

CHAPTER I

1 INTRODUCTION - THE PROBLEM AND ITS SETTING

This dissertation aims to address the current scarcity of accessible information on sustainability specifically aimed at house type and location. The study ultimately aims to inform architects and designers, developers, builders and users how to realise a sustainable building environment in the medium density, middle-income housing group in the province Gauteng, South Africa.

Sustainability is generally the term used to describe an environmentally responsible way of designing while simultaneously meeting the needs of current users and respecting the needs of future generations. Design that is balanced in its giving and taking from the natural environment.

The home has been recognised as an influential factor that contributes to sustainability and the health of the living environment. Current information available on sustainable building design does not address the specific needs of the middle-income group. The middle-income group is an important role model that a large percentage of the population group aspires to follow. Promoting sustainability in this group sets a good precedent to follow and is therefore important to promote and achieve sustainable building design in South Africa. The provision of information dedicated to this economic group will assist efforts to achieve greater sustainability and a continued habitation of our corner of the planet.

Furthermore, South Africa covers a number of different climatic, geological and ecological areas which all have different requirements in terms of sustainability. Sustainable principles that are area specific will be generally appropriate and more accessible to implement, resulting in wider application in the built landscape.

1.1 Statement of the problem

This research proposes to develop accessible information on sustainable building design principles for use in medium density, middle-income houses in Gauteng, South Africa (FOURways house). Local and international precedent together with the Sustainable Buildings Assessment Tool (SBAT) developed by the CSIR will be analysed to specifically address the criteria for a sustainable FOURways house.

1.2 The sub-problems

1.2.1 Sub-problem 1 The first sub-problem is to define and discuss sustainable building design principles.

1.2.2 Sub-problem 2 The second sub-problem is to test the SBAT towards achieving sustainable building design principles for medium density, middle-income housing in Gauteng (the FOURways house).

1.2.3 Sub-problem 3 The third sub-problem makes use of the first and second sub-problem findings to analyse the use (or lack) of sustainable building design principles in current examples of the FOURways house. This sub-problem highlights the difference between buildings that do and do not make use of sustainable building principles.

1.3 The hypotheses

1.3.1 Hypotheses 1

The first hypothesis postulates that available information on sustainable building design does not address the specific needs of the FOURways house.

1.3.2 Hypotheses 2 The second hypothesis is that the adapted SBAT will produce criteria towards achieving sustainable building design principles for the FOURways house.

1.3.3 Hypotheses 3 The third hypothesis is that typical FOURways houses in Gauteng currently do not make use of sustainable building design and construction.

1.4 The delimitations

1.4.1 Geographical delimitation

The study is limited to middle income housing developments within the Gauteng provincial borders.

The analysis is limited to medium density housing developments within the urban area.

The analysis will be limited to sustainable building design principles; the aesthetic merit of the selected architectural designs will not form part of this study.

The study does not discuss the effect of sustainable building design and the healthy environment on the psychological well being of the occupants.

In this study the three-column definition of sustainability is acknowledged, however, the detailed study will exclude economic aspects of sustainability.

The study is limited to literature available in English and Dutch.

The expected life span of the information presented is approximately two decades (roughly based on the current rate of technological development).

1.7 The assumptions

1.5 Abbreviations

CSIR -	Council for Scientific and Industrial Research
LSM -	Living Standards Measure
SAARF -	South African Advertising Research Foundation
SBAT -	Sustainable Building Assessment Tool
SBDP -	Sustainable Building Design Principles
GBC -	Green Buildings Challenge
GBTool -	Green Buildings Tool
GSBDP -	Sustainable Building Design Principles for Gauteng

1.6 The definition of the terms

Middle income group is defined in Section 2.5.2

Middle income house is defined in Section 2.5.2

Medium density house is either a cluster home or townhouse. A cluster home is a house situated on a secured single entry property with a number of free-standing houses that are of a similar style. A townhouse is a series of same style homes that are built with adjoining boundary walls. Both are generally situated in an urban area.

Gauteng, one of the nine provincial areas defined within the borders of South Africa. The geographical area, Gauteng houses the greatest percentage of working population in the country. It is located on the escarpment and is characterised by a Highveld climate.

FOURways house is a medium density, middle-income house in Gauteng.

Living environment is the physical space we inhabit. The space is defined by the enclosure created by the building structure composed of floor, walls and roof surfaces as well as the general natural area in which our built space exists.

Sustainability is defined and discussed in chapter three.

Health of the living environment constitutes the physical and psychological comfort and protection that the built environment and its surroundings provide human beings. A healthy living environment does not harm the body or the natural environment and is conducive to well being.

1.7 The assumptions

1.7.1 Assumption 1 The first assumption is that the middle income group will continue to be an identifiable sector of the urban population that influences the built environment.

1.7.2 Assumption 2 The second assumption is that medium density homes will continue to be developed for at least another two decades.

1.7.3 Assumption 3 The third assumption is that sustainability can be assessed using local and international precedent as well as the SBAT so that improvements can be made to current and new FOURways houses.

1.7.4 Assumption 4 The fourth assumption is that people who fall in the middle income group in Gauteng are interested in their well-being and therefore will actively take steps to improve the health of their living environment. A need for information on sustainable building principles for medium density, middle income houses does therefore exist.

1.8 The importance of the study

A symbiotic relationship can exist between man and the natural environment. World-wide the issues regarding the exploitation of our natural resources are being addressed. In order to sustain human life on earth it is important to understand the impact of human habitation and stress the importance of sustaining a habitable environment. Housing forms a cornerstone of our survival on earth; therefore all housing projects should address the issue of sustainability.

In South Africa most research focuses on the sustainability of low-income housing developments. The opposite end of the economic scale the high-income earners are supporting sustainability as a fashionable issue. Current housing developments illustrate that little emphasis is placed on the role that the middle-income group can play in contributing to a sustainable environment.

This group forms a role model which lower income groups aspire to. If sustainability is to be successfully implemented the importance must be addressed at all economic levels. The middle income group is a considerable market force and will greatly help in a market transfer equalling motion towards sustainable building and building materials.

The provision of information dedicated to this economic group will assist efforts to achieve greater sustainability and a continued habitation of our corner of the planet.

The contribution that middle-income earner can make to sustainable development is invaluable and must be addressed as part of a holistic approach to a sustainable future.

The information that this study aims to present is directed at all interested parties, casual users and professional designers alike. This study aims to address the issues of sustainable building development in South Africa and to make otherwise inaccessible information available to all interested parties.



Figure 1.1 – “No- this time we are doing without humans” (Vanderstadt 1996:96)