

## Chapter VI

### 6 Conclusion

A dedicated search into the keywords appropriate to sustainable building design results in an apparent large range of available literature, however only a small number of books can be considered accessible or appropriate to the specific problem of domestic buildings and this research; medium density, middle-income houses in Gauteng. Available data are most often scientifically presented for a specific issue, such as Singh (1994) who focuses on the unhealthy organisms and diseases that develop in buildings. Data such as this, while valuable to experts, are not accessible or readily applicable to improve the sustainability of the domestic buildings being considered.

The local and international precedent gave leads contributing to the development of accessible information on sustainable building design principles for use in the FOURways house and was complemented by the SBAT which provides the basis to develop an appropriate tool for the target house type, namely the adapted SBAT.

This research focused on Gauteng, 'place of gold' in the Sesotho language, which covers an area of 18 810 square kilometres, accommodating industry and commerce. This province which produces nearly 40% of the GDP with 70% of the country's labour force, is not only an area with a great diversity of LSM groups, but also diverse cultural and societal needs as well. The research established that the 11,4% of the population composing LSM 7 is a relevant role model to work with, but also revealed that sustainability must be introduced at every level and in every sector of this province and its people.

Within this diversity the individual must be given the tools to achieve sustainability either through traditional means or technological advancements without sacrificing their individuality (Berström & Steinwell 1992:47). The sustainable building design principles (SBDP) is the background information (guidelines) to be used freely and uniquely by this diverse group to achieve the ultimate aim of a sustainable building environment. The adapted SBAT table may then be used to rate the building and its environment and the petal diagram visually presents the result so that irrelevant of one's expertise, the issue of sustainability in domestic building environments has been exposed to the architects, designers, developers, builders and user alike.

The analysis of current examples of the FOURways house using case studies indicated that sustainable building design is not currently a criterion for development.

The giving and taking pattern of earth and man is essential to sustainable architecture and habitation. Gauteng is characteristically economically driven and is more about taking than giving. This pattern will need to be adjusted in order to achieve a more sustainable living environment and a better guarantee of a bright future that includes fresh air and nature as well as economic sustenance.

This research only scratches on the surface of a much greater need to address sustainability in South Africa. A single set of guidelines will not suffice. The different aspects and parameters need to be addressed. Sustainability must be approached in a holistic way to cross the divides of diversity.

### **6.1 Further studies**

The researcher intends to continue her study on the topic of sustainable building design. The lack of information regarding sustainable building design for the other income groups forming part of the population with respectively lower and higher income housing and regions beyond the borders of Gauteng may not be underestimated. Furthermore, analysis can go beyond medium density housing developments to include different densities. Sustainability in the rural areas is a whole separate subject outside of the study of development in the urban area and requires separate research in the future.

In this study the three-column definition of sustainability is acknowledged, however, the detailed study excludes the economic aspects of sustainability. The opportunity to include the economic aspects of sustainability into the adapted SBAT and SBDP is also relevant.

Another subject this research has revealed as worthy of further study is the effect of sustainable building design and the healthy environment on the psychological well-being of the occupants.

This research has opened the door to many other aspects of sustainability that all carry value in their own right and give the opportunity to work towards a more sustainable building environment.



Figure 6 - Final illustration from *"The Little Green Book"* by C. Denman (1990)