"With the diminishing availability of land in relation to the growing number of people means we have to apply new technologies to build better. Again this emphasises the question of densification through social housing."

Human Settlements Minister Tokyo Sexwale at the National Indaba on Home Building Technologies in September 2010

(Housing in Southern Africa, 2010 : 1)

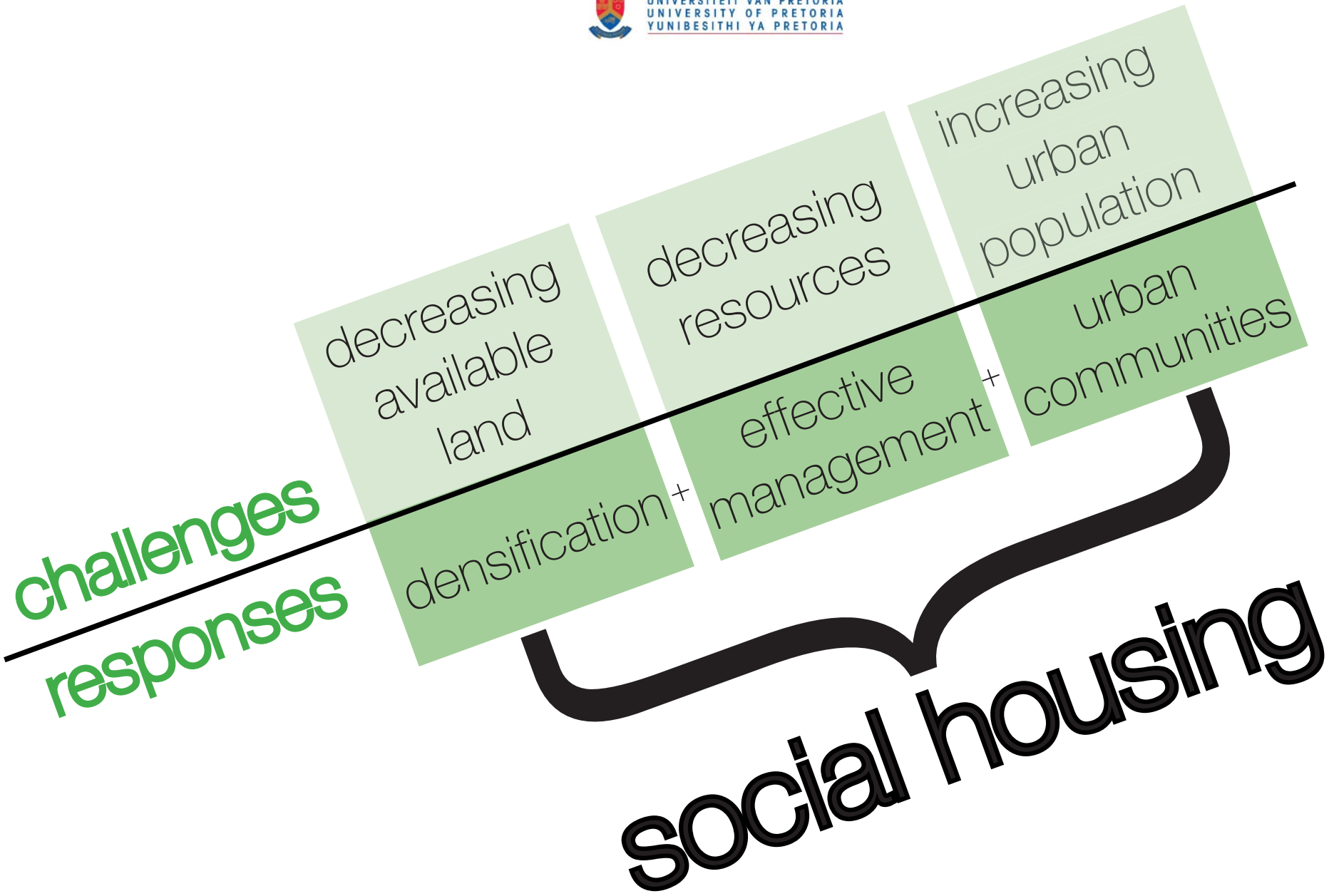
3 Problem & Response

Problem statement
Hierarchy of challenges
Proposal
Summary of theories
Summary of relevant local documents
Discussion

Determining the exact problem and the related challenges.
A proposal reinforced through the discussion of relevant theories and the manner in which they form the concept, along with other unimportant documents

Problem Statement

The decrease of available land and resources in South Africa, in contrast to the increasing population within cities requires densification and the implementation of social housing to eventually encourage the development of urban communities.


challenges
responses
decreasing available land
decreasing resources
increasing urban population
densification +
effective management +
urban communities
social housing

Challenges to address

Housing people

Sustainable lifestyles

Density

Formation of communities

Creating belonging

Illustration 3.1 City scale

Illustration 3.2 Precinct scale

Illustrattion 3.3 Unit scale

Urban Scale

City

Precinct

Unit

Proposal

The author proposes a mixed-use intervention as a catalyst for social and economic growth in Salvokop. The development will allow for the establishment of a gateway to the suburb which is undergoing upliftment. Supported urban elements will include small businesses, existing pedestrian activities and social rehabilitation.

Summary of theories studied

Supports - Habraken (1972)

Supports is one of the primary protagonists of the open building movement and challenges the housing delivery process of post-war Europe suggesting that the development of dwellings needs to include not only the end-user during the process, but also to consider the greater needs of the community. The Modernist view of "effectiveness" is disputed due to its unspecific means of delivery and disregard of site specifics. The expansion of cities and the increased need for housing is likened to the growth of a biological organism, a process which should be directed as opposed to controlled. Housing is portrayed as arising from a diversity of activities performed by the occupant, and highlighting the important social component. ***Supports*** deals with the fundamental connection between the dweller and the dwelling in what is termed "the natural relationship", the success of which is determined by the inclusiveness of the architecture and the delivery thereof.

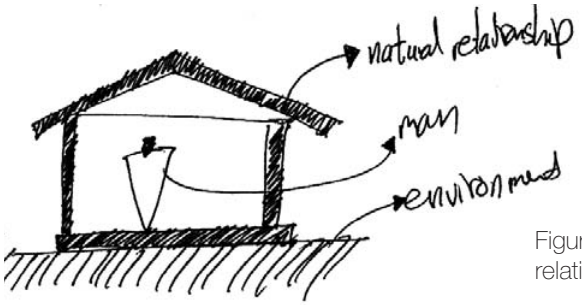


Figure 3.4 Natural relationship

Front to Back - Lewis et al. (2005)

Front to back presents urban housing as a fundamentally all-inclusive issue with specific reference to its nature as an urban-scaled matter. In order for a comprehensive approach to be formulated in order to tackle the matter, evidence regarding urban, social, communal and sustainable influences need to be identified and understood both individually and collectively. Furthermore, aspects of permeability, socio-spatial quality, legibility, flexibility, adaptability, energy efficiency, privacy, variety, activity and vitality need to be addressed to ultimately create housing that will be successful as a development and as a home. In essence ***Front to Back*** focuses on the establishment of housing in a systematic but sensitive manner, whilst creating a balance between public and private arenas.

Small Change - Hamdi (2004)

Small Change challenges the notion of development through public observation as opposed to the more conventional public participation. Existing activities are identified and utilised to stimulate growth. Economic, cultural, social, residential or circulatory nodes are all considered for positive influence on the broader community. Elements with catalytic properties are added as a layer to the existing activities to stimulate natural growth. This type of development has the potential to be more successful due to its grass-roots nature, where the ideas of regular citizens are sought, realised and expanded, and due to the possibility that the applied or structured systems instituted by external developers will be more acceptable to the society destined to live in them. Furthermore similar activities are connected in a series of networks. ***Small Change*** is concerned mainly with the growth of emergent systems through its focussed application of structured development as a catalyst for development.

Figure 3.5 Small change

Summary of relevant local documents

Faster, Harder, Smarter

Faster, Harder, Smarter is a vision by the Tsela Tshweu Design Team (consisting of members from the Council for Scientific and Industrial Research (CSIR), The South African Institute of Architects (SAIA), South African Institute for Civil Engineers (SAICE), Council for Scientific and Industrial Research (CSIR), and SHiFT (Social Housing Focus Trust)). The vision is an expression of opportunities within current policy framework prepared for the Department of Human Settlements in order to determine a way forward in the establishment of sustainable and humane settlements in South Africa. The vision is based on ten key principles which focus on the delivery of these inclusionary settlements.

(Tsela Tshweu Design team, 2010)

Breaking New Ground

Breaking New Ground (BNG) is the latest government policy with regard to the form of housing delivery. Amongst others, the most drastic change from previous government policies is the progression away from a product orientated system towards a process directed one. This includes end-users' participation in the development of their homes, enhancing perceived value and pride of ownership, which contribute to the success of the entire project.

(South Africa, 2004)

Green Paper on Climate Change

Although only a Green Paper, with no government obligations attached to it yet, the Green Paper on Climate Change (2010) appropriately responds to the steadily declining state of our planet. Aspects of environmental, economic and social change are addressed, spheres which affect the built environment severely. This document therefore serves as a very clear indication of the direction of governmental policy formulation regarding climate change, energy use, waste management and other topics covered by the broader sustainability agenda.

(South Africa, 2010)

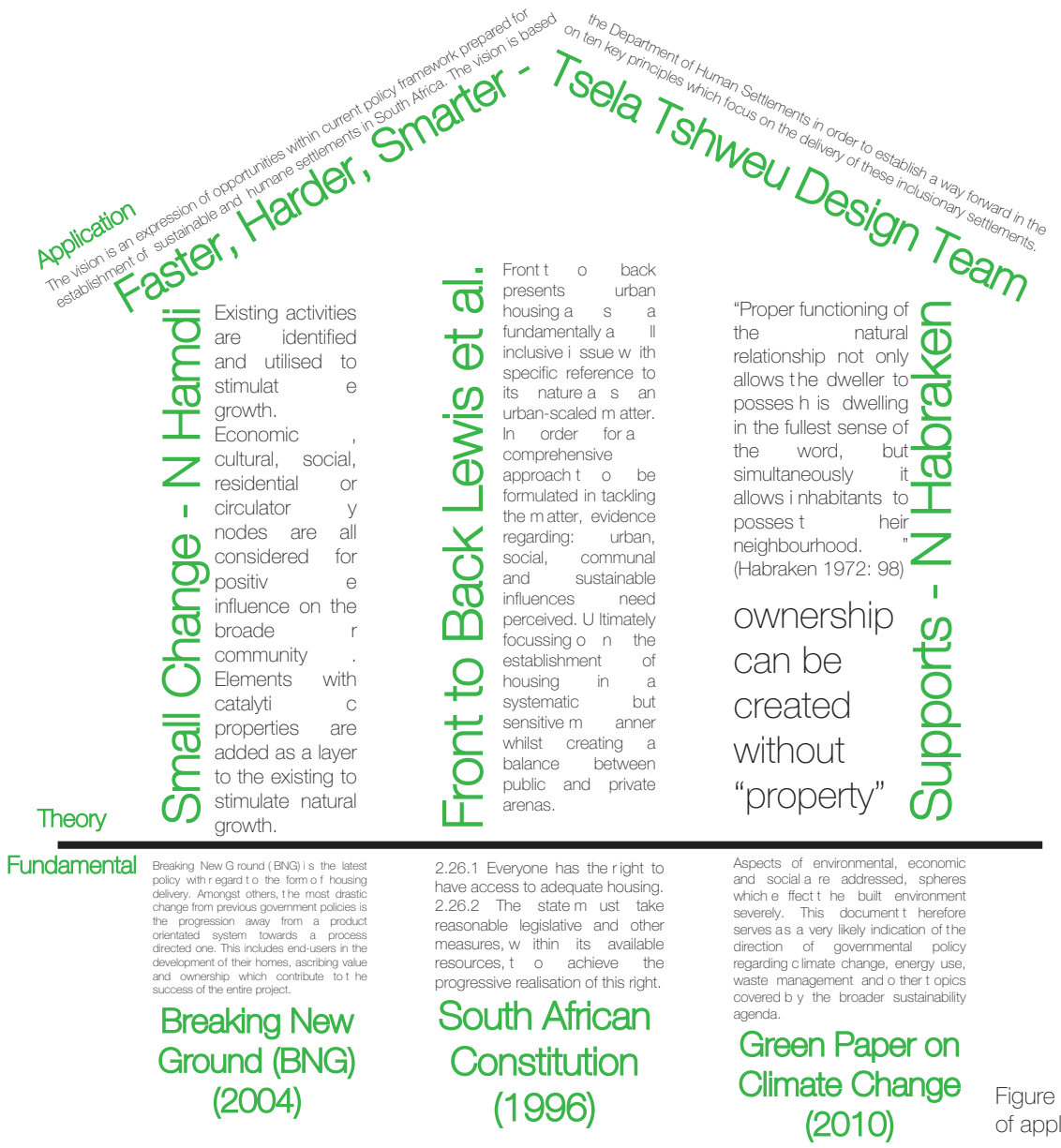


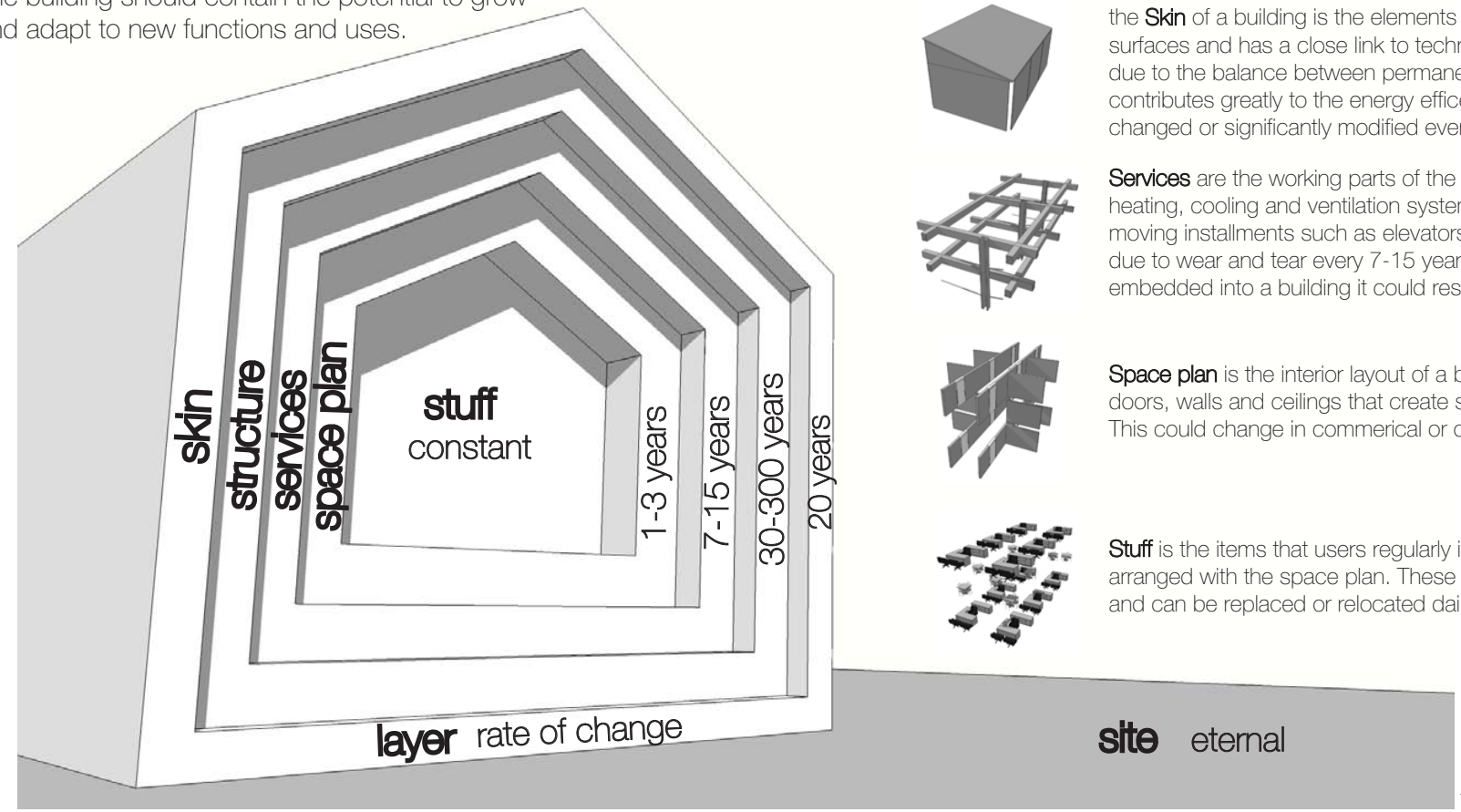
Figure 3.6 Heirachy of applied theories

Theory related to techinical aspects

How buildings learn (Brand: 1994)

A building properly concieved is several layers of longevity of built components (Duffy in Brand, 1994: 12)

The building should contain the potential to grow and adapt to new functions and uses.



Site is the geographical component, it is eternal and outlasts structures and generations

Structure is the essence of the building, changes to these elements are expensive and often fundamentaly unfeasible and can last from 30 to 300 years

the **Skin** of a building is the elements which make up the external surfaces and has a close link to technological advancements due to the balance between permanence and flexibility. This layer contributes greatly to the energy efficency of a building and is changed or significantly modified every 20 years

Services are the working parts of the building and include wiring, heating, cooling and ventilation systems, lights, plumbing and moving installments such as elevators. These can be replaced due to wear and tear every 7-15 years. If services are too deeply embedded into a building it could result in unnessecary demolition

Space plan is the interior layout of a building, the positioning of doors, walls and ceilings that create spaces for different uses. This could change in commerical or office spaces every 3 years

Stuff is the items that users regularly interact with, the furniture as arranged with the space plan. These elements change constantly and can be replaced or relocated daily

Figure 3.7-13 Heirachy of the various building layers

Discussion

The proposal of a mixed-use housing development is intended by the author as a response to a number of theories relating to the development and management of the built environment. The provision of low-cost housing and the process of delivery is a contentious matter and it has already been established that the South African government department tasked with addressing this issue has allocated extensive resources to the situation.

Chapter 2, Section 26 of the South African Constitution, deals with human rights with regard specifically to housing (South Africa, 1996). Not only does the Constitution state that it is the right of every human being to enjoy adequate housing, but the second clause (2.26.2) declares that the state has the responsibility to achieve the realisation of this right (South Africa, 2009). This places the onus on government to refine the existing product as well as the processes of delivery in order to better fulfil their responsibility.

During the first ten years after South Africa's first democratic elections housing delivery was focussed on generating a product and devising a delivery system which was evaluated quantitatively (Osman, 2007). These buildings were eventually termed "1st Generation Houses" and were sufficient as buildings but fell desperately short as homes as they neglected the spaces that create liveable, homely environments (Dewar, 1998). The continuity of spaces needs to occur not only within the limited interior of individual dwellings, but also through the entire development of which the individual dwellings forms a part. The provision of continuity is described by Chiba (2003: 6-7) as the element of highest importance in the provision of collective housing.

This priority to achieve continuity is perceived as a fundamental design component in the delivery of social housing by Lewis et al in "Front to Back" (2005: 140). The complete integration of a development into its greater urban context, and the factors contributing to the definition of all spaces, whether public or private, need to be considered. These include permeability, legibility, energy effectiveness, variety, privacy, activity and adaptability (Lewis, 2005: 40-44).

These aforementioned considerations, when understood and appropriately applied, determine the quality of the house as a whole as well as that of the spaces around it. This process of understanding quality was not only overlooked by the 1st Generation Housing movement in South Africa but also by European governments when faced with the monumental task of providing emergency housing

Constitution of the Republic of South Africa, 1996 - Bill of Human Rights

2.26.1 Everyone has the right to have access to adequate housing.

2.26.2 The state must take reasonable legislative and other measures, within its available resources, to achieve the progressive realisation of this right.

soon after the Second World War (Habraken, 1972: ix). The need for housing was dire and urgent, and needed to be met with immediate action. The resultant continental surge of development coincided with the Modern ***Zeitgeist*** (Spirit of the times) which portrayed the home as a "machine for living", and the process of providing homes was reminiscent of a factory (Habraken, 1972: 64). These factors lead to the complete neglect of the spaces connecting and surrounding houses. The repetition of house designs and the neglect of their spatial context was believed to lead inhabitants beyond a mind-set of disappointment and into one that took offence (Habraken, 1972: 4). This meant that although these houses were supplied to dwellers at substantially lower costs, they were not appreciated due to the lack of humanity in their design and the almost complete lack of community involvement in their genesis .

This process of end-user resentment caused by government subsidised housing occurred again almost 50 years later during the South African government's delivery of 1st Generation Housing. The nominal achievement of "Freedom" and "Democracy" generated pressures that resemble those faced by European states in the late 40's and 50's. This has lead, in South Africa, to a shift in priorities in the delivery of housing from being a product-based system to one that focusses more on the process of delivery, a more qualitative approach (Osman, 2007)

This new means of delivery was formalised in South Africa in the Breaking New Grounds Policy (BNG) which was accepted by Cabinet in 2004. BNG focuses on the process and ultimately on the needs and wishes of the people the houses are going to be housing. The aspect of community involvement that has now been included in the process is concerned more with presenting new horizons for development as opposed to just giving users what they thought they wanted (Osman, 2007). This has challenged the archaic perception of the architect as the educated professional whose job it is to give the user (the short-sighted lay-man) what the architect believes the lay-man needs. The now preferred combination of a professional point of view with the intrinsic reaction of the user could yield more positive results, steering clear of the notion of sheer "effectiveness" (Habraken, 1972: 3). Once housing can be understood as the physical manifestation of a collection of human activities a clearer objective can be set in attempting to successfully house the nation. (Habraken, 1972: 7)

The activity of the occupant within the housing unit forms one half

of the “natural relationship” according to Habraken in his seminal work “Supports” (1972). The environment in which people live is the second half of this natural relationship. The role of the architect or designer is to interpret and manage this relationship by creating an appropriate response which accommodates the needs of both. The initial inputs of the designer can to a large extent determine the maximum potential of this relationship between inhabitant and the environment in which he/she exists. A fully functional mutual relationship establishes the platform for the dwellers to fully inhabit and eventually possess the dwellings and simultaneously allows the inhabitants of the neighbourhood to take possession of it (Habraken, 1972: 98). Although this process includes the act of taking possession of dwellings it can still be achieved using rental housing, even though the physical structures remain the property of the social housing foundation that established them. Possession involves human action whereas ownership is a matter of legalistically defined entitlement (Habraken, 1972: 18).

As far as the role of the architect is concerned, sustainability is achievable once the occupants have developed a strong desire for a high quality environment. A high quality living environment encourages an appreciation of the natural environment which in

“Proper functioning of the natural relationship not only allows the dweller to possess his dwelling in the fullest sense of the word, but simultaneously it allows inhabitants to possess their neighbourhood.” **(Habraken, 1972: 98)**

turn creates a desire of possession. According to Lewis (2005: xv) this appreciation is a key stepping stone towards sustainability, because, once houses are appreciated, they are more likely to last because maintenance and general up-keep tasks are undertaken by residents, who are encouraged by pride and a sense possession, instead of grudge and obligation. This results in a longer building life-span.

Housing, which represents the living, cleaning, eating and resting portion of living, cannot be completely appropriate or successful if substantially separated from the act of working. Location, accessible to health-care and work opportunities, is the first and most vital aspect to consider for housing (Osman, 2007). The location of housing relative to the location of existing work, health and educational infrastructure is therefore key to success. Location close to important transport, economic or cultural nodes provides residents with an opportunity to interact with their surroundings. Development along potential "space bridges" (Dewar and Louw, 2008: 20) also generates a tension which stimulates the generation of informal economic activities. (Osman & Lemmer, 2005)

It is this type of development that Hamdi identifies and examines in his book "Small Change" (2004). His case-studies show how purposefully small-scale interventions encourage an existing activity and act as catalysts to stimulate positive growth. The challenge of successful development lies in finding the balance between emergent systems and the overlay of structured designs which can facilitate, not stifle growth (Hamdi, 2004: xviii).

As illustrated in figure 3.6, the process of development proposed by the author in this discussion begins with understanding the existing activity (ie fetching water from a standpipe or selling fruit and sweets to a passer-by), which is the first element. This activity is in response to a need or process (ie the need for water; the opportunity for economic engagement with pedestrians), and will be termed the emergent, the second element of the development process . A third element, ie the stimulant, reacts to the activity by addressing the emergent. This ensures that the catalyst does not overwhelm the original, existing activity by perhaps demolishing it and re-building something more "formalised" or "better" in its place, but instead empowers those involved with the emergent's processes to better equip them to achieve their goals and to expand their possibilities through broadening horizons - a process involving the realisation of potential; a process akin to the watering of a seed to encourage germination and growth

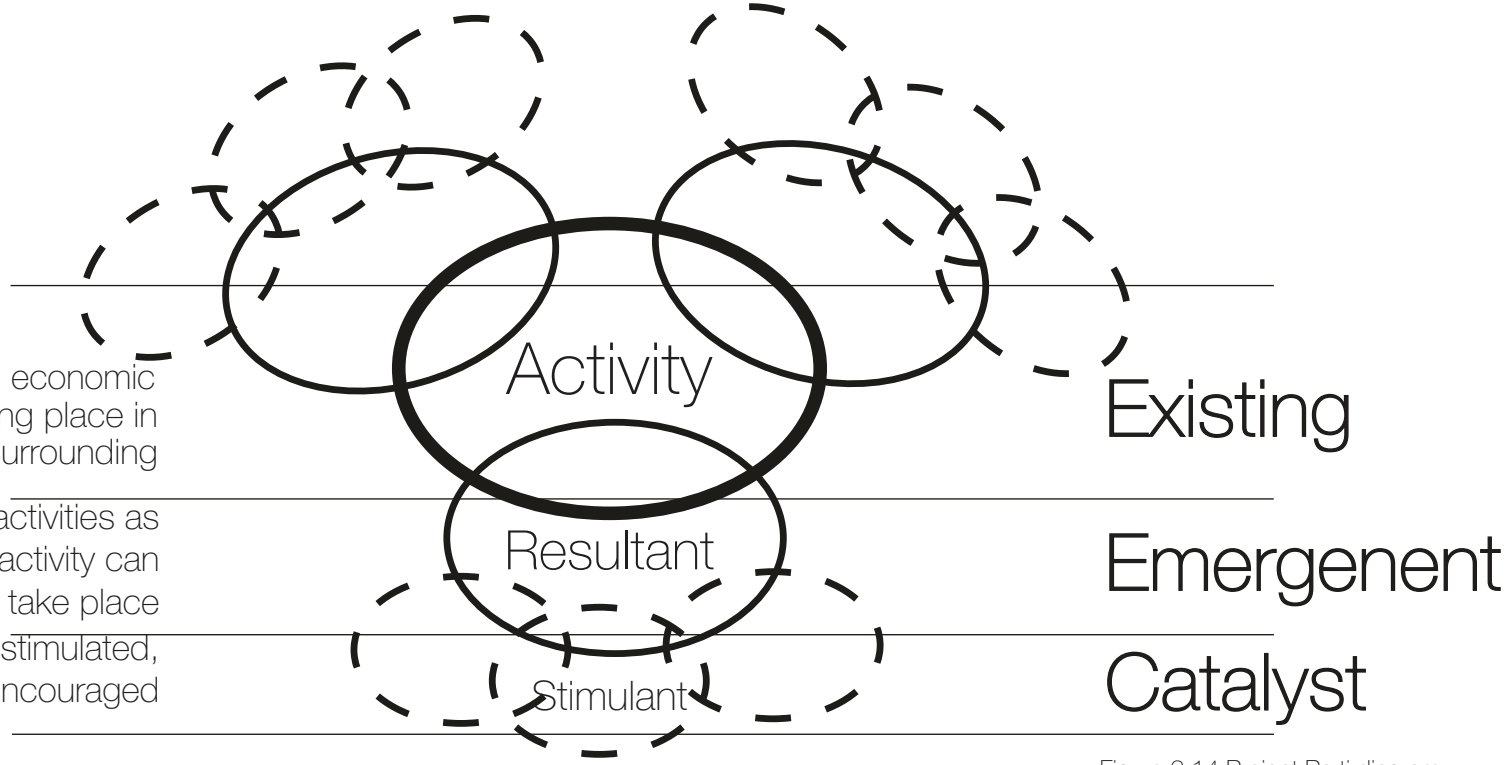


Figure 3.14:Project Parti diagram