7. CONCLUSIONS AND RECOMMENDATIONS

7.1. Conclusions

The thesis effectively proposes a specification for an assessment tool that integrates sustainable development into briefing and design of buildings in developing countries. The sub-problems investigated each of the aspects to compile and test the specification.

The first sub-problem: *"What are the key aspects of the international and local context of sustainable development useful in understanding how buildings and construction can support sustainable development?",* investigated current international, British and South African plans for implementing sustainable development. It indicated that the existing international plan of action for addressing sustainable development, as developed by the World Summit on Sustainable Development was complex and requires simplification in order to be applied to the building and construction sector. It demonstrated how this could be simplified into objectives that could be applied to buildings and construction. In addition, the study showed that implementing sustainable development in developing countries is dissimilar to developed countries and requires a different approach.

Hypothesis one: *"The international and local context of sustainable development can inform the development of a specification for an assessment tool that aims to integrate sustainable development into building briefing and design processes."* is substantiated through the investigation of international, British and South African plans for implementing sustainable development.

The second sub problem: *"What are key concepts in sustainability that are useful in understanding how buildings and construction can support sustainable development?"* investigated concepts within sustainability. The chapter indicates that sustainability as being the ultimate goal of sustainable development. It also identifies characteristics of sustainability. These findings are valuable as they helped to define the goal set, and the approach advocated, by the specification.

Hypothesis Two: "Concepts from sustainability can inform the development of a specification for an assessment tool that aims to integrate sustainable development into building briefing and design processes" is substantiated through the investigation of literature on sustainability.

The third sub problem: *"What are the key features of existing sustainable development, sustainability and development assessment systems and frameworks?"* investigated current sustainable development and sustainability assessment systems and development

frameworks. It is valuable for the study as it reveals methodologies and approaches that are worthy of inclusion in the specification.

Hypothesis Three: “Existing sustainable development, sustainability and development assessment systems and frameworks can inform the development of a specification for an assessment tool that integrates sustainable development into building briefing and design processes” is substantiated through an investigation of sustainable development assessment systems and development frameworks.

The fourth sub problem: “*Can a specification for an assessment tool which aims to ensure that sustainable development is addressed and incorporated in the briefing and design of buildings in developing countries, be developed by drawing on the sustainable development context (problem one), key sustainability concepts (sub problem 2) and key features of sustainable development, sustainability and development frameworks (sub problem 3)?* “ completes the main objective of the study through the development of specification. This incorporates knowledge from Chapters two, three and four in order to specify the objectives, scope, structure, components and methodology of assessment tool.

Hypotheses four*: “A specification for an assessment tool, which aims to ensure that sustainable development, is addressed and incorporated in the briefing and design of buildings in developing countries can be developed”* is substantiated through the development of a specification.

The fifth sub problem: ”*How does the Sustainable Building Assessment Tool (SBAT) compare with the specification for an assessment tool developed in (sub problem 4)?*” tests the specification through comparison of this with the Sustainable Building Assessment Tool. This comparison shows the specification to be a robust and comprehensive framework enabling shortcomings in the SBAT to be identified and recommendations for improvement to be made. This is valuable for the study as it validates the specification.

Hypothesis five: *“A comparison between the specification for an assessment tool and the SBAT will assist in validating the specification and identify whether the SBAT is an appropriate tool for integrating sustainable development into the briefing and design of buildings in developing countries”* is substantiated by findings which reveal that the specification and the SBAT can be validated.

7.2. Recommendations

The study makes the following recommendations:

The Sustainable Building Assessment Tool: It recommends that the Sustainable Buildings Assessment Tool address the shortcomings identified by the specification. Detailed shortcomings and recommendations for the tool are made in Chapter six. In addition to addressing specific recommendations the study recommends that additional research be undertaken in order to develop associated components and methodologies that will assist in the implementation and effectiveness of the tool. This includes:

- **Sustainable building and construction performance objectives and indicators database**: A database of objectives and indicators for different building types, contexts and construction methodologies should be developed. This should include reference framework (such as sustainable development or building and construction policy and plans) and up to date benchmark information. This data will support the effectiveness of the SBAT by enabling highly specific and challenging performance targets to be set for projects.

- **Structured approach:** It is recommended that the structured approach described by the specification be developed further and formalised through linking this with existing professional and legislated processes such as the South African Institute of Architects project stages and municipal planning requirements.

- **Associated tools and methodologies:** The study indicates that more specific and detailed tools and capacity development will be required in order to ensure that sustainable building and construction objectives are effectively integrated and addressed. In particular it is recommended that research be carried out in the priority areas identified in Chapter six of the study, such as water and employment creation. The aim of this research should be to identify specific interventions that should be made within buildings and construction in the areas identified and should lead to the specification of tools and capacity development that will enable these to be implemented.

7.3. Areas for Future Research

It is recommended that the following areas be investigated for further study:

a. The relationship between building briefing processes and sustainable development in developing countries
b. The relationship between design methodologies and sustainable development in developing countries
c. The relationship between construction methodologies and management and sustainable development in developing countries

d. The relationship between building operation and sustainable development in developing countries

e. The relationship between building reuse and demolition and sustainable development in developing countries.