardless of race (ibid). This aim of the RDP showed that development and growth were intertwined and one could not be achieved without the other. In the same manner, the policy took into account social changes, along with neo-liberal changes such as developing human resources and building the micro economy, which would allow all citizens an equal advantage to livable and sustainable futures (ANC, 1994). The Growth, Employment

and Redistribution Strategy (GEAR) which succeeded the RDP has also identified "housing and economic growth with employment and economic empowerment" as the key development challenges which the country must address (Irurah and Boshoff, 2003: 257).

We thus see that the focus on social and economic factors is also important in creating a city that would accommodate all citizens. The approach adopted in 1994 was however criticized for being one-dimensional with a dominant aim of providing shelter for the poor and neglecting aspects which impact upon one's lifestyle and life chances (Huchzermeyer, 2003). City dwellers want to live in a place that offers a holistic quality of life, a life that offers job opportunities, a safe and secure environment, access to infrastructure such as clean water, and access to social benefits such as health care, education and entertainment (ibid). All of which have not been achieved through the use of the RDP thus posing the question on whether there remains a gap between policy objectives, implementation strategies and ideologies of an integrated society..

Due to apartheid city planning, structural deficiencies due to segregation led to low density urban sprawl which resulted in far distances between areas of work, live and play (Donaldson, 2001). With the introduction of the RDP, houses built on the buffer zones would be ideal places for integration since class consciousness is more likely able to develop in these new areas (ibid). However, in most instances RDP houses are developed on cheap pieces of vacant land which only serves to enhance segregation (ibid),pointing to the fact that government is aiming at delivering mass housing, regardless of the consequences at a later stage. Considering the spheres of government, Mclean (2003) argues that housing delivery should be taken as the responsibility of the "sphere closest to the people" which is local government. Hence cooperative governance is critical to the implementation of policy objectives. This cooperation between spheres of government allows for a more transparent process to take place which also aids in creating stronger economically, socially and environmentally stronger areas (Donaldson, 2001).

Taking into account the period since these policies were implemented, this research report will look at housing developments as a measure of whether housing policies have aided citizens or not. Citizens' aid can be measured in the form of capital gained through the securing of tenure, employment opportunities gained, a move within the tiers of housing markets, or an increase in property values in RDP housing. Within Johannesburg, housing developments will be looked at in a manner that would grant the reader an understanding of the social factors in the built environment, such as the prevalence of communities and societies that are intertwined with access to economic opportunities. This report will use a case study of Fleurhof, Johannesburg, in order to better

understand these social factors within housing developments. Comparing current surveys conducted on RDP housing, and the case study site (Fleurhof), will also help understand these social and economic factors that aid the creation of sustainable human settlements. Urban design principles will also be emphasized in order to understand the platforms of social exchange within human settlements. For the purpose of the research, platforms of social exchange will be equated to the presence of amenities like community centres, crèches, parks and schools amongst others. These land uses owing to the way in which the township is designed to allow for an environment that is conducive to social exchange. Along with this, the emphasis on the design of the township is important to take away from past practices of delivering purely housing within a township.

Rationale for the Research

Given the track record of South African housing policy, it can be discerned that the government has failed to address the problems caused by the apartheid era (SACN, 2006). These problems refer to housing, societal and overall integration within the city among people and spaces. Approximately three million houses have been delivered by South Africa's ANC-led government (NDHS, 2011). However the housing backlog/shortage of about 2.1-2.5 million units continues to grow (www.gov.za, 2014). According to Tissington and Dugard (2013), post- 1994 housing delivery still locates the bulk of low-income housing on the periphery, often far away from socio-economic opportunities that are mostly found in the inner city and northern areas of Johannesburg. The first two National Housing Policies- the Housing White Paper of 1994 and Breaking New Ground- aimed at achieving urban restructuring and economic growth (DoH, 1994; NDHS, 2011). This aim was to reverse the past delivery housing patterns which disregarded the socio-economic consequences of developing on the peripheries (ibid). However, due to the common practice of developing on the peripheries still being carried out, a great emphasis is placed on creating socio-economic opportunities within housing developments rather than relying on the major CBDs (Johannesburg, Sandton etc) as the only source. During the May 2012 budget speech, former Minister of Human Settlements, Tokyo Sexwale said:

> *"The Human Settlements sector in South Africa remains one of the most challenging areas in these social and economic environments. This mirrors worldwide trends as population explosions continue to create an increasing demand within the property market for well-located land and housing" (SHRA, 2012).*

This statement impacts greatly on the housing condition of South Africa by emphasizing the need for further innovation within the housing delivery process. It also places efforts of the South African government in context to the global arena in terms of urbanisation. In terms of housing development we find that the country is in an urgent state of renewed effort in providing a spatially inclusive city. According to Adebayo (2010), national housing policy is meant to adhere to the nation's main goal of urban restructuring and creating more inclusive and compact cities. Due to the political nature of the country, many of the interventions are informed by the political arena to a greater extent than the policies themselves (Donaldson, 2001). In agreement to this, Todes (2011, 125: 11) states that "integration requires dealing with discursive and political processes, involving argument and persuasion, but also an understanding of institutions and power within these contexts" since "The political pressure to change ideas may not be present, or may not translate in any automatic way into changes within the institution and its practices". From this it can be seen that the emphasis is placed more greatly on the political agenda instead of the creation of sustainable settlements. Supplementary to the Housing White Paper and Breaking New Ground policies, are spatial strategies which carry out the aims and objectives of the policies. The Urban Development Strategy (RSA, 1995a) and the Urban Development Framework (UDF) (see Department of Housing, 2000, Chapter 3, section 3.7) are examples of these strategies which are used to carry out the BNG policy objectives. Both of these documents envision South African settlements that are:

- Spatially, racially and socio-economically integrated;
- Economically sustainable;
- Democratically governed with participatory planning as a key ingredient;
- Environmentally sustainable; and
- Adequately financed through public sector budgets and public-private sector partnerships (ibid).

The UDF further identifies four key programmes for the realization of this vision. These are:

- Integrating the city (undoing the legacy of apartheid planning);
- Improving housing and infrastructure with a view towards sustainable communities;
- Promoting housing and infrastructure with a view towards sustainable communities;
- Promoting urban economic development; and
- Creating institutions for delivery (ibid).

All of these strategies are aimed at creating human settlements as a means of reconstruction and development. Since these documents are key guides that will aid in achieving positive outcomes in the reconstruction and development of South African cities, they need to be better understood by professionals and citizens alike. These frameworks should be used as a means of regulation which would help in overcoming some of the problems facing the city like sprawl.

In this respect one would argue that the RDP houses being delivered resemble those of the apartheid city (Huchzermeyer, 2003). Due to the location of housing projects on the peripheries of urban areas, one sees that the spatial tendencies reinforce practices of the past apartheid government (Harrison et al. 2003). This also has a major impact on the current government and its plans for redistribution and restructuring. Turok (2001:2369), is of the opinion that "Sprawling development on the urban periphery may also impose excessive operating costs on public authority services in the years to come." This owing to the recurring service delivery protests displayed in the country. Along with this is the factor of economic growth and development. Since these developments are used as an empowerment mechanism, people are left with the dilemma of choosing between gaining a state funded house away from the city and job opportunities, or renting closer to the city and being afforded with a higher chance of gaining employment (Tomlinson, 1999). This should not be the case since policies are aimed at individual growth for all meaning that the empowerment factor is solely the state funded house and there is no provisioning made for further economic development for the residents of these RDP housing townships (ibid). Hence most of these residents are left in a similar position as being housed in a shack settlement on the urban periphery. Without an appropriate public transport system, these residents of the peripheries use a bulk of their earnings on transport costs (Cross, 2006). However, prominent research institutions like the United Nations Habitat and CSIR have been looking into the idea of densification in recent years as a solution to urban and environmental problems. This densification plan should encompass a public transport plan that would service these townships (ibid). In so doing, the government will be able to locate houses in different areas of the city, yet people will have ease of access to different opportunities.

Further to the daunting task of providing large numbers of housing, with economic development taken into account, the government also faces a problem regarding norms and standards of the overall development (Charlton, 2003). These norms and standards are related to housing sizes, plot sizes, building material quality and construction quality (Public Service Commission, 2003). In certain

provinces these norms and standards were put into place since they were not taken into account by the White paper on housing (ibid). However, at a later stage of the policy development process, some guidelines were set. This caused a further problem since certain guidelines became too strict which made developers and construction companies unwilling to take on housing projects (ibid).

With a lack of infrastructure and amenities (schools, parks, community centres), people feel no differently to living in a shack settlement, even though housing is supposed to be empowering to them (Donaldson, 2001). The relevant policies encompass a holistic view of the interventions that should be carried out. This would include political, economic, social, environmental and built environment perspectives. However, the emphasis on policy creation over implementation has proven that the problems facing the city are still prevalent, which is apparent in the housing backlog statistics (Tissington and Dugard, 2013). The quality and quantity of housing delivered is questionable and along with this, many feel that these housing developments resemble those of the apartheid city. Efforts to overcome housing issues, from the state as well as the private sector are important, as pointed out in the Breaking New Ground Policy (1994). As noted by Tomlinson (1999: 291), "while interviews with local government housing implementers revealed a willingness, if not an eagerness, to provide low cost housing, the councils were hesitating, as they began considering its likely impact on their financial health." pointing out that there is definitely a gap between public private partnerships in this city. The statement also makes reference to the relationship between local, provincial and national departments. By municipalities being unable to fund major housing developments, they are incapable of making changes at a local level. The other spheres of government need to budget these projects for local municipalities and allow for development to take place. This matter of cooperative governance is a major issue which is also addressed in the breaking new ground policy.

The creation of Sustainable Human Settlements has deemed to be a strategy which the city of Johannesburg fails to implement (Tissington and Dugard, 2013). It is apparent that there is no model or universal answer for creating a sustainable African city (Donaldson, 2001). However, the means by which these issues should be overcome are through the spatial interventions carrying out the aims and objectives of policies (RSDF, 2010). These policies and interventions should look at ways in which they can embrace and overcome the issues created by the apartheid city's landscape and include new developments as a means of integration and creating a unique identity. As mentioned by Donaldson (2001, 7): "The issue is not density, but design, the quality of place, its scale, mix, and

connections". This shows the importance of creating spaces and places that would be conducive to the local context. It will also signify a complete shift from the labels of apartheid city or post-apartheid city. With this, many of the stereotypes of places will also be foregone, which gives people the confidence in creating opportunities in their immediate surroundings instead of perceiving these opportunities to be exclusive to certain areas (Donaldson, 2001). Due to the concentration of development and urban amenities in the northern areas of Johannesburg, the former township dwellers now also have an opportunity of creating this growth in their areas. With empowerment funds available to communities, the avenues are accessible in terms of economic and social growth. These opportunities of growth are what determine the overall development within these areas over a period of time. According to the National Spatial Development Perspective (NSDP) of 2003, government feels that places with potential should, in fact, receive funding for infrastructure investment (investment in places) (NSDP, The Presidency, 2003). This shows the importance of improving areas that already exist.

The location of human settlements should not be a means of hindering sustainable livelihoods and therefore these developments should include opportunities for residents. The National Spatial Development Perspective (NSDP) suggests that in areas that lack economic potential, the focus of government expenditure should be on people and not places (NSDP; The Presidency, 2003).This factor is important within this research report. The reason is that in many cases of housing development in South Africa, residents are seen to be marginalized by being located on peripheries of the city. However, the creation of sustainable human settlements should be inclusive of all basic necessities like shelter, education, services and socio-economic opportunities. Housing delivery has not been categorized in terms of the NSDP and is regarded as economic infrastructure or basic infrastructure (NSDP, The Presidency, 2003). This can either be seen as something that is a downfall or it could be thought off in a manner that emphasizes the importance of infrastructure and investment in areas. By granting residents these basic services through the relevant infrastructure development, these housing developments will be off greater value than low quality unserviced developments.

The creation of integrated housing developments is a way in which citizens are provided for through the localization of services, opportunities and amenities. This localization is the access to services, amenities and opportunities within the development itself. The Local Government: Municipal Systems Act of 2000 is another important document which emphasizes integrated development

(RSA, 2000). This document points out the importance of integrated development plans which are to be prepared by municipalities which should take into account all the developments in the municipal boundary for a 5 year period (ibid). Furthermore as pointed out above in the 2012 budget speech, South Africa has to look at ways to create a relationship between the social and economic environment. This research operates under the assumption that through the implementation of Integrated Housing Developments, the housing policies Sustainable Human Settlement objectives will be achieved. The research report will give an understanding of Sustainable Human Settlements by means of the literature review. Thereafter, the case study will be used to understand what an Integrated Housing Development is.

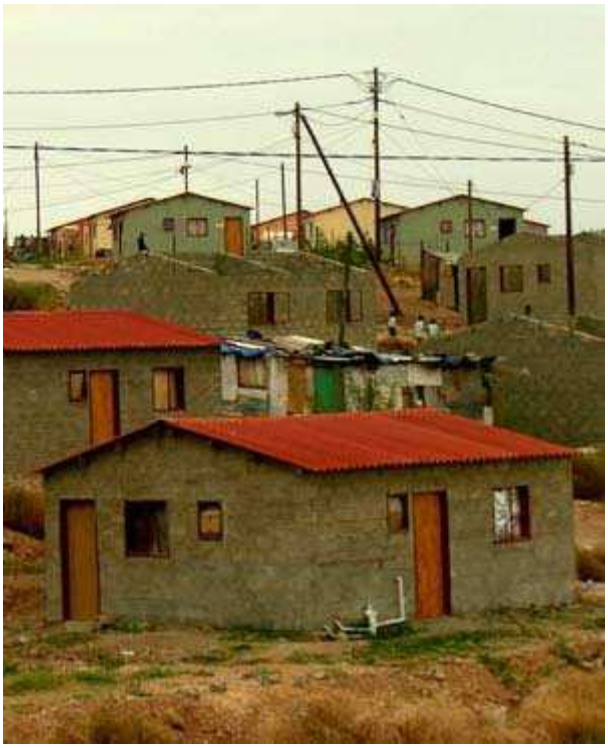

Image 1: *an example of a typical RDP house within a township (Source: News24, 2013).*

Problem Statement

> *"Any city, however small is in fact divided into two, one the city of the poor, the other of the rich: these are at war with one another, and in either there are many smaller divisions, and you would be altogether beside the mark if you treated all as a single state"(Plato, Republic IV: 423A).*

Given the history of Johannesburg and current (?)national housing policies, one would notice that there have been multiple efforts toward creating an inclusive city. Through the implementation of the Reconstruction and Development Programme, people have been given a chance at creating

viable livelihoods (Wessels, 1999). However the delivery of housing is still a deep seated issue in the country on a whole. Housing backlogs are still increasing and the authorities cannot provide sustainable housing options for people. This is a problem that stems from the apartheid policies having taken into account the principles of modernist planning, based on the philosophy of progress, belief in the power of rationality to overcome spatial chaos and disorder, and the conviction taken in control exercised by the state within all levels of society; in order to create a homogenous public (Donaldson, 2001:1). These deep seated philosophies have imprinted on the character of the Johannesburg spatial pattern which categorizes settlements into nine different tiers (DoH, 1994).

The White Paper on Local Government (1994) mentions these settlement categories as:

- Urban core
- Urban fringe
- Small towns
- Dense rural settlements
- 'Betterment' settlements
- Informal settlements
- Villages
- Agri-villages
- Dispersed or scattered settlements

These different categories all have different manners in which they function. Along with the functionality of each area, the tenure systems, and socio-economic conditions all vary in character from each other (Donaldson, 2001). Based on this, the RDP paved the way forward to create a means of overcoming these differences. Along with this, there have been other policies which were created supplementary to the RDP, like BNG and the Housing White paper which were focused on carrying out the objectives of reconstruction and development (Wessels, 1999). These policies looked at ways of allowing people access to opportunities which they never had. However, to date the problems of restructuring and development persist. As mentioned above, people feel the need to have access to sustainable settlements in order for their livelihoods to change.

Along with the problems of restructuring and urban integration, there are problems of poor market values and an increase in living costs, which contribute to increasing segregation, poverty and environmental degradation (Irurah and Boshoff, 2003). These problems of environmental degradation and a lack of sustainable development have been addressed at an early stage of South African democracy (ibid). During the mid 90s these issues were dealt with on an international scale through Local Agenda 21 and Habitat Agenda (UNCHS, 1996). However, in the case of South Africa, the translation from policy and legislation to implementation has been unsystematic by the spheres of government (Irurah and Boshoff, 2003). From this it is apparent that there is a need for change in terms of the housing arena in South Africa. As part of the solution to the problems, one needs to look at other projects within the country as a means of overcoming them. In order to do this the research report will look at a case study within Johannesburg. The case study is a housing development that has shown the development sector that housing delivery in terms of the BNG policy is possible. For a greater understanding of this, the case study will be presented at a later stage of the research; however as part of the problem statement it plays a major role in explaining how housing issues can be overcome.

Linking the Case Study to the Problem Statement

The Fleurhof Integrated Housing Development was implemented in 2009. This area is situated between Soweto Township and Florida suburb. It is an infill development in the sense that it integrates these two areas which have different economic and social backgrounds. It is also considered as an infill site since it is built on an area that was previously categorized as mining land which was large barren land which separated the different areas. The Fleurhof development encompasses a range of land uses such as residential, recreational, social, municipal, educational, and economic, among others. This is significant since this mix of land use deems the development as a mixed use development. These mixed uses complement the residents of the development since they are situated in walking distances from their residences. Along with these mixed uses are a range of tenure types. These mixed tenures suit earning categories of; R0-R1500 p/m as the entrance category, and R7500- R10 000 p/m as the highest earning group, which allows varying income group to secure a rental unit. Units are also available on mortgage as sectional title or free-standings. The mixed tenure development allows for social interaction to take place between different groups since they are living in the same area. Along with this residents also contribute to a rates base which becomes sustainable for the area over time. This localization of uses, services, amenities and

opportunities create a platform for the creation of sustainable human settlements which is emphasized in the Breaking New Ground Policy.

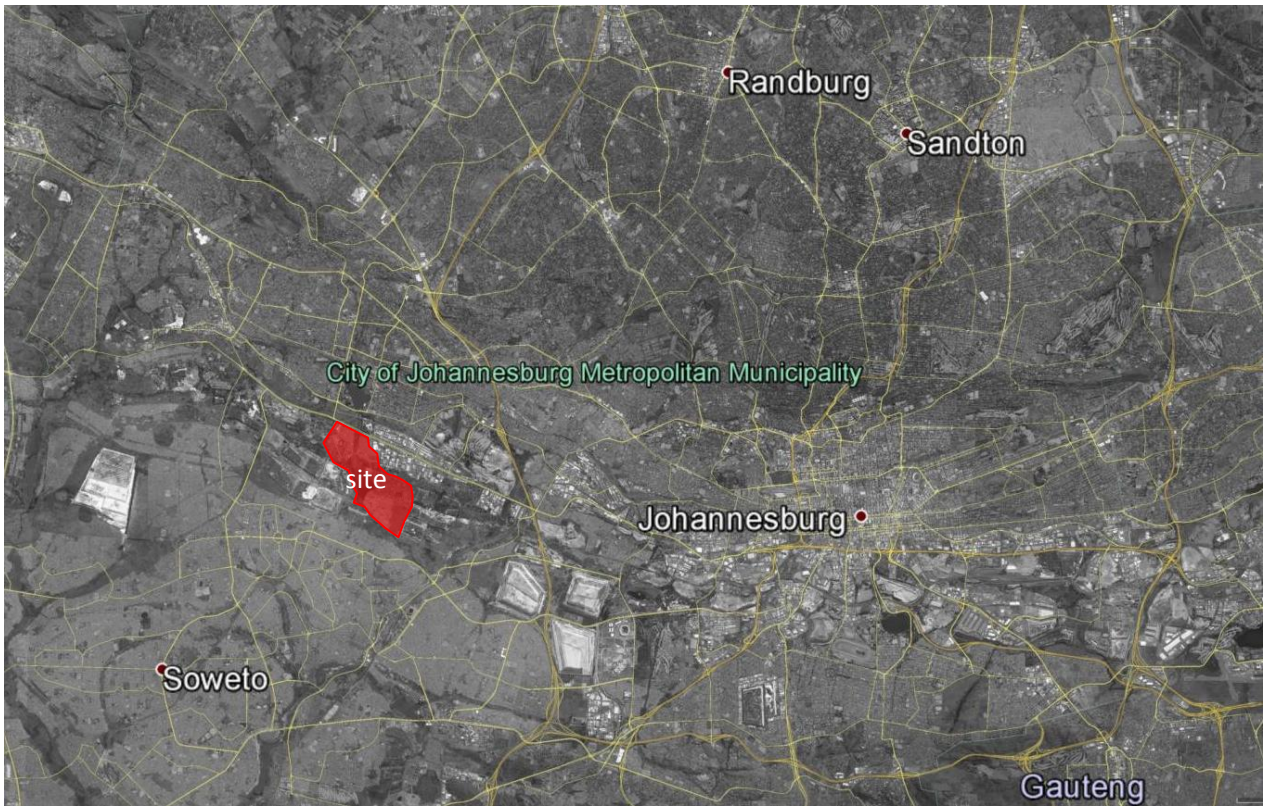

Image 2: *Locating the site within Johannesburg (Source: adapted from CoJ, 2009).*

Research Methods

Information Needed

The objective of this study is to determine whether the BNG housing policy has been effective in creating Sustainable Human Settlements, and what value Integrated Housing Developments would add to achieving the housing policy objectives. For this purpose, it is important to gain an understanding or greater insight into housing policies and their implementation process. The evolution of housing policy is also important since this encompasses the process by which housing policy and delivery is adapted to current day circumstances. This phase of the research will be important in forming an understanding of housing delivery in South Africa and its problems. It will

also shed some light on the current condition of state funded housing projects, in comparison to integrated housing developments.

In order to understand this, the research report will be a means of connecting the concepts on housing in S.A and abroad, to the data collected from the case study area. Through the methods carried out for the research report, the author is able to answer the research question. Hence this section of the research report is very significant in giving the reader a holistic understanding on policies as well as the reality.

Types of research and Data Needed

To begin one needs to understand the reason behind carrying out research. The need for research to take place on a constant basis is to give clarity to concepts as well as evolve with changing circumstances. More importantly changing circumstances are analyzed so as to maintain a balance between science and reality. Hence we are faced with the question:

> What is research? Depending on who you ask, you will likely get very different answers to this seemingly innocuous question…. Television news channels supposedly conduct research in the form of viewer polls on topics of public interest such as forthcoming elections or government-funded projects…. Graduate students working on research projects for a professor may see research as collecting or analyzing data related to their project…. However, none of the above can be considered 'scientific research' unless: (1) it contributes to a body of science, and (2) it follows the scientific method" (Bhattarjee, 2012:4).

In carrying out the research report one should be cognizant of the fact that all information is of value and may add to a larger body of knowledge. This body of knowledge can be said to be scientific knowledge taking into account the abovementioned. Scientific knowledge is thus a: body of laws which are observed patterns or behaviours, and theories which are explanations of those phenomena or behaviour (ibid). Since theories explain phenomena or behaviour we see that it is important to observe, question and study these behaviours in order to build on theories hence building on scientific knowledge. In doing so, we are able to gain a greater understanding on what are the problems that we are facing (observation) and how to solve it (theory). To do this the first method of research that would be employed is the literature review. According to Bhattarjee (2012), the purpose of the literature review is to:

- survey the current state of knowledge in the area of inquiry,

- identify key authors, articles, theories, and findings in that area,
- identify gaps in knowledge in that research area.

Since the research would be largely informed by the concepts within the literature review, it will be impacted by theories. These theories are what help in coming up with solutions to problems. The theories that are used are taken from international and South African literature. The research report will initially slant toward exploratory research and become more explanatory in later chapters. Exploratory research is carried out within new areas of enquiry (ibid). These new areas of enquiry are the concepts and theories spoken about in the literature review. Since the literature review is based on concepts and theories taken from housing policies, the explanatory research would be recommending solutions as well as ideas toward solving some of Johannesburg's housing problems. In doing so, the research would follow an inductive strategy (ibid). Employing this strategy would mean that the research report is an effort toward adding to current research or theory building. The theory building will also help in creating a larger body of knowledge within the local context.

The type of research being carried out would be a qualitative research study since interviews will be conducted, a case study will be used, and a literature review will be written. Qualitative research is a mode of enquiry into social structures, interactions, or processes by employing observational, interpretive and naturalistic approaches (Bhattarjee, 2012). This is since qualitative researchers believe that social reality is embedded within and cannot be extracted from their social settings (ibid).

Interviews will be conducted in order to understand this social reality. However, many researchers find it difficult to gain information since they are focused on the wrong role players. In order to overcome this problem purposive sampling is used which is also synonymous to qualitative research (Pallys, 2008). This method of sampling allows the researcher to select interview respondents at different organizational levels (Creswell, 2009). Interviewees would comprise City of Joburg officials (Development Planning and Urban Management), Rental Housing agencies (Social Housing Regulatory Authority), Developers (CalgroM3, town planners, urban designers, architects, engineers). The interviews will be based on a semi structured questionnaire. This form of questionnaire is partly an open ended questionnaire that may generate unexpected insights not otherwise possible with a structured/directed questionnaire (ibid). It allows the researcher to gain a greater insight into the area of study. It also allows the researcher to phrase questions in a way that

people would understand more easily. This would give the researcher a greater description or rich narrative of the participants' opinion on the subject matter. Since this form of questionnaire is more open it allows the researcher to investigate further as new ideas are brought up by respondents. In this way, by drawing up basic questionnaires, one is able to gain as much information from each respondent regarding the themes being researched.

Along with this method of enquiry, a secondary study- Fleurhof Household Study- will be used to gain information about residents of the case study area. A business study was done, by a company called Urban Studies, during this year (2014) in the case study area. This study was used to enquire about Fleurhof's current residents opinions on the area as well as future opportunities for business development in the area. In terms of the research, the area of enquiry is whether integrated housing developments can be considered sustainable human settlements. These developments should consist of housing as a basic means of empowerment, as well as other avenues of opportunity or betterment of citizen's lives. Hence the study focuses on people's opinions which are their impression of their residence, which is based on levels of services, demographic information and overall thoughts on the development amongst others. The Fleurhof Household Study also assesses whether business opportunities are accessible in the area meaning that there could be opportunities for economic development within the area, and for residents. Therefore the use of the secondary study will add great value to the research report.

A case study of Fleurhof Integrated Housing Development, Johannesburg, will be used. The researcher's personal experience on the project allows for all the details of the development to be available for the research. During 2012-2013 the researcher was employed by the developer as a consulting town planner. The position required that the town planner be involved in all development projects the company was involved in. Due to this, practical experience on the project allows further insight into the development process as well as the overall management of the project.

Pictures, drawings, maps and plans will also make up a large proportion of the case study. These graphic aids will give the reader a different perspective on the development as well as the relation between differing land uses, amenities and services. The case study will also play a vital role in understanding the concepts spoken about in the literature review. Each concept will tie to elements within the case study area, which will allow the reader to gain a visual example of the concept. This

form of research would be classified as inductive, since it would be analysing evidence collected and synthesizing this information to allow for patterns to emerge that would build on existing theories (Bhattarjee, 2012). Thus, the type of case study would be an instrumental case study. An instrumental case study is used to inquire into a social issue or refine a theory, where results have a wider application beyond the study itself (Sarantakos, 2005). Yin (1994: 13) also states that a case study allows an investigation to maintain a 'holistic and meaningful characteristic' of real life events. The importance of the case study in this research is to allow the reader to find a link between the policy frameworks, conceptual frameworks and reality. Reality in this sense refers to the current circumstances. This would allow an understanding as to where the problem lies in the housing sector of Johannesburg. It would also show how the theoretical background of planning can help in alleviating these problems.

Empirical data will also be used to determine features within the development that enhance the socio-economic conditions of the development. These features will be things like amenities, services, land values, rates and tax base, and number of units. All of these play a major role in creating Sustainable Human Settlements, since they add to the overall experience of the user. Urban design frameworks for developments suggest ways of increasing user-friendly environments. Hence the Urban design framework would help understand how the relation of these elements within the township helps create an integrated development.

Limitations

The research method being carried out involves meeting stakeholders from different sectors of the housing arena. This process consumes a large amount of time since interviews need to be set up, stakeholders need to agree and have time to meet. Along with this, many of them are unable to meet since they do not have time, making interviews impossible. In the case of departments being situated far from each other, interviews cannot be set up with a short space between. In many cases, the key stakeholders are in higher positions making it impossible to set up an interview. Communicating via email does not always promise a response. Some respondents feel that the research might expose their views and opinions, even with the use of a confidentiality agreement, hence do not agree to meet. Due to researchers having to meet respondents in their personal environments, this also poses a threat to the researcher. All of these factors impact the research findings to an extent since it leaves out opinions which are vital. Along with this is the problem that a

large amount of data cannot be procured since these are not available to the public, or people who can access the data are not willing to do so.

Ethical Considerations (University Guidelines)

- Ethical considerations that will apply to this research play a vital role
- The informants will be protected at all times by allowing the interview to take place in their surroundings
- Aims of the research will be communicated to informants
- Informants will be given the right to remain anonymous
- Monitoring devices (voice recorder) will be used if the informants accept this.
- The privacy of informants will be respected at all times
- No information gained from informants will be used in any other report

Research Question

Could Integrated Housing Developments on infill sites aid in creating Sustainable Human Settlements?

A case study of Fleurhof, Johannesburg

Sub-questions

- What are Integrated Housing Developments?
- How do Integrated Housing Developments adhere to objectives of sustainable human settlements?
- What are infill sites?
- What are the challenges of developing on an infill site?
- What are the Sustainable Human Settlements?

- How do the spheres of sustainability impact on creating Sustainable Human Settlements?
- How do Sustainable Human Settlements aid in the housing delivery problems of Johannesburg?
- What implications do urban design principles have on the creation of Sustainable Human Settlements?

CHAPTER 2

Literature Review

Literature Review

The 1994 Housing White Paper states that:

> "The geographic segmentation of living areas according to race and class, urban sprawl, and disparate levels of service provision and access to amenities in different areas make South Africa's cities very inequitable; inefficient and relatively expensive to manage and maintain" (DoH, 1994:11).

Issues of socio-spatial justice and the compact city are intertwined with post apartheid housing policy. As stated by the Housing White Paper (1994), the problem of sprawl among South African cities is one of the leading contributors to current issues of housing backlogs, lack of infrastructure and amenities and social ills. With these problems still persisting, housing policies focus is on urban compaction which would include all of these lacking elements. According to the Department of Housing:

> "The country's extremely wasteful approach to land will have to change, allowing for higher densities and innovation in its use. A different approach to land use not only promises the possibility of social cohesion, but can also have a dramatic and beneficial impact on costs and the efficiency of other resource utilization such as energy and water" (DoH, 1994: 13).

The above statements show the need for innovation in South African cities within the development arena. This innovation should be addressing the objectives pointed out in housing policies. However, we see that this is not always the case; hence issues facing the country still prevail. Initiatives like the Urban Development Framework (UDF) emphasized the need for development of housing in better located areas (DoH, 1997). According to Adebayo (2010: 3), it was understood that the UDF would produce housing that "would be developed on underutilized or vacant land in the inner city or on buffer zones, while informal settlements in good locations would be legalized and upgraded". Another key document that was also of influence in prior years, which has been repealed, is the Development Facilitation Act of 1995. This document speaks about the general principles for land development which discourages low-density, segregated, fragmented and mono-functional urban development in favor of compact, integrated and mixed-use settlements (Irurah and Boshoff, 2003). Along with this; "Demand for well-located accommodation may also mean that the household can experience the value of their shack as a financial asset that can be traded" which gave people the

hope that their household is off value in any nature or location (Rust et al. 2009: 53). Policy initiatives show the importance of housing in promoting socio-economic development/growth. However, the introduction of the subsequent BNG policy in 2004 aimed to provide housing which was integrated and constituted what would be seen as sustainable human settlements (NDHS, 2004). This shift in emphasis on sustainable human settlements was to allow for development to take place in a way that allows people to carry out their daily activities within a short radius.

The research will look at Sustainable Human Settlements and how the objectives of this policy will help Johannesburg become a more inclusive city. "Inclusive" means that all citizens are afforded the access to services, amenities and socio-economic opportunities (Mokoena and Marais, 2007). The aim of these sustainable settlements is to create sustainable livelihoods for all; hence the literature review will focus on concepts that aid in the creation of these settlements. The research will also touch on topics like cooperative governance and how the evaluation and implementation of housing policies should receive greater attention by local municipalities (ibid). Within the development spectrum there are many disciplines (planners, architects, engineers) and stakeholders (government, NGOs, private sector) that play a major role in creating human settlements. All of these individuals need to form a manner in which they can collaborate on projects as well as a means by which the processes and applications are carried out so as to abide by the law and also uphold the professional integrity.

This section of the research report will also look at best practices within planning. Healey (2004; 47) defines planning to be "a self-conscious collective (societal) effort to imagine or re-imagine a town, city, region or wider territory and to translate the result into priorities for area investment, conservation measures, new or upgraded areas of settlement, strategic infrastructure investments and principles of land use regulation." pointing out the importance of the planner as the responsible individual that will carry out his/her work in a way that will allow for each of these elements to be accounted for. This is since the planner is responsible for development which encompasses the social, political, economical and environmental agendas. These different spheres are interrelated meaning that each factor has an effect on the other (Dewar, 2000). In South Africa it can be said that the major environmental and social problems stem from the structure and urban form of the cities and currently urban development is entirely unsustainable (ibid). Dewar (2000) also goes on further to state that "compaction is essential" to South African cities and this compaction should be achieved through "directed residential infill" which will add to "positive structural change". As

mentioned above, the research report will look at housing policies particularly Breaking New ground (2004), as well as point out emerging new approaches and thinking across the world in order to understand sustainable human settlements.

Sustainable Human Settlements

By looking at the problems facing the South African nation in terms of housing, one sees the importance of adapting policies to current day scenarios. These everyday scenarios are important within the housing arena since it accounts for the changes as well as current behavioural patterns of citizens. Along with this, it is important to take into account contemporary forms of development which are not harmful to the environment and make amends in terms of the settlement design and construction materials being used. To understand how these elements all play an important role in the housing arena, one has to look at Sustainable Human Settlements and how this will impact housing delivery. In terms of Sustainable Human Settlements, this topic will be viewed in light of the BNG policy of 2004 from a South African perspective, taking into account global literature done on the topic to gain an understanding of the underlying concepts. To do so, we see that the definition for sustainable human settlements, according to the Department of Housing is defined as;

> "well-managed 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 result in sustainable development, wealth creation, poverty alleviation and equity"(NDHS, 2004).

Sustainable human settlements are those developments that do not burden the natural systems they rely on for resources. These developments meet the needs of the present residents without compromising the needs of future generations (WCED, 1987). At the same time, the objective of sustainable developments also aims at creating equity and enhancing opportunities for citizens/residents (NDHS, 2004). Other proponents also suggest that sustainable development 'must be of a form and scale appropriate to walking, cycling and efficient public transport, and with a compactness that encourages social interactions' (Elkin et al. 1991: 12). With the emergence of sustainability and sustainable development, many concepts such as compact versus sprawl, ecological versus non-ecological and just versus unjust cities have revealed that the sustainable paradigm has been shifting and evolving over time (Irurah and Boshoff, 2003). Thus, extrapolating the emphasis of sustainability on a whole in order to benefit the current and future residents. The

City of Joburg (2010: 22) aims at achieving a city that contains "healthier, wealthier and secure households and communities in environmentally responsive, socio-culturally and economically integrated housing and habitats within a resource- and environment conserving city". The concept of sustainability has also taken precedent since the 1990s in the built environment (Irurah and Boshoff, 2003). Within architecture, construction, urban design and urban planning the sustainability paradigm is used to shape quality standards (ibid). These standards relate to the development of new settlements as well as revitalizing and renewal of older developments, hence proving furthermore the importance of sustainability within the development arena.

These are important objectives when developing areas that allow localised growth on a micro-economic level. The emphasis on promoting sustainability on a micro level is since sustainable development is encompassed within livability (Godschalk, 2004). Livability is the everyday physical environment, which accounts for socio-economic and environment, in order to create a sense of 'place' (ibid). This means that within this arena of livability; sustainable development principles, public space, building design, and movement systems; are all accounted for in the creation of 'place'. By viewing development in this manner, the city will also be able to create a clear distinction between different spheres of government. This is since livability recognizes scale as a factor which is important in contextualizing interventions (ibid). It is also of major importance to consider the users sense of place since these are areas of exchange where they feel safe and comfortable. These feelings are created by the space which is a physical environment; hence urban design plays an important role in this. Lozano (1990: 5) further states that "Cities are civilization; the word 'civilization' – related to the Latin civilitas, civis, and civitas –refers to culture of cities, places where a heterogenous mixture of people are concentrated in clusters of meaningful size to exchange – exchange goods, services, and ideas" which then ties the physical with the emotional. This relationship is what is important to understand in the creation of space. Through this constant exchange between different individuals, societies and communities are formed. These communities are also greatly emphasized in housing policies since they add to the overall sustainability of the settlement (NDHS, 2004). This exchange appeals largely to the social and economic factors within the community.

In South Africa sustainability is poorly promoted in planning despite policy emphasizing sustainable practice (Todes, 2011). According to the National Housing Vision, housing is defined as "a variety of processes through which habitable, stable and sustainable public and private residential

environments are created for viable households and communities" (DoH, 1994: 19). This statement shows the intent of housing policy in the country and its aim of achieving sustainable livable spaces for residents. However, as mentioned above, sustainability is poorly promoted which creates a gap between the aim and what is delivered on the ground. This also leaves many citizens disgruntled due to them seeing this gap as false promises. Once again this is owing to the lack of communication and integration between the different spheres of government.

In terms of BNG, it is important to create an arena of cooperative governance where all tiers and departments of government are able to work together in overcoming problems (NDHS, 2004). In the current context of Johannesburg, the Department of Environmental Management has emerged as a parallel institution to planning showing a clear divide in the planning spectrum (Todes et al. 2009). This then leads to differing legislations, as well as differing development applications which shows the separation of functions between departments. These separations are not always a positive factor since they cause top down development interventions and also decrease private involvement (ibid). Along with this is the apparent divide between spheres of government which means that certain applications dealing with the development process are handled by national government (eg. environmental authorization-Environmental Impact Assessment/Record of Decision) and certain applications are the responsibility of the municipality (eg. Township Establishment). By dividing these responsibilities the development that takes place in the municipal area are not always aimed at overcoming context specific issues. Contextualizing these issues would mean that principles of participatory planning are taken into account which allows people to voice their opinions with regards to housing delivery. This would also empower local governments in the delivery process since their in situ studies will indicate the problems facing the municipalities. It will also help in creating a platform for employment opportunities within municipalities.

Small medium and micro enterprises are a means of giving private developers a chance at creating employment for themselves and other members of the community. With the use of local labour, developments are built with a sense of ownership which makes residents active within the township in terms of maintenance and future upgrading. Along with this active involvement, residents also pursue a better lifestyle in terms of work, live and play within their townships since they are aware of the efforts put in, in-order to attain the housing opportunities available to them. By granting local residents this chance of involving themselves in the design and construction process, they are also given a chance of building up reputable references in order to gain employment at a later stage. Public sector involvement is a crucial factor in creating sustainable settlements since it forms a basis upon which social, economic and environmental relations are produced (Irurah and Boshoff, 2003).

Stakeholders of the public sector are also important role players in terms of finance and capacity. In most instances, state funded developments face problems of lack of funding and capacity (ibid). By involving public stakeholders, certain role players are able to boost the financing of developments which also decreases the burden of the government.

As part of the development of sustainable settlements, it should be emphasized that physical solutions alone will not solve socio- economic problems (Godschalk, 2004). This process would require a strategic framework that encompasses present and future developments within municipalities. Hence, by empowering people to participate as well as allowing local governments to initiate change, development will be context specific and will also give people a sense of ownership and responsibility (NDHS, 2004). This is a means of creating communities that are integrated and give residents an incentive in creating further opportunities in their immediate surrounds. Due to the disparities of rich and poor, racial segregation and spatial injustices in Johannesburg, the BNG policy looks at ways that would empower people, as well as create livable environments for them (NDHS, 2004). Looking at international literature, within the sustainable development paradigm, wealthy developed countries need to look at ways of curbing or inhibiting over production and over consumption and redistribution of resources to the minority poor (Condon, 2010). For developing countries, like South Africa, the aim should be to stabilize population growth and grant economic stability and sustainability to the urban poor while also stabilizing over consumption by the wealthy (ibid). In doing so, there will be a shift toward more equitable development which is currently one of the largest contributors to segregation in the country. This would be the foundation for creating sustainable housing developments.

De Soto (2001) argues that the poor are poor due to a lack of access to assets that can be collateralized in order to access finance to eventually increase their wealth. To broaden the understanding of housing as an asset, a successful housing intervention can do much to reduce poverty. It can dramatically improve health, increase income, greatly expand a low income household's asset base and improve security (ibid). The over-emphasis on overcoming the backlogs and shortages of housing has left the city blindsided by the fact that majority of the houses delivered are of inferior quality and not ideally located (Donaldson, 2001). This takes away the value of these initiatives which are fundamentally sound and relevant (NDHS, 2004). In order to better understand this, the objectives of creating Sustainable Human Settlements are;

- Accelerating the delivery of housing as a key strategy for poverty alleviation
- Utilizing provision of housing as a major job creation strategy
- Ensuring property can be accessed by all as an asset for wealth creation and empowerment
- Leveraging growth in the economy
- Combating crime, promoting social cohesion and improving quality of life for the poor
- Supporting the functioning of the entire single residential property market to reduce duality within the sector by breaking the barriers between the first economy residential property boom and the second economy slump.
- Utilizing housing as an instrument for the development of sustainable human settlements, in support of spatial restructuring (ibid).

These objectives point out the intentions conveyed by the BNG policy. It is imperative to note that the objectives are more greatly focused at enhancing livelihoods with the actual delivery of housing as the means by which this enhancement takes place. The abovementioned objectives also account for general issues facing the country and its population. Since crime is a major issue in the city, the emphasis on creating close knit communities and greater social cohesion, shows that from a micro level this problem can be overcome. In the same respect many of the previously mentioned problems (apartheid, homelessness, poverty, etc) are accounted for in the policy objectives.

Along with these objectives, one has to ascertain the principles of sustainable living. As Hall and Pfeiffer (2000: 278) state from an international perspective: 'the key assumption is that sustainable living must be based on urban areas, as high levels of accessibility and proximity can only be maintained there. This means that people should be living in settlements that are of a sufficient size (some experts suggest 20000, others 50000) so that the full range of facilities can be provided within walking, cycling or public transport distance (less than 5 kilometres). These settlements should be at a medium density (at least 40 persons per hectare), and should have mixed land uses and high levels of accessibility to public transport network (for interurban travel).The constraints concern the framework within which transport policy option can be placed. Most of them require a strong planning system at the city and regional levels that will direct development to achieve larger, higher-density, mixed-land use and accessible cities'. The emphasis in this statement is that sustainable

living should comprise settlements that are people centered and allow for overall change, not just physical changes. It mentions the clear definition of roles of governance and the major role the regulatory bodies play in future development. Along with this one sees that this definition also draws on the compact city ideal. The definition also creates a platform upon which the research report will look at sustainable human settlements. In doing this it is imperative to introduce the mechanisms by which housing delivery should take place in context to Breaking New Ground. These mechanisms are;

- Progressively eradicating informal settlements
- Promoting densification and integration
- Enhancing spatial planning and the location of new projects
- Supporting urban renewal and inner city regeneration
- Developing social and economic infrastructure (NDHS, 2004).

South African cities currently face a problem regarding the eradication of informal settlements. Many programmes and policies have been put into place to overcome this issue, however shack settlements have proven to be resilient. Reason being is that they are never eradicated and in some instances they are upgraded with necessary access to services like water and sewerage. Prominent researchers in South Africa also believe that informal settlements will not be eradicated since they offer an alternative to the homeless poor (Mokoena and Marais, 2007; Charlton, 2003; Charlton and Kihato, 2006). The major problem with informal settlements is the matter of ownership. Researchers like Charlton (2003) believe that this emphasis on ownership is one dimensional and in need of innovation. In the context of Johannesburg, informal residents choose this method of residence since they are offered a place to stay close to work which is much cheaper than formal residence (rental- R50-100p/m). Even though they are not afforded the best tenure arrangement, they are willing to live in these circumstances given that they are residing close to work and schools. Over time these residents then gain work experience and education which opens up other avenues of growth thereby allowing them to secure a formal housing alternative. In the same manner integrated housing developments allow people a threshold of growth where they can later change their tenure arrangements due to personal economic growth. Within sustainability economic growth is very important since it is related to the individual growth of each resident. The factor of

economic sustainability will be looked at further to understand how this can affect those living within sustainable developments.

With the increased importance of Local Economic Development (LED) in recent years, planners have shifted their focus away from understanding economies in relation to spatial planning (Todes, 2011). Economic sustainability and the understanding of economies in a spatial sense are of utmost importance since this is the direct link to economic empowerment and redistribution of resources. The need for economic sustainability arises out of the need for the constant functioning of the economic system (Irurah and Boshoff, 2003). This sustenance of the economic system is based on the flow of goods and services essential for everyday use which has to take place in order to produce wealth (ibid). In the South African context the spatial distribution of economies has been said to be simplistic due to the use of concepts like nodes and corridors which make assumptions about the relationship between economic activity and spatial organization (Todes, 2011). However, a greater issue that needs to be addressed is that economic sustainability is also based on equity (Irurah and Boshoff, 2003).

The equitable distribution of economic resources and their benefits should be targeted at all citizens. This distribution should also take into account externalities, which affect those not necessary involved, or do not benefit from the economic activity (ibid). The emphasis on equity is a factor that underlies all policies which aim at restructuring and redistribution. Equity in a South African context has to take into account the social factors facing the country along with economic activity. Due to the practice of past governments many social ills are still prevalent in contemporary South Africa. With this there is a need for enabling a just social system that will not be discriminatory to anyone (Todes, 2011). By creating a just social system, all people are taken into account, so as to not marginalize any groups. In current times there are many instances where vulnerable groups like women and children are not catered for. This should not be the case in creating sustainable human settlements since these developments cater for all groups by assessing the impacts of the built environment on social systems and cultural values (ibid). In order to create sustainable human settlements, planners need to look at ways of redistribution and restructuring in an equitable manner that would not have any negative impacts on any of the three spheres of sustainability.

With the realization that ‘settlements have generally lacked the qualities necessary to enable a decent quality of life’ and housing delivery focused on houses delivered, the BNG policy aims to

enhance integration in the housing delivery system (Rust, 2006: Pitthouse, 2009). The Department of Human Settlements has shown that housing delivery is much more than merely granting people houses. By restructuring the policy one sees that the housing delivery process now includes 'the planning, engagement and long-term sustainability of the housing environment' (Tissington, 2010). As mentioned earlier, the creation of 'livable' spaces is important in creating sustainable settlements. Along with this inclusiveness is vital to the restructuring purpose of BNG policy. As planners we also need to understand our role in creating sustainable human settlements. In doing so, we will familiarize ourselves to the processes as well as the different authorities that regulate them. This will allow planners to bridge these gaps by giving valuable input to government through participatory processes.

Responsible Town Planning in achieving Sustainability

This section focuses on responsible means of town planning which was adapted to the context of Johannesburg although formulated through the use of different case studies around the world. Responsible town planning is the method in which settlements are planned in order to increase the sustainability measurement of the entire settlement. In order for one to carry out land development there are certain processes that need to take place. These processes ensure that the environment is taken into account to a great extent as well as social and economic factors within the development plan. This section of the report focuses primarily on the reduction of energy needs since this takes into account the general processes carried out in a Johannesburg context. The processes that should be considered in order to reduce energy needs are;

Site analysis- takes into account the dynamics of the site as well as its surrounds. This process is very important since it involves the understanding of how the site is used, by who and what value can be achieved from the site. Along with this, in Johannesburg one has to carry out an Environmental Impact Assessment (EIA) which is the process by which the Gauteng Department of Agriculture and Rural Development (GDARD) does or does not allow the site to be developed. The record of decision (ROD) is granted by GDARD after assessing the EIA which contains all the environmental information of the given site. This environmental information is very important since it is an indication of natural resource base of the site and hence it has to be an in depth analysis accounting for all fauna, flora, aquatic systems and climatic conditions.

Town layout- is the process by which the layout for the settlement is produced. This layout takes into account any conditions or regulatory measures specified in the ROD (eg, wetland buffer). The layout

plan is also very important in creating a regulatory framework for the settlement. Since each erf contains its own land use controls, the layout plan has to account for all these controls which will serve as governing measures for the local authority. These controls are made up of zoning, density, height, building lines, lines of no access, erf sizes, erf numbers, FAR, coverage and parking ratios. Since these controls have to be formulated for each erf, it also creates a benchmark for future development in the area. The process makes up the Township Establishment Application. Within this application the local authority (CoJ) measures the need and desirability of the application before giving a developer the right to develop. Within this motivation for township establishment developers need to account for erven, roads, electricity, water, open spaces, refuse removal, education, social development, health and environmental management. These departments all review the application before the approval is given to the local authority that makes the final decision.

Streets- are designed in the township layout. However, each street needs to take into account street widths, hierarchy of streets, pedestrian movements, building facades, lighting and shade (trees). Designing of streets is very important to the development of sustainable settlements since these developments should allow ease of access to residents. Streets are literally the access that people need to move around and should be well integrated to make areas accessible. In the City of Joburg (Johannesburg roads agency- JRA) the process by which streets are approved is through the measurement of traffic flows and pedestrian movement at high and low intervals of activity. A traffic study has to be carried out in order for the authority (JRA) to make a decision as to whether the street layout will sustain the traffic inflows and outflows. Along with this, the traffic engineer has to include a stormwater system that would be able to carry water runoff to attenuation ponds. Hence the topography of the site is highly considered when designing streets.

Green areas- are considered to be the lungs of the city and are very important for the continued survival of humans. In developing a settlement, City Parks is responsible for assessing the township establishment application. Even though an EIA is done for the site which is assessed by Provincial government (GDARD), City Parks is the local authority which has their own rules for developing a site. Some of these rules include planting of indigenous trees, paying contributions in instances where too little green space is provided, and provisioning of play parks for children. These measures are put into place in order to create a balance between built and natural spaces. In light of this it can be stated that green spaces are also used as to improve ground thermal performance which promotes low temperatures in summer, absorbs solar radiation and is permeable to surface runoff.

Hence these spaces are of major importance to the sustainability of the site due to the great positive effect it has on environmental sustainability.

Utilities network- is the network of services (infrastructure) on the site. These utilities are the road network (JRA), water (Joburg Water), electricity (City Power), sewerage (Joburg Water), stormwater (JRA), refuse removal (Pickitup), parks (City Parks), environment (environmental management), public transport and pedestrians (Transportation) social development and health. All of the above mentioned utilities are managed by the respective authorities who have specific guidelines and regulations in order to develop a site. By developing an effective utilities network the residents of the site will not have any problems regarding their service delivery. Reason being is that the departments which have to maintain and upkeep these infrastructures will be able to do so since they were constructed according to standards and regulations. This is a very important factor in creating sustainable settlements since it appeals to equitable distribution of resources. With these departments governing and managing their respective services, the local authority also gains a good rates base which can be used to upgrade, maintain or develop areas.

Morphology- appeals to the overall layout of the built structure on the site. Urban Design Frameworks (UDF) are necessary in creating spaces that would not only function for people but also appeal to them. As planners it is important to take this factor into account when designing the township layout since this can inform other professionals (architects) as to what would be the best option for developing the site eg. building orientation. Since planning has a major effect on the morphology of the site, an Urban Design Framework is used to collaborate the planners layout with the architects designs. The UDF also informs the entire development of the site in terms of how it will relate to users. The physical environment that is created on the site is all encompassed within the UDF in order to show how people will relate and use the site.

Land plotting- is carried out by a land surveyor. This process is where the surveyor plots out each erf and assigns gps coordinates, measurements, and erf descriptions which are captured by the surveyor general. The surveyor general is very important in South Africa since he/she accounts for all the land owned within respective boundaries. The surveyor general also informs the deeds office of any changes to the land in order to amend ownership details since each land owner obtains a title deed upon purchasing or gaining land. In this way all the land parcels within different municipal boundaries are registered to owners and their utilities accounts are assigned through this. Without this process there would be no order in development and people would have no proof of ownership over their land.

Typology- in Johannesburg needs attention since the manner in which development occurs is predominantly single storey freestanding houses. In terms of delivering housing closer to opportunities (eg, Joburg CBD), the city needs to look at ways of providing more houses on smaller parcels of land. This would allow more people to gain housing and would also grant them awareness of self development. Since housing is seen as a measure of economic development, people should be given the opportunity of securing housing suitable to them. In this way people would shift between the ranges of tenure options until they can secure housing of their own. When designing townships it is also important to look at typologies and how they will relate to users on the street. The UDF for the site is the document that specifies how typologies should relate to the street and users. Along with this architects must also make sure that within the erf, of high density residential typologies, an internal layout is designed that would allow users to utilize the space and interact with each other. This internal design is governed through the production of a site development plan which is also assessed by the different departments (JRA, Joburg water, City Power etc.). Once the departments have all approved the SDP the municipalities land use department will then assess the SDP according to the UDF and township establishment application as well as the relevant town planning schemes before making a decision as to whether it should be approved or not.

From the above it can be seen that through the proper use of the relevant legislation, applications and processes, the City of Johannesburg has ways of regulating, enhancing and improving land development. Since sustainable housing development is a vision of the government, it should be emphasized within the local government legislation and processes. In this way developers would be bound to adhere to the minimum standards set out in terms of the relevant authority. Along with this, by allowing for collaborative planning between the state, developers and the public, there would be greater involvement in the construction, maintenance and upgrading of the site. By creating this sense of ownership among citizens also helps overcome other problems like crime and even helps in getting residents to carry out the legal manner of attaining service provision. From the above one sees the benefits of embracing responsible town planning measures. Within the context of Johannesburg we also see that there are measures in place to promote and govern responsible town planning. Along with this research is being done in order to evolve and better practices carried out. In terms of sustainable human developments, the BNG policy has a basis by which it deems a settlement as sustainable, however in order to better understand this planners need to look at the research done on concepts within the policy.

According to Donaldson (2001:5) “Measures such as mixed land-use areas, compaction and urban infill are planned to be implemented in an attempt to restructure the distorted spatial picture of the apartheid city. The integration of the separated sections of the city is expected to be achieved by a private vehicle development axis, an integration corridor and a development corridor” pointing out the need for more innovative ways of housing delivery as a means of integration. This also shows that since the beginning of democracy, there have always been efforts toward revolutionizing the housing delivery process. The research will therefore look at overarching theories of compact cities, mixed uses, densification, and infill development as a means of creating a link between the policy and literature. This link between the two is important for the research since it explains how sustainable human settlements are created and what theories inform these developments. Later on, the case study will extrapolate the definition of integrated housing developments to use as a comparison. With this the research will be able to decipher whether integrated housing developments are in fact sustainable human settlements. To do this, it is imperative that each of the concepts is explained in great detail to give the reader an understanding of the facets making up sustainable human settlements. In doing so, compact cities which are of great importance in the BNG policy will now be viewed in light of global and South African literature.

Compact Cities to create Sustainable Settlements

The concept of Compact cities includes the integration of uses as well as variations of densities with clear boundaries, is more energy efficient, less polluting and promotes more socially integrated communities (Neuman, 2005). This concept has gained prominence in the last three decades when developments were seemingly able to contribute to their socio-economic and environmental sustainability (Williams, 2011). However Neuman (2005) mentions that there is little evidence that proves compact cities to be sustainable. In the context of South Africa, Pieterse (2004) believes that this approach will be a complex one since it involves urban and social development models which need to be context specific. Despite the criticisms, the compact city concept is being adopted as a means of creating more sustainable developments. In doing so planners should be able to tailor this model to suit the context (Dewar, 2000). Dewar (2000) goes on further to say that it is no use creating edges and boundaries in order to achieve the concept; however planning should involve structural manipulation in order to create opportunities. This structural manipulation should be carried out through strategic infill developments (ibid). By doing this restructuring the city will be a means of overcoming many problems that once faced the city. The manner in which restructuring should take place should not be isolated within the boundaries of the site itself. As pointed out

above, the compact city concept should be looked at as a means of creating development opportunities. In this way, development within cities will be more integrated in that they are situated between other major suburbs and townships. This also aids in overcoming the problem of developments mushrooming on the peripheries and in unsuitable areas.

Coupled with the high rate of sprawl among cities, city centres began decaying which was another reason why the compact city model has gained importance (Neuman, 2005). The compact city ideal is used in response to the (segregated) expansion of the city, which is clustered around transport interchanges, situated on Greenfield sites on the peripheries of the city. Researchers have gone so far as to say that sprawl and segregation in South African cities have made them into some of the most inefficient and dysfunctional cities in the world (Schoonraad, 2000). Due to this sprawl of the city, the developing world seeks ways in which to develop closer to the existing ecological footprint[1] and save as much of the environment as possible (ibid). The compact cities concept also roots from the promotion of environmental and social sustainability which means that urban environments are meant to capacitate for this relationship (Coupland, 1997).

The combination of urban design, land use management, and transportation systems that promotes walking and bicycling will help create active, healthier, and more livable communities (Hardy et al. 2002). Furthermore, Jane Jacobs (1961: 14) also argues that cities need "a most intricate and close grained diversity of uses that give each other constant mutual support, both economically and socially." The emphasis placed on the interrelationship between land uses and the socio-economic environment is imperative. This is since the creation of livable spaces is based on this relationship. As mentioned earlier, sustainable development is encompassed within livable spaces. Hence the development of attractive spaces for everyday life are the best defence against sprawl and that the remaining values will fall in line once a compact urban form and attractive public spaces are created through urban design (Godschalk, 2004).

Since the concept of compact cities is focused on the physical structure of the city, it should be viewed in light of work done by theorists like Le Corbusier, who promoted densification of urban areas. However, with the postmodern shift, one sees how these mega-structure plans adversely

[1] measure of human demand on ecosystems.

affected communities and social interactions pointed out by theorists like Jane Jacobs. The idea of compact cities meshes these concepts of the physical and social, in order to create a balance within the built environment and also the natural environment. Because of this the compact city is frequently viewed as a more desirable urban form with regards to sustainability (Todes et al. 2000). Due to the higher densities social cohesion is also promoted which further enhances the quality of space and interactions within neighbourhoods and other zones. This also promotes the level of livability within the area.

New urbanism and smart growth are the two main approaches which fall under the livability concept (Godschalk, 2004). These approaches advocate reestablishing the relationship between the art of building and the making of community, through citizen based participatory planning and design. This equilibrium relates to the way people interact to the area and with one another. Hence it is important to look at the manner in which the physical space relates to people and their activities. In order to do this, one has to look at the informing elements that create spaces. These elements are; urban design, land use, and the transportation system (Hardy et al. 2002).

Urban design refers to the appearance and physical elements of the city. The urban design element is very important in creating compact cities since it advocates for concentrating population around nodes and creating corridors (Todes et al. 2000). By concentrating population in and around core areas it promotes infill development, densification, mixed uses and makes use of well located land (ibid). Corridor developments promote linking peripheral and core areas while developing nodal areas along these linkages. Through the RDP policy, the Urban Development Framework of 1997 was also adopted which promoted integrating the city, improving housing and infrastructure, promoting urban economic development and creating institutions for delivery (Donaldson, 2001). These four principles aimed at creating nodes as well as corridors in order to overcome the spatial problems facing the city. All these factors play a role in the urban design element of compact cities since they inform developments as to what should be carried out also taking into account the necessary land use regulations.

Land use accounts for the distribution of uses (zoning), densities, floor area ratios, building heights, coverage and other regulatory items specified by the town planning scheme. In a South African context emphasis was put on principles of land use separation, low density development, and traffic separation amongst others (Todes, 2011). In this regard, the compact city concept has to be

modified in order to overcome these past practices. Along with this it has to also take into account the shifting social, political and economic forces, thus making land use management a daunting task for local authorities which have to decide as to whether land uses are permitted or not (ibid). With this there has to be integration between the land uses and the linkage system since these elements are dependent on each other for their proper functioning.

The transportation system is made up of physical infrastructure like roads, sidewalks, lighting and other services. This factor is very important in terms of access for people since it allows them to move to and from home and employment. As part of the development process the transportation system plays a major role in determining land uses and also densities. In compact cities costs of these infrastructures are also decreased due to the close proximity of land uses (Williams, 2011).

Together these three elements make up the built environment (Williams, 2011). The built environment is thus the summation of all these elements along with the social, economic, and environmental factors which inform further development. When creating compact cities, it is important to look at all these factors and the roles each element plays in the creation of a viable compacted space. In the context of South Africa the concept of compact cities has been applied to policies in order to achieve spatial restructuring and redistribution (Todes, 2011). These efforts are however constricted by unsupportive economic and political influences, difficulties in securing developable land, uncooperative governance, contradicting policies and contrary market trends thus questioning the viability of the concept in this context (ibid). However in recent times developments have been tailored in order to suit this model of the compact city (eg. Maboneng).

As mentioned earlier the compact city promotes sustainability and appeals more greatly to social and environmental sustainability. However the compact city is based on increased activity and interaction which gives rise to increased economic activity (Pieterse, 2004). By developing compact cities one can say that agglomeration economies will be easily achieved (ibid). Agglomeration economies is achieved when businesses and people locate near on another which reaps benefits through saving on transport costs, employment close to housing and lower amounts of pollution amongst others (ibid). It also emphasizes the access to economic opportunities, low travel costs and times which is a major issue in the city. Through economic activity being situated in areas/communities it also allows the area to increase the GDP of their economy (Irurah and Boshoff,

2003). However there are those that feel that living on the periphery has its benefits which include more space, low costs, rental opportunities amongst others (Todes, 2011).

As mentioned above, compact cities are characterized by dense urban environments, supported by a variety of mixed land uses (Neuman, 2005). This allows for localization of economies and also helps with the housing backlogs due to the higher densities. Since the mix of land uses along with increased densities allow for; increased economic activity, greater social cohesion, and decreased sprawl (environmental impact), compact cities can be viewed in favor of the BNG policy. This also emphasizes the creation of more self-sufficient communities through the economic growth of individuals within the community. With the intensification of uses, interactions, amenities and attractions within compact cities, residents are able to overcome the problem of the segregated landscape. It also houses an array of people of differing races and backgrounds, this being the major integrating factor that is sought by the government. This factor is crucial in integrating Johannesburg residents since these settlements allow residents to create an identity of place.

The compact city also has major drawbacks such as overcrowding, overloaded infrastructure and services, congestion and pollution (Burton et al. 1996). However the approach of implementing compact cities should be looked at differently. This approach should happen by implementing the concept of a compact city within a broader context (ibid). As stipulated by Dewar (2000) and Burton et al. (1996), compact cities should not be isolated to boundaries and edges but should rather be looked at as an integrating element. By creating dense areas along a transport network in the city, public transport will be easily implemented by linking routes to compact zones. Each compact zone will be independent in its functioning however it will not create any setbacks for the other zones (Burton et al. 1996). This interlinking of settlements is termed decentralization (Bertaud, 2002). The types of uses will also be complementary to other zones which will make amenities and service available in close proximity. Through the development of compact cities, mixed uses are a dominant characteristic (Berger, 2006). Mixed use development is therefore another important concept that will be focused on. This will allow one to understand how compact cities are spatially laid out to allow for a high rate of activity to take place in an area. Along with this, the research report will unpack compact cities by looking at mixed use development, density, street connectivity, street scale, and aesthetic qualities. By dissecting compact cities with use of these sub-theories, one will also be able to evaluate the effectiveness of sustainable human settlements and integrated housing developments.

Mixed Use Developments

Looking at conventional RDP housing developments one will be made certain of the fact that people are being granted adequate housing (Tissington and Dugard, 2013). Townships containing a mass of houses closely packed next to each other with no other services or amenities are the way this form of development is characterized (ibid). Residents of these developments are constantly at loggerheads with the government since they feel that the housing provided is not adequate (SACN, 2006). In most cases the reason is due to the fact that there is no thought put into the provisioning of amenities and services (Donaldson, 2001). For the purpose of this section, amenities are considered as other land uses besides residential. The importance of other land uses along with residential, is a factor that has been sidelined by government and developers in the country, thus characterizing housing delivery as resembling the apartheid township model (Huchzermeyer, 2003). Due to this the BNG policy points out that it is important that developments consider other land uses within state funded developments in order to create areas of opportunity for people (NDHS, 2004). In prior years, renowned authors advocated for mixed land uses since they believed that this type of development is what brings about social and economic inclusion (Stelli, 2013). To gain a greater understanding of mixed land uses, one has to look at the importance of it along with the manner in which it is categorized. As Jane Jacobs eloquently states:

> "The more successfully a city mingles everyday diversity of uses and users in its everyday streets, the more successfully, casually (and economically) its people thereby enliven and support well-located parks that can thus give back grace and delight to their neighborhoods instead of vacuity." (Jacobs, 1961; 111)

Mixed use developments are considered as a building or developments that lend a combination of residential, commercial, cultural, institutional or industrial uses (Stelli, 2013). Mixed use developments are also a popular way of revitalizing urban areas and transforming public housing (Hoppenbrouwer and Louw, 2005). Land use mix is defined as the relative proximity of different land uses within a given area (Hardy et al. 2002). A measure for mixed uses would be the distance from one's home to the nearest business/commercial/recreational site. The benefits of mixed use developments include:

- more convenient access to facilities
- reduced travel-to-work congestion

- greater opportunities for social interaction
- socially diverse communities
- the visual stimulation and delight created by different buildings in close proximity
- a greater feeling of 'eyes on the street' (passive surveillance)
- more efficient use of space and buildings
- wider range of choices of lifestyle, location and building type for the consumer
- urban vitality of street life
- greater viability for urban facilities and support for small business (Harrison, 2009).

These benefits are important in the context of Johannesburg, since they allow people the opportunity to live comfortably in terms of their tenure types as well as social (eg. community through parks) and economic (eg. Employment nearby home) factors. The intricate relationship formed between the mix of uses forms a basis upon which society becomes closely knit (ibid). Through social interaction people also adopt similar attitudes giving people of differing backgrounds an opportunity to learn from each other. The mix of tenures makes sure that there are people of differing income levels and backgrounds. For the purpose of the research report the concept of mixed use developments will also include mixed tenure developments. In South Africa this is an important development objective since it is a means of providing middle income (GAP) housing. Since many people could not qualify for fully subsidized housing, yet did not qualify to receive loans either, the BNG policy has addressed it as a main objective in housing delivery (NDHS, 2004). In doing so, they aim to achieve greater social cohesion through the integration of low to middle income groups. Neil Fraser advocates mixed use, mix tenure developments and describes them by saying:

> "If you're hoping to have a 24/7 city, you have to have residential property. But you have to have a blend of residential accommodation that brings in your lower income areas with your high income…..What's important is to have people who have income that they spend in the area. That will bring the supermarkets, the cafés, the restaurants and all the other things that are important. You need that disposable income to be able to do that." (Cited in Harrison, 2009: 45).

Mixed tenure developments are important in the housing arena of Johannesburg. As pointed out in the BNG policy, one of the key objectives is *Empowerment through supporting the residential property market* (NDHS, 2004). The Department of Human Settlements adopted a more holistic approach to development rather than just housing delivery. With this, the Department extended the mandate which restricted subsidies to households earning less than R3500 per month (ibid). The BNG policy of 2004 points out that there is a need for more subsidy housing options, meaning that people with incomes of R3500-R7000 per month would also qualify for subsidized housing options (ibid). A need for this extra support within the housing market was found when government realized that people earning more than R3500p/m experienced problems of securing end-user finance. Since the policy focused greatly on the residential market and its relation to overall development, it also introduced other fiscal arrangements that would enable residents to acquire properties. As mentioned above, the mechanism for overcoming the down-payment barrier was to enable middle income earners an opportunity at gaining secured tenure. Along with this, the BNG policy introduced funding for social housing, loss limit insurance, fixed interest rates, new product development, and lastly monitoring lending trends and enforcing the Financial Services Charter (NDHS, 2004). These mechanisms are aimed at influencing the residential property market. All of these mechanisms also show that there is a need for mixed tenure types which would suit different income groups. Hence the mixed tenure model is important to take into account when developing mixed use developments in a Johannesburg context. Mixed use developments also facilitate socio-economic cohesion, through the availability of other land uses and different income groups interacting.

When looking at mixed use developments from a physical point of view one sees that it encourages densification and decreased reliance on resources. Conventional planning has given rise to suburban sprawl and dependence on the private automobile, which raise energy and labour costs and lower productivity (Angotti and Hanhardt, 2001; 1). Mixed use developments display greater connectivity which enables people to access all parts of the development over smaller distances. These small distances are created through the conglomeration of various land uses in areas (APA, 2013). With zoning regulations and land use management laws of the past, Johannesburg has developed in a manner in which different land uses are situated in different areas, and not taking into account the provision of mixed uses (Beavon, 2004). This is one of the main reasons why economies of certain areas are greater than those of others (eg. Soweto-Florida). The land uses found in one area might be high income economies (eg, business, commercial, industrial), whereas the economy of other areas could be low income economies (eg, residential, institutional, recreational). This segregation of uses also increases social issues like crime and inequality facing the city (ibid). Mixed use

developments also decrease risk for investors in that the diverse land uses can easily overcome the problem of an uncertain market (Angotti and Hanhardt, 2001). However, other proponents also argue that developers and investors are unwilling to develop mixed uses since they prefer 'safe and reliable investments' (Hoppenbrouwer and Louw, 2005).

By creating mixed use developments/integrated housing developments in Johannesburg, people are once again afforded ease of access to different amenities and services. Another reason for mixed use development is its contribution to urban diversity and vitality (Hoppenbrouwer and Louw, 2005). These are important factors to consider, since they play a role in the use of the area during days, nights, weekdays and weekends.

Given the issue of crime in the country, an effort to increase activity in areas is paramount. Since the manner of human development is conveyed through housing provision, we also look at housing as a social asset. As pointed out by Rust et al. (2009; 53): "As a social asset the house enhances identity and security. The social networks within neighbourhoods enhance the building of community as does the ability to access to social facilities and services as a result of having a legal address". Due to the higher densities of these developments and the mix of land uses, it creates a stronger neighbourhood character, due to the larger number of residents and more amenities. Mixed land use tends to increase the kind of combinations and interactions, physical and social as well as visual, that also supports urban vitality and quality (Rust et al. 2009). This social platform that is created by the means of mixed uses and tenures on one site allows people to interact and form relationships. This is a major positive for the country since it allows for past attitudes and perceptions to be changed. Due to the greater housing varieties (mixed tenures) within integrated housing developments, interaction between different income groups also occurs. This is very important when looking at the micro-economic factors of the area. These different income groups change their mindsets in order to create a harmonious livable space. By doing this, the residents of the area also expose themselves to different opportunities that may arise through social networking.

However, there are also many criticisms aimed at mixed use developments. Lynch (2000, p. 192) states that mixed-use and diversity are desirable in the abstract, but they cannot be identified or measured until one knows how people perceive differences. This statement points out that mixed use development is very ambiguous in its meaning. Many authors such as Louw and de Vries (2002) state that working from home could even be considered the ultimate form of mixed-use, as it combines two functions within the walls of a single building. The ambiguity that these authors point

out is that there is no direct explanation of mixed use development. It is argued that mixed uses can take place on a variety of scales and therefore cannot be looked at as a singular solution (Hoppenbrouwer and Louw, 2005). On the other hand, Rowley (1996: 95) urges us to "treasure mixed-use diversity and grab any opportunities to create exemplars of mixed-use developments, to test and educate". In the context of Africa, particularly Johannesburg, many of the Eurocentric ideals have proven that the outcomes are not always positive (Adebayo, 2010). As mentioned earlier (Neuman, 2005; Pieterse, 2004) have argued that the compact cities concept is problematic in the context of South Africa since it has to take into account the social and urban development models. However as planners it is important to understand the dynamics of areas. By using literature from abroad we should take lessons that would be valuable and tailor these solutions to be context specific.

Increased density

Density is a measure of the amount of activity and people in an area (Hardy et al. 2002). Density is also inextricably bound up with mixed-use and grain (Hoppenbrouwer and Louw, 2005). The density of activity is dependent on the number of users as well as the mix of uses (ibid). According to Jacobs (1961) medium to high residential densities of between 100–200 dwelling units to the net acre are necessary to maintain vitality in cities. Thus density can be also classified as population, employment, or building area per square meter or kilometer (Hoppenbrouwer and Louw, 2005). South African cities are considered to have low densities, by comparing Johannesburg with a density of 20.9 people per hectare to Addis Ababa with a density of 560.8 people per hectare, we see this apparent difference in the two cities (Financial and Fiscal Commission, 2012/13). This stark comparison leads to the questioning of Johannesburg's urban form and more importantly the environmental impact it has. In order to shift development toward more sustainable methods, one needs to look at how the city of Johannesburg can be contained in terms of sprawl as well as how to curb its current environmental impact. The concept of densification points to the manner in which activity and people can increase in built up areas.

The BNG policy of 2004 includes 'The Social Housing Instrument' (NDHS, 2004). Along with this is the densification policy which requires the Department of Human Settlements and local governments to look at ways in which density can be increased in areas. Due to the provision of free-standing inadequate housing on the peripheries, the Department of Human Settlements has looked at ways of overcoming these issues by including different typologies and tenures (ibid). This would be

achieved through the social housing instrument which includes four types of housing units which are; Medium Density Housing, Communal Housing, Transitional Housing, and Hostels. All of these unit types are based on a four storey walk up building typology. This typology allows for more people to be housed, as well as conforms to the policy's aim of densification. Since housing is seen as a public asset in this case, by creating more units in higher densities increases the institutional capacity thus making the management of state owned buildings more equitable and efficient.

Connectivity

Is defined as the directness and availability of alternative routes from one point to another within a street network (Hardy et al. 2002). Furthermore permeability refers to the notion that good urban development allows a 'democracy' of choice in pedestrian movements through it, as derived from the layout of roads, streets and paths (Hoppenbrouwer and Louw, 2005). All these elements of movement are important for the design of areas. Upholding the principles of compact development and mixed use development, connectivity allows this ease of access to pedestrians and vehicles. With the objectives of BNG policy in mind, 'Construction of Social and Economic Infrastructure' is seen as one of the main aims in the delivery of housing (NDHS, 2004). These infrastructures referred to by the policy are; parks, playgrounds, sport fields, crèches, community halls, taxi ranks, satellite police stations, municipal clinics and informal trading facilities (ibid). Taking into account the emphasis of policy in granting these facilities to people, it is important to understand that connectivity plays a major role in granting residents this access. By creating settlements that are well connected and allow for ease of movement also decreases other issues over time, like environmental degradation. With ease of access to different amenities, people are also willing to take part in interventions like the use of public transport. Pedestrian connectivity is also imperative when constructing a housing development. Residents which cannot afford other forms of transportation usually rely on walking to and from places which emphasizes the need for integrated planning in terms of densification and movement systems. By integrating these two factors people are afforded with a house as well as access to different opportunities via pedestrian linkages or an efficient public transport system.

Street Scale

Since sustainable human settlements are used as a means of creating integration, equality, environmental awareness, and general betterment of life for residents; one needs to understand that the urban environment must be conducive to this. Street scale refers to the three dimensional

space along a street as bounded by buildings or street furniture (Hardy et al. 2002). It is an important design element which is used to create a sense of place for users of the site. The street scale is also determined by the type of users which are usually people or automobiles (ibid). As mentioned earlier, streets account for many of the services available to developments (roads, water, sewer, electricity etc.) which mean that streets should be carefully designed in order to account for all these infrastructures. The interaction of people should also be accounted for within the street scale since this makes up public space. When designing streets, it is important to consider the different hierarchies of streets since certain streets (Highways, main roads etc) are inaccessible to pedestrians since they are dangerous. Along with this the factor of spacing of streets should be looked at in order to curb issues like traffic and accidents. Hence the street scale is an element which should be carefully considered when developing housing developments. With the use of the case study, this element will be shown in further detail.

Aesthetic qualities

As can be seen from past state funded housing projects in Johannesburg, not much attention is placed on the general layout and character of these sites. However it is important to create attractive appealing places where people will take an interest in creating better living conditions for themselves. Places with high aesthetic qualities are often said to have a strong 'sense of place' (Hardy et al. 2002). In this element of design, the buildings, orientation, street furniture, landscaping etc. are taken into account. The creation of a 'sense of place' for residents is important since these developments are looked at as a means of empowering them. Along with this, the mixed tenure models also house people of different incomes which would expect certain qualities to be visible within their immediate surrounds (eg, street lighting). This is an important factor to be considered in the creation of sustainable human settlements.

Infill Development as a Spatial Intervention

As can be seen from the above, it can be said that compact cites and sustainable settlements are a means of uplifting the city and overcoming the problems of the past. However, the city of Johannesburg has grown to a great extent over a short period of time. In terms of population growth, Johannesburg's population has been growing at a rate of 3.18%p.a measured from 2001-2011, and ranks number 1 in terms of population size among South Africa's major metros (StatsSA, 2014). This population growth, coupled with housing development which has been sprawled across the urban landscape, has taken up a large proportion of greenfield sites situated on peripheries of

the city. A solution to this is infill development in areas where development has occurred and stopped or in areas where development has taken place around open land parcels. Many in both the policy community and in urban planning have hailed infill development as a possible solution to sprawl, that will both increase density and revitalize depressed neighbourhoods (McConnell and Wiley, 2010).

> "Still, development in established urban areas often has benefits not usually available to Greenfield builders, such as access to city cultural amenities and, in many cases, availability of well-established public infrastructure and services, including frequent transit service" (Meijias and Deakin, 2005; 1).

Conforming to this statement is the BNG policy of 2004 which also emphasizes the importance of the acquisition of land for human settlement. In the past, state housing delivery took place on the peripheries of the city and resembled the apartheid city (Donaldson, 2001). Hence the BNG policy looks at ways of acquiring well located land which can be used for housing developments (NDHS, 2004). The state intends to transfer all state-owned and para-statal land to municipalities. This would allow municipalities the opportunity of developing housing which is context specific and also allows for public participatory processes. Through the initiation of government projects by municipalities, integration will be more easily achieved which will also add to the sustainability of these projects over time. A good example of a housing project within Johannesburg is Carr Gardens which was developed for the Johannesburg Housing company. This development is located within walking distance of the Johannesburg CBD yet also demonstrates sustainable housing with regard to urban integration (Irurah et al. 2002). In the context of Johannesburg there needs to be more concerted efforts in achieving urban integration. Many of the past and current policy frameworks emphasize the need for more urban integration in order to achieve a more equitable city. This shows the importance of locating areas for potential development.

As mentioned earlier in the report, the apartheid city is synonymous with segregation of people and land. The former buffer areas are located in close proximity to the CBD as well as the previous townships. With the optimal use of the BNG policy, these areas can be used to create sustainable human settlements. These developments will also be seen as infill developments and can serve as a greater means of integration.

These infill developments will be considered as compact zones that create points of attraction for people in the larger area. This is referred to earlier in the implementation of a compact city within a broader context (Burton et al. 1996). By creating mixed use developments on infill sites, neighbouring residents also aim at creating similar developments on their personal properties due to the income generation upon the site. This increases the densities on certain spines within developed areas (eg Rocky Street, Yeoville). With these higher density developments being carried out organically, the city and its residents adhere to principles of smart growth which is synonymous to compact cities. (Nelson, 2000).

However, this sometimes also poses a challenge to development. Since infill developments are more effective on large pieces of land, neighbouring residents refuse to sell land delaying development through increased negotiation times (Nelson, 2000). Acquiring land is also a problem in many cases in contrast to the easy acquisition of land on the peripheries. Developers usually acquire blighted areas or Brownfield sites as places for development (ibid). However, the BNG policy aims to gain funding that will allow the government to purchase private land. With this there are also fiscal incentives which will support the development of well located land (NDHS, 2004). Since one of the aims of the BNG is to create public-private partnerships, the city should look at ways to accommodate private developers. Along with this, infill development itself faces many barriers. To offset or help overcome these barriers, incentives should offer things like site assemblage, flexible zoning, low-cost financing, infrastructure upgrades, and quick approval processes (Meijias and Deakin, 2005). These incentives will also give private developers an opportunity to help overcome the housing backlogs.

Hence by developing infill sites, valuable land is used for a greater purpose (Sustainable Human Settlements, 2004) and it can create strategic interventions that allow for growth. This planned growth also increases the investment within communities and therefore increases growth in property values and economic growth of the area. Developing upon infill sites also hinders development from being carried out on the urban fringe. This inhibits sprawl, as well as attracts developers to develop derelict pieces of land. Partnerships between the state and the private sector are important in this scenario. By developing sites on the periphery, developers are allowed the advantage of subdividing large parcels of land. This land is usually not serviced by any infrastructure which is a major cost to the state, as well as developers. By developing infill sites, these costs are minimal, due to the surrounding developments that service the infill site. This allows the state, as well as developers to aid in maintenance and servicing of the area through increased cost saving. In

this way there will also be a larger budget available for developing other amenities like schools, crèches, police stations and community centres. Hence it is important to consider methods that would decrease development costs but would also accommodate viable living standards.

From this it can be seen that infill development plays a key role in enhancing the urban fabric of Johannesburg. Along with this, it can be deduced that strategic interventions on infill sites would also advance developments of areas in creating compact cities. This will effectively aid in attaining sustainable settlements. In South Africa the problem of integration has always faced the government and civil society. All the major cities in the country looked at ways of overcoming the past injustices and mindsets. Some of the metros like the City of Cape Town has strived to achieve this and was recently awarded the honor of being named the World Design Capital due to the innovative planning and development being carried out. In the same way the Mangaung Local Municipality has some lessons with regards to housing delivery that will help the rest of the country.

Lessons for Infill development from the Mangaung Local Municipality

The Mangaung Local Municipality faced the problems of needing to deliver housing on well located land as well as create sustainable human settlements. The municipal area is made up of Bloemfontein, Botshabelo and Thaba Nchu which is said to be one of the best examples of the apartheid city model (Mokoena and Marais, 2007). Within the Free State province, the Mangaung Local Municipality makes up for 25% of the population, meaning that a majority of housing had to be delivered within the local area in order to overcome the backlog faced by the province (ibid). However, the need for the municipality to provide 40m² houses to the population has been problematic due to the lack of land close to the CBD (ibid). Because of this the municipality had to look at ways of providing housing closer to the city as well as develop sustainable human settlements.

The strategy that was used, was infill development which promoted spatial integration and ensured that poor people are not spatially removed from basic services and amenities (Mokoena and Marais, 2007). Since 1994 the municipality began rezoning open spaces to residential zones which allowed for this development. A problem that prompted this initiative was the invasion of informal settlements on open spaces which were the buffer areas within the municipality (ibid). The municipality also looked at ways of embracing national policies of sustainable human settlements

and also ways to overcome problems of sprawl and segregation. This intention of the municipality reaped 35% of the housing delivered on infill sites (ibid).

The map below shows the areas where infill residential development took place in the municipality. These developments can be seen by the grey areas on the map which make up a large area within the municipal boundaries. Through these efforts the municipality has seen that there is greater integration and less sprawl yet the problem of informal settlement still persists. However the municipality has also looked at ways of embracing these settlements since they provide temporary housing for residents (ibid).

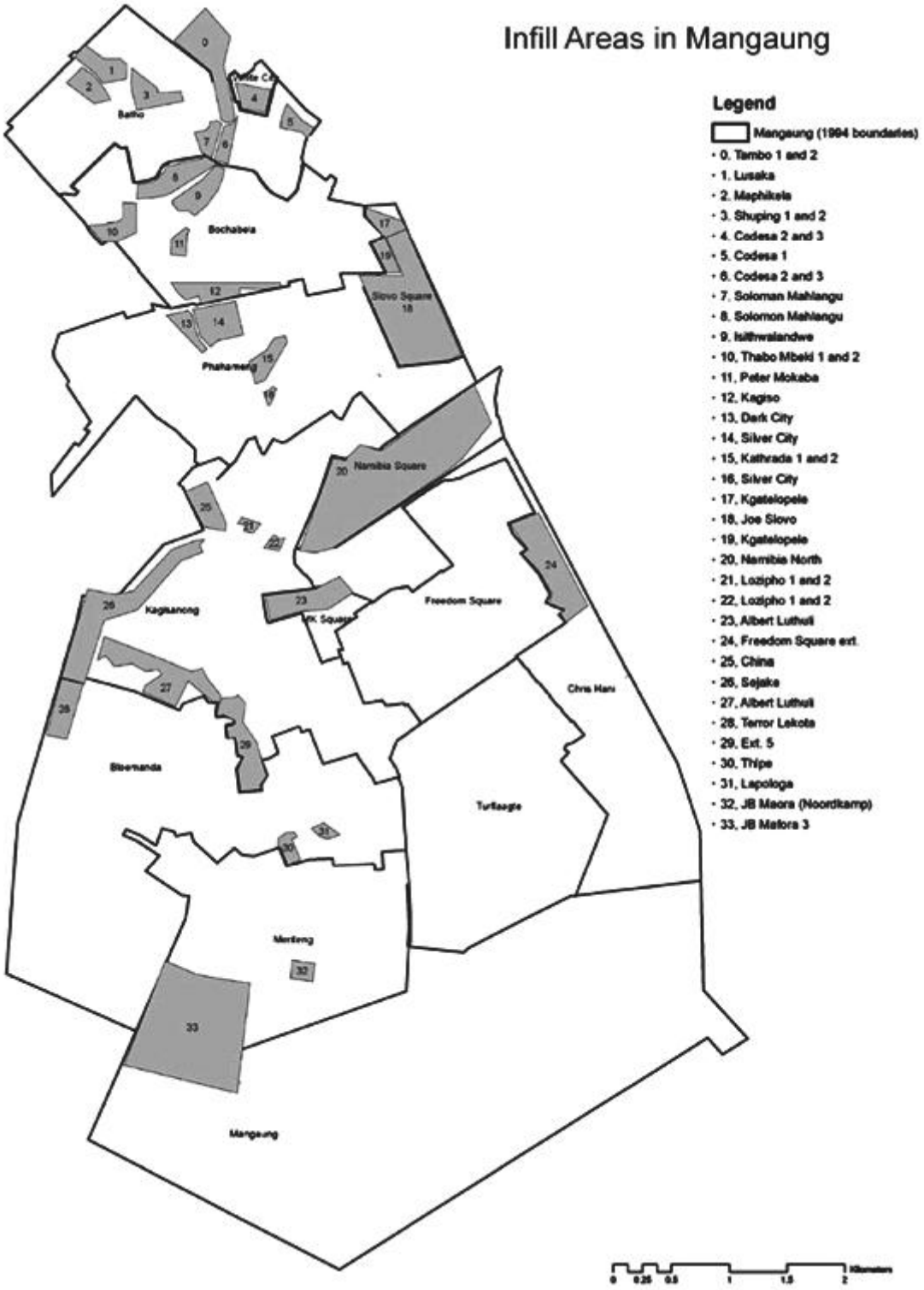

Figure 1: map showing areas used as infill residential developments in Mangaung Local Municipality (Sourced: Mokoena and Marais, 2007).

Through the use of this example one sees the importance of proper urban form and structuring. The municipality was able to successfully grant residents housing, decrease sprawl, increase integration

and also able to overcome the apartheid landscape. In this way infill development should be looked at in positive light in South Africa which leaves lessons for other municipalities to adapt innovative measures. By tackling the problem in this way at the early onset of democracy, the municipality proved its efficiency in achieving policy outcomes.

Lessons should be taken from the Mangaung Local Municipality in terms of the acquisition of land, funding processes and township designs. In this way housing delivery models will be more context specific. South African cities are strikingly different in their characteristics which means that developments should further account for site specific interventions. In the same manner one should deduce that international literature cannot solely inform the manner in which development takes place in South Africa. This knowledge should be used as a means of educating government, developers and civil society with regards to the pros and cons of infill development. However, taking into account what has been said regarding sustainable human settlements, mixed use developments, and compact cities, the research will now look at a housing model recently introduced in South Africa. This housing model is the Integrated Housing development which can be considered as a summation of the above mentioned concepts.

Integrated Housing developments- a new frontier

With problems of restructuring and negative attitudes surrounding state delivered housing, the government had to look at ways of revolutionizing their perspective on housing delivery. The BNG policy of 2004 was the stepping stone toward achieving a holistic influence in the housing arena. As mentioned below:

> "The Comprehensive Plan for the Development of Sustainable Human Settlements approved on 1 September 2004, represents a paradigm shift for the national housing programme. Having achieved the initial housing delivery targets, Government shifted its development focus towards addressing settlement inefficiencies through the development of integrated human settlements which will contribute towards more compact settlement form and provide a range of housing and social economic opportunities."(National Housing Code, 2009:9).

Currently housing developments are not very integrated in that they only offer residential development. These developments lack other land uses which are crucial to the sustainability of the area. Taking from the monolithic apartheid planning model, land uses are concentrated in isolated areas of the city. This means that people are still being secluded and marginalized to the extent that they are not afforded with ease of access to different opportunities. In an attempt to create a more integrated city, the BNG policy looks at ways of increasing this window of opportunity to citizens.

Integrated development planning in the context of S.A and breaking new ground means a range of land uses which will allow for social and economic interaction, and also to integrate people from different earning categories. These developments hence provide different social and economic opportunities in order to lend to the needs of differing income groups. Owing to the holistic planning and development approach, the instrument also provides for substantial economies of scale to be realized. Integration is achieved through the provision of both bonded and subsidised housing in a mix appropriate to the projects location, which in turn lends itself to facilitating inclusionary housing development.

Along with this, integrated development is used as a tool to overcome spatial innefficiences and inequalities. In a South African context, this is a crucial factor which needs to be addressed but has seemingly become a false hope (Mokoena and Marais, 2007). Since the introduction of the RDP (1994) there has not been much difference made in terms of overcoming this spatial inequality in

South African cities. Along with this are the many stereotypes and stigmas attached to those dwelling in the peripheral townships (Donaldson, 2001).

As can be seen from the above, mixed use and mixed income developments are those developments that suit the needs of all citizens of different income groups within a given area. Integrated housing developments are hence mixed use, mixed income developments which are a means of overcoming many of the problems facing the country. Since the introduction of the BNG strategy, there has been a major effort put into creating sustainable human settlements. In context to this Sustainable human settlements are supportive of the communities which reside in areas that facilitate for affordable basic services, educational, entertainment and cultural activities and health, welfare and police services (National Department of Housing, 2005). This integration of land uses is a key strategy in creating sustainable human settlements. Along with this, the need for greater social integration has called for innovative efforts in bridging the gap between people of different races, classes, incomes, religions amongst others. One of these efforts is through mixed tenure developments and a contributing concept used by government is that of inclusionary housing (NDOH, 2007).

Inclusionary housing in South Africa is implemented through the provision of affordable housing by private institutions in their pursuit of developing middle to high income developments (NDOH, 2007)). In this way government seeks to leverage affordable housing delivery by giving private developers the ultimatum of spending 20% of their project value on affordable housing or no development would be allowed (ibid). In this way municipalities are able to boost their supply of affordable housing and also contribute toward densification. By doing this there is also a significant impact on achieving a balance between races and classes in new developments (ibid). This also leads lower and middle income earners access to further economic opportunities which would not necessarily be available to them in an entirely low cost development.

In terms of integrated housing development there is also a greater focus on public private partnerships (Todes, 2000). These partnerships are formed between the local authority and local private firms/developers. In this way the municipalities are more actively involved in the development of townships. Through the municipality assuming the role as the developer, there is much more integration and collaboration between different spheres and departments within government. This factor also aids in achieving the objective of cooperative governance pointed out in BNG.

Since South African government usually lacks capacity to carry out large projects, Integrated Housing developments are based on strategic plans and guidelines to aid in development. These strategic plans are firstly formulated within the 5 year Integrated Development Plan of municipalities. Within the South African context the IDP is a compulsory document according to the Municipal Systems Act (2000), in which the municipality compiles a 5 year development plan for the municipality. This plan documents all major developments that need to be carried out within the municipality over a 5 year period. In doing so, municipalities are allocated budgets by the treasury. Without the IDP municipalities will not receive any funds for that financial year hence it is a compulsory document.

Along with the compilation of strategic frameworks, municipalities have a stipulated process by which they draw up contracts with developers via a public tendering process. Through this tender process appropriate developers which comply with all regulations and standards are awarded a contract to initiate the project. These projects include professional, construction, legal, financing, marketing and sales processes. The municipality as the developer has to evaluate the worth of each tender in order to assess whether the tendering firm will be able to carry out the task. In doing so, the municipality will also assume responsibility for any shortfalls at a later stage. However, through this process the municipality also increases its level of capacity through the public private partnership agreement.

One of the major problems facing the country is the need for middle income housing since people of middle income are unable to gain a fully subsidized house and also in many instances unable to gain financing for a house. This gap market is one of the major contributors to integrated developments in the country. Through this gap market government as well as other institutions like the CSIR have recognized that there is room for innovation. This innovation will be carried out through the development of multi storey or higher density buildings. These higher densities will have a major impact on housing supply and demand since it takes away the need for larger land parcels. Developments with mixed uses and tenures also reap many financial benefits. These benefits stem from the implementation of cross subsidization strategies where tenure types are configured in a way that would allow subsidization of lower income typologies. In this way all the residents are still afforded with better levels of service delivery and are also able to integrate with each other within the community. In terms of the overall development, investors are also less skeptical to invest since the middle to higher income units will always be seen as income generating given that the

development is maintained and in good condition. By creating developments of this sort, there is also less risk of developing on peripheries which is a major issue concerning the previous RDP houses given to people.

However taking the above into consideration, Mokoena and Marais (2007) say that there is no adequate attention being paid toward integrated housing development. This stemming from the fact that there are still issues relating to housing the poor on the peripheries in 'matchbox' houses away from 'the benefits of urbanity' (Poulsen, 2010:2). With the objectives laid out by the BNG policy it can be stated that there is enough explanation put into the creation of sustainable human settlements. By looking at the manner of creating integrated housing development it can be seen that the objectives of BNG are evident. However, critiques of integrated housing developments are; its focus on physical redevelopment rather than addressing poverty, assumptions that poverty can be treated solely through area based approaches, and fragmented and uncoordinated interventions (Todes, 2000). These critiques also highlighting the problems of current government efforts relating to inconsistency between policy and implementation, lack of communication and integration between spheres and departments within government, and high rates of bribery and corruption seen in public private partnerships.

CHAPTER 3

Case Study

Fleurhof Integrated Housing Development

The case study being used is the Fleurhof Integrated Housing Development, which is situated in Johannesburg. This case study is being used s since the researcher played a role in the town planning process of the development and thusa large amount of experience and knowledge was gained during this period thta the researcher took part in the project.

The Fleurhof Integrated Urban Development Project is a mixed mode (mixed uses and mixed tenures) human settlement situated within the City of Johannesburg Metropolitan Municipality, Gauteng. The Municipality, together with CalgroM3 embarked on this integrated type development not only to alleviate the housing and municipal service backlog within the region, but was also inspired by National Housing's call for improved/advanced delivery in terms of the "Breaking New Ground" policy. Another key stakeholder is International Housing Solutions (IHS), which is an investment manager focused on community-centered affordable housing projects in South Africa and neighbouring countries which was setup in 2007 to overcome the need for housing for the middle income group (EMPEA, 2012). The development began in 2009 and plans to grow to include more than 8,000 low- and middle-income housing units, eight crèches (nursery schools), five schools, numerous community gardens and play areas, 14 business centres and four industrial sites. The entire site measures 440ha of which 118ha is allocated for public open space.

The project will employ over 1000 skilled and unskilled local workers and seeks to promote community integration through the inclusion of schools, religious sites, business centres and community gardens. The project will sell 2818 units to the government for fully subsidized housing, and 3000 social and rental units to social housing institutions. 90% of Fleurhof's workforce consists of unskilled workers from previously disadvantaged backgrounds; 7–10% of them are women (EMPEA, 2012). The Fleurhof project aims to eventually offer 10 000 housing units by 2022.

The success of the Fleurhof Integrated Housing Development is shown in the awarding of the Govan Mbeki award for the Best Social Housing Development for 2013 and the Southern African Housing Foundation (SAHF) award for Housing Project of the year 2013. Both awards are aimed at showcasing achievements in the housing industry. The awards are categorized as organizations and individuals achieving excellence in sustainable housing delivery in South Africa. It also acknowledges efforts made by other stakeholders, like financial institutions, which make these developments

possible. These achievements also show that the development is highly ranked in the housing arena and is a good example for future housing development in the country.

Location

The Fleurhof Integrated Urban Development Project is situated in the City of Johannesburg Metropolitan Municipal area. City of Johannesburg lies directly south of the City of Tshwane and East to that of Mogale City, and forms part of one of three districts that make up the peripheral areas of Gauteng Province. It is bounded by the Ekurhuleni Metropolitan Municipality to the East and the Sedibeng District Municipality to the South.



Fig. 2: map indicating Municipal boundaries within Gauteng Province, South Africa (Source: RSDF, 2010/2011).

The Fleurhof integrated development project is located within the major urban concentration areas within the City of Johannesburg. This band of development stretches from the Johannesburg Inner City westwards along the mining belt up to Krugersdorp. It is also in a strategic position taking into

account the cities plans to develop the East-West and North-South corridors of the city. The development provides integration between various uses with newly introduced high density residential and mixed land uses on the site.

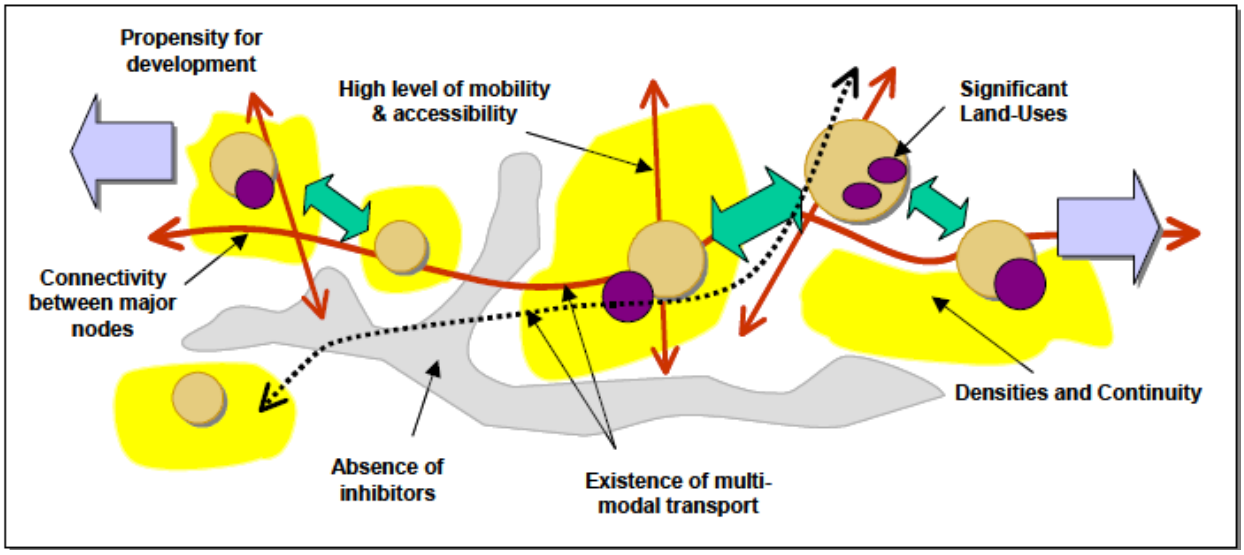

Fig.3: East-West development corridor concept within the Johannesburg City Region (Source: RSDF, 2010/2011).

The Fleurhof Integrated Urban Development Project site is located within the urban edge of the City of Johannesburg making it an ideal location for development .The development site has good access with the R41 and Fleurhof Drive that as part of the development is earmarked as a main Connector route between Main Reef Road in the North and Soweto Highway to the South. The site falls within the urban edge of the City of Johannesburg and between regions that are established formal settlements with the necessary services in place. The presence of the mining sector as well as the hostels on the site have also given the area a character in that it forms a large area of the mining buffer in Johannesburg as well as the access to jobs and homes for residents and labourers.

Fleurhof Drive, mentioned above, will form a link between two segregated areas. It will form a new access point into Soweto by linking Westlake drive in the north to Odendaal road in the south and lies between New Canada drive in the east and Dobsonville road in the west. This will give residents greater access to further opportunities.

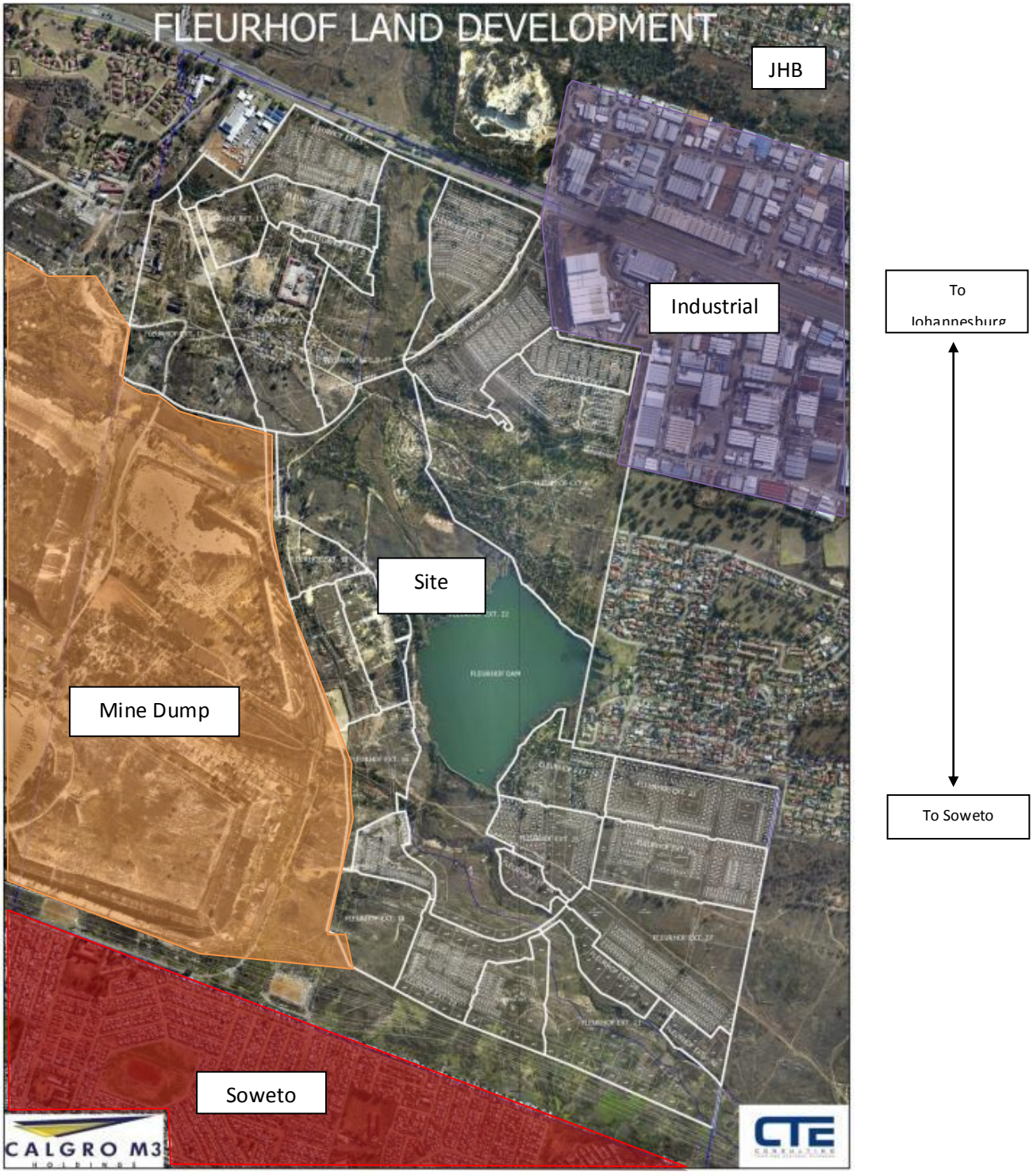

Fig. 4: map showing Fleurhof development during planning phase in relation to the rest of the township (Source: CalgroM3, 2014).

The Fleurhof Integrated Development Project falls between formally established townships. It provides an important link between Florida which is a more affluent Johannesburg township and Meadowlands that is a previously disadvantaged Soweto township.

The development area is further ideally situated for development within the urban edge as outlined by the Gauteng Provincial Government in 2007.

There are a number of already built-up developments surrounding the site and the Fleurhof Integrated Urban Development Project is therefore seen as an infill development facilitating the spatial integration of the wider region.

The Fleurhof development has an important function in developing the mining belt that separated the Soweto townships and the more affluent Johannesburg townships.



Image 3: Aerial view of Fleurhof showing all the amenities as well as situation of different typologies (Source: Calgro M3, 2014).

Implementation Categories

The Fleurhof integrated development project takes into account a wide range of housing typologies that appeal to different markets and users, this allows for people to integrate within a once

segregated city. This housing mix allows for people from all classes, races, and financial standings to have a home. The previous manner in which government provided housing was through the development of free-standing subsidized(RDP) units that were given to the previously disadvantaged. This was problematic since it:

- Allowed backyard shacking and slum lording.
- Characterized little or no control in which these houses were given to people. Many people would apply for the house even though they might have received one in another township.
- Allowed for people to gain a house and rent it out while staying in an informal settlement nearby.
- Made administration and management of these RDP townships disastrous.
- Became a financial burden on the city due to no or little financial contribution towards the fiscal basis in terms of rates and taxes.
- Enhanced low levels of supporting infrastructure such as parks, crèches, business activities and other communal elements.
- Influenced low levels of accessibility to public transport and road infrastructure.
- Increased low levels of essential sources such as running water, basic toilets and dirt roads.



Image 4: Picture showing a typical subsidized (RDP) Township with no thought put into other amenities and services besides housing (Source: CalgroM3, 2014).



Image 5: Picture showing a typical subsidized (RDP) Township emulating a very informal setting (Source: CalgroM3, 2014).

The Fleurhof integrated development project allows people to choose between different options according to their monthly income. These housing options are:

- Fully Subsidized Units (R0-R3500)
- Social Housing
- Partially Subsidized (FLISP)
- Open Market Rental
- Bonded Multi-storey
- Bonded semi-attached or Row housing
- Bonded Freestanding

(a) There are multi storey RDP units which are fully subsidized by the state. These units are given to people that earn a monthly income of R0-R3500 p/m. Many of the people seeking RDP units are unemployed and living in the streets or informal settlements. This allows them to have a home that they service themselves by means of minimal cost of electricity and water. These RDP units are also managed by means of integration within the township. Problems that were faced in the past are no longer prevalent. The city also gains a financial rebate through rates and taxes since the entire township contributes towards this base. CalgroM3 together with the City of Johannesburg have created the first development of this type which was Pennyville Extension 1. This was the first township in South Africa where multi storey RDP's were developed instead of free-standing units. The multi storey RDP units in Pennyville Extension 1 proved to the city that this was more easily manageable in all areas of the residential sector.

By developing multi storey units, it also maximized the utilization of valuable space. By developing high rise residential buildings, it allows for more units to be developed. This allows more people to be housed by the state instead of having to wait for years on a list without gaining a dwelling unit. Therefore these unit typologies have proven to be a great step toward housing delivery in the city. Other benefits with Multi-storey RDP's is a more controlled environment from a maintenance point of view, added security, formalized services, alternative energy sources and green building principles are implemented. There is also a higher level of construction and quality prevalent in the township.



Image 6: Pennyville Ext. 1 a multi-storey RDP development, the first multi-storey RDP development by CalgroM3 and the City of JHB (Source: CalgroM3, 2014).



Image 7: Fleurhof subsidized (RDP) multi storey housing units (Source: CalgroM3, 2014).

(b) The partially subsidized units appeal to people that earn between R3500-R7500 p/m. These units are usually rented out by registered city/property managing agencies such as Madulammoho Social Housing Company and Johannesburg Social Housing Company. A selection process allows people to reside in the unit at low amounts of rental per month as well as self-servicing of electricity and water. The Fleurhof development also boasts the

winning of the Govan Mbeki award for the best social housing project in South Africa proving the innovation put into the designing and construction of the township. Along with this, the funding mechanisms and collaboration between funding institutions shows that cooperation and integration is important in achieving excellence.



Image 8: Multi-story social housing units in Fleurhof, winner of the best social housing development (Source: CalgroM3, 2014).



Image 9: Open market rental units in Fleurhof give the township a stylish look while also adding great value (Source: CalgroM3, 2014).



Image 10: Aerial view of a social rental block in the township (Source: CalgroM3, 2014).

(c) Open market units are rented to people that would like to have a larger unit or better levels of service within the unit. These are usually recent graduates or people looking for a place close to work since their homes are situated far from places of employment. These units are rented to people with a monthly income of R7500-R10000 p/m. They do not differ much from the previous units however; they vary in size and have a better level of comfort.

(d) The last tier is the bonded units. These are sectional title or free standing units that people are able to buy. Since FNB is a development partner, people find it easier to gain funding to buy these residential types. These units are larger in sizes than the other types of units. The schedule of finishes is also of a more grand type. There are also a variety of options. These options include larger stand sizes which accommodate single freestanding dwelling units. As well as smaller stand sizes measuring 120-150m² which accommodate a Semi-detached dwelling unit. The bonded units are great for first time home owners to have a feel of owning a house.



Image 11: Freestanding units which have already been occupied and ownership prevalent by modifications done to the stands (Source: CalgroM3, 2014).

CHAPTER 4:

Findings and Analysis

Findings and Analysis

Taking into account the efforts made by government since 1994, one is left with the question as to whether these efforts are adequate in achieving spatial restructuring and socio-economic redevelopment in South Africa? The aim of this research report is to look at what these efforts are through housing policies mainly BNG. In doing so, the research has focused on an in depth literature review taking from international and South African literature and has therefore focused on concepts like the compact city, mixed use developments, and sustainable human settlements amongst others. The key focus of the literature is to find the link between BNG Policy objectives and integrated housing development in order to look for a solution within the housing sector.

Since planning inextricably involves finding a balance between the built environment, people, and the natural environment, it is important for us to look at ways of integrating these spheres when developing. Hence the research has looked at infill developments as a solution to the spatial problems facing the city. A means of restructuring the urban landscape is needed and in recent times the focus on more compacted development has inspired the use of infill areas as a means of integration and sustainability. In this way development is encouraged within close proximity to the CBD which also takes away the problem of marginalization. These concepts, infill, mixed use, compaction are all therefore very important in the pursuit of creating a viable development scenario for housing delivery. To realize the practical implications of these theories they are tied together with use of the Fleurhof case study. The preceding sections of the research report are therefore important since they dissect policies into theories which are then further explained and linked to the case study. The following section is imperative to gain a better perspective from different stakeholders involved in the affordable housing arena.

This chapter of the research report will look at interviews carried out as well as a secondary study which was done on site. By carrying out interviews, the research report will have a more holistic approach to answering the research question. This is since there is another viewpoint which can assist in answering the research question. The key respondents for the interviews are from:

- CalgroM3-developers,
- CoJ- Development planning and land use management department, building control and environmental management department,
- Social housing agencies- perspectives are taken from an interview conducted with a respondent from the Social Housing Regulatory Authority (SHRA).

As mentioned in the research methods section, the secondary study was carried out to gain residents assessment of the site in terms of services and overall opinion amongst others, as well as gain an insight into business prospects (eg. Need and desirability for a shopping centre) on site. By analyzing the findings from interviews and the secondary study, one will also be able to gauge where the issue lies in terms of housing delivery. Since the research is meant to build on current literature, it will also help future researchers to gain an understanding as to where the shortfalls lie within this sector.

In the context of Johannesburg it is important that researchers, professionals, government and public sector be aware of the changing dynamics of the country. In terms of socio-economic circumstances, people are educating themselves and striving toward creating better lifestyles. By increasing the intellectual capital within the country, people are also aware of efforts made toward creating sustainable livelihoods. In this respect, they are also informed about the natural environment and our dependence on this valuable resource. Through the interviews carried out, the research gains a further insight into the creation of sustainable human settlements and stakeholders opinions of these. The responses are documented under different themes. These themes are informed by the BNG policy's sustainable human settlements. Hence the perspectives of the different stakeholders will be themed under the spatial, social, economic and environmental spheres. The four spheres are imperative in assessing the lack of housing delivery, and also how can it be improved. Using the four spheres the research will also draw on opinions of residents of the Fleurhof Integrated housing project. In this way there will be a greater insight gained as to whether this model of housing delivery suits the creation of sustainable human settlements.

The spatial spheres impact on housing delivery

The spatial landscape of Johannesburg has always been attributed to that of apartheid spatial planning (Donaldson, 2001). This taken from the legacy of apartheid and also contemporary state funded housing developments as mentioned in the literature review (Todes, 2011). Taking into account these issues facing the city, we need to gain further insight as to how this problem can be solved. The research report has looked at infill development as a means of reintegrating the city through the use of the buffer areas used to separate areas during apartheid.

These buffers can be seen as large vacant land parcels that are undeveloped and also influence illegal activity. In an interview with developer CalgroM3, it was mentioned that many of the extensions within Fleurhof were occupied by illegal miners which occupy the land and carry out mining activities. Once these illegal miners find that the land contains precious metals, they begin to reside on the land (CalgroM3, 2014). Another issue is that many people feel that if they reside close to the site being developed, they will be given a unit which draws many people to illegally reside around the site. Government officials respond to this by saying that the land is either owned by mining companies or private owners, and they do not have the capacity to put in security measures (CoJ, 2014).

This then leads to the question, why housing is not developed on this land in order to overcome the problem of development on the peripheries of the city. In many cases as mentioned by government officials, land is either owned by private owners or unaccounted for (ibid). This is a major problem, since illegal activities are apparent and very difficult to stop (CalgroM3). In the development of Fleurhof, developers had to follow eviction processes in order to remove the illegal users and are currently still in the process of curbing further illegal occupation and use (ibid). These processes are expensive and take a large amount of time, which means that developers are increasing the risk factor attributed to the project. In terms of financing for the project, timing has a major impact on the development, hence taking away investor confidence (ibid). In the case of the Fleurhof development, the developer approached the government with a proposal showing their intentions for the development of the site (CalgroM3, 2014). This proposal was formulated due to the developer having owned the land (ibid).

Since spatial factors are made up of elements of the built environment, one needs to also gain an understanding of how a development impacts on its residents. As mentioned earlier, the previous RDP housing developments were considered to be islands with no services or amenities (Huchzermeyer, 2003). Dwellers of these developments even went as far as saying that they lived in the same conditions within informal settlements. Hence the built environment is another crucial factor which should be viewed in terms of different stakeholders and how they make use off or interact with their surroundings.

Looking at the Breaking New Ground Policy of 2004, we see the emphasis put on the layout and use of housing developments. The focus on sustainable human settlements, as a solution to the problem of inequality within South Africa shows that developments should not be viewed as merely housing

(NDHS, 2004). Greater efforts are needed in the planning, design and construction of residential townships. These townships should not merely offer a shelter for residents but must also accompany services and amenities that are needed by these residents.

A step toward offering residents more than just housing was made in the policy through the call for mixed use development (NDHS, 2004). Along with this, government has seen the need for land which is a scarce resource and included a densification strategy (ibid). These two factors are also to be taken into consideration when applying the compact city concept (Neuman, 2005). The developers of the Fleurhof integrated housing development mentioned that the vision for the project was "to form a benchmark in development in the country by transforming the existing fragmented and racially-based framework inherited from the previous government into a safe, spirited, pulsating community that is socially, economically and fiscally affordable and sustainable" (CalgroM3, 2014). In order to do this they had to look at ways of integrating different uses on site as well as integrating the uses of surrounding areas. Taking surrounding areas into account is a crucial step since the land uses should complement one another and also adhere to the spatial strategies laid out for the city like the IDP and SDF (CoJ, 2014). To do this, developers have to carry out studies such as a Traffic Impact Assessment (TIA), land survey, geotechnical studies and Outline Schemes Report (OSR) amongst others. These studies give planners and urban designers a better overview of the land and make the planning simple (CalgroM3, 2014). It also allows them to plan in accordance with surrounding needs and wants with use of a motivation memorandum which should address these uses as well as take into account the RSDF and SDF (CoJ, 2014). Hence these processes also advocate practicing responsible and sustainable town planning.

Once the site and surrounding areas information is accounted for, planners and urban designers work toward planning an entity that can work on its own and does not need further influence (CalgroM3, 2014). To do so there needs to be constant consultation between different professionals; this also saves money (ibid). Professionals like planners, engineers, urban designers and land surveyors are important to the planning of the township. Engineers would firstly do a geotechnical study to determine the soil types which gives a clear indication of the density that specific land parcels can withstand (ibid). A geotechnical study is a compulsory annexure that becomes part of the township establishment application (CoJ, 2014). With this a land surveyor is used to plot out the contours, boundaries, services if any, and other information pertaining to the site that should be

valuable to the planning process (CalgroM3, 2014). At this point the planner and urban designer have the relevant information they need to formulate a layout for the site.

The planning process is very important in promoting integration since it looks at ways of creating user friendly environments that will be functional and adaptable by future residents this is why planners and designers constantly communicate when drawing the plan. During this phase of the project developers look at the different typologies that can be developed on the site and plan the erven to accommodate for these typologies. The town planning process also accounts for the land use controls which, together make up the character of the site (CoJ, 2014). This character refers to the zoning, height, density, building line, FAR, coverage, building lines, parking, erf number and address which are all contained within the geographical information system of the city (ibid). This allows for more effective land use control measures which will help in solving problems facing the city like illegal occupation. By carrying out sustainable and responsible town planning practice also allows for future development to be more regulated. In this way land use departments will face less of a problem in accounting for undeveloped land.

With the planning process developers feel that it is imperative for different professionals to keep updated on the process at all times since it allows for more effective planning. In the same respect they call for greater integration with the public sector (CalgroM3, 2014). In planning, the township roads and transport systems is one of the greatest considerations since they need to feed into an existing system. Traffic engineers carry out a TIA to determine what modes of transport are currently being used as well as give recommendations as to what roads would be needed to feed the township (ibid). The internal road designs are also assessed by traffic engineers and these should be accompanied by the urban design framework since this document explains what the purpose of road being planned in a certain manner is. When planning for Fleurhof it was important to look at how each land use will interact with the street and thereafter account for things like pedestrian paths, trees and furniture (ibid). in light of this, the secondary study points out that there is a higher average of households owning 1.5 cars, than that of Soweto with an average of 0.7 cars owned per household (Fleurhof Household Study, 2014). This shows that within the township there should be sufficient planning made to accommodate residents with cars and also pedestrians. From the study it also mentions that 40-49% of the population use taxis and 6-8% use the Rea Vaya (Fleurhof Household Study, 2014). Within the urban design framework taxi stops were only provisioned. However due to the fact that taxis establish their own collection points, there was no means made

for a formalized taxi rank (CalgroM3, 2014). The Rea Vaya has however not been accounted for in the development plan yet recently this year the route came through Fleurhof due to the access to Soweto via Fleurhof Drive (ibid). Taking from this it is important to look at developing in a holistic manner. As planners it is important to take into account all of the relevant legislation, policies, regulations and processes. These are what guide development that would be more viable from a government perspective. Following rules and laws would also allow the city to enhance its role of municipality and gain more capacity from other spheres of government (CoJ, 2014). In this way policies and strategies will have a greater impact on development in the local context.

Zooming in on the development from surrounding areas, to mobility, to on site layouts, it is now important to look at specific sites. From the developers' perspective, all the developments that they undertake are scrutinized by zooming in on each site in order to gain full benefit from the developable area (CalgroM3, 2014). Once the layout plan has been drawn, architects formulate site development plans (SDP) for each erf besides free standing single residential erven (ibid). SDPs should account for the internal layouts of erven where services like water, sewer, electricity, stormwater, roads, refuse, and landscaping (CoJ, 2014). These SDPs are important in determining the density of the erf since it is governed by the services to a great extent (CalgroM3, 2014). In order to make each erf sustainable, architects work with urban designers to create a space that would enhance interaction among residents of multi storey erven (ibid). These spaces should entice residents to use their communal areas and involve themselves with their neighbours (ibid). Due to this 41% of the residents interviewed consider the site as an attractive environment (Fleurhof Household study, 2014). This environment is made up of factors like cleanliness, friendly neighbours, tarred roads and a quiet area (ibid). Construction materials used are of a good quality, adhere to the regulations of the South African Bureau of Standards (SABS) and are attractive (ibid). This factor also pointing out the aesthetic value put into the development. Moving away from the previous housing model, the integrated housing development shows how each detail should be focused on to create a more inclusive development.

By looking at the above spatial factors it is important to view development in a holistic manner. From the interviews conducted, we see that the municipality as well as developers is making efforts toward more inclusive processes amongst themselves. These efforts are enhanced through partnerships between these entities and planning takes more of a collaborative approach. This is a factor that should be further influenced in order to create more development opportunities in the future (CalgroM3, 2014). By integrating the state and private entities there is also greater capacity,

upon which the municipality can leverage its role in overcoming problems facing the city. By forming teams within the development process, developers have shown that the benefits are great in that they save time and money as well as focus their initiatives on creating better spaces. Through integration and collaboration more innovative methods of development are also borne. This would be a major positive input in terms of housing development in the city of Johannesburg.

Social Integration in Housing Development

> "…growth in the psychological well-being due to a resident's sense of "home" and its resulting stability, the improved physical health of the homeowner's family, the resident's increased participation in civic society, and the improved educational performance of their children. Another goal might be to achieve racial and economic integration in order to allow a wider range of residents to partake of the benefits associated with mixed race and/or mixed income communities..." (Diamond, 2009: 1).

Taking from this we see the importance of integration among people and societies. In Johannesburg many of the problems facing the city stem from a social issue regarding race, income, religion and education amongst citizens (CoJ, 2009). The government's BNG policy is considered as a holistic approach to housing delivery which will eradicate these social problems by means of integrated societies (NDHS, 2004). In doing so there will be an upliftment effect passed on amongst residents which will make them want to better their situation, based on their neighbours' influence (SHRA, 2014). This section will look at different perspectives given by stakeholders and how they feel about the Fleurhof integrated development in terms of the social sphere.

Since the densities are higher within the development, there are more people, meaning that there are also greater amounts of interaction between people (SHRA, 2014). As part of the development process, the developers undertook a social impact study on site (CalgroM3, 2014). The purpose of this document is to present a social baseline and assess the most important social impacts that the proposed development will have on its environment. It also proposes mitigation measures to address the possible impacts (ibid). Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment (ibid). This document aims at addressing issues that can come from surrounding users affected by the development, as well as those on site from the beginning to completion of the project.

There are two major stakeholders which had to be assessed as part of this process. These stakeholders are the neighbouring Fleurhof residents, as well as the Hostel dwellers on the site. The neighbouring residents were made to form a communication forum that constantly liaised with developers, while the hostel dwellers were relocated in order to gain a house on site once developed (CalgroM3, 2014). Along with this the surrounding industrial sites and nearby Soweto suburbs were included in the study to gauge the impact the development will have on them (ibid). In terms of this assessment, social surveys took into account factors like noise and emissions which could impact on future residents. Furthermore, the SIA looks at ways of integrating surrounding users with future residents so as to avoid social exclusion and conflict from occurring. Through this process surrounding users are also given a further awareness of the proposed development and are thus compelled to give their perceptions, opinions and objections pertaining to the development.

It is important to recognise that factors such as socio-economic differences can cause conflict in communities. Socio-economic differences express themselves in different lifestyles, attitudes and value systems. Increased exposure between residents with different lifestyles and value systems can cause tension, and mixed housing developments, if not managed and implemented with care have the potential to exacerbate social and physical differences (Kleinhans, 2004). As part of the social impact assessment, the development has looked at ways of including surrounding areas as well in the overall development plan. This is a means of creating an integrated urban environment with the surrounding users. By integrating the surrounding areas and users into the new development plan, developers are also given an idea of how to plan in order to give more value to all citizens in and around the site (CalgroM3, 2014). Public participatory measures are used by adopting a public objection period as part of a township application which ensures that people surrounding the site are also happy with the proposed development (CoJ, 2014). As mentioned above, the SIA is formulated through interaction with surrounding users so as to plan in accordance with current social behavioural patterns. In this way social engineers examine the nature of people's behaviours and are able to give insight into the planning process. These efforts are also aimed at achieving social cohesion between different societies which is a major factor that is addressed by the BNG Policy.

More important is the manner in which people within the development interact with each other. Due to the development being largely informed by mixed use mixed tenure principles, it is important to look at how people of differing income categories will interact with each other. As per the Fleurhof Household Study (2014: 5), the average income is R10 250 per month. This is high

compared to neighbouring Soweto where average income varies between R7000-R9000 per month (ibid). From this we see that the residents of Fleurhof are made up of a higher income category yet there are also earners between R0-R1500 per month which means that there is interaction between high and low income residents. However the study has also pointed out that 86% of the respondents feel that there are too many lower end houses on the site (ibid). This shows that people are still unwilling to integrate with each other. The disparities between high and low income groups are prevalent in Johannesburg and there needs to be a more concerted effort put into bridging this gap. Since economic differences are a means of enhancing social exclusion, these two spheres have to be looked at in relation to one-another to balance out the differences created by each sphere. In the context of a once racially segregated city, it is important to look at how different races integrate and communicate with each other. This factor is a major imprint left by the apartheid government. However, through inclusionary processes and strategic spatial restructuring, there is hope that racial divides will disappear in the near future (SHRA, 2014). As can be seen from the Fleurhof integrated project, the location of the development impacts greatly on linking two previously racially separated areas. In the same manner, housing developments should consider the greater social benefit that will be achieved through integrated planning approaches.

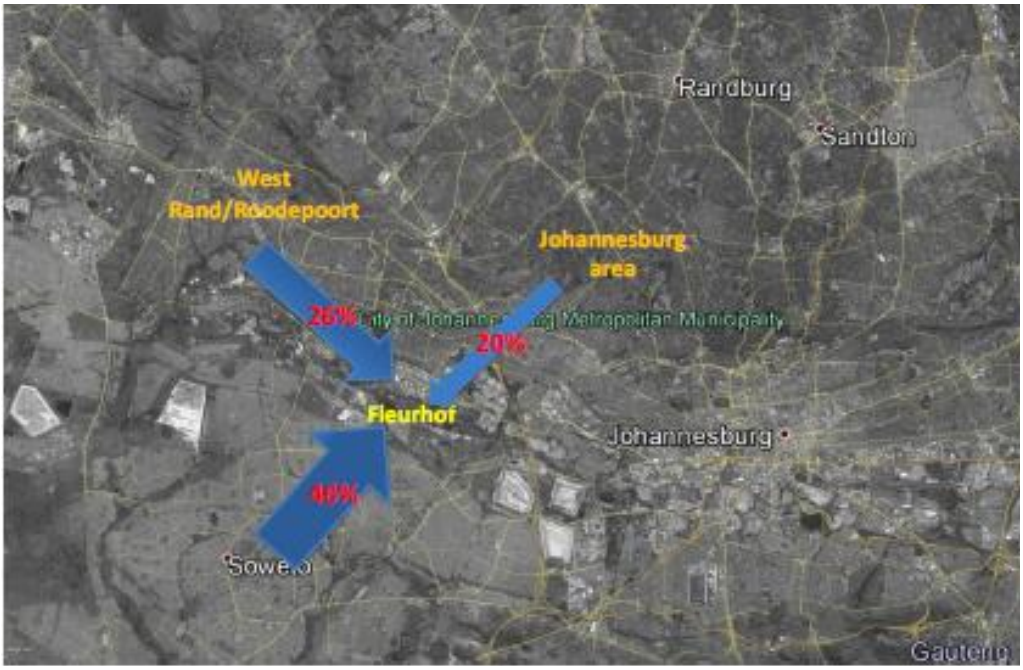

Image 11: map showing where majority of the respondents originate from (Source: Fleurhof Household Study, 2014).

As can be seen from the image 11 above, the residents of Fleurhof are made up of people from in and around the Johannesburg area. These residents are made up of families occupying predominantly two bedroom units of which rental make up 48% and bonded makes up 44% (Fleurhof Household Study, 2014). From these residents most of them are either employed within the admin/clerical sector or work as domestic laborers (ibid). There are also many residents who are unemployed currently. By pointing out this factor it is important to note that resident's social stance is largely informed by the unit they occupy and the type of job they have (SHRA, 2014). Many of the residents feel that since this is a new development which is close to the CBD, they will easily be able to commute to places of work and also gain entrepreneurial opportunities at some point (CalgroM3, 2014).

Due to the development being a mixed use development, the planning and construction of land uses other than residential use was also initiated. These other uses are amenities like schools, crèches, religious sites, police stations, clinics, municipal sites and community centres. All these land uses help create communal areas that allow for interaction among residents. However in the case of these developments, government departments need to take responsibility in occupying and maintain these sites (CalgroM3, 2014).

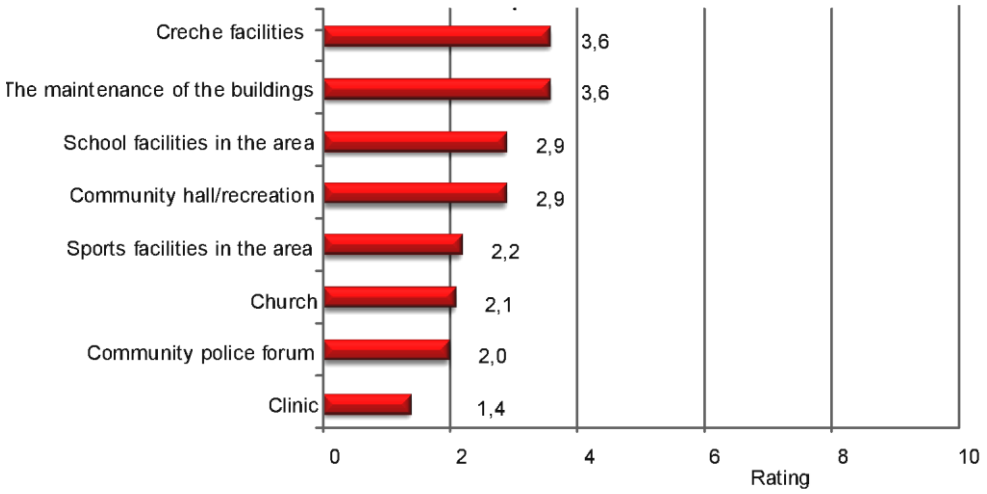

Fig. 4: Graph depicting satisfaction levels within Fleurhof (Source: Fleurhof Household Study, 2014: 32).

The graph above shows that residents are dissatisfied with the levels of service regarding the amenities on site. Many of these residents feel that the development would be of superior quality if

these services are made better for them (CalgroM3, 2014). According to a respondent from the CoJ (2014), provincial and national departments are the custodians of these services (education, clinic, etc) within communities, since there are so many departments and many rifts between them, these services are not taken care of and sometimes even become white elephants or left to be vandalized. From this we see that it is important for government to play its role in creating sustainable human settlements and also sustaining them. This form of development encompasses all these services in order to better the lives of people however if they are not accessible to them there would be no benefit gained.

A respondent from SHRA (2014) asked a crucial question which was "How can you integrate people in low income areas, while also pulling out a rental, and how do you bring out a community feel instead of a 'ghetto'?" and later pointed out that "through urban planning aspirational elements come about which is through residents educating residents". In arguing this point the respondent felt that there is a need for more mixed use mixed tenure developments in Johannesburg since it shows that people are sociologically/psychologically educated through their interactions with others (ibid). Developers felt that since there is a shortage of land, densification and mixed uses is a key solution that will aid in achieving integration (CalgroM3, 2014). Meanwhile government departments feel that this is a good way of overcoming past mindsets with regards to races, classes and ethnicities (CoJ, 2014).

In developing integrated settlements it is important to educate citizens on the benefits of social inclusion (SHRA, 2014). An example given by the SHRA (2014) representative was that if one side of the street is always kept clean, the opposite neighbours aspire to keep their side clean. These efforts are brought on purely by people interacting with others as well as their surroundings. In this manner residents also start aspiring to upgrade unit types as well as aim at buying a property (ibid). Rental agencies also feel that it is important to educate residents regarding lease agreements as well as how to interact and be comfortable in a mixed income neighbourhood (ibid). The developer has also pointed out that an individual owning a freestanding unit purchased for R 350 000, is in the process of selling his property at a value of R450 000, after owning it for one year six months (CalgroM3, 2014). According to the representative from SHRA (2014), "Through this process of educating residents we are also able to show them the benefits of owning personal properties which has major positive financial implications for citizens over a period of time." As part of the BNG policy, one of the major outcomes should be empowerment meaning that people should be in a better position

than they were in before having a house, as can be seen from this, people are being given these opportunities. However this factor relates to the economic sphere and will be discussed in greater detail in the section. As pointed out above, each theme being analyzed is imperative when considering sustainable development. Therefore each of the themes is interdependent on each other so as to not forsake one for another.

Enhancing Economic Growth in Sustainable Development

Within this sphere of developing sustainable settlements, it is imperative to note that people are dependent on a fiscal base to go about their everyday activity. As mentioned earlier, social conditions also stem from economic standing and therefore people need to be financially stable in order to live happily. Looking at the BNG policy we also see governments' efforts toward empowering people. This form of empowerment was initially introduced through the state funding housing programmes (RDP,1998), and later looked at ways of creating sustainable human settlements which will add advantage to residents in terms of economic upliftment through mixed uses and amenities present on site (BNG, 2004). During the process of granting housing to people, government has also realized that there is a need for larger numbers of housing and also to grant people of higher incomes a chance at securing affordable units. This brought about the social housing act which was a way of subsidizing social housing developments in order to help residents with capital input costs (NDHS, 2014). Therefore to look at the economic sphere, we need to look at these different income groups and how they relate to one another on site in terms of economic growth and potential. Along with this it is also important to look at stakeholders like the state and social housing agencies in order to gain a further insight into the economic base on the site.

By looking at the information presented in the previous section, we see that a majority of Fleurhof residents are within the administration and domestic labour markets. This shows that in comparison to conventional RDP developments, people are beginning to occupy more formal types of employment (CalgroM3, 2014). In the context of Johannesburg, and South Africa on a whole, many citizens partake in informal economies which make it difficult for the state to manage as well as control these activities (CoJ, 2014). With many citizens high dependence on the informal economy, the state needs to address the issue by either embracing it or getting rid of these practices, in this way developers will also be able to focus their efforts on including these people (CalgroM3, 2014). However, due to the high amount of unaccountability within this sector the state loses a large amount of money in terms of taxes (CoJ, 2014). Hence it is imperative to look at ways in which people can be suited for in matters of the economy so as to curb practices and make management on the states behalf an easier task (ibid). In terms of monthly incomes, it is vital to understand that each resident will add a small percentage toward the rates and tax base. Residents monthly incomes hence play a major role in them contributing to this fiscal base and should therefore be considered

when designing the township. In this way residents that cannot afford to pay a large amount will also be granted maintained serviced dwellings. Table 1 below shows the types of dwelling units occupied by residents. This is an essential factor that should be analysed to give an understanding of how different tenures can maintain the fiscal base. By pointing out the large amount of bonded and rental units in comparison to the fully subsidized units, we see that in this way the higher income residents are able to contribute more toward the rates base.

Status of house						
Status	**Total**	**Extension 2**	**Extension 3**	**Extension 4**	**Extension 5**	**Extension 6**
Total Responses	**1392**	**643**	**481**	**82**	**27**	**159**
Rental	48	59	59	0	0	5
Bonded	44	41	41	0	0	95
RDP	8	0	0	100	100	0

Table 1: showing the residents types of tenure arrangements within Fleurhof (Source: Fleurhof Household Study, 2014: 20).

In terms of economics within households it is essential to note that rental and bond payments can take up a large amount of a person's monthly income. Within Fleurhof one sees that a majority of the residents interviewed occupy rental and bonded units (See Table 1). This means that on an average of 3.6 years residents have already been contributing towards securing of tenure (Fleurhof Household Study, 2014). Along with this, 93% of residents interviewed rely on a monthly salary (ibid). However as mentioned above, owners that have bought property when the development came about have gained an increase of R100 000 in the past three and a half years (CalgroM3, 2014). According to the World Bank (1993), it is important for government policies to encourage property ownership, along with this the state should look at ways of implementing funding mechanisms to help buyers. The do's and don'ts of creating affordable housing also mentions that it is important for government to subsidize infrastructure development and also regulate the market so as to create a good entry point for buyer (ibid). With collaboration between financial institutions, rental housing agencies and government, there is a greater capacity in contributing toward a larger once of capital investment. In this way more residents can be accommodated by different funding options making the housing market more easily accessible and inclusionary.

As per the BNG policy, it is governments purpose to empower people through housing and these funds should be made available to municipalities in order to develop (CoJ, 2014). Even though a large number of residents make up bonded and rental units, and 94% of these residents do not

receive housing subsidies, government makes a once off capital investment in the development (SHRA, 2014). Along with this there are numerous subsidies received for developing human settlements (CalgroM3, 2014). Some of these subsidies are the Urban Settlements Development Grant (USDG) and the Municipal Infrastructure Grant (MIG) which developers apply for in order to construct proper infrastructure services (ibid). According to the World Bank (1993), governments should subsidize infrastructure costs and manage development processes to ensure that services are developed to a good quality. The IDP (2004/2005) goes on further to say that a key challenge is to create quality living environments which address social issues related to poor service delivery. It is important to consider the infrastructure within the early phase of the development process since it allows for better implementation (ibid). By putting in proper infrastructure at the beginning of a project, it also makes the collection of rates and taxes easy for government since these services are registered to owners (CoJ, 2014). Considering viewpoints of residents, many of them feel positive with regards to the level of service delivery (See Graph Below). This level of satisfaction indicated by residents also proves that when infrastructure services are put into place correctly considering the relevant processes, government departments play their role in maintaining these services.



Fig. 5: graph showing the level of satisfaction experienced by users in Fleurhof (Source: Fleurhof Housing Study, 2014).

In comparison, the prior RDP units given to people were problematic in many ways and so rates and taxes are unaccounted for (SHRA, 2014). When coming up with a model for sustainable human settlements, government has had to look at ways of providing housing in a way that would empower people but also not become a “black hole” for the government (ibid). This means that the new form of housing development should also bring in an income for the state to carry out sustainable housing

practices in the future (CoJ, 2014). By including rental units, rental agencies are responsible for the collection of rates and taxes from residents, since these residents have to pay in accordance with the lease agreements, government can easily find who is faulting in terms of payment (CalgroM3, 2014). Social housing agencies also view each project as a separate entity and by making them independent, a sustainable business model is formulated (SHRA, 2014). This business model is used to operate the project under the circumstance of being a private entity that has to sustain itself over a period of time (ibid). To sustain the project, each development needs cleaners, maintenance staff, leasing agents, landscaping, security and operational staff (ibid). These staff members are employed from the local area in order to grant people employment (ibid).

As mentioned in the case study, the project will employ 1000 skilled and unskilled labourers (CalgroM3, 2014). By granting jobs to people, they are also empowered so that they may keep up with rent (SHRA, 2014). The respondent goes on further to state that "in some buildings if residents lose their jobs and they have a good property manager, he/she might offer the resident a job on the premises to fulfill his rent obligation" (ibid). In terms of income categories there are some extensions that earn on average R12 000, while other extensions earn less than R2000 per month (Fleurhof Household Study, 2014).



Image 12: map showing where majority of the residents of Fleurhof work (Source: Fleurhof Household Study, 2014).

As mentioned earlier, these stark differences between income groups are important in creating more integrated areas within the city. By residents aspiring to better their livelihoods, different income groups interact on a daily basis where information is exchanged. This information can help people change their lifestyles in good or bad ways through influence. Since influence is always prevalent among people, higher earning residents can educate low income earners as to what jobs would pay higher or other alternatives to their current income (SHRA, 2014). Currently 54% of residents renting in Fleurhof would consider buying a unit in the future (Fleurhof Household Study, 2014). This means that people are aimed at empowering themselves and since the units within the township are affordable, this empowerment will be made more easily possible. Along with this, 32% of the respondents indicated that they would consider starting their own businesses in future. The main ideas/plans include the following:

- retail related (36%);
- home related services (45%);
- motor and building related (19%) (Fleurhof Household Study, 2014: 37).

Based on this it can be said that residents within the development are capable of creating better futures as well as current livelihoods. Due to the need for services like shops on site some residents have already established businesses in the area. The developers pointed out that "a certain resident has even erected a canvas canopy and landscaped his garden in order to host customers in his restaurant" (CalgroM3, 2014). Given the time that people are residing on the site, along with proper infrastructure services, and mixed land uses there are many opportunities available for people to work on site. According to the Fleurhof Household Survey (2014), there is a need for shopping centres, churches, schools and clinics. All of these developments will offer employment to people on site. In this way they will also be able to commute to and from work at no cost. Hence we see that in terms of the economy, people will always have to seek opportunities to attain better livelihoods. To do this it is important to accommodate these uses on site and also encourage people to take the necessary steps at creating employment options.

Caring for the Natural Environment

The natural environment is a key element within sustainability that needs to be understood. This understanding should stem from the fact that sustainable means that it should not be depleted. As mentioned in the literature, the environment should be taken care of in order to provide for current and future generations. In order to do so it is important to look at embracing the environment within future developments. In the Fleurhof Integrated project, a total of 118ha is allocated for public open space owing to the presence of a wetland on the site (See Image 12 Below). When proposing a development it is compulsory for developers to carry out an Environmental Impact Assessment on the site, this will allow the state to give a decision on whether to permit the development or not (CalgroM3, 2014). This is a lengthy process that accounts for every plant and insect inhabiting the site (ibid). However, it allows for accommodating these biomes and also gives recommendations as to how natural elements can be safeguarded. Stringent approval processes and environmental legislation helps maintain the natural resource base to a certain extent although it can be argued that any form of development can/will endanger the natural environment. By thinking in this manner, as planners it is important to assess the overall damage a development will have on the natural environment, before implementing the project. In this way development will occur on the basis of equality between the natural and built environment.

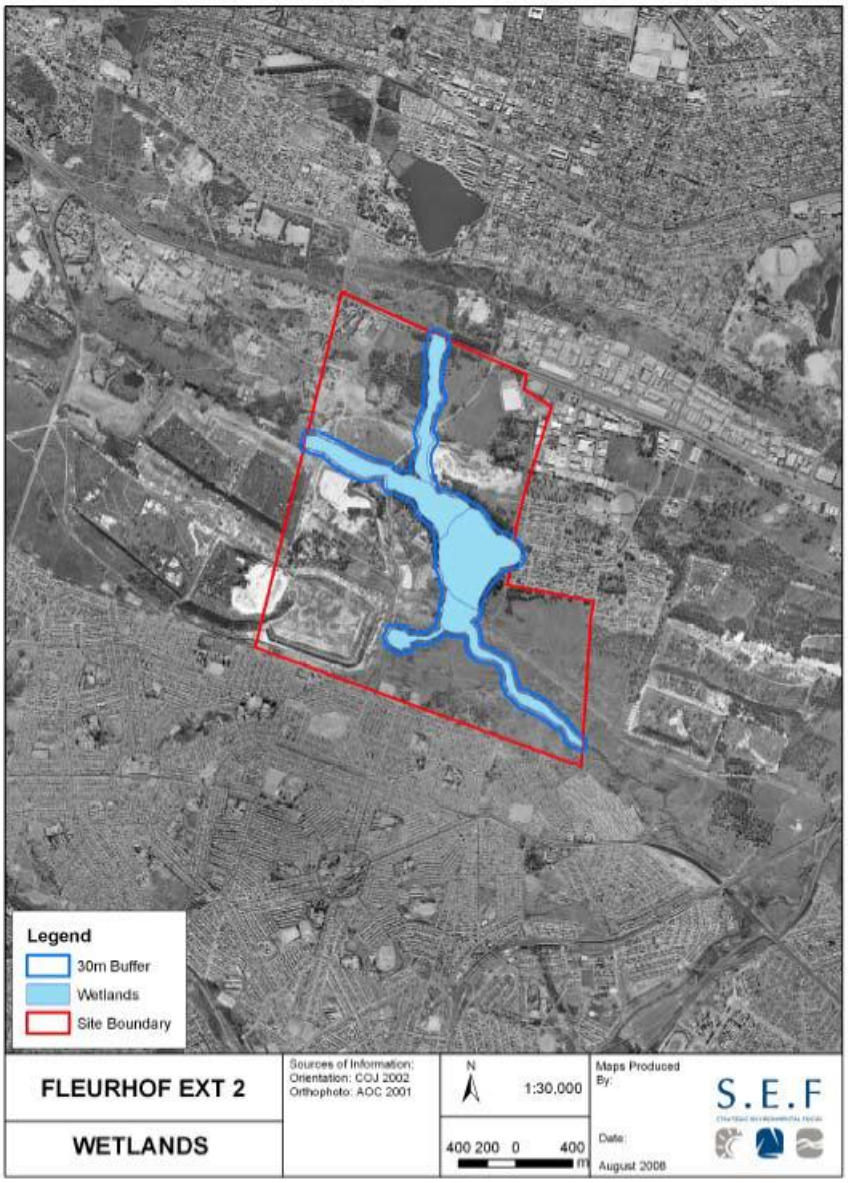

Image 13: map showing Fleurhof with the wetland and buffer (Source: CalgroM3, 2014).

According to the National Environmental Management Act 107 of 1998, an EIA has to be formulated to gain a record of decision as to whether development is allowed on the proposed site or not (CoJ, 2014). As part of the EIA it is important to note that there are many specialist studies which are carried out. Considering the Fleurhof Integrated Development, the studies that were carried out are;

- Ecological Impact Assessment
- Wetland Delineation
- Agricultural Assessment

- Geotechnical Assessment
- Traffic Impact Assessment
- Visual Impact Assessment
- Air Quality Impact Assessment
- Radon Analysis
- Heritage Impact Assessment
- Social Impact Assessment (CalgroM3, 2014)

All of these studies are important and have to be carried out in order to gain the record of decision (ibid). By carrying out these studies, the development plan is also guided in a manner that would be more sustainable since it focuses on every element in an around the site. Along with these studies the EIA also includes a section on public participatory processes. Since it is a holistic document that covers all bases of the site as well as being a compulsory action, it also includes an Environmental Management Plan (EMP). This document gives necessary recommendations for the future development. Along with this it puts into place a management system that is managed by an environmental officer appointed by the developer (CalgroM3, 2014). This environmental officer has to submit progress reports on a regular basis to the department of agriculture and rural development (ibid). It allows for the development process to be governed within the constraints of the environment and hence plays a major role in creating sustainable settlements.

A wetland delineation plan was drawn up for the Fleurhof Integrated development as shown in image 12 above. This plan allows development to occur 30m away from the wetland. In doing so, development does not encroach on the natural system, and also brings about a precautionary measure since developing on the wetland can cause buildings to sink or flood (CalgroM3, 2014). Due to the wetland crossing through the entire site, a large portion of the property is taken up by this riparian system. Developers are currently seeking ways of integrating this system into the development by creating recreational spaces for residents as well as educational areas to make residents aware of the benefits of wetlands (ibid). However, there are certain departments that are unhappy with the development of a bridge crossing the wetland and also the channeling of certain sections (CoJ, 2014). Even though these may be considered negative practices, they were done for

the purpose of human habitation and considering the large amount of water bodies in Johannesburg, it is important to educate people with regards to the importance of these systems. By locating them nearby the aquatic systems they are constantly reminded of the value of nature to humanity.

A very important factor to point out is the development lies on an infill site that was once utilized for mining purposes. Along with this, there are many mine dumps in very close proximity to the site. Due to these factors a radon study had to be carried out. The Radon and dust fallout studies both measure the impact of the mine dumps being in close proximity to people (CalgroM3, 2014). In the recent months there have been accusations that the land is not habitable; however with use of the studies done it can be proven that this is not the case (ibid). The geotechnical study is also important in this respect since it assesses the different soil types and capacities that the land can withstand (ibid). Due to illegal mining activities being carried out on the land for many years, it is important to carry out the studies to avoid any problems in the future (ibid). In instances where land is not fit for development, a rehabilitation plan is devised in order to utilize this land at a later stage.

Finally one has to look at the measures taken to sustain the development in terms of residents and the environment. The development team investigated potential green initiatives which could be implemented such as energy saving techniques which include solar water heaters, heat pumps and improved insulation for different housing units (CalgroM3, 2014). Along with this, architects and urban designers work on designs that include a great amount of natural energy to curb the need for heaters and fans (ibid). As part of the SDP circulation process, different departments have different criteria in order to approve plans (CoJ, 2014). These criteria take into account paved spaces, stormwater management, parking, trees, green communal spaces and refuse areas to mention a few. Therefore it is very important to look at the way in which buildings are designed within the entire space since each building has a different impact on the environment. By adopting measures to preserve the natural environment also decreases the overall carbon footprint of the development. This in turn helps the environment sustain itself for a longer period of time.

Summing up

By looking at the different perspectives given by city officials (CoJ, 2014), social housing representatives (SHRA, 2014), developers (CalgroM3, 2014) and residents (Fleurhof Household

Study, 2014), it is evident that Fleurhof as an integrated development is creating a benchmark for future housing development in the city. The manner in which the development plan is produced is intriguing due to the fact that much emphasis is placed on the planner as the individual responsible for the smooth operation of the process. Integration between the different individuals responsible, as well as the municipality, helps carry out the development project with much greater ease. The success of this project also shows that it is important for all stakeholders to play an active role in the development and maintenance processes. From the above findings, one also sees that there are proper rules and processes put in place by government to facilitate responsible town planning. It is the responsibility of developers to ensure that these rules and processes are adhered to. As part of these processes it was pointed out that all of the spheres making up sustainability are looked at (ie. Social, spatial, economic, and environment). This proves that governments as well as developers are aware of the intent the development fraternity has toward sustainability. A key issue is that there is miscommunication and disintegration within government and also between private and public sector. As can be seen from the manner in which professionals integrate to create a development plan, so too is it important for greater integration between all stakeholders in the process.

Judging from the responses gained the state, developers, residents and social housing agencies have a very positive attitude toward Fleurhof Integrated housing development. As mentioned earlier, there are residents who are not very pleased to have low income housing on the site, yet this also shows that citizens are not accustomed to this living arrangement. In educating people, there is a greater thrust toward more consensus in developing mixed income, mixed use developments. Through the implementation of these developments, people can also learn from one another through interaction. Persuading people from different groups to live together also helps alleviate problems persisting since apartheid (eg. Racism). In this way the state will achieve a means toward a more inclusive city which is the ultimate aim of the BNG policy.

CHAPTER 5

Recommendations and Conclusions

Recommendations and Conclusions

The problems facing the city with regards to the delivery of equitable housing are tremendous and there needs to be a way forward in terms of this manner of reconstruction and development (Donaldson, 2001; DoH, 2004; Tissington and Dugard, 2013). In the past twenty years we have seen South African government deliver the largest number of houses in the world (NDHS, 2011). However this great effort does not appeal to the principles policies have set out in terms of equality. Along with this high level of state funded housing delivered, many of the RDP dwellers feel as though they have been marginalized and also forced out of the area of opportunity which is seen as the CBD and northern suburbs (Huchzermeyer, 2003). Many researchers believe that the housing delivery pattern in the country resembles that of apartheid segregationist planning which adds to the inequality in the country (Huchzermeyer, 2003; Donaldson, 2001; Harrison et al. 2003).

During this twenty year period there have also been numerous policies written with regards to socio-economic development in South Africa. In this research, the Breaking New Ground Policy of 2004 was focused on to a greater extent since it addresses the major problems with regards to housing and equitable development. This policy also governs other frameworks and legislatures which are used in the development arena. In so doing, the policy objectives are focused toward achieving more equitable development. However, even with these documents in place there still persists the problem regarding development and reconstruction in the country. The research has thus looked at these BNG developmental objectives and how they can be adopted in the planning field to address the matter at hand. The manner in which this was done is through an analysis of the BNG policy and its objectives. Through these objectives, the research looked at literature written about the major concepts, and how these can be used as means of reformation from the apartheid city. The research then adopted a more in depth analysis by carrying out interviews with key stakeholders in order to give the report a feel of the opinions rendered toward housing in Johannesburg. By using a case study, the research then takes a more practical stance in that the concepts are now portrayed in reality. In using this manner of inquiry into the matter of housing delivery, the research looked at ways that the problem can be solved. The main aim of the research was to understand sustainable human settlements and how these can be implemented as a solution to Johannesburg's problems of inequality, disintegration and segregation.

As can be seen from the previous chapter, it is important to look at sustainable development from a social, economic, environmental and spatial perspective. These spheres are integrated in a manner that allows for the development of settlements that are more conducive to human settlement. Since the findings and analysis focused on these spheres as a means of gaining an understanding, it is imperative to look at how these problems can be solved within the different spheres. This section of the research will look at ways in which the problems relating to the spheres within sustainable development can be overcome. Recommendations will be given since the gaps between policy and delivery are pointed out through the analysis carried out.

As mentioned in the analysis chapter, the city of Johannesburg has been gravely affected by apartheid planning and is currently viewed as one on the most inefficient cities in the world (Schoonraad, 2000). This inefficient nature stems from the landscape of the built environment in that there is a large amount of land which is being used ineffectively. By situating state funded housing on the peripheries of the city, and with not much effort put into integrating the city and its suburbs spatially and socially, one wonders if Johannesburg could really be seen as an equitable City. Even though the economy speaks for itself in this regard, one is also then led to the understanding of the high levels of inequality in the country at large. In trying to change this practice of inequitable development, the research report has looked at what the BNG policy has stated with regards to the built environment, and also goes further to look at the opportunity of infill development. These two factors are crucial in terms of the spatial sphere since it looks at effective ways of planning which will create a development scenario that is equitable yet also integrates the city and its users.

The BNG policy of 2004 states that, a means of granting state funded housing should appeal to the poor, destitute and also middle income earners that cannot afford finance. In order to do so, the policy looks at ways of achieving a larger number of units and also ways of providing adequate services and infrastructure to these developments. This effort is taken in order to overcome the reality of RDP housing being islands with no proper services and amenities (Huchzermeyer, 2003). Another addition is that these RDP developments are considered as exclusive housing developments in that there are no other land uses within the townships. This raises levels of inequality since these

low income residents still have to travel in order to gain work, goods and services from other areas. Without a proper public transport system, these residents are left with a greater problem, making the development unsustainable in terms of the resident's everyday livelihoods. Hence the research has taken the spatial spectrum as being one of those elements making up the built environment that will help in achieving greater levels of sustainability through spatial integration.

In terms of the BNG policy, a densification strategy has to be adopted when developing human settlements (NDHS, 2004). This allows for more compact development and hence there is less emphasis placed on gaining large greenfield sites on the periphery of the city. Since this is what the policy is asking for, it should be stipulated by government that this is a key developmental objective. The Gauteng Urban Edge policy of 2007 implemented by the Gauteng Provincial Government is a good example of this type of policy. This policy should be adopted by municipalities and emphasized to a great extent which will allow for more compact development. Municipalities play a key role in development planning and land use management on a local level and should thus take the responsibility of implementing the relevant policies.

When new developments are being planned, municipalities should take the responsibility of making changes to layout plans in order to account for higher densities. Since the municipality is the management agency in terms of land use, it should also promote densification in its Integrated Development Plans (IDP) as well as spatial strategies used to govern development. In this way developers and land owners will be made aware of the importance of densities upon the site and take this into consideration during planning stages. Through densification developers/land owners incur higher costs in terms of the bulk services upon the site. These bulk service fees are governed by the zoning of the erf/erven, hence higher densities (eg. residential 3) would incur a higher cost than a lower density (eg. residential 1). Government should look at ways of reimbursing or cutting these costs as an incentive toward densification which would influence higher densities and mixed use developments.

With increased densities and mixed land use developments being emphasized, developers, planners, urban designers and land owners in other suburbs also see the benefit. Strategies and rules should

be drawn up in this regard where the municipality should seek to situate major transport routes and economic nodes within the city. These areas will form a base for future increased densities and mixed use developments. Along with this, it would also be easier for the municipality to implement a public transport system. This route will be determined by the land uses, densities and rate of activity within the vicinity. In doing so, development in the city will be more greatly informed by the people and their activities.

In terms of the research report, one of the solutions to the current housing delivery pattern is that of infill development. Currently there are large tracts of land that are undeveloped since these pieces of land were used for mining activities and also, private owners do not wish to sell the land. There are also parcels of land which made up the buffers around the previously white occupied city (Donaldson, 2001). It is a crucial time for government to look at ways of utilizing this land, but the problem is that many departments cannot account for the ownership of the land. A solution to this would be by creating a land register and conducting a land audit. In this way the municipality will be able to pinpoint which parcels of land are available for immediate development, and also adopt measures to purchase, rehabilitate and manage other parcels. In terms of these parcels of land, the municipality should also look at ways of including the private sector in planning and developing land. This will help overcome the problem of the state lacking capacity and also set standards of development for the private sector. In terms of the standards for development, this will be by means of looking and creating opportunities for development which will also bring about more collaborative practice. Through this integrated development process, there will be greater results achieved in housing delivery from the spatial perspective in sustainable development. This is due to the fact that public and private sector developers are looking at opportunities for development in close vicinity to the city, which also makes them suit their development plans to rollout a larger number of units. Since the spatial landscape of the development will adhere to sustainable development objectives, it will also enhance socio-economic and environmental sustainability. In this way reconstruction and redevelopment will also be more easily achieved.

People's activities and interactions are crucial factors that have to be considered when planning. With use of study groups, interviews and other interactive methods, planners create plans that would suit the current users. However, in the city the current process of participation is through the

use of newspaper notices and site notices. This is effective in alerting certain members of the community, however not all of them are informed in this way. Along with this, the manner in which participation takes place is through an objection forum which members of the community voice their concerns regarding the development. This process does not take into account any positive input from current residents thus already creating tension. The manner in which participation should take place is through more active involvement by all stakeholders. In this way current residents also feel a sense of ownership in the new development. This will also bring about greater interaction between different people which is a major need in terms of integration. As can be seen from the development of the Fleurhof Integrated Development, the use of a social study-SIA was a means of creating a communication forum between planners and the surrounding areas residents. This is a much more inclusive method since it involves the opinions and perspectives of all stakeholders during each phase of the development process. Since the development of certain extensions has taken place, the current residents on site are now also actively involved in the future planning phases which also allows for more holistic planning and development.

As mentioned previously, Fleurhof residents are not happy about the fact that there are a large number of fully subsidized units. This means that people within similar income groups are unhappy living near people earning a few rand less. It could also mean that there is not much integration between people on the site which is a major negative factor since the purpose of mixing tenures was to create a platform of exchange. However, the reason that people feel negative toward the fully subsidized unit is since they feel that these units will lower the value of their property. In this case it should be made apparent that the different typologies were developed according to the norms and standards stipulated by the state. This allows for the quality of the dwellings to be of a good standard which allows the physical value of the unit to maintain a certain level. In the same manner, a process should be set up that governs the standard to which housing developments should adhere to. Through the use of tools that would encourage best practice in terms of planning and construction, a number of issues can be sorted out at in the early stages of the project.

Since property values are important in empowering residents, the inclusion of different tenure types as well as mixed uses also increases the value of properties. Certain areas within the development are considered as nodes which are developed in order to serve the residents. Over a period of time,

residents are able to purchase different tenures and if lucky they may also establish businesses and utilize business zoned land parcels. In this way there is also investment in the area and also a means of maintaining the property values of residents. If all residents aim to achieve integrated societies that are feasible to their livelihoods, they are also given a chance at empowering other residents within the development. In this manner, a mixed tenure development allows for people of differing income groups to interact and contribute to the overall economy of the area.

The economy of an area is very important to the well being and empowerment of the residents. It is through the economy that further development and investment in areas can occur. Hence the economy plays a major role in creating an integrated society that is sustainable and able to prosper over time. The economy of the area is made up of the rates and tax base as well as the services and amenities available to users. In order to create a settlement that allows for the growth and stability of the economy it is important to look at the resources and services which are available and needed for the community. Along with this, government should make people aware of initiatives like Small Medium and Micro Enterprise (SMME) development funds which will allow residents to take that step at creating economic opportunities in their immediate surroundings. Through efforts like these there are also ripple effects like increased employment through the establishment of labour intensive activities. In this way people from the area will be in proximity of job opportunities which will not demand the need for travelling or other associated expenses. However, this process of empowerment should start during the settlement development phase.

The responsibility of the state should come into play during the development process in terms of employment and empowerment. In certain projects the tender requirements stipulate that a percentage of labourers should come from the site and surrounding areas. In this way people are given a chance to earn a low wage, however they are also given work experience as well as a viable reference. Since the BNG policy looks at ways of creating mixed tenure developments, it should be made possible that the fully subsidized housing is provided prior to the other tenure types. By doing this, residents from the subsidized tenure will be given a chance at gaining employment during the construction of other phases. This will increase the sense of ownership among these people and also inspire them to work harder in order to climb the property ladder. By involving residents in the construction process, they are also taught how to develop and maintain certain infrastructure services. In this way residents will be able to form an operational team that can be responsible for the maintenance and upkeep of the various services within the settlement. This is of major

importance with regards to subsidized housing especially since history has shown a lack of interest from utility departments in state housing developments after project completion.

As mentioned earlier, the levels of maintenance and upkeep of services are poor according to residents. Research also shows that in past state funded housing developments the levels of service is very low or non-existent (Huchzermeyer, 2003). This process of maintenance and upkeep is governed by the state and is therefore a major downfall on their behalf since it leads to unrest and protests within the development. However the reason for this is usually since there are no funds available to carry on this service since none of the residents pay their rates, taxes and utilities. Another problem is a lack of accountability, bribery and corruption which is a major setback in the country (Schoonraad, 2000). A general slackness amongst state employees is the nature of the bureaucracy. Hence a method of solving these issues is through the use of residents as the labour force to carry out the operational work within their suburb/township. This also enables them to become more involved in their immediate surroundings making them aware of the natural environment in the process. By enhancing this awareness amongst residents also enable them to integrate as a community to a further extent.

Through integration and education, communities in the city can also be involved in the natural environment. Within the city there are numerous water bodies and other natural systems. In order to know about these valuable resources, people need to be educated and also involved in the safeguarding of the natural environment. Currently the processes involved in saving the environment are used through the application process when development takes place. At this point in time there is no accountability for what is taking place on the land which can be seen through the settlement of illegal residents. All spheres of government should look at ways of preserving any natural resources that is available on the land. By carrying out a land audit, each parcel of land will be recorded along with the environmental information. In this way when new developments take place all environmental information pertaining to the land will be immediately available which will cut a large amount of time from the planning process. The reason for involving all spheres of government is since there is a major lack of integration. The environmental processes and applications currently being carried out are implemented by different spheres of government.

Between the spheres there has been no consensus as to who will be responsible for these processes increasing the lack of accountability.

Along with this, strategies and frameworks can address plans for integrating the current natural system into the urban environment. In doing so, citizens will be able to acquaint themselves with the different natural systems in the city. These spaces can also be used for recreational purposes like the Emmarentia dam. By doing this the natural environment is considered to a greater extent in future developments.

In terms of the environment, by integrating parks and recreational areas within layout plans is also important. These spaces add to the green areas in the development and also create spaces for activity and interaction. City parks which is the administrator in terms of parks and recreational areas needs to be more involved with the Department of Environmental Management which is the department in charge of administrating development around environmental systems in the city of Johannesburg. By having these two departments working more closely there will be greater positive impacts on the environment. In terms of development, any development can be harmful to the environment. However, by integrating these natural systems rather than inhibiting them, there is a greater environmental benefit. Looking at the presence of wetlands, one sees the great values attributed to this natural system, one such quality is that it works as a natural water filtration system. In the context of Johannesburg there are many scarce environmental resources which need to be cared for in order to sustain them. In order to do so there needs to be much more emphasis placed on educating government as well as civil society on the benefits and positive impacts of these systems. By doing this there will also be more input from all sectors as to how they can play a role in saving the environment. Through integration of the built and natural environment, people will be granted a greater awareness of the positive impacts of saving these resources.

In conclusion we see that housing is a major element within the city and a great emphasis is placed on this arena as a means of creating sustainable developments and sustainable livelihoods. It is being used as a means of restructuring and empowerment in South Africa and therefore should be the forefront in terms of development. Each sphere of sustainable development is viewed in light of how housing can be delivered since this is the means by which people are empowered and also how

development should take place in the country. Johannesburg, being one of the major cities in SA, is currently facing huge housing backlogs and cannot find a means to overcome this problem. With the use of the BNG policy of 2004 many lessons can be learnt as to how housing delivery should be carried out. It has taken into account the changing dynamics of the country and therefore is suited toward granting people and the environment a greater benefit. With the use of supplementary policies and strategies one sees that the development sector also shows promising efforts in achieving more sustainable developments. We also see that in terms of the governments' roles and responsibilities there is a need for greater efforts in the development process. This effort should be aimed at achieving what the aims and objectives are of the policies. To do this there needs to be greater integration between all stakeholders in coming up with solutions to development problems. Even though there are processes and protocols put in place for these objectives to be met, there also problems of incapacity and approval backlogs. Hence, to overcome the problems facing the city, it is vital that government departments and employees assume the responsibilities given to them. With this emphasis on responsibilities from the states behalf, private sector stakeholders will also be more willing toward collaborating on public projects.

In this respect, one sees that the policies are well informed in terms of overcoming problems facing the city. Looking at the BNG policy, we see that plans of densification, compaction and mixed uses were emphasized during the early stages of South Africa being a democratic country. However, as mentioned above, there are major problems of carrying out these policy objectives and initiatives. This problem stems from the lack of capacity, accountability and general work ethic of state employees. Even though civil society and private sector try to make amends in terms of these downfalls, there is a major lack of interest shown by the state. Applications lodged to the local municipality take as long as a year to be approved, this being the minimum possible time. Currently many private sector consultants have 'contacts' within the municipality which allows their applications to be approved in time. Through bribery some individuals are benefitted however a large proportion the population are marginalized. By working in this environment, the researcher has seen that within certain contexts, development projects are impossible to carry out. In the same manner, people waiting for state funded houses are sometimes not even given the opportunity since they do not have any contacts in charge of providing these houses. This makes equitable development and redistribution impossible due to some people having an upper hand over others. Therefore, even though policies are targeted at improving redistribution and redevelopment

processes, the implementation of these policies is inconsistent. Public and private sector need to reach an agreement where processes and laws are abided by which will also allow for legislation to be drawn up with regards to time frames and work ethics among state employees. In this way, private investors and developers will also be given added confidence in carrying out development projects which will add value to the marginalized populations.

Finally, by assessing the objectives of the BNG policy of 2004, we see that there are clear intentions made by the government in achieving more equitable development. Since the adoption of this policy there have not been any noticeable changes made in the housing arena. However, the Fleurhof Integrated Housing Project has shown great promise in terms of innovative housing delivery models. Therefore to answer the research question based on the information presented, it can be said that Integrated Housing Developments are in fact a means of creating Sustainable Human Settlements.

Reference List

Adebayo, P. (2010). Still No Room at the Inn: Post-apartheid Housing Policy and the Challenge of Integrating the Poor in South African Cities. Paper presented at the 2010 Housing Studies Association Conference on Housing in an Era of Change, April 16, University of York, York.

American Planning Association (2013). *Planning and Community Health Research Center: Mixed Use Development*. Internet: http://www.planning.org/nationalcenters/health/mixedusedevelopment.htm, [Accessed 11 March 2014].

ANC (1994). The Reconstruction and Development Programme – RDP: A Policy Framework. Johannesburg: Umanyano Publications.

ANC (1996). Growth, Employment and Redistribution – GEAR: A Macroeconomic Strategy. Johannesburg: African National Congress.

Angotti, T., & Hanhardt, E. (2001). *Problems and Prospects for Healthy Mixed-use Communities in New York City.* Planning Practice & Research, 16:2, 145-154, Internet:http://dx.doi.org/10.1080/02697450120077352 [Accessed- 25 May 2014]

Beavon, K. (2004). Johannesburg: *The Making and Shaping of the City*. Brill Academic, Johannesburg.

Berg, B. L. (1998). Writing research papers: Sorting the noodles from the soup. *Qualitative research methods for the social sciences*, 253-272.

Berger, A. (2006). *Drosscape – Wasting Land in Urban America*. Princeton Architectural Press, New York.

Bertraud, A. (2002). Note on Transportation and Urban Spatial Structure. Paper presented at ABCDE Conference, Washington, April. Internet article: http://alain-bertaud.com, [accessed 30 April 2014].

Bhattarjee, A. (2012). *Social Science Research: Principles, Methods, and Practices*. Second edition. Creative Commons Attribution. Zurich, Switzerland.

Bond, P and Tait, A. 1997. *The failure of housing policy in post-apartheid South Africa*. Urban Forum. 8, 19-41.

Burton, R., Jenks, M. and Williams, K. (1996). *The Compact City: A Sustainable Urban Form?*. E&FN Spon, London.

Charlton, S. (2000). Infill and integration in the post-apartheid city: two low-income housing projects in Durban. Paper presented at the Urban Futures Conference, Johannesburg, 10–14 July.

Charlton, S. (2003). "The integrated delivery of housing: a local government perspective from Durban". In P. Harrison, M. Huchzermeyer, & M. Mayekiso (Eds.) *Confronting fragmentation: housing and urban development in a democratising society*. Cape Town, Juta/UCT Press.

Charlton, S. (2010). *Inclusion Through Housing: Limitations and Alternatives in Johannesburg*. Urban Forum. 21, 1-19.

Charlton, S. and Kihato, C. 2006. "Reaching the Poor: An analysis of the evolution of South Africa's housing programme". In: Pillay, U., Tomlinson,R. & du Toit, J. (Eds.). *Democracy and Delivery: Urban Policy in South Africa*. Cape Town, University of Cape Town Press, pp. 252-282.

City of Johannesburg (2009). *A citizen's guide to planning in Johannesburg*. City of Johannesburg Metropolitan Municipality, Johannesburg, South Africa.

City of Johannesburg (2010). Regional Spatial Development Framework 2010/2011, Johannesburg.

Condon, P. M. (2010). *Seven rules for sustainable communities: design strategies for the post carbon world*. Washington, Island Press.

Coupland, A. (Ed.). (1997). *Reclaiming the city: mixed use development*. Taylor & Francis, Faculty of the Built Environment, University of South Wales.

Creswell, J. W. (2009). *Research Design: Qualitative, Quantitative and Mixed Methods Approaches*. 202-225, Third Edition. Sage Publications, Thousand Oaks.

Cross, C. (2006). "Local governance and social conflict: Implications for piloting South Africa's new housing plan in Cape Town's informal settlements". In M. Huchermeyer, & A. Karam (Eds.) *Informal settlements: A perpetual challenge?*. Cape Town, UCT Press.

De Soto, H. (2001). "The mystery of capital: Why capitalism triumphs in the West and fails everywhere else". *Centre for Development and Enterprise*. No, 6. Pp 1-11. Johannesburg.

Department of Housing (2000) The National Housing Code. Pretoria: Department of Housing.

Dewar, D. (2000). The relevance of the compact city approach: the management of urban growth in South African cities. *Compact cities: sustainable urban forms for developing countries*, 209-18.

Diamond, M. (2009). 'Affordable Housing and the Conflict of Competing Goods: A Policy Dilemma.' In Davidson N.M. and Malloy R.P. (eds.) *Affordable Housing and Public – Private Partnerships,* Farnham, Ashgate Publishing. 1 – 9.

Donaldson, R. (2001). A model for South African urban development in the 21st century. In *20th South African Transport Conference "Meeting the Transport Challenges in Southern Africa*. Paper presented at the 20th annual South African Transport Conference, Pretoria, 16-20 July 2001.

Elkin, T., McLaren, D. and Hillman, M. (1991). *Towns Reviving the City: Towards Sustainable Urban Development.* Friends of the Earth, London.

Emerging Markets Private Equity Association (EMPEA) (2012).The Impact of Private Equity in Emerging Markets: Case Study Fleurhof Project South Africa. Internet: http://www.housingfinanceafrica.org/wp-content/uploads/2012/09/ EMPEA _case _study_ fleurhof.pdf, [Accessed 21 June 2014].

Financial and Fiscal Commission (2012). Building an Inclusionary Housing Market: Shifting the Paradigm for Housing Delivery in South Africa. Paper presented to FinMark Forum, Johannesburg.

Godschalk, D. R. (2004). Land use planning challenges: Coping with conflicts in visions of sustainable development and livable communities. *Journal of the American Planning Association*, *70*(1), 5-13.

Hall, P & Pfeiffer, U. (2000). Urban Future. A Global Agenda for Twenty-First Century Cities. London: E& FN Spon.

Hardy, S. L., Boarnet, M. G., Ewing, R., & Killingsworth, R. E. (2002). How the built environment affects physical activity: views from urban planning. *American Journal of Preventive Medicine*, *23*(2), 64-73.

Harrison, M. (2008). *Reclaiming the city: housing for inner-city Johannesburg*. Doctoral dissertation, School of Architecture, University of the Witwatersrand, Johannesburg.

Harrison, P., Huchzermeyer, M., & Mayekiso, M. (2003*). Confronting fragmentation: housing and urban development in a democratising society*. Cape Town: Juta/UCT Press.

Healey, P. (2004). "Creativity and urban governance". *Policy Studies*, 25(2), 87-102.

Hoppenbrouwer, E., & Louw, E. (2005). “Mixed-use development: Theory and practice in Amsterdam's Eastern Docklands”. *European Planning Studies*, 13:7, 967-983.

Huchzermeyer, M. (2003). “A legacy of control? The capital subsidy for housing, and informal settlement intervention in South Africa”. *International Journal of Urban and Regional Research*, *27*(3), 591-612.

Irurah, D. K., & Boshoff, B. (2003). Confronting Fragmentation: An interpretation of sustainable development and urban sustainability in low-cost housing and settlements in South Africa. *Housing and Urban Development in Democratising Society*, pp244-262.

Irurah, D., Bannister, S., Silverman, M. and T. Zack (2002) *Towards Sustainable Settlements: Case Studies from South Africa.* Commissioned by Department of Housing. Johannesburg: STE Publishers.

Jacobs J. (1961). *The death and life of great American cities*. New York: Vintage Books.

Kleinhans, R. (2004). “Social implications of housing diversification in urban renewal: A review of recent literature”. *Journal of Housing and the Built Environment*. pp19

Levinson, H. S. (1999). “Street spacing and scale”. In *Urban Street Symposium, Dallas, TX*. June

Louw, E. & de Vries, P. (2002). “Working at home: The Dutch property dimension”. *Planning Practice & Research*, 17(1), pp. 17–30.

Lozano, E. (1990). *Community Design and the Culture of Cities*. Cambridge: Cambridge University Press.

Lynch, K. (2000). *Good City Form, Originally published: A theory of good city form*. 1981, 12th printing, Cambridge, MA: MIT Press.

McConnell, V. and Wiley, K. (2011). "Part IV: Urban Land-Use and Transportation Policy, Chapter 21: Infill Development: Perspectives and Evidence from Economics and Planning". In Brooks, Nancy; Donaghy, Kieran and Knaap, Gerrit-Jan. *The Oxford Handbook of Urban Economics and Planning*. New York: Oxford University Press.

McLean, K. (2003). “Housing provision through co-operative government in the post- apartheid South Africa”. In G. Mhone, & O. Edigheji (Eds.) *Governance in the New South Africa: The challenges of globalization*. Johannesburg: UCT Press, University of Witwatersrand.

Mejias, L., & Deakin, E. (2005). “Redevelopment and revitalization along urban arterials: Case study of San Pablo avenue, California, from the developers' perspective”. *Transportation Research Record: Journal of the Transportation Research Board*, *1902*(1), 26-34.

Mokoena, M., & Marais, L. (2007). “The Missing Link in Cooperative Governance and Housing Delivery: Lessons from Mangaung Local Municipality”. *Urban Forum,* Vol. 18, No. 4, pp. 311-327. Springer Netherlands. December

National Department of Housing, (2005). Breaking new ground – a comprehensive housing plan. Pretoria.

Nell, M. and Associates -The Settlement Dynamics Project Shop (2005). Housing Supply and Functioning Markets, research conducted for the Banking Association of South Africa.

Nelson, A. C. (2000). Effects of urban containment on housing prices and landowner behavior. *Cambridge: Lincoln Institute of Land Policy*.

Neuman, M. (2005). “The Compact City Fallacy”. *Journal of Planning Education and Research*, 25, pp 11–26.

News 24 (2013). Fix RDP homes or else, residents warn. Internet: http://www.news24.com/SouthAfrica/News/Fix-RDP-homes-or-else-residents-warn-20130712 [Accessed on: 17 December 2013].

Palys, T. (2008). “Purposive sampling”. *The Sage encyclopedia of qualitative research methods*, 2, pp 697-698.

Pieterse, E. (2004). “Untangling ‘Integration’ in Urban Development Policy Debates”. *Urban Forum*. 15(1), pp 1-25.

Pithouse, R. (2009). “A progressive Policy without progressive politics: Lessons from the failure to implement 'Breaking New Ground'”. *Stads-en Streeksbeplanning= Town and Regional Planning*, (54), 1-14. Internet: http://dx.doi.org/10.1080/09654310500242048 [Accessed- 25 May 2014]

Public Service Commission (2003). Report on the evaluation of the national housing subsidy scheme. Pretoria: Public Service Commission.

Republic of South Africa (1996). The Constitution of the Republic of South Africa, 1996 (Act No.108 of 1996). Pretoria Government Printers.

Republic of South Africa (1997). The Housing Act, 1997 (Act No.107 of 1997). Pretoria: Government Printers.

Rowley, A. (1996). "Mixed-use development: Ambiguous concept, simplistic analysis and wishful thinking?". *Planning Practice and Research*, 11(1), pp. 85–97.

RSA (Republic of South Africa) (1995a) Urban Development Strategy of the Government of National Unity (GNU). Pretoria: Ministry in the Office of the President.

RSA (Republic of South Africa) (2000) Local Government Municipal Structures Act, 2000. Act No. 33 of 2000. Pretoria: Government Printer.

Rust, K. (2006). *Analysis of South Africa's Housing Sector Performance,* commissioned by the FinMark Trust Website.

Rust, K., Zack, T and Napier, M. (2009). "How a focus on asset performance might help 'Breaking New Ground' contribute towards poverty reduction and overcome the two-economies divide." *Stads- En Streeksbeplanning- Town and Regional Planning*, 54, pp 51-61.

Sarantakos, S. (2005). *Social Research*. 3rd. Hampshire: Palgrave Macmillan.

Savin-Baden, M. & Major, C. (2013). *Qualitative Research: The Essential Guide to Theory and Practice*. London: Routledge.

Schoonraad, M. D. (2000). "Cultural and institutional obstacles to compact cities in South Africa". *Compact cities. Sustainable urban forms for developing countries*, pp 219-230.

Sitar, M., & Krajnc, K. (2008). "Sustainable Housing Renewal". *American Journal of Applied Sciences*, *5*(1), pp 61.

Social Housing Regulatory Authority. (2012). *The 2012 annual report of the social housing regulatory authority*, Johannesburg, South Africa.

South Africa Government Online (2014). About SA: Housing. Internet: http://www.gov.za/aboutsa/housing.htm#vision_2030 [Accessed: 20 July 2014]

South Africa. Department of Housing (2004) "Breaking New Ground": A Comprehensive Plan for the Development of Sustainable Human Settlements. Pretoria: Department of Human Settlements

South Africa. Department of Housing 2007. Framework for Inclusionary Housing Policy in South Africa. Pretoria: Department of Human Settlements

South Africa. Department of Housing. (1997). Urban Development Framework Pretoria: Department of Human Settlements.

South Africa. Department Of Housing. (1997). Housing Act, No. 107 of 1997. Pretoria: Department of Human Settlements

South Africa. Department of Human Settlements. (2004). *Breaking New Ground: A comprehensive plan for the creation of sustainable human settlements.* Pretoria: Department of Human Settlements.

South Africa. Department of Human Settlements. 2009. *A simplified guide to the national housing code.* Pretoria: Department of Human Settlements.

South African Cities Network. (2006). *State of the cities report 2006*. Braamfontein, South African Cities Network.

Statistics South Africa, (2014) South Africa Census. Internet: http://beta2.statssa.gov.za/?page_id=1021&id=city-of-johannesburg-municipality [Accessed: 25 April 2014]

Stelli, J, C. (2013). *A new vision for Johannesburg: Investigation of the mining brownfields and the development of a green, sustainable strategy to integrate the reclaimed land*. Research Report-Faculty of Engineering and the Built Environment, University of the Witwatersrand: Johannesburg.

The Presidency. (2003). The national spatial development perspective. Pretoria.

Tissington, K. (2010). *A Review of Housing Policy and Development in South Africa since 1994*. Towards an SER Matrix: Monitoring the Progressive Realisation of Socio-Economic Rights in South Africa. Internet: http://www.ronewaconsulting.co.za/wp-content/uploads/2014/03/A-Review-of-Housing-Policy-and-Development-in-South-Africa-since-1994-Kate-Tessington-2010.pdf [Accessed: 20 April 2014]

Tissington, K. and Dugard, J. (2013). *Minding the Gap :An Analysis of the Supply of and Demand for Low-Income Rental Accommodation in Inner City Johannesburg*. Socio-Economic Rights Institute. Johannesburg: Braamfontein.

Todes, A. (2011, May). “Reinventing planning: Critical reflections”. In *Urban Forum* (Vol. 22, No. 2, pp. 115-133).

Todes, A., Dominik, T., & Hindson, D. (2000). “From fragmentation to compaction? The case of Durban, South Africa”. In M. Jenks and R. Burgess (eds) *Compact Cities: Sustainable Urban Forms for Developing Countries*, 231-44. London, Spon Press.

Todes, A., (2000). “Reintegrating the Apartheid City? Urban Policy and Urban Restructuring in Durban”, in G. Bridge and S. Watson (eds) *A Companion to the City,* pp. 6 17-28. Oxford, Blackwell.

Tomlinson, M. (1999). South Africa’s housing policy: Lessons from four years of delivery. Lecture for the Housing Policy Development and Management Programme, Graduate School of Public and Development Management, University of Witwatersrand, Johannesburg.

Turok, I. (2001). “Persistent polarisation in post-apartheid? Progress towards urban integration in Cape Town”. *Urban Studies*, 38(13), pp 2349–2377.

UNCHS (United Nations Commission for Human Settlement) (Habitat) (1996) ‘Habitat Agenda and Istanbul declaration’, Second UN Conference on Human Settlements, Istanbul, 3–14 June.

Watson, V., & Mccarthy, M. (1998). “Rental housing policy and the role of the household rental sector: evidence from South Africa”. *Habitat International*, 22(1), pp 49–56.

WCED (World Commission on Environment and Development) (1987). *Our Common Future*. Brundtland Commission. New York: Oxford University Press.

Wessels, D. (1999) *South Africa’s Reconstruction and Development Programme: “A Better Life for All”.* Bloemfontein: The University of the Orange Free State, Department of Political Science, research report.

Williams, K. (2000). “Does intensifying cities make them more sustainable”. *Achieving sustainable urban form*, pp 30-45.

Yin, R. K. (1994). “Discovering the future of the case study method in evaluation research”. *Evaluation Practice*, 15(3), pp 283-90.

Appendix

Interview Process

Consent Form

Date: ……,

University of the Witwatersrand

To: Whom it may concern (Interviewee)

I, Mohamed M Khan, am a student registered at the University of the Witwatersrand in the School of Architecture and Planning, Student number- 0706792F.

I am currently in the process of conducting research for the submission of a research report (thesis/ dissertation) as a requirement for my Bachelor of Science with Honours in Urban and Regional Planning.

My research title is "Could Integrated Housing Developments on infill sites aid in creating Sustainable Human Settlements? A case study of Fleurhof, Johannesburg". The aim of the research is to find out if Integrated Housing Developments, like Fleurhof, will be a means of providing adequate housing and services for people in Johannesburg.

In order to conduct this research I humbly request that I interview you. Your participation is entirely voluntary, and should you decline the request to participate you are free to do so without penalty or loss. You may of course also stop your participation at any time; there will be no difficulties for you if you want to stop. I will use the information obtained from you together with the information from all the other participants to prepare a research report for the School of Architecture and Planning at Wits University. If you agree, the information reported will be attributed to you.

All information obtained from the research will not be used to inform any work related tasks.

All information revealed will be treated with the utmost respect and confidentiality. If you wish, I will not use your name in my report and you also don't have to tell me your name if you prefer not to. I can refer to you by the term Respondent and allocate a number to you.

Should you have any questions or complaints about the study, the interviews or the researcher, please do not hesitate to contact my supervisor, Brian Boshoff, via e-mail, address: Brian.Boshoff@wits.ac.za

Thank you for your willingness to participate in this study. Below is the consent form.

CONSENT

I, ……, am willing to take part of this study and understand that my participation is voluntarily and that I can withdraw from participating at any time, for whatever reason without penalty or loss.

Please sign if you are willing to allow your name to be recorded and used in any report or publication flowing from the research. You may still participate in this study even if you are not willing to have your name recorded.

……

Please sign if you are willing to have this interview recorded (audio). You may still participate in this study even if you are not
willing to be recorded.

……

Interviews with Developers

How was the development of Fleurhof initiated?

What are Integrated Housing Developments?

What is localization?

What is meant by cross-subsidization?

What is referred to as amenities within the site?

What constraints faced the developer?

Who are the key professionals that thought of the development plan?

How was the plan thought off?

What is the most important process when coming up with a development plan of this nature?

How does this plan differ from others? (progressive)

What process is followed in order to develop the land?

How has Sustainable Human Settlements policy impacted on the development process?

Were the objectives of Sustainable Housing Policy taken into account when planning the development?

What funding mechanisms are used for the development?

What funding institutions play major roles?

How does mixed use/tenure development impact on the rates and taxes base of the township?

How is the land acquired for this type of development?

What are the strengths and weaknesses of developing on an infill site?

Are there any problems regarding the geotechnical aspects of the land?

Was the surrounding community taken into account during the development process? How?

Is the environment considered in the process? How?

Interviews with Housing Agencies:

Do these developments carry greater value than inner city rentals?

Do residents look after places that they rent?

What are the main problems in managing developments like Fleurhof?

Do people feel despondent when renting units within proximity of RDP developments?

Interviews with Government officials:

How has Fleurhof Development added advantage to the housing arena of JHB?

What role did the state play in coming up with a comprehensive development plan?

Does the development adhere to the principles and objectives laid out by the state in terms of housing policy?

How do developments like these help in aiding the state to provide adequate housing?

Does development on sites like Fleurhof spark conflict with those in given housing on the peripheries?

Does the development adhere to principles set out in housing policies?

What is the average value of a RDP unit in Fleurhof?

How does the Fleurhof development fare in terms of contributing to the rates base?