



The Problem and its setting

Figure 1.1.2 The Inner City of Tswane



Introduction

The City of Tshwane is the birthplace of the new South African democracy. It is the place where past and future met on the steps of the Union Buildings and the place where the first democratically elected president was inaugurated. On that day the capital city of democracy was born (Kruger 2006: 11).

The Inner City of Tshwane is a place of strategic significance, not only in the city but also from a national and international perspective (ibid). As the seat of national government, Tshwane has the responsibility to set high standards for leadership and has the potential to develop as the capital city of a newly united African continent (ibid). In addition, Tshwane is recognised as the educational capital of Africa, being home to numerous well recognised institutions.

The goal of this chapter is to identify the problem and the setting of the problem in the Inner city of Tshwane that will be dealt with in dissertation.

1.1 The Problem Statement

The vision of Tshwane is to become the leading international African Capital City of Excellence that empowers the community to prosper in a healthy and safe environment (Kruger 2006: 5). The current quality of the inner city, however, does not support this vision because it is not functioning as it should, from an environmental, economic and social point of view (Kruger 2006: 14).

In order to address this problem the author considered a government strategy known as the *Tshwane Inner City Development and Regeneration Strategy* (Kruger 2006). This strategy is based on a catalytic-intervention approach. Strategic interventions are proposed to significantly influence the development of the inner city. The strategy identifies a number of aspects that should be dealt with in order to sustain urban renewal. Amongst other issues, the strategy identifies the importance of the inner city to provide tourism, recreational and entertainment opportunities for both the Tshwane residents and tourists (Kruger 2006: 14). The dissertation focuses on the development of one such project in the inner city.

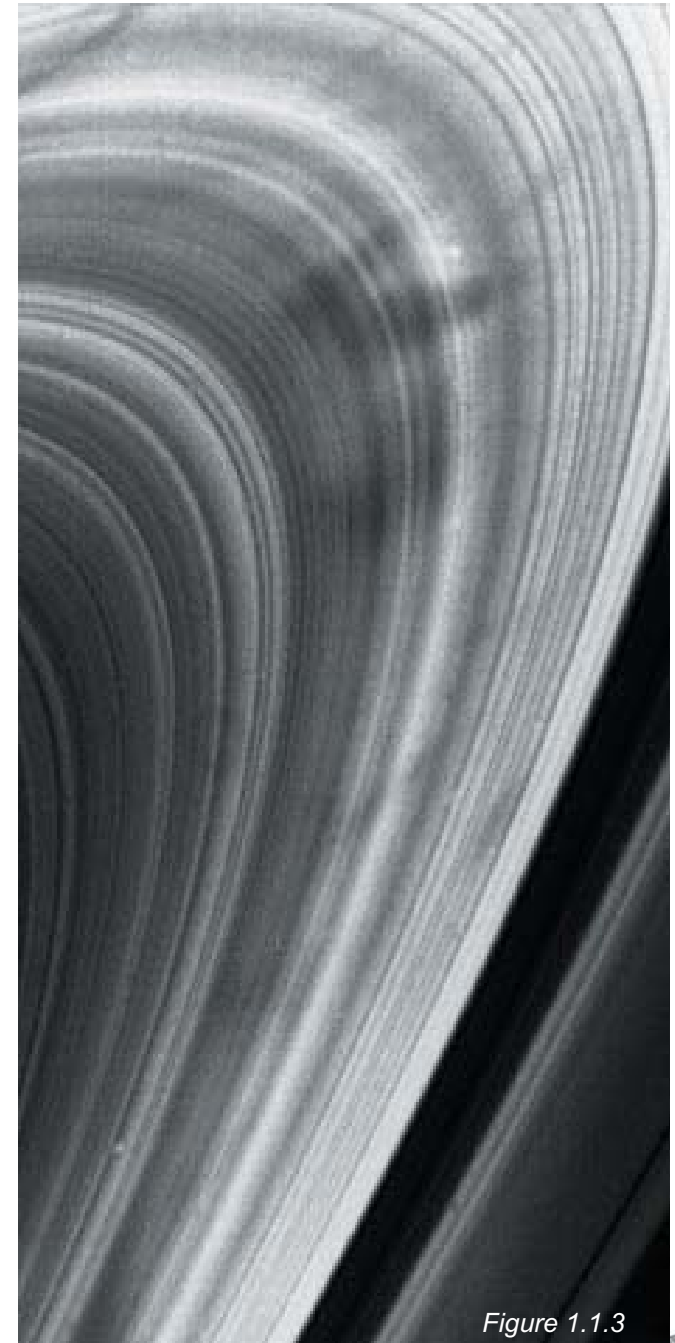


Figure 1.1.3



1.2 The Project

The project is an astronomical education and entertainment facility. The main feature of the facility is a planetarium. Other features include a series of exhibition spaces, a gift shop, a restaurant and administration facilities.

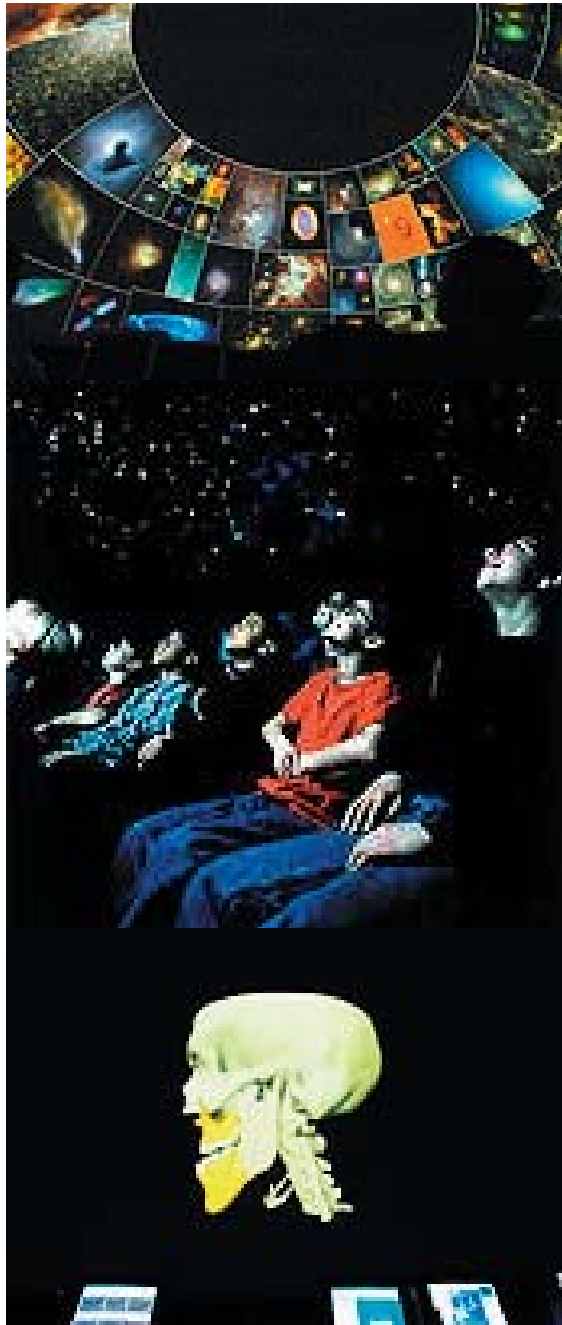
1.2.1 What is a planetarium?

A planetarium is a building that can simulate the cosmos by means of a projection on a half-spherical surface. Apart from cosmic simulation, which is the traditional function of a planetarium, advanced technology now also makes it possible to present educational programs on nearly any related topic - from the science of the inside of an atom to the

increasing threat of global warming. Hence the idea of designing a comprehensive cosmological centre which includes a planetarium.

2.2.2 What will be shown and exhibited?

The presentation media will cover a spectrum of astronomical-related topics ranging from traditional african starlore to current scientific technology. The presentation media will consist of interactive exhibitions. The method of education is intended to be informal, entertaining and accessible to young and old. Exhibitions are intended to be updated constantly and changed to accommodate scientific development and new discoveries.



Figures 1.2.1 - 1.2.5 : Images indicating the versatility of the planetarium

1.3 The Location

The project is located in the new proposed Zoological Gardens Forecourt. The project forms part of a framework that focuses on the upgrade and regeneration of the Zoological Gardens precinct and in turn forms part of the development of the northern gateway of the inner city.

The National Zoological Gardens is a major local and international tourist attraction. It is the second largest urban zoo in the world, houses the third largest exotic plant collection in the world and the largest inland marine aquarium in the world. It therefore provides the community with a place to learn about the earth (fauna and flora) and water. Therefore, it is logical to develop a facility regarding the third element, the sky.

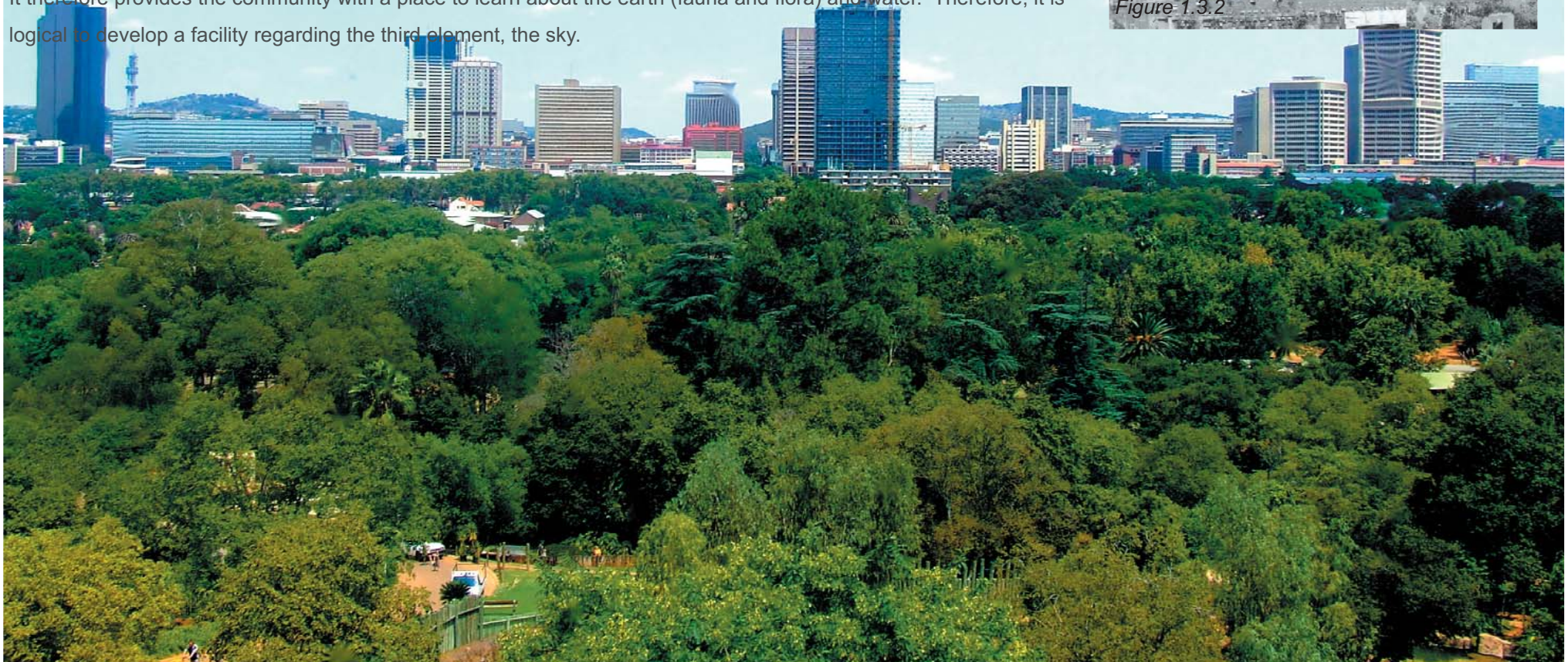
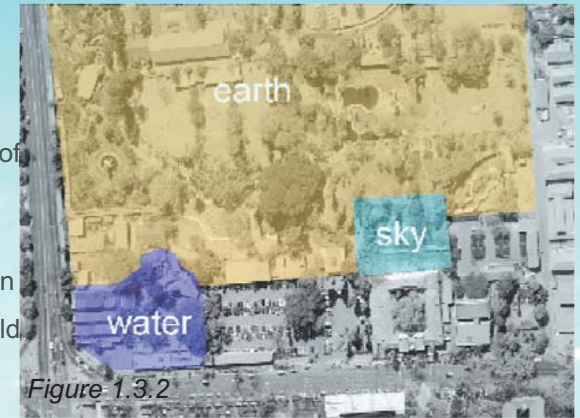


Figure 1.3.1 The National Zoological Gardens



1.4 Why an astronomical centre in the Inner City of Tshwane?

Never before have humans known so much about the universe as we do today (Horak 2007). Never before have we acquired information about the universe as quickly as we do now (ibid). Yet, at the same time, never has the general public been so ignorant about even the basic facts of celestial science (ibid). Technology such as the Hubble Telescope constantly reveals new wonders of the universe. Scientists working in the fields of cosmology and particle physics combine their knowledge in a quest for insight into the origin and destination of the universe and of mankind (ibid).

In South Africa a new focus on astronomy as a branch of science was established by the completion of the South African Large Telescope (SALT), the largest

single optical telescope in the Southern Hemisphere at Sutherland (ibid). South Africa is a strong contender against Australia, for hosting the international Square Kilometre Array (SKA). This giant next-generation telescope is being developed by scientists in 17 countries and will consist of thousands of antennas spreading over 3 000 kilometres (ibid). The SKA is 50 times more sensitive than the most powerful radio telescopes we have now. It has the capacity

to peer deep into the cosmos to pick up signs of the first stars and galaxies to form after the Big Bang and trace the effects of the mysterious dark energy that is driving the universe apart at an increasing speed. It is also capable of mapping out the influence of magnetic fields on the development of stars and galaxies (ibid). As South Africa is in desperate need of dynamic young astronomers to man these projects, more young people have to be exposed to astronomy.

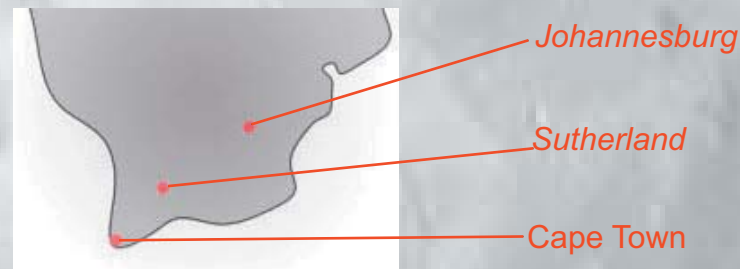


Figure: 1.4.2 Image indicating the location of Sutherland in South Africa

As light and pollution have made it virtually impossible to observe celestial objects, city dwellers have become completely oblivious to the night sky. One can only get a reasonable view of the night sky if one is at least an hour's drive out of the city (Flanagan 2007). Such a location is not easily accessible to city dwellers. Therefore, an astronomy centre in the inner city is the most effective way of introducing people the wonders of the universe and kindling an interest in a career in science and astronomy.

There are approximately 15 000 planetariums around the globe of which most are situated in the northern hemisphere (King 1978). The shows at planetariums mainly focus on the celestial activities visible from the hemispheres they are located in.

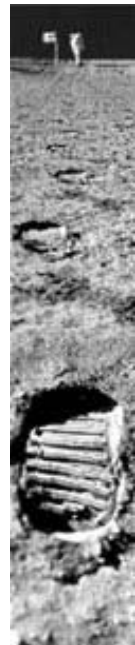
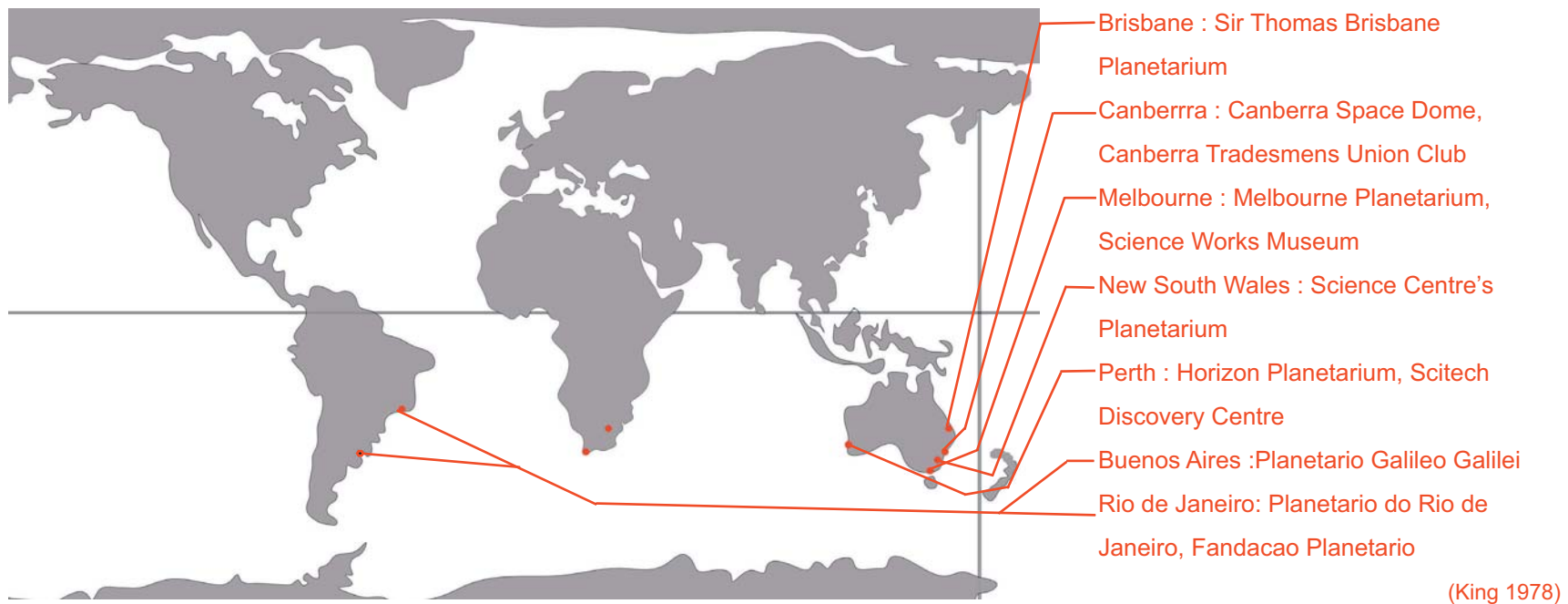


Figure 1.4.4

Figure 1.4.3 Image indicating the location of planetariums in the Southern Hemisphere





Figure 1.4.5



When considering contemporary advances in the field of astronomy and the importance of exposure to pressing environmental issues, the need for science literacy becomes evident. It is submitted that, in the southern hemisphere, South Africa is located strategically to accommodate such a facility (Fig 1.4.2). Tswane is the Capital of South Africa and should house the facility that opens up its skies.

Conclusion

The *Inner City Development Framework Strategy* sets out a number of priorities which should be addressed for the City of Tshwane to become the leading international African Capital City of excellence. The aim of this dissertation is to deal with certain aspects of importance identified by this strategy. These particular aspects are addressed by the development of an educational centre with recreational and entertainment features. The need for education in the field of astronomy is essential both to involve and interest young people in this dynamic field and to create an awareness of pressing environmental matters. This project is located at the National Zoological Gardens and forms part of an urban regeneration framework.

Figure 1.4.6



1.5 Accommodation Schedule

Astronomy Centre Ground Floor

Foyer	72.5m ²
Lobby	324 m ²
Ticket sales	24.5 m ²
Men Toilets	17.5m ²
Ladies Toilets	22 m ²
Disabled	3 m ²
Star Cinema Auditorium	350 m ²
Exit Lobby	140 m ²
Exhibition Holding Area	41.6 m ²
Exhibition Store	8.6 m ²
Staff Toilets	5 m ²

Astronomy Centre Basement 1

Exhibition Lobby	240 m ²
Big Bang Room	240 m ²
Hall of the Universe	527 m ²
Temporary Exhibition Space	260 m ²
Store	11.6 m ²
Men Toilets	20.8 m ²
Ladies Toilets	18 m ²
Disabled	3.5 m ²

Astronomy Centre Basement 2

Hall of the Solar System	266 m ²
African Starlore Room	73.6 m ²
Hall of the Southern sky	380 m ²
Planet Earth Room	250 m ²
Exterior Cosmic Landscape	1240 m ²
Plant Room	135 m ²
Pump room	51.6 m ²
Exhibition storage	58 m ²

Astronomy Centre First Floor

Production

Upper Lobby	12 m ²
Reception	38 m ²
Telescope Deck	60 m ²
Telescope Store	9.8 m ²
Admin Store	5.8 m ²
Kitchenette	13.7 m ²
Production Studio	24.2 m ²
Workshop	35 m ²
Media Archives	17.4 m ²
Storage	10.2 m ²

Administration

Director's Office	18.7 m ²
Administration Office	15.3 m ²
Sales Office	19 m ²
Kitchenette	37 m ²
Conference Room	54 m ²

Gift Shop

Gift Shop	142m ²
Gift Shop	112 m ²
Gift Shop Store	6.5 m ²

Restaurant

Restaurant Reception	75.8 m ²
Men Toilets	10.3m ²
Ladies Toilets	8 m ²
Disabled	3.7 m ²
Bar	22.4 m ²
Bar Store	6.3 m ²
Restaurant Interior	155 m ²
Restaurant Exterior	160 m ²
Kitchen	70 m ²



1.6 Client Profile

National Research Foundation (NRF)
Department of Science and Technology

1.7 User Profile

Local Schools
General Public
Local and International Tourists



Figure 1.5 : Children at the zoo

