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DOCTORAL THESIS

High-Density High-Rise Low-Income Housing: an Appropriate City Planning Solution for Colombo, Sri Lanka?

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Award date:
2013

Link to publication

LIVING SKYLINE

**High-Density High-Rise Low-Income Housing :
An Appropriate City Planning Solution for Colombo, Sri
Lanka?**

Submitted in total fulfilment of the requirements of the degree of

Doctor of Philosophy

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STATEMENT OF ORIGINALITY

This thesis contains no material that has been accepted for the award of another degree at a university or other educational institution. To the best of my knowledge and belief it contains no material previously published or written by another persons or persons except where due reference has been made.

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ACKNOWLEDGMENTS

Completing the PhD was a journey I had travelled many times in my dreams. I did not embark on this journey alone, because the truth is I would not have travelled far. There are those who have guided me when I got lost, those that have picked me up when I was weary, those that have encouraged me when I had become complacent, and those that have watched from the sidelines and never stopped cheering me on. To all these people I am forever grateful; you have made the completion of this project possible and the journey memorable.

First, I would like to express my appreciation to the Bond University for having given me this opportunity and the necessary financial support to study in Australia. On the successful completion of my study, I extend my thanks to my employer organisation, the Urban Development Authority, who supported me and gave me the opportunity to participate in this course. I would like to thank my supervisor Associate Professor Daniel O'Hare for his wise guidance, knowledgeable criticism, constant encouragement and unfailing support throughout this project. I acknowledge the valuable support, encouragement, enjoyable company and constant help of all my PhD colleagues in the School of Sustainable Development with gratitude. We have shared both difficult and happy times of 'Bond life' and they have enriched my life in the University. I owe special thanks to my senior officers at the Urban Development Authority: Mr Prasanna Silva, Mr Nihal Fernando and Ms Pushpa Gamage for moral support and continued support in overcoming difficulties in logistic matters in my work organisation.

Last but obviously not the least my family deserves a special acknowledgement, especially my beloved wife Disna, my daughter Himara and my little son Rovindu for all their sacrifices and for giving me invaluable moral support, power, strength and continuous love to survive the pressures of 'Bond life'.

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ABSTRACT

A house is a basic and fundamental human need. In a literal sense, a house provides warmth, shelter and security. Beyond its physical nature, the concept of 'house' is deeply ingrained in human civilisation as the space where the institution of family is nurtured. It is a place that reflects a person's identity, living condition, human values, aspirations, future expectations and one's social and cultural identity. However, despite the global recognition of its importance, many millions of people in the world live either without safe habitable housing or without any housing at all. This situation is common in developing counties, especially in urban areas. The thesis is motivated by a sincere effort to practically address the problems of housing in the city of Colombo, in particular the scarcity of habitable housing for low-income people. The Colombo City Development Plan (UDA 2008) revealed that there were 66,000 households within the city of Colombo living in under-served settlements considered unfit for human habitation. This figure represents 51 per cent of the city's population (UDA 2008). Since gaining independence in 1948, the Sri Lankan Government has devoted much attention to finding a solution to this situation and has introduced a number of policies, programs and projects to address the issue of under-served settlements with varying degrees of success. High-rise housing for low-income people is one option that has been chosen by the current Sri Lankan government in the hope of rehousing those who currently live in under-served settlements in Colombo in sustainable, safe and affordable housing. At the time of writing this thesis (2012), the construction of nearly 12,000 high rise housing units has commenced with the aim of constructing 35,000 high rise dwellings within three years (UDA 2011). However, the appropriateness of high-rise housing for low-income people is a very controversial topic. Some countries have rejected high-rises as an option for low-income housing due to significant failures in the past, while other countries have been very successful using high-rise housing for low-income people as a way to upgrade the living conditions of

the people who live in slums and shanties. Very little research has been done in this sector, especially in Sri Lanka, and this thesis attempts to fill the knowledge gap about the low-income housing sector in Colombo, discussing the research contribution of the theory, the contribution to the Sri Lankan research and the contribution to the profession. A qualitative research approach was chosen as the most appropriate method for investigating the research problem in depth. This research uses both secondary and primary data collection methods to enhance the quality of the research. Literature review, documentary research, Internet references, case study analysis, observation and key informant interviews are the main data collection strategies which have been used throughout the research. Twelve key informant interviews were conducted with officials in various government ministries, private-sector investors and professionals who are engaged in the housing sector in Colombo city. All participants are senior critical decision-makers and well-known government and private sector experts in the housing field in Sri Lanka. The data and information collected from the key informant interviews, case studies and other sources were scrutinised, edited, coded and analysed using qualitative data-analysis methods. The quality standards of this study take into account construct validity, internal validity, external validity and the study's reliability.

Finally, this research makes recommendations to the professionals and policy-makers who work with high-rise low-income housing on how to minimise the risk associated with high-rise low-income housing in Colombo and open a way of thinking about high-rise low-income housing.

PUBLICATIONS ARISING FROM THE RESEARCH

During the course of this project, two conference papers and three refereed journal papers have been published based on the work undertaken in this thesis. They are listed here for reference.

1. Samaratunga, T., (2009). Rapid Population Growth and Affordable Housing in Colombo city, <u>PIA International Planning Conference.</u> Darwin, Australia: Planning Institute of Australia.

2. Samaratunga, T., (2011). Planning for Quality Urban Living and Sustainable Community, <u>PIA International Planning Conference.</u> Hobart, Australia: Planning Institute of Australia.

3. Samaratunga, T., & O'Hare, D. (2012). High density high rise vertical living for low income people in Colombo, Sri Lanka: Learning from Pruitt-Igoe. <u>Architecture Research</u> 2(6), 128-133.

4. Samaratunga, T., & O'Hare, D, (2013) Reflections on Over 100 Years of Urban Housing Policies in Sri Lanka, <u>Social Sciences</u>. Vol. 2, No. 1, 2013, pp. 14-21. doi: 10.11648/j.ss.20130201.13

5. Samaratunga, T., & O'Hare, D, (2013) "Sahaspura " : the first high-rise housing project for low-income people in Colombo, Sri Lanka, <u>Australian Planner</u>, Vol. 50 (4), pp. 14-21 doi: 10.1080/07293682.2013.820204.

ABBREVIATIONS USED IN THE THESIS

AUD	Australian Dollars
BOI	Board of Investment
BUREC	Bond University Research Ethics Committee
COC	Certificate of Conformity
CAP	Community Action Planning
CMC	Colombo Municipal Council
CBD	Central Business District
CEO	Chief Executive Officer
CMRSP	Colombo Metropolitan Region Structural Plan
CTBUH	Council on Tall Buildings and Urban Habitat
GLA	Greater London Authority
GBCA	Green Building Council of Australia
HLB	Housing Loans Board
MHP	Million Houses Program
NHDA	National Housing Development Authority
NGO	Non-Governmental Organisation
PIA	Planning Institute of Australia
PTFHUD	Presidential Task Force on Housing and Urban Development
REEL	Real Estate Exchange Limited
STP	Sustainable Township Programme
UDA	Urban Development Authority
UHDA	Urban Housing Development Authority
UK	United Kingdom
UN	United Nation
UNP	United National Party
URDA	Urban Redevelopment Authority
US	United States
USS	Under Served Settlements

C O N T E N T S

1. CHAPTER 1. INTRODUCTION

4   CHAPTER 4. RESEARCH METHODOLOGY

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1. INTRODUCTION

1.1 INTRODUCTION

Along with food and warm clothing, shelter is an essential human need. A shelter is defined as a house, building or structure that is a dwelling or place for habitation by humans. As well as meeting a basic human need, a house is a place that reflects the values, aspirations, future expectations and social and cultural identity of its residents and also of society as a whole (Hamdi 1990; Deheragoda 2004; Fuerst & Roypetty, 1985). Despite the deep cultural roots of housing in human civilisation, millions of people in the world are living without shelter. The lack of adequate habitable housing has become a global problem (Musterd, 2010). This problem has taken on vast proportions in third world countries, for example Sri Lanka, due to major social, cultural and economic problems including poverty, unplanned urbanisation, poor economic and development policy and rapid urban population growth. In Sri Lanka, this situation is worst in the capital city, Colombo. The Colombo City Development Plan (UDA 2008) revealed that there were approximately 66,000 households within the city of Colombo (the Colombo Municipal Council area) living in under-served settlements[1] unfit for human habitation. This figure represents 51 per cent of the city's population, as often many people live in one unit (UDA 2008).

Since gaining independence in 1948, the Sri Lankan government has attempted to find a solution to this issue and has introduced many policies, programs and projects to address the problem of under-served settlements. However, those programs proved to be only temporary

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[1] An under-served settlement is housing that consists of slums, shanties and unauthorised constructions that are not suitable for human habitation.

short-term fixes and have not made any significant long-term impact in reducing the number of under-served settlements in Colombo (Niriella, 2010).

The current housing options in Colombo are inadequate: for many of its inhabitants decent housing is an urgent requirement. Very little research has been done in the low-income housing sector in Sri Lanka and academic study is necessary to investigate how to provide sustainable housing for those members of the population who are living in under-served settlements.

One option to provide this much-needed housing is to build high-rise high-density housing, provided at a very low cost or free of charge to those currently living in under-served settlements. However, high-rise low-income housing is a controversial topic and the decision on whether or not high-rise low-income[2] housing is the best solution to housing problems is a hotly debated subject in both developed and developing countries. Some countries have totally rejected high-rises as an option for low-income housing due to significant failures in the past(Yuen, Kwee, Appold, & Earl, 2006) while other countries have had success in building high-rise housing for low-income people, where low-income people have been uplifted to a middle-income status through the social and economic benefits of living in high-rise housing (Yuen, et al., 2006). It is clear that building high-rise housing is not a globally accepted solution for governments to provide housing for low-income people.

This thesis examines the housing policies of the Sri Lankan government from 1948 to the present and looks at how these policies have been effected for low-income people. It also examines whether the government's current housing policies will have a significant impact on the housing shortage for low-income people in Colombo city, particularly in regards to the development and construction of high-rise housing.

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2 'Low-income housing' is the most common term used to describe public housing in Sri Lanka.

1.2   BACKGROUND OF THE RESEARCH AREA

The thesis uses Colombo, the commercial capital of Sri Lanka, as a case study (Figure 1.1). The city was created in 1865 initially with just over 100,000 occupants living in nine wards covering 2450 hectares and housing a (CMC, 2012). Presently, the Colombo Municipal Council's administrative area covers 3729 hectares.   According to the Population and Housing Census, in 2008 Sri Lanka had a population of 19.4 million with an annual growth rate of 1.1% (Department

Figure 1.1 Sri Lanka
sources – https://maps.google.com/

of Census and Statistics, 2010). The population in the Colombo Municipal Council area was 721,443, with a population density of 193 people per hectare, one of the highest population densities in Asia (Department of Census and Statistics 2008). 30 per cent of the national Gross Domestic Product (GDP) of Sri Lanka is generated in Colombo and the city plays a major and pivotal role in the economic, administrative, social and educational aspects of Sri Lanka (Central Bank, 2010).

1.3   KEY THEMES AND DEFINITIONS

The development of high-rise housing for low-income people is controversial topic. This controversy is exacerbated by the difference in definitions, interpretation and terminologies of the key concepts of high-rise low-income housing, with many definitions varying from city to city as well as country to country. Therefore, in order to fully understand this topic it is important to clearly identify the common international and Sri Lankan definitions for 'high-rise', 'high density', 'low-income' before this research begins its detailed evaluation.

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High-rise, high density, and low-income are relative terms and there are no generally accepted definitions for these words. For example, at a particular time the lowest income category of a developed country might be equal to the highest income level in Sri Lanka. Therefore, a clear understanding of the above terminology is needed before further discussing the topic of this thesis. The literature review in Chapter 3 critically evaluates these definitions and terminologies on a global scale. The following sections identify the general definitions for key terms used.

1.3.1 HIGH-RISE

The Oxford Dictionary defines a high-rise as "a building having many storeys". However, the specific minimum number of storeys that makes a building a high-rise is not specified in the dictionary and it varies from the country to country (Oxford, 2008). Legally Sri Lanka has defined a high-rise as a building above four storeys or over 50 feet (15 metres) in height (UDA, 1996). However, this definition was enacted in 1986 and it is no longer compatible with building trends in the country. Therefore, Sri Lankan professionals and policy-makers have been discussing updating the definition, with the aim to have it changed in near future (Fernando, 2011). Taking into account the local and international definitions of this type of building as well as considering the present housing demand in Colombo city, city authorities and housing professionals suggest a building with either seven or more floors or a building that is over 23 metres in height should be considered as a high-rise in Colombo (Deheragoda, 2007; STP & REEL, 1999; UDA, 2011). These parameters are consistent with the most commonly accepted definitions of what constitutes a high-rise in Asian countries (Musterd, 2010).

1.3.2 HIGH DENSITY

Residential density can be defined as simply the number of units in a given area (Evans 2004). Although planners and planning documents commonly refer to residential developments as low density, medium density and high density, it is difficult to find a commonly accepted definition for what is considered low, medium and high density (Evans 2004). High density does not always refer to a high-rise, as high residential density can be achieved in a variety of building forms (Llewelyn Davies, 2007) This researcher found that there is no officially accepted definition for high density in Sri Lanka. According to the Department and Statistics in Sri Lanka (2008), the population density of Colombo is 193 people per hectare. Considering the housing requirements of Colombo and other housing variables, key professionals and agencies agree that housing density should be significantly higher in Colombo to accommodate all of its citizens in a decent manner (UDA 1998; STP & REEL 1999; Deheragoda 2007).

1.3.3 UNDER-SERVED SETTLEMENT

'Under-served settlement' (USS) is the commonly accepted term for slums, shanties and other uninhabitable housing in Colombo city (STP 1998; UDA 2011). According to the Urban Development Authority, if a settlement does not allow for a healthy lifestyle, does not provide a safe environment for its inhabitants and is legally not approved, it is considered under-served (UDA 1986). A multi-storied building can also be listed as an under-served settlement if it lacks planning approval because it is situated in a risky area, for example in marshy lands or areas that are prone to landslides or floods, or for other reasons such as not being compliant with the Colombo city's master plan's guidance. According to the Colombo

Development Plan, approximately 66,000 under-served settlements have been identified in Colombo (UDA 2008).

1.3.4 LOW-INCOME PEOPLE

'Low-income' and 'low-income people' are relative concepts and there is no single definition of either term. Like 'high income', what is considered low-income varies from place to place and what is considered low-income in a developed country might be an upper income level in a developing country. Providing and developing low-income housing is a controversial issue which is often unrelated to household income and housing. Defining low-income and low-income housing was a major challenge in this research and it was one of the main research questions asked in the key informant interviews. Looking at available socioeconomic data on the inhabitants of Colombo as well as the Central Bank's 2008 Colombo poverty profile (2008), there is a clear income bracket that correlates to 'low-income'. However, in the Sri Lankan government's re-housing programs, income is not the only factor in defining a low-income person – the place they live must also be considered (UDA 1998; STP & REEL 1999; Key Informant Interview 2011). This research therefore defines low-income people as those who are living in under-served settlements in Colombo city without taking into consideration the individual household income and official poverty profile in Colombo.

1.3.5   LOW-INCOME HOUSING

In Sri Lanka, subsidised housing in Colombo is commonly referred to as low-income housing (STP 1998). For an example, the Sahaspura development is classified as a low-income housing project and Dematagoda Flats is a low-income housing scheme. While the term 'low-income housing' is also used in other south Asian countries, other terms used globally are public housing, affordable housing, social housing and council housing (Dayaratne & Kellett,

2008). Although there are differences in these terms, the general idea is fundamentally the same - these terms define houses that are designed for economically weaker groups in society and are subsidised by the government or another regulatory organisation (Dayaratne 2008).

1.4   PROBLEM STATEMENT

The Colombo City Development Plan (2008) revealed that 51 per cent of the total population of the Colombo Municipal council area (CMC) live in under-served settlements unfit for human habitation. During the last six decades, the housing situation in Colombo has worsened due to rapid population growth, economic factors such as high inflation, high interest rates, spiralling land costs, the shrinking of normal wages and increased urban poverty (UDA 2008). Moreover, other non-economic factors like low-density development patterns, extensive building regulations, government policies that don't support the development of low-income housing, negative political intervention and poor decisions about low-income housing have escalated this situation (Central Bank 2009). These factors have resulted in a series of social, economic and environmental problems which have culminated in the current serious housing situation (Niriella, 2010). The availability of habitable and affordable housing, particularly for low-income groups in Colombo, has not kept pace with the demand and the housing needs of all social and economic groups are not being met. The supply of housing in Colombo is effectively limited to the high-income residents of the city, with the market mechanism providing housing only for the wealthy (Niriella, 2010). Taking into account the rapid population growth and other economic and non-economic factors, Colombo needs approximately 3,500 new houses annually but housing supply is not meeting this demand and less than 1,500 were built in year (Central Bank 2006). The response to this housing shortage is the development of slums, shanties and informal settlements which encroach on crown lands in the city (Central Bank 2006; STP & REEL 1999). Ineffective

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governmental control, a lack of adequate housing policy and negative political backing provide further impetus for this unauthorised construction.

Household surveys by the UDA and other government organisations have identified that Colombo city (CMC) urgently needs more than 66,000 new habitable houses for accommodating those people who are currently living in under-served settlements in the city (UDA 2011). However, the slums and shanties are not the core of the housing problems in Colombo; they are only one aspect of a highly complex problem. From critically analysing the housing problem in Colombo, it is very clear that inadequate supply of affordable housing is the main problem and slums and shanties are a symptom of this issue (see Figure 1.2). Many of urban Colombo's social and economic issues originate in a lack of affordable and habitable housing and increasing the housing stock and providing more affordable and habitable housing for weaker socioeconomic groups may provide a solution for many of the social, economic and environmental issues in the city.

EFFECTS

Social Problems

Health Hazard

Poor Living Condition

Bad City Image

Haphazard Development

Reduces Commercial Lands

Slams & Shanties

High Housing & Land Value

High Rent

Social

Physical

Financial

CORE PROBLEM

Inadequate supply of Affordable Housing

Social

Physical

Financial

Institutional

Rapid Population Growth & Immigration

Social & Cultural Attitudes

Land Speculation

Excessive Building Regulation

Inadequate Technology & Construction Industry

High Land Value

Deterioration Of the Building

Inadequate Financial & credit scheme

Low House hold Income

High interest Rate

Neglect of Master Plan & Zoning Regulation

Lack of Government Participation

Weak Institutional Framework

Poor Land policy &Delivery System

CAUSES

Figure 1.2 Problem tree analysis
Source -Author's sketch adapted from Sidharth Thakur (2008) and Miles and Huberman (2004)

1.5 RESEARCH OBJECTIVES

The supply of affordable and habitable housing is one of the biggest problems in the city of Colombo, with the majority of the city's population living in under-served settlements. Since Sri Lanka became politically independent in 1948, the Sri Lankan government, various local and international donor agencies and non-governmental organisations (NGOs) have introduces many projects and programs to address this issue, yet have been unable to find a long-term sustainable solution that provides affordable and habitable housing for all (Domingo, 2011). The main objectives of this research are to critically evaluate the Sri

Lankan government's past and present housing policies in comparison to local and international experiences of high-rise low-income housing and to explore whether high-rise housing is an appropriate solution to address the scarcity of housing in Colombo.

There are four sub-objectives related to the main objective. These are:

- to analyse selected high-rise low-income public housing solutions implemented in various parts of the world and the challenges faced by those developments;
- to investigate the concept of high-rise residential developments and understand their relevance to the current situation in Colombo;
- to examine appropriate housing options for low-income people in Colombo; and
- to analyse and evaluate the nature of the ongoing high-rise low-income residential developments and the Sri Lankan government's housing policy for low-income people in Colombo.

1.6   RESEARCH QUESTIONS

The research questions are developed from the research objectives. The main objective of the study is to discover whether high-rise housing is an appropriate solution to the problem of scarcity of housing for low-income people in Colombo. High-rise public housing is not a globally popular solution for housing for low-income people and there have been high-profile failures of high-rise housing projects for low-income groups, as far back as Pruitt-Igoe in 1972 (O'Neil, 2007). However, critical analysis demonstrates there were many factors that contributed to the failure such as poor planning, insufficient funding and social issues. Therefore, high-rise housing needs to be closely studied so as to clearly understand what factors contribute to the success or failure of high-rise low-income housing. Chapter 3 of this

research will critically evaluate why some high-rise housing projects were successful and why others developed in same period and even in the same country failed.

The research questions of this research are outlined below. They start with a broader view of the international perspective of the situation and then focus on a local level, specifically concentrating on the micro-level detail research objectives.

1. Why has high-rise low-income housing reportedly failed in some countries and succeeded in others?

2. Is high-rise housing an appropriate solution for housing scarcity in Colombo?

3. What are the other options for addressing the problem of housing scarcity in Colombo?

4. Why does Colombo "need" high-rise housing rather than lower-rise housing for low-income groups?

5. What is the Sri Lankan government's policy for housing low-income people and why has it decided to construct high-rise housing for low-income people in Colombo?

1.7   OTHER OPTIONS FOR FIXING THE HOUSING SHORTAGE IN COLOMBO

Colombo urgently needs more than 66,000 houses to accommodate people who are currently living in under-served settlements (Rajapaksa 2010; UDA 2011). Slums and shanties are not new to Colombo and have been present since the British colonial period (1815-1948) that established Colombo as a capital of the country. Since declaring independence in 1948, politicians, planners and other housing professionals have been searching for a sustainable and practical solution to address this issue (Niriella 2010). However, they have not been able to find a practical long-term solution for the housing scarcity and the situation has gradually worsened. Necessary research and policies are being carried out to find a practical solution for this issue and the main options proposed by professionals in the industry in Sri Lanka (Niriella 2010) are:

- on-site upgrading and infrastructure development;

- building new residential suburbs around Colombo with an efficient transportation system and relocating under-served settlements to outside the city;

- decentralising administrative and institutional activities and discouraging housing demand in Colombo;

- enforcing regulations for unauthorised housing and evacuating illegal housing in the city; and

- encouraging high-rise high-density housing for low-income people.

Encouraging high-rise and high-density housing is one of the key options utilised by the current Sri Lankan government and they have established a separate division name as Relocation of Under-served Settlement Project (RUSP) under the Urban Development Authority for developing high-rise housing for low-income people in Colombo city (UDA 2011). The changes to government housing policy changes, and the implications of these policies for high-rise housing for low-income people, primary focuses of this research.

1.8 RESEARCH PROPOSITION

Since 1997, the author has been involved in several housing projects for low-income people in Colombo and has earned two Masters Degrees in urban housing and urban planning respectively. The research proposition is based on the author's academic knowledge and years of practical experience in the housing field in Colombo. After examining the theoretical and practical knowledge in this area, the following research proposition has been developed:

> *High-rise high-density housing may be an appropriate solution for the scarcity of housing for low-income people in Colombo.*

The research proposition is a tentative hypothesis and is not suggesting that high-rise housing is the only solution to the problem of housing scarcity for low-income people in Colombo. The main objectives of this research are to study, analyse and evaluate Sri Lankan government policy relating to high-rise low-income housing and understand its relevance and importance to the contemporary conditions in Colombo. At the same time, the research attempts to place Sri Lanka within the global scale of international experiences to obtain a clear idea about the practical consequences of developing high-rise housing for low-income people.

1.9 OVERVIEW OF RESEARCH METHODOLOGY

Research methodology plays a crucial role in research and involves processes of research design, data collection, analysis and interpretation of results. Selection of research methods depends on the type of data needed to answer the research questions, and the final results of the research depend on the methodology employed (Corbetta, 2003; Kumar, 2011). This research is primarily descriptive with a qualitative approach. The quality standards of this study take into account construct validity, credibility, dependability, and conformability (Denzin & Lincoln, 1994; Irava, 2009). The methodology is detailed in Chapter 4.

1.10 LIMITATIONS OF THE RESEARCH

This research commenced in Sri Lanka in 2009, after the country had endured three decades of ongoing civil war. During this time, all decisions made by the both the government and private sector had to be guided according to the situation of the war and priority was given to national security rather than city development. This is the first time in Sri Lanka's recent history that planning decisions can be made without taking into major consideration attention to security and safety. Consequently, most professionals in Sri Lanka do not have much

experience working in a peaceful environment. The political situation of the country has resulted in fewer practically experienced professionals and has not provided a situation conducive to undertaking research in the housing field. When high-rise developments have been undertaken in the past, the main consideration in their development was security, as high-rise buildings can be a major target for a terrorist attack. Even though in 2000 the government made a policy decision to build high-rise housing for low-income people in Colombo, in practice this was limited to one building due to Sri Lanka's socioeconomic and security situation. Due to these reasons, there has been minimal high-rise construction during the last three decades and, due to the resultant scarcity of high-rise housing, the literature available on high-rise buildings in Sri Lanka is also limited.

Research activity is also restricted given the limited budgetary allocations for the research, particularly as this research is conducted by a sole researcher.

1.11   STRUCTURE OF THE RESEARCH

The thesis is divided into eight chapters (see figure 1.3). Chapter one Introduces the topic of the research and describes the purpose of the study. Chapter two   Outlines the theoretical framework of the research. Chapter three Analysis of the literature related to the thesis topic, focusing on the major concepts that have an impact on the research. Chapter four Discuss the methodological approach used in this research. Chapter five Reviews the Sri Lankan government's housing policies over the last 100 years. Chapter six Analysis of Sahaspura, the first high-rise low-income housing project in Colombo in 2001.Chapter seven Critical analysis of the data gathered from primary and secondary sources and chapter eight Presents the conclusion and recommendations of the research.

CHAPTER 1 Introduction	Introduces the topic of the research and describes the purpose of the study.	
Research Problem	Research Questions	Methodology

CHAPTER 2 Theoretical Framework	Outlines the theoretical framework of the research	
Analysis of existing theories	Theoretical position of the research	

CHAPTER 3 Literature Review	Analysis of the literature related to the thesis topic, focusing on the major concepts that have an impact on the research.	
Analysis of key terms relating to high-rise housing	The historical development of high-rise low-income housing both in Sri Lanka and internationally	Challenges in high-rise low-income housing

CHAPTER 4 Methodology	Discuss the methodological approach used in this research.		
Research philosophy	Research approach	Research strategy	Data analysis

CHAPTER 5 Housing policies in Sri Lanka	Reviews the Sri Lankan government's housing policies over the last 100 years.	
Before independence (1948)	After independence (1948 – 2009)	Contemporary situation after end of civil war (2009 – 2012)

CHAPTER 6 The Sahaspura case study	Analysis of Sahaspura, the first high-rise low-income housing project in Colombo in 2001.	
Sahaspura concept	10 years of practical experience of the project	Lessons learned from Sahaspura

CHAPTER 7 Analysis	Critical analysis of the data gathered from primary and secondary sources.	
Key informant interviews	Literature	Observation

CHAPTER 8 Conclusion and recommendations	Presents the conclusion and recommendations of the research.	
Contribution of the research	Recommendations	Directions for future research

Figure 1.2 : Structure of the research

1.12 CONCLUSION

This chapter provided an introduction of the thesis. The research questions, research objectives, scope of the research, contribution of the research and research structure were presented. The background to the thesis outlined the current housing situation in Colombo and identified the issues concerning low-income housing and related problems. This chapter also highlighted alternative solutions for the issues surrounding low-income housing in Colombo, noting the need for more research in the area, particularly concerning providing habitable and affordable housing for the low-income people who are currently living in under-served settlements. Chapter 2 discusses the theoretical framework of the research, analyses existing theories in housing research and describes the theoretical position of the research.

2. THEORETICAL AND CONCEPTUAL FRAMEWORK

2.1 INTRODUCTION

Theories are analytical tools which are part of the scientific process of explaining, understanding and making predictions about a given subject matter (Corbetta, 2003). The word 'theory' is used in a broad manner and enhances several related terms such as conceptual framework, paradigm, typology and model (McCray & Weber, 1991). Theories play a catalyst role in many research projects (Corbetta, 2003). They can guide the selection of methodologies, the development of research questions and the interpretation of results (Steggell, Binder, Lori, Davidson, & Vega, 2003). Additionally, the utilisation of theories is necessary for the advancement of knowledge in a selected field of research.

This chapter critically examines existing theories relating to housing research and discusses the theoretical models and conceptual frameworks that relate to low-income housing and are specifically applicable to this research.

2.2 THEORIES IN HOUSING RESEARCH

The field of housing theory is very diverse and covers many different interest areas. Developing a research project involves examining existing theories or developing new theories according to the research interest areas (Steggell, et al., 2003). However, developing a new theory or challenging an existing theory is a complicated process and it requires regular reviews and an examination of existing theories within a broader perspective acknowledging subjectivity and objectivity (Jacobs & Manzi, 2000; Lawson, 2006).

Steggell et al. (2003) analyse the theories used in housing research by examining 115 housing research articles that were published in the journals of *Housing and Society, Environment and Behaviour,* and *Family and Consumer Sciences* between 1989 and 1999. Steggell et al. reviewed 34 housing theories:

> *....because of their importance to housing research. Many of the theories were adopted or adapted from related disciplines such as psychology, sociology, social psychology, demography, and human development.* (Steggell, et al., 2003)

The research of Steggell et al. (2003) finds that most housing research theories concentrate on social issues and apply to evaluating housing decisions, residential mobility, housing preferences, housing satisfaction, the importance of housing and the effects of homeownership. There is no one existing housing theory or model that is suitable for explaining, understanding and making predictions about the appropriateness of high-rise housing for low-income people in Colombo. This thesis therefore adopts a multidisciplinary approach in order to conduct the analysis of high-rise housing for low-income people, with social issues only one aspect of the research interest. Accordingly, while existing theories can be used to partially answer the research questions, to fully critically evaluate the subject a new multidisciplinary approach was required . Exploring the literature, 14 theories or models are identified as being partially related to the thesis, with four theories specifically applicable to the analysis of low-income housing issues related to subsidised housing. Table 2.1 illustrates the key details of the existing theories that are applicable to this research.

Of the housing theories in Table 2.1, the Theory of Housing Adjustment (Morris & Winter, 1975), the Theory of Slums (Stokes, 1962), the Model of Residential Satisfaction of Public Low-cost Housing (Mohit, Ibrahim, & Rashid, 2010) and the Evaluation Model of Sustainable Community (Samaratunga, 2011) are closely related to the research interest of

this thesis and it provide good overview of social issues in low-income housing. Each of these theories is discussed in detail below.

	Theory	Authors	Examples of Applications
TABLE 2.1: RELEVANT THEORIES IN HOUSING RESEARCH (Shading denotes theories that are more related to the research topic)			
1	ABCX Family Crisis Model	R Hill	Housing adjustment behaviour
2	Attribution Theory	W M Rohe and V Basolo	Effects of homeownership
3	Causal Model of Barriers and Incentives to Affordable Housing	J W McCray	Interrelationships and interactions among household and community variables
4	Ecosystem Theory	N H Tansley	Home maintenance decisions and behaviours
5	Impression Formation Theory	S Winchip, M Inman and P C Dunn	Relationship between environmental stress and family social climate relationship
6	Ownership Model	G White and P Schollaert	Relationship between house ownership and cognitive well-being
7	Perceptive Boundaries Paradigm	J W McCray and M J Weber	Housing decisions; housing satisfaction
8	Social Comparison Theory	W M Rohe and V Basolo	Long-term effects of homeownership on self-perception and social interaction
9	Social Construction Paradigm	T W A Wiesenfeld	Meanings of houses, neighbourhoods and ways of life; comparison of home styles to measure affective experience
10	Social Identity Theory	E K Sadalla, B Venshore and J Burroughs	Attributes of homes in communicating social identity
11	Theory of Housing Adjustment	E W Morris and M Winter (1975)	Satisfaction; housing preferences; residential mobility; housing decisions
12	Theory of Slums	C Stokes (1965)	Slum of hope and despair
13	Model of Residential Satisfaction of Public Low-cost Housing	M A Mohit, I Mansor, and R Y Razidah (2011)	Relationship between objective and subjective attributes of residential environment to the determination of residential satisfaction
14	Evaluation Model of Sustainable Community	T Samaratunga (2010)	Relationship between social, financial and environment in making a sustainable community
Sources - (Lawson, 2006; McCray & Weber, 1991; Mohit, et al., 2010; Sahlin, 2006; Samaratunga, 2011; Shumarker, 1985; Steggell, et al., 2003; Stokes, 1962)			

2.2.1 THEORY OF HOUSING ADJUSTMENT

The Theory of Housing Adjustment, developed by Morris and Winter (1975) in the mid-1970s, presents a conceptual framework to examine cultural norms and the housing adjustment behaviour of families, using family norms as the main evaluation criteria (figure 2.1). Morris and Winter (1975) argue that:

> *Families are viewed as evaluating their housing in terms of cultural norms and family norms. When their housing does not meet the norms, it tends to give rise to dissatisfaction, producing a propensity to reduce the normative deficit. Residential mobility, residential adaptation, and family adaptation are the modes of adjustment used to reduce such deficits, and are undertaken when the constraints on the behaviour can be overcome.* (Morris & Winter, 1975).

Steggell et al. (2003) found that the Theory of Housing Adjustment is the most cited theory in housing research articles published in the *Housing and Society, Environment and Behaviour,* and *Family and Consumer Sciences* research journals between 1989 and 1999. Out of the 115 articles examined by Steggell, nearly 23 per cent used the Theory of Housing Adjustment. This theory examines housing satisfaction, housing preference and how households think and perform in terms of their housing behaviour (Steggell, et al., 2003). Many researchers use the theory to examine the complex decision-making process regarding housing in American society. However, the general process of this theory is not limited to geographical location or a specific field of housing and it can be applied to broader research work in housing among low-income, single-parent families, metropolitan and non-metropolitan women, rural households and older-age cohorts (Steggell, et al., 2003).

Residential satisfaction is one of the main criteria used to evaluate the success of any housing project and the housing adjustment theory could be used to study resident satisfaction in high-

rise low-income housing in Colombo city as well as investigating how to improve the living

conditions in new housing for low-income people.
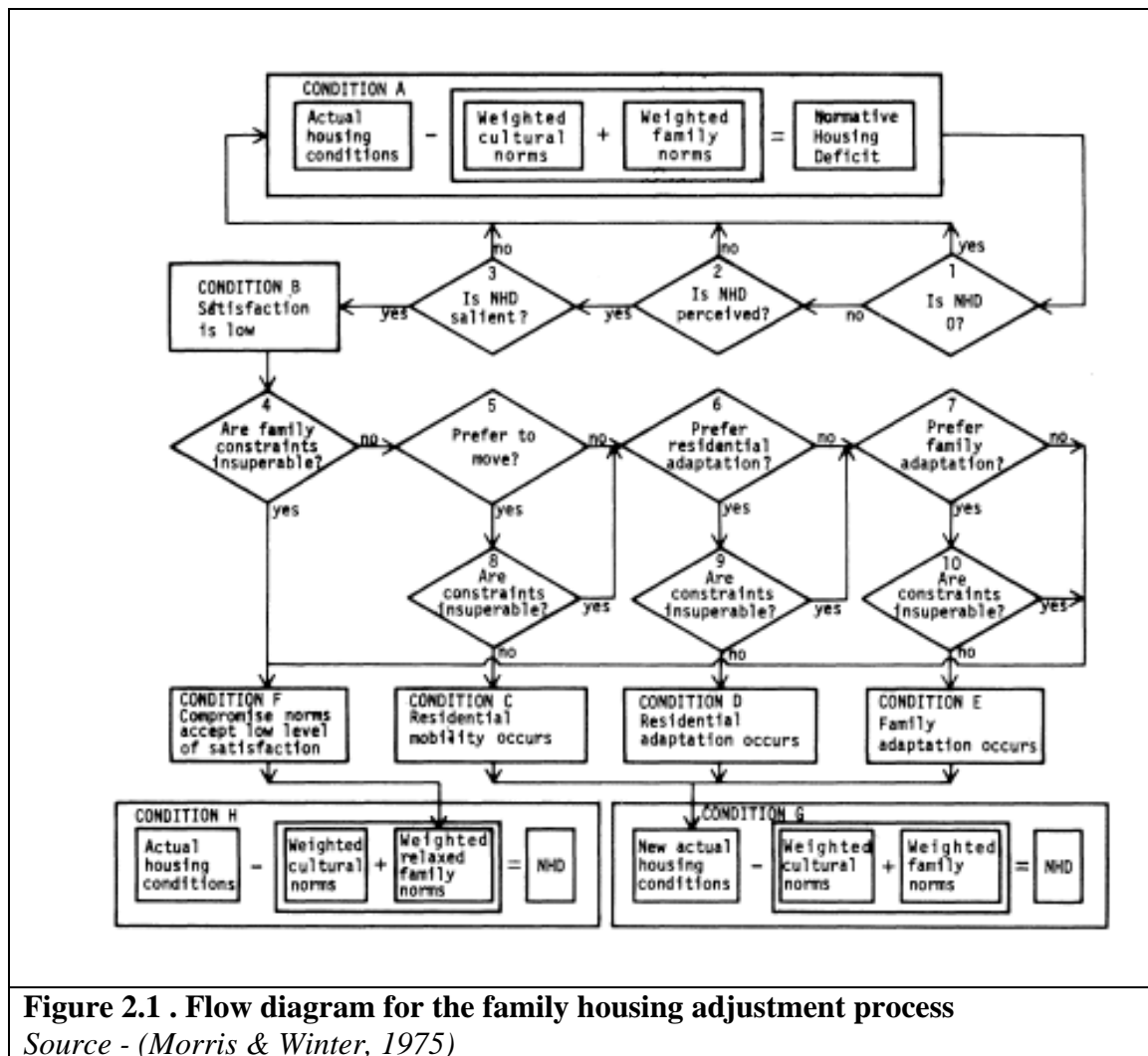
Figure 2.1 . Flow diagram for the family housing adjustment process
Source - (Morris & Winter, 1975)

2.2.2 THEORY OF SLUMS

The Theory of Slums was first published in the *Journal of Land Economics* in 1962. Charles

J Stokes developed this model to evaluate the psychological attitudes and socioeconomic

handicaps involved in changing the socioeconomic class of slum dwellers in urban areas

(Stokes, 1962). According to Stokes, four different groups of people live in slums:

- those who have hope their living conditions will improve. This group often leave the

  slum situation and improve their social and economic standard;

- those who hope their living conditions will improve but are not able to improve their circumstances and overcome their slum status;

- those whose living conditions improve even though they do not have hope; and

- those who do not have hope and whose living conditions do not improve.

Figure 2.2 contains a model that illustrates the complexity of slum formation, the attempt to live in better housing and the relationship to despair in slums. The horizontal axis separates the slum of hope and slum of despair and the vertical axis separates the 'escalator' and 'non-escalator' classes (Stokes, 1962). According to Stokes (1962), escalation or non-escalation in living conditions is not simple and the Theory of Slums works to find a meaningful relationship among the major variables assumed to be associated with slum situation and development. The main variables that Stokes identified that directly or indirectly affect the ability of individuals or families to improve their living conditions are employment, age, education, language ability, skin colour and religion. Additionally, Stokes (1962) highlights that the term 'poor' means not only poor in income but more significantly poor in ability and attitudes, which is also directly and indirectly associated with non-escalation and despair.

Slums Classes	Hope	Despair
Escalator	A	B
Non-Escalator	C	D

Figure 2.2 Theory of slums
Source - (Stokes, 1962)

Low-income people, in high-rise low-income housing can be sorted into the four groups of people identified by Stokes (1962). One group uses the opportunity of living in a high-rise as a chance to improve their living condition and overcome the slum lifestyle. Other groups, however, even though they have moved from slums to habitable housing, do not appreciate the value and opportunity provided by their new environment and do not show any improvement in their living standard (Jones, 2012). The worst scenario is the groups who try to sell their new houses legally or illegally and try to return to their previous situation in the slums. Therefore, the Theory of Slums is useful in this thesis and it provides a good framework to evaluate the selection of the people who will be chosen to relocate to high-rise housing.

2.2.3 MODEL OF RESIDENTIAL SATISFACTION OF PUBLIC LOW-COST HOUSING

As discussed in the early part of this chapter, residential satisfaction is one of the main criteria used to evaluate success of housing including housing for low-income people. According to the literature, satisfaction with low-income housing primarily depends on the management of the housing's facilities and surroundings (Mohit, et al., 2010). Mohit et al (2010) critically review these factors and develop a model to evaluate residential satisfaction considering the relationship between the objective and subjective attributes of a residential environment. They identify five constructs containing forty-five variables that can be used to assess the residential satisfaction of those who live in newly designed public low-cost housing in Kuala Lumpur, Malaysia. According to Mohit et al., (2010):

> *Based upon the review of literature on variables that are likely to affect residential satisfaction, the present study considers the 'residential satisfaction bundle' to contain two sheltered components – the dwelling unit features with eleven variables; and (2) dwelling unit support services with eight variables; and three non-sheltered components - (Ganepola) public facilities with nine variables; (2) social environment*

with five variables; and (3) neighbourhood facilities with twelve variables. (Mohit, et al., 2010)

Within Mohit et al.'s (2010) model, 'sheltered' and 'non-sheltered' components are used to evaluate residential satisfaction. Table 2.3 contains the details of the variables in each of the categories.

TABLE 2.3 RESIDENTIAL SATISFACTION OF PUBLIC LOW-COST HOUSING	
Components	Variables
Dwelling unit features	Dwelling unit features refer to the floor plan of dwelling unit, for example living, dining, bedroom, kitchen, bathroom, toilet and drying areas and ventilation.
Dwelling unit support services	Support services outside the dwelling unit, for example corridors, staircase, balconies, electricity supply, water supply, sewerage, drainage, telecommunication, lifts and fire-fighting systems.
Public facilities	Open space, play areas, parking, prayer and multi-purpose halls, perimeter roads, pedestrian walkways, public phones, local shops and food stalls.
Social environment	Noise, crime, accidents, security and community relations.
Neighbourhood facilities	Distances to town centre, school, police station, hospital, market, shopping centres, public library, religious building, LRT, bus and taxi stations
Source - (Mohit, et al., 2010)	

Figure 2.2 illustrates the subjective and objective attributes of residential satisfaction and the relationship of each variable to the residential satisfaction of low-cost housing.

Objective attributes of residential environment

Subjective attributes of residential environment

Dwelling unit features – living area, dinning space, bedroom spaces, toilet, bathroom, etc

Satisfaction / dissatisfaction with dwelling unit features (measured by DUFSIndex)

Dwelling unit support services– corridor, staircase, lift, cleanliness of drains, street lighting, garbage collection, etc.

Respondents' impression based on individual / family norms and values

Satisfaction / dissatisfaction with dwelling unit support services (measured by DUSSIndex)

Public facilities - OS/play area, parking, prayer hall, perimeter roads, pedestrian walkways, etc.

Satisfaction / dissatisfaction with public facilities (measured by PFSIndex)

Residential satisfaction (measured by (RSIndex)

Social environment – noise, accident, safety, security control, community relations.

Household characteristics - age, education, family size, income, length of stay, etc

Satisfaction / dissatisfaction with social environment (measured by SESIndex)

Neighbourhood facilities – distances to town centre, work place, school, hospital, shpping centre, lrt/bus stations, etc.

Satisfaction / dissatisfaction with neighbourhood facilities (measured by NFSIndex)

Figure 2.2 Residential satisfaction of low-cost housing
Sources - (Mohit, et al., 2010)

In comparison to the theories and models which have been discussed in this chapter, Mohit et

al.'s (2010) evaluation criteria and variables are the most relevant for analysing social and

technical issues in high-rise housing in Colombo city, as they allow for housing satisfaction

to be described in a broad way, considering 45 different variables. Additionally, this model discusses the internal and external factors for assessing housing satisfaction and focuses on low-cost housing in Asian cities. Therefore, this model is a useful tool with which to evaluate the appropriateness of high-rise housing for low-income people in Colombo city and provides a basis for developing a theoretical framework in this research

2.2.4 MODEL OF MAKING A SUSTAINABLE COMMUNITY

At an international planning conference in Hobart in 2011, Samaratunga (2011) presented a model that evaluates community sustainability through assessing the main sustainability components such as environmental, economic and social factors. The model illustrates the relationship between the internal and external factors of sustainable communities and can be directly applied to assess new housing projects designed for low-income people. From an urban planning perspective, housing is a key component in complex urban structures and a major challenge for city planners is accommodating large populations in a limited area in a decent manner. Accordingly, this model (shown in Figure 2.3) can be used as guide for low-income housing development in urban areas as well as reducing the complications that arise from low-income housing. Chapter 5 in this thesis discusses this model in detail, exploring its practical application to Sahaspura, the first high-rise low-income housing project in Colombo.

Figure 2.3 - Making a sustainable community
Sources: Samaratunga (2011-b)
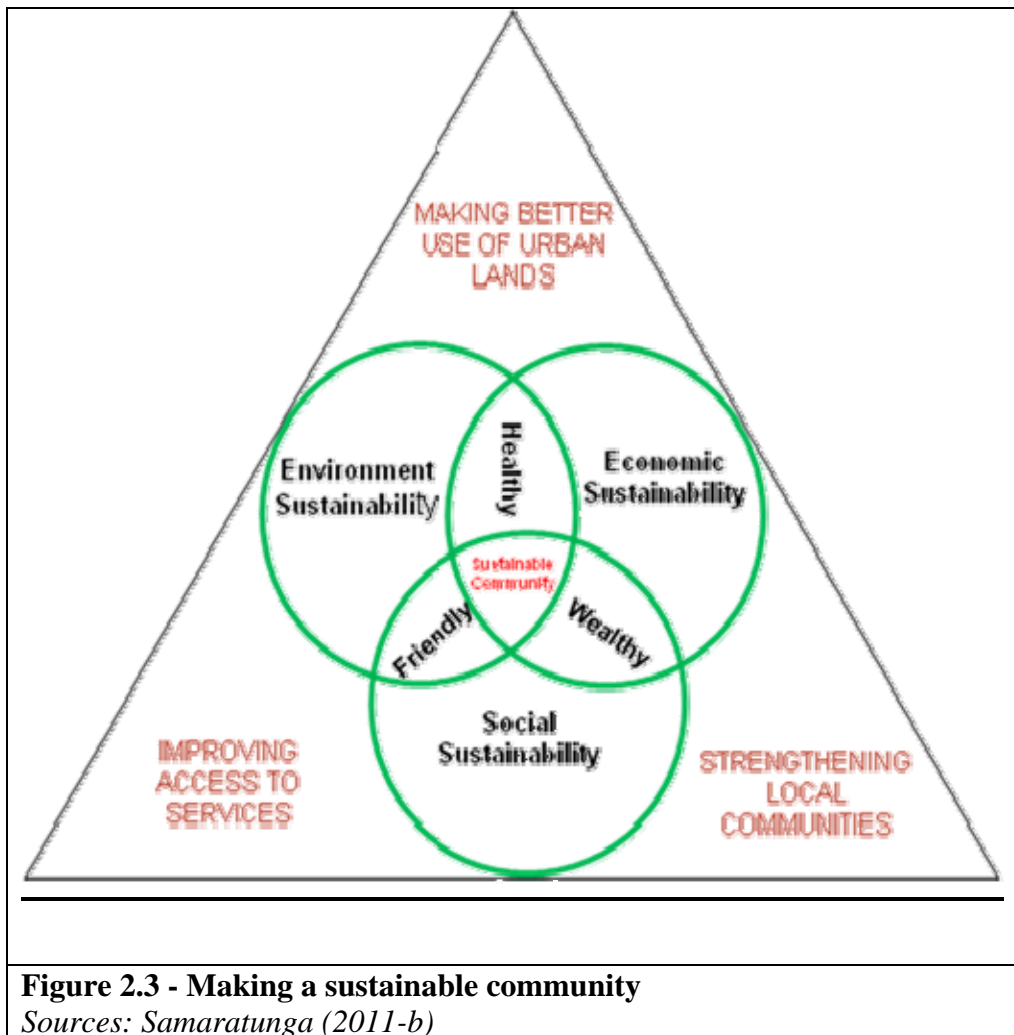
2.3 THEORETICAL POSITION OF THE RESEARCH

Most of the theories discussed in this chapter examine social issues or financial matters in the housing sector. These theories can be widely applied to analyse satisfaction with housing, housing decisions, residential mobility, housing preferences, meanings of housing and the effects of homeownership. However, the main objective of this thesis is not to critically evaluate social issues or residents' housing satisfaction but to evaluate the appropriateness of high-rise housing as a city planning approach to reducing the number of under-served settlements in urban areas, particularly in Colombo city. This research does not seek to diminish the importance of residential satisfaction; however satisfaction is beyond the focus

of this thesis. This thesis broadly considers the city planning aspect of high-rise housing for low-income people; resident satisfaction alone - while being of critical importance - cannot be considered the only measure for success of high-rise in urban developments. It is therefore difficult to find one single theory or model that is suitable for identifying the appropriateness of high-rises for low-income people, as social and financial issues are only two aspects of the research. Accordingly, the planning point of view and the appropriateness of high-rise housing is considered within a broader perspective of the entire urban fabric. Therefore, the thesis utilises the Inductive Approach (a 'bottom-up' approach) to discuss the theories related to the research interest.

The inductive approach begins with specific observations and measures, detecting patterns and regularities and formulating tentative hypotheses that can be explored, finally ending up developing general conclusions or theories (Trochim, 2006). However, social science research commonly uses a deductive approach as the main research method. This approach starts with thinking up a theory about the topic of interest and then narrowing it down into more specific hypotheses that may be testable (Trochim, 2006). The focus can be narrowed down even further when observations have been collected that address the hypotheses. And ultimately, this approach leads to testing the hypotheses with specific data, providing a confirmation (or not) of the original theories (Trochim 2006).

As a qualitative research project which uses an inductive approach, this thesis utilises the grounded theory method to the discovery of theory from data systematically obtained from the research (Birks & Mills, 2011; Glaser & Strauss, 1967). The aim of grounded theory is to generate or discover a theory and the thesis seeks to find a suitable way to evaluate the appropriateness of high rise housing for low-income people based on an inductive approach involving critical evaluation of observations and measures, key informant interviews,

detecting patterns and regularities and formulating tentative hypotheses that can be explored before developing general conclusions or theories.

Accordingly, rather than being conducted within an initial fixed or established theoretical framework, this thesis seeks to generate or discover a grounded theory through critical analysis of primary and secondary data in Chapter 6.

2.4   CONCLUSION

Theories always play a vital role in academic research and guide researchers in developing their research. Theory is also critical to the planning process. This thesis attempts to strengthen improve the theoretical basis for city planning in Sri Lanka. However, after surveying the existing theories in the housing field, there is no clear theory or model that will allow this researcher to answer the research questions, aims and objectives of this thesis in a scientific and logical manner, specifically evaluating the appropriateness of high-rise housing for the low-income sector from a city planning perspective.

In the housing sector, researchers have utilised, challenged existing theories, or developed new theories according to the requirements of their research. Therefore, this thesis uses an inductive approach to develop a new model by building on existing theory. Grounded theory was also used to generate and/or discover a research theory.

Chapter 3 provides an in-depth analysis of the literature in the housing sector, particularly in relation to housing for low-income people in urban areas, and examines the different approaches adopted globally to address low-income housing issues.

3. LITERATURE REVIEW : HIGH-RISE LOW-INCOME HOUSING

3.1 INTRODUCTION

With a growing population and limited space available for development, both horizontal and vertical development of available urban lands becomes necessary. The need to use the available land to its full capacity and in order to accommodate a greater number of people using limited land space will require a change in the housing patterns in urban areas. Hence, the vertical structure has come to replace the single and double storied tenements in many cities. (Adams*

1982)

The main goal of this chapter is to critically evaluate the literature on housing, particularly housing for low-income people. This chapter specifically discusses the literature on low-income housing and investigates high-rise housing as an alternative solution for low-income people in urban areas, particularly the city of Colombo in Sri Lanka.

This chapter is divided into three sections that cover the existing literature that relates to the research interest of this thesis. The first section of this chapter discusses the theoretical, technical and legal definitions of the key themes of the research. The second section identifies the major issues in low-income housing and examines the different approaches and solutions that have been applied to low-income housing in the past. The third section examines high-rise housing as a way to address the housing needs of low-income people and looks at historical and current trends towards high-rise housing for low-income people. To do this, this thesis critically evaluates Sri Lankan and international experiences of low-income high-rise housing as well as identifying the practical issues relating to accommodating low-income people in high-rise buildings.

3.2 THEORETICAL, TECHNICAL AND LEGAL DEFINITIONS OF THE KEY THEMES OF THE RESEARCH

Housing is a broad area and it is a term that encompasses many different definitions, interpretations and terminologies that vary between countries and even between cities. Therefore, when researching in the housing field it is important to understand the international and Sri Lankan definitions for key themes in the research. The following sections identify and define the primary themes in this research.

3.2.1 HIGH-RISE

A high-rise is a tall building or structure. The function of the building is usually added to the term 'high-rise', for example high-rise apartment building or high-rise office. The construction of high-rise buildings became possible with the invention of the elevator (lift) and the availability of cheaper and more abundant building materials (Prasad 2001). Building high-rises is a good solution for the problem of land scarcity in many densely populated cities in the world, as high-rise building can increase land utilisation and building density. However, it is difficult to find a commonly accepted definition for what constitutes a high-rise. Different countries, cities and professionals define these terms differently. According to the Oxford English Dictionary (2008), a high-rise is "a building having many storeys". However, from the technical and engineering points of view, the number of storeys depends on the minimum and comfortable height of a single floor. The building regulations in Sri Lanka state that the minimum height of one storey should be 12.6 feet (3.8 metres) (UDA 1986).

The most common materials used to create the structure of high-rise buildings are reinforced concrete and steel. Most American-style skyscrapers have a steel frame, while high-rise residential tower blocks are usually constructed from concrete (Shumarker 1985).

It is important to understand how various bodies have tried to define the meaning of 'high-rise' for a range of purposes. In 1971, the International Conference on Fire Safety defined a high-rise as "any structure where the height can have a serious impact on evacuation" (Fire Safety Conference 1971). It should be noted that this definition is based on the perspective of fire-fighters and from the point of view of fire safety. Generally building engineers, planners, architects and others in the construction profession define a high-rise as a building that is at least 75 feet (23 metres) high (Shumarker 1985). Langdon and Everest (2002) state that it is not possible to define tall buildings using absolute measures. They believe that tall buildings are best understood in relative terms as buildings where planning, design, construction and occupation is influenced by height in ways that are not normally associated with more typical, local developments (Langdon & Everest 2002).

Massachusetts General Laws define a high-rise as a building higher than 70 feet (21 metres) (Shumarker, N. 1985). According to the Sri Lankan building regulations, a high-rise is defined as any structure that has five or more storeys (ground plus at least four floors) (UDA 1986). This definition is based on elevator usage, as it is legal requirement any building that has more than four storeys must have a lift. Nihal Fernando (2011), the Director General of the Urban Development Authority (UDA), states:

> *Well, high-rise is a relative term and you have to first define what high-rise means.*
> *When I first came into the Urban Development Authority in the 1980s, at that time*
> *any building which was more than ground plus three floors was considered as high-*
> *rise, because that was the norm at that time and that was the consideration.*
> (Fernando 2011)

However, the Sri Lankan regulations and definitions that were enacted 25 years ago were based on the economic and social situations of that period. Changing the official definition for high-rise according to the present requirements and demands on the country is an urgent requirement for Sri Lanka and the new definition must reflect the current needs of the country and be compatible with the international standards. Taking into account different definitions, international experiences, land scarcity, land value, fire and safety, technical and financial feasibility and the current housing policies in Colombo, in this study the terms 'tall building' and 'high-rise' shall be used for structures with eight or more storeys or buildings taller than 23 metres. Further explanation on the definition of high-rise development can be found in Section 3.4.

3.2.2 HIGH-DENSITY

Density is a controversial and much-used term in planning vocabulary. At its simplest, residential density is the number of units in a given area (Zhang, 2004). There are no agreed-upon standard definitions of density; rather each location and profession has come up with an idiosyncratic view of density. Planners and planning documents commonly refer to housing density and population density as low, medium and high densities. However, it is difficult to find a commonly accepted definition for low, medium and high density. Basically, residential density is calculated based on the land area. Figure 3.1 illustrates how the same density can be achieved with three different types of buildings.

Figure 3.1: Residential density and urban form

Source: Author's diagram, based on(Saga City, 2011; Urban Task Force, 1999)
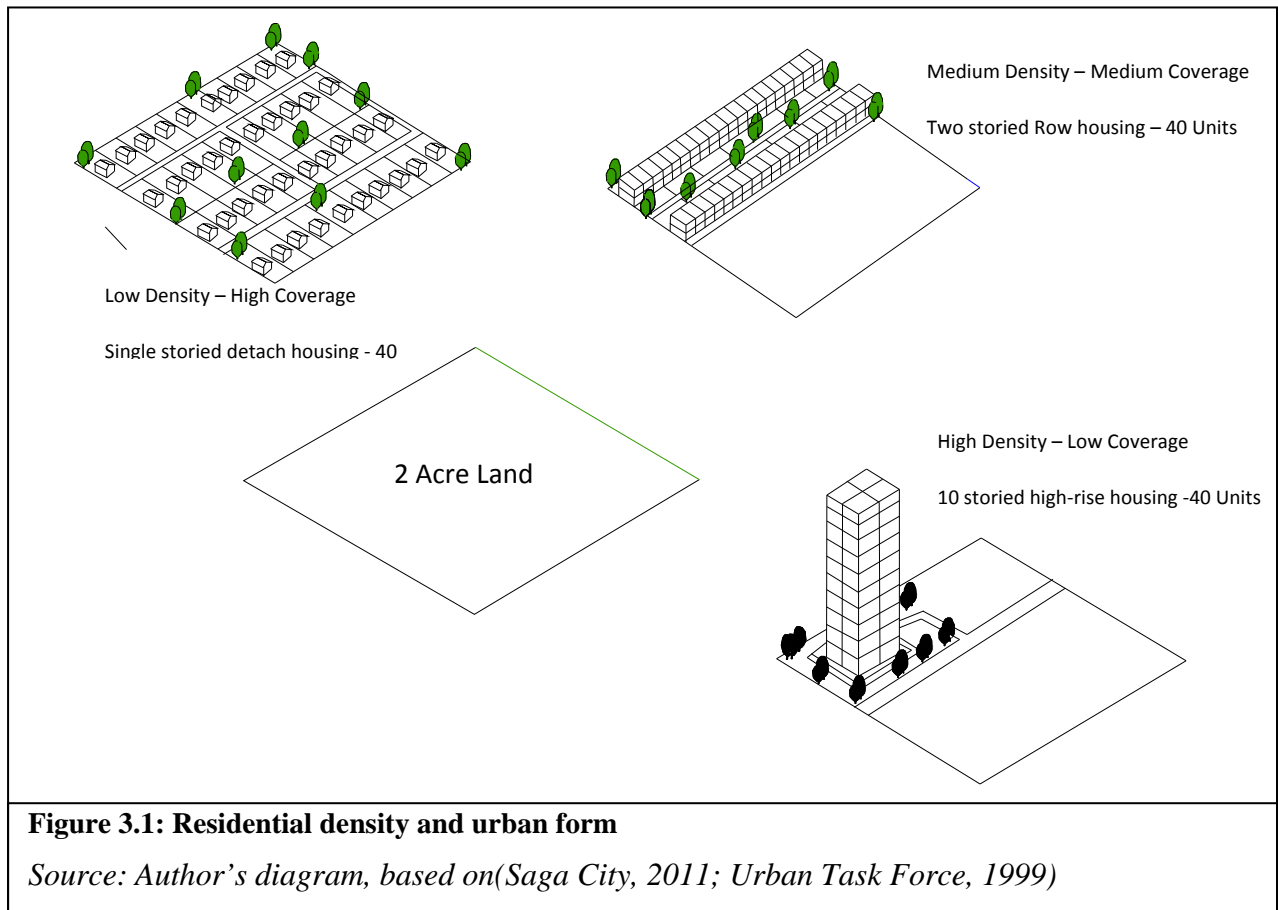
Figure 3.1 shows how increases in residential dwelling height are related to different building typologies and specific thresholds that trigger different construction types. Figure 3.1 also attempts to compare the land coverage of each category in difference building form. Complying with building codes and regulations is an essential requirement for constructing buildings in urban areas and building codes vary from city to city. Figure 3.1 illustrates the residential density and utilisation of land according to the building regulations in Colombo city. The Colombo master plan does not contain a legal definition for high density in Colombo and so density control is set according to the building regulations (UDA 1986). Building regulations in Colombo require one-third of land be kept open in any development, with the maximum plot coverage being two-thirds (66 per cent) of the land area. The floor area ratio should not exceed 2.75 times the total land area (UDA 1986). Furthermore, six

perch (151 square metres) is the minimum lot size for detached housing. To comply with the building regulations in Colombo, a maximum of 40 detached units can be constructed in two acres of land (option 1). However, if the buildings are two-storeyed row houses, 40 housing units can be constructed using half of the area used for the row housing (option 2). If the buildings are 10-storeyed high-rises, the same amount of housing can be achieved just using only one-fourth of the land (see option 3).

However, it should be noted that high density doesn't always mean high-rise and high densities can be achieved in a variety of built forms (O'Hare 2009). The LSE (London School of Economics and Political Science) Cities Program states that: "Notting Hill, Lancaster Gate and Earl's Court - with five and six-storey houses … - are among the most densely populated neighbourhoods in the country, but prove that density can be achieved without very tall structures" (LSE 2002).

The most common arguments put forward against higher density are that high-density housing results in increased traffic and an overcrowding of community services (California Planning Roundtable, 1997). There is a fear that a concrete jungle will emerge: the buildings will clash with existing neighbourhoods and will damage the city's character and identity, the people won't fit in and mental and physical illnesses will become prevalent (California Planning Roundtable 1997). However, there is general agreement that higher densities are still motivated by the desire to avoid random sprawl. The Urban Task Force (1999) argues that even though high-density development is not a cure-all for urban planning problems, it:

> *...reduces the necessity to travel and thus reduces energy consumption and pollution, jobs should be closer to homes: that housing and work places should be mixed together … and, further, that they will be able to satisfy their social and cultural needs close to home. Other advantages of higher densities presented are: more opportunities for interaction and diversity, improved viability of and access to*

community services, economy of infrastructure, support for public transport, and reduction of car travel and parking demand (Urban Task Force 1999).

However, considering the housing issues in densely populated cities such as land scarcity and cost, high-rises and high-density living are options that can accommodate as many people as possible within a limited area with minimum cost. The cost of the housing unit is the most dynamic point in building low-income housing. High-density development can utilise scarce land in an efficient way and it can reduce the land cost dramatically (Kavanagh, 2010; Kunze, 2005). Infrastructure services cost can also be reduced by using efficient architectural designs (Aurand 2010). However, the maintenance and construction costs of high-rise high-density buildings are much higher than those for low-rise buildings (Deheragoda, 2007; Kunze 2005). From the point of view of urban planning, scarcity of land is the ultimate factor in decision-making. Land supply is highly limited and can only be maximised by the utilisation of lands in the most efficient manner (Aurand 2010).

3.2.3 HOUSE, DWELLING AND HOME

Housing is one of the basic and essential requirements of human beings. A house is defined as a home, shelter, building or structure that is a dwelling or place for habitation by humans. In some contexts, 'house' may mean the same as dwelling, home, abode, lodging, accommodation or housing (Gilbert 2007). Scholars in many fields have evaluated the idea of home and much literature exists that has examined the concepts of home and housing (Bachelard 1964; Canter 1977; Adams 1982; Seagart 1985; Gunarathne 2006; Gilbert 2007; Shumarker 1985; Prasad 2001)

Bachelard (1964) indicates that the home is "our corner of the world … our first universe, a real cosmos in every sense of the word" (Bachelard 1964; cited in Jenks 2004). The literature proposes two different aspects of the concept of home: special and social. However these two

factors are not mutually exclusive and cannot be separated (Dayaratne & Kellett 2008). In short, a home exists as a basic 'place' in the life of human beings. Home-making is a basic function that establishes a person in the world inside the universe of space, materials, persons and happenings within which the individual survives (Bachelard 1964; Dayaratne & Kellett 2008). In order to comprehend the sense and importance of the home, it is essential to comprehend the importance of 'place' in an individual's experience. Seagart (1985) indicates that 'home' is a specific and location-oriented concept. The concept of home refers to the place where the major functions of day-to-day life are performed and hence embodies symbolically impregnated senses (Seagart 1985; Dayaratne & Kellett 2008). Canter (1977) suggests that the idea of location contributes to the tiny entities of a person's experience. He further holds that in a person's idea of the world as a gathering of interconnected and surrounding locations, the home is the core which controls the empirical units of physical surroundings, social associations and psychological beliefs (Canter 1977; Dayaratne & Kellett 2008).

Economic geographers such as John Adams (1992) are interested in housing because it affects every aspect of our lives. In his presidential address to the American Association of Geographers titled *The Meaning of Housing,* he stated, "Housing represents the largest single use of urban land, and touches almost every person in profound ways" (Adams 1982). The demand for housing rarely abates because even though not everyone can afford to buy a home, people must live somewhere (Adams 1982). From an urban planning point of view, housing has become not just the lifestyle of the majority of the population, but also the dominant building form. Home is a dream, an emotional bond built between the person and the surrounding world manifested through the dwelling.

In the Sri Lankan building regulations, the minimum house standard is defined as a unit with a minimum floor area of 24 square metres with one bedroom, a kitchen, a living area and a toilet. Additionally, this unit should be healthy, safe and habitable. A house constructed within these parameters is classified as a legally accepted house (UDA 1986). According to the United Nations, housing is not just basic need, and it has been recognised as a human right of all people (UN Habitat 1996).

Drawing from the definitions, theories and legal interpretation of housing available in the literature, the need for housing is summarised in Table 3.1.

TABLE 3.1 NEEDS FOR HOUSING		
1	Shelter	Need for privacy, food consumption, sexual behaviour.
2	Security	Need for stability, protection, freedom from fear, structure.
3	Comfort	Need for freedom, reputation, prestige, dominance, dignity, attention.
4	Socialisation and self-expression	Relation with people and places, homes and neighbourhoods.
5	Identity	Need to create a mark of identity for oneself. An address provides an individual with this type of identity.
6	Aesthetics	Need for order, symmetry, colour, texture, system and structure.
Source – (Bachelard 1964; Canter 1977; Adams 1982; Seagart 1985; Gunarathne 2006; Gilbert 2007; Dayaratne & Kellett 2008; Shumarker (1985); Prasad (2001))		

3.2.4   LOW-INCOME PEOPLE

'Low-income' and 'low-income people' are relative concepts and there is no single universal definition of either term. Like 'high income', what is considered low-income varies from place to place and what is considered 'low-income' in a developed country might be an upper

income level in a developing country. For example, in the US, a family with an income of less than US $22,000 per annum is considered a low-income family (United States Census Bureau, 2012). In Australia, AUD 46,280 per annum is the benchmark for a low-income family, where a family comprises of two adults and two children. In Sri Lanka, when a family income is less than SLR 181,680 per annum (US $1,345 per annum) they are considered as low-income earners (Department of Census and Statistics, 2011; Melbourne Institute of Applied Economic and Social Research, 2012; World Bank, 2008). Therefore, it is difficult to establish a general income bracket to identify low-income people. However there are common characteristics that distinguish low-income people in any part of the world. Generally, low-income people have a serious inability to acquire the basic goods and services necessary for survival with dignity and have low levels of health and education, poor access to clean water and sanitation, inadequate physical security, lack of voice and an insufficient capacity and opportunity to better one's life (World Bank, 2008). The World Bank states that poverty is the most common word used to describe people who are unable to meet their basic needs and are classified as belonging in the low-income category. The World Bank estimates that in 2008 1.29 billion people were living in absolute poverty, noting that poverty is a global challenge and it is present in all parts of the world, including developed countries (World Bank, 2008). The World Bank divides poverty into two categories: absolute poverty and relative poverty. Absolute poverty refers to the state of severe difficulty in meeting basic human needs, which commonly includes food, water, sanitation, clothing, shelter, health care, education and information. Relative poverty is defined contextually as economic inequality in the location or society in which people live.

The well-known definition of absolute poverty as set by the World Bank in 2001 was an income of less than US $1 per day per person (World Bank 2008). This $1 poverty line was

revised by the World Bank in 2005 and increased to US $1.25 PPP (purchasing-power parity) per day, with a moderate poverty line as between $2 or $5 a day, However, in 2011 the World Bank estimated that 1.1 billion people had consumption levels of below $1 a day and 2.7 billion people lived on less than $2 a day.

Accordingly, figures released by the Central Bank (Sri Lanka) in 2011, 5.6 per cent of Sri Lankans live in or below the $1 income bracket and 41 per cent of the total population live in or below a $2 income level (Central Bank, 2011). However there has been a significant reduction of poverty in Sri Lanka since 2009 and this situation has been consistently improving since the end of the 30-year civil war in 2009. One of the major goals of the Sri Lankan government is poverty reduction, and in 1995 they introduced the Samurdhi (Prosperity) National Poverty Alleviation Program. Data from the 2011 census shows that 1.6 million low-income families receive a direct benefit from this program, which represents nearly one-third of the total Sri Lankan population (Department of Census and Statistics, 2011). However, the rate of urban poverty in Sri Lanka is much lower than the national poverty rate. In Colombo only 3.4 per cent live on or below the $1 poverty line. Additionally, the unemployment rate is much lower in Colombo, at less than 4 per cent compared to the national rate of 8 per cent unemployment rate (Department of Census and Statistics 2011). However, these figures do not take into account living conditions. Even though the majority of the city population is not categorised as poor, they live in very poor quality housing without basic facilities such as clean water. Therefore, in Colombo poverty is also identified by examining the living condition of the people, with housing being the primary benchmark to identify low-income people in the city (PTFHUD, 1998; Central Bank, 2011).

This has two implications. Firstly, plans for poverty reduction in Colombo must be different to any national programs and need to include improving access to services, uplifting the

socioeconomic condition of slum dwellers and the empowerment of the city's development. Secondly, the word 'poverty' is not used to refer to the people who live in uninhabitable housing as these people are categorised as being 'low-income' without any consideration of individual income (STP & REEL, 1999; UDA, 2011). Hence, this research also defines low-income people as the people who are living in under-served settlements in Colombo city, without taking into consideration the individual household income.

3.2.5 LOW-INCOME HOUSING

In Sri Lanka, 'low-income housing' is the most common terminology used to refer to subsidised housing or the housing that is granted by the government to the weakest groups in society. However, like many of the other terms defined in this chapter, there is no single universal definition of low-income housing, as it does not highlight just one income bracket. Generally in Colombo government-subsidised housing or the housing projects which are targeted for poor people are referred to as low-income housing projects. These include relocation programs, infrastructure development programs, low–rise housing and high-rise housing projects. For an example, Sahaspura, Dematagoda and Gunasinhepura are all referred to as low-income housing projects.

The term 'low-income housing' is not limited to Sri Lanka – it is also used in some south Asian countries to refer to government-involved subsidised housing. Other widely used terms to describe low-income housing are affordable housing, public housing, social housing and council housing, with public housing and social housing the most common terms used for subsidised housing. Public housing is a form of housing tenure in which the property is owned by a government authority, which may be central or local (Austin 2009). Social housing is an umbrella term referring to rental housing which may be owned and managed by the state, by not-for-profit organisations or by a combination of the two, usually with the aim

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of providing affordable housing for poor people (Oxley 2009). In the United Kingdom, public housing is often referred to as 'council housing' or 'council estates', based on the historical role of district and borough councils in running public housing (Oxley 2009). In the Sri Lankan context, low-income housing is the term widely used for subsidised housing and the term 'public housing' is not used to describe subsidised housing. In Sri Lanka, public housing refers to government housing that is provided for government employees in the various ministries and services (Marga 1986). However, the fundamental idea of these synonyms is almost the same: they are terms used to describe those houses which are designed for the economically weaker groups in society. In this research, the term 'low-income housing' is the most common term used for subsidised housing in Sri Lanka, therefore, this thesis also uses the term low-income housing to describe the housing which is provided to the weaker groups in society. However, the phrase 'low-income housing' does have some flaws and in the conclusion (Chapter 7) the term is further critically evaluated and analysed for relevance and validity. Some suggestions are provided to establish a dialogue among the housing professionals and the policy-makers to re-think the term 'low-income housing'.

3.2.6 SLUM AND SQUATTER SETTLEMENTS

Generally slum and squatter settlements are described as substandard housing or the housing occupied by the poor. The Oxford Encyclopaedic Dictionary defines a slum as: "an overcrowded and squalid back street, district, etc. usually in a city and inhabited by very poor people; and a house or building unfit for human habitation" (Hawkins and Allen, 1991). However, there is no single generally accepted concrete definition for what a slum or squatter settlement is, with the use of the term varying between countries and even cities. 'Slum' and 'squatter settlement' are relative concepts that depend on the social, cultural and ideological

situation of the country or the city. UN Habitat defines slum and squatter settlements separately:

> *Slum settlements usually consist of run-down housing in older, established, legally built parts of the city proper. Slum buildings are mostly old and poorly maintained. Most of the residents rent their accommodation, although owners occupy some space or detached structures. In some cases, many of the buildings have more than one floor and house several families.*
>
> *Squatter settlements are mainly uncontrolled low-income residential areas with ambiguous legal status regarding land occupation. They are to a large extent built by the inhabitants themselves using their own means and are usually poorly equipped with public utilities and community services. The usual image of a squatter settlement is of a poor, under serviced, overcrowded and dilapidated settlement consisting of make-shift, improvised housing areas. The land is often occupied illegally.* (UNCHS, 1982)

Generally in the literature, the terms slum and squatter settlements refer to almost all illegal, informal, uninhabitable housing, with 'slum' the most commonly single used term for uninhabitable housing in cities (Jones, 2012). Slums are usually located in neglected parts of cities where housing and living conditions are appallingly poor and miserable. According to the United Nations, in 2000 nearly 37 per cent of people in the developing world lived in slums with one billion people worldwide living in slums. They project that this figure will double by 2030 (World Bank /UNCHS, 2000).

With nearly four million inhabitants living without basic facilities such as electricity and running water, Neza-Chalco-Itza in Mexico is the largest slum in the world. The second-largest slum settlement is Orangi Town in Karachi, Pakistan, with a population of more than 1.5 million. However, Dharavi in Mumbai, India is the most famous and talked-about slum in the world with approximately one million people living in just one square mile (Jacobson, 2007).

The Sri Lankan Ministry of Local Government, Housing and Construction (1984) has officially identified four types of uninhabitable housing in Colombo:

- *Slums:* Old deteriorating tenements or subdivided derelict houses. The slum tenements, built mostly of permanent materials, are very often single-roomed and compactly arranged in back-to-back rows. The occupants have a definite legal status of occupancy.

- *Shanties:* Improvised and unauthorised shelters built by urban squatters on state or privately owned land. Squatters do not have any legal rights of occupancy and the areas are badly serviced and very often unsanitary.

- *Unserviced semi-urban neighbourhoods:* Badly serviced residential areas in the suburban areas of Colombo and secondary towns. One difference from squatter areas is that residents of these settlements have definite legal titles and the plot sizes are relatively larger than the shanties.

- *Labour lines or derelict living quarters:* These are derelict housing areas belonging to the local authority or government agencies occupied by temporary or casual labourers. These settlements are in unsanitary and derelict condition due to lack of maintenance over a long period of time (Ministry of Local Government Housing and Construction, 1984)

In Sri Lanka, use of the word 'slum' to describe housing issues is strongly discouraged as many housing professionals believe that word itself can cause significant damage to the people who are living in uninhabitable housing in cities. Instead, it is recommended that the term 'under-served settlement' be used. Therefore, this thesis uses 'under-served settlements' to describe the slum and squatter settlements in Colombo. According to a 2011 survey by the Urban Development Authority (2011), in Colombo nearly 66,000 houses spread over 1,506

pockets are categorised as under-served settlements. Nearly 363,000 people (51 per cent of the city's population) live in these squatter settlements. However, most of these under-served settlements are relatively small with none of the settlements containing more than 20,000 people. Figure 3.2 illustrates the locations and the pattern of under-served settlements in Colombo and the next section of this chapter describes the actions that have been taken in regards to under-served settlements both globally and specifically in Colombo.
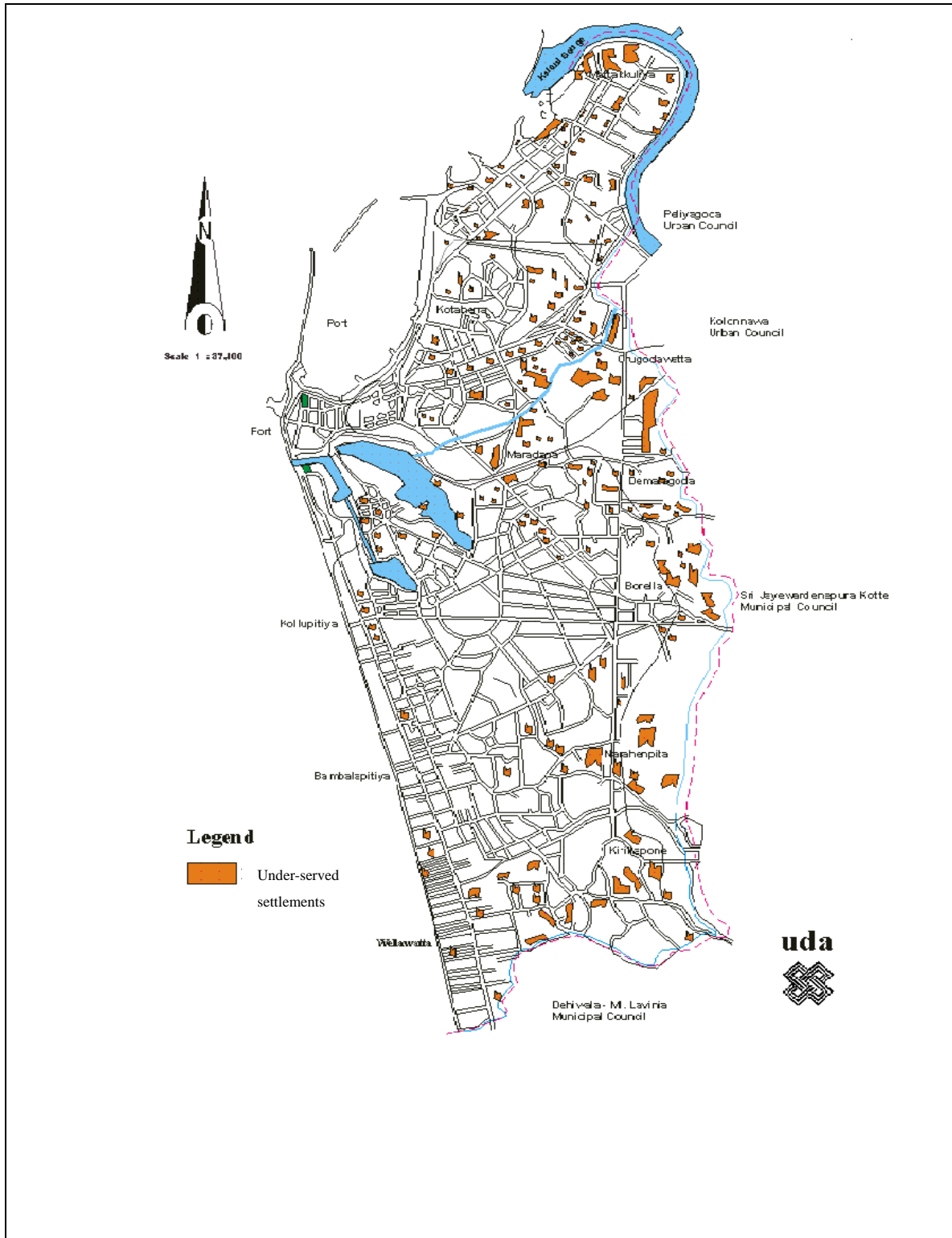
Figure 3.2 Under-served settlements in Colombo

Source: Urban Development Authority (2010)

3.3 APPROACHES TO ADDRESS LOW-INCOME HOUSING

Housing is the most difficult fundamental need to fulfil and billions of people in the world live in slums and squatter settlements without the most basic infrastructure and services. Inhabitants of these areas often face multiple threats in their day-to-day life and are vulnerable to disease, crime, natural disasters and social discrimination. Nearly 500 million people live in Asia without habitable housing. This number is growing at an alarming rate and is projected to double by 2030 (UN Habitat 2007). According to the UN, slums occur as the result of the negative impact of several circumstances. They describe slums as:

> *Products of failed policies, bad governance, corruption, inappropriate regulation, dysfunctional land markets, unresponsive financial systems, and a fundamental lack of political will.* (UNCHS, 1982)

Accordingly, slums are not just poorly constructed housing: a slum is always associated with other political, social and financial issues. Therefore, slum reduction, or ensuring there are no slums within cities, is a complicated and time-consuming long-term process that often has a considerable associated cost. During the last century almost all governments, international agencies, NGOs and several institutes have attempted to reduce the world's slum population and many different programs, projects and strategies have been utilised to improve the quality of life for poor people. Slum upgrading and infrastructure development are two of the main approaches which have been used to improve slum living conditions to the direct benefit of many poor people. Several international organisations, including the UNCHS, World Bank and Asian Development Bank (ADB), actively promote slum-upgrading programs and believe they are the most appropriate way to improve the living conditions of the poor people who are living in slums. Under this approach, the building and infrastructure within slums is

improved. Community participation is strongly encouraged and slum inhabitants are able to live in the same location without evacuation or relocation to new sites.

However, many Sri Lankan city planners do not think upgrading is a long-term sustainable solution for slum reduction and they argue that upgrading gives legal recognition to unauthorised housing in the city (Slum Rehabilitation Authority, 2012; UDA, 2011). They do not see any significant value to slum upgrading, even though poor people will have improved living conditions. Instead, they propose land exchange and land sharing as an alternative planning solution for slums in cities, as under this approach poor people and the city both receive benefits. However, land exchange and sharing are more complex and difficult processes than upgrading because of the internal and external factors that must be considered for the project to succeed, such as high land value, stable economy and land scarcity. Additionally, this approach is not suited for all slums and it is a very time-consuming and complicated technique.

Relocation is another common approach utilised in many cities. Relocation describes the process whereby slum dwellers experience a voluntary or forced evacuation to new housing that is provided in a new location. Often this housing is a considerable distance from their previous location, and there have been many debates in the housing industry (Bhattacharya 2012) concerning the forced evacuation and relocation of slum dwellers outside of their city without considering their livelihood and community issues or their contribution to the city economy (Bhattacharya 2012; Viratkapan & Perera, 2006).

In Sri Lanka, all uninhabitable housing is considered as under-served settlements and this term includes slum shanties, illegal housing, hazardous housing and old deteriorated housing. Figure 3.3 highlights the main policy options for slum reduction and the associated common strategies. The following section provides a detailed analysis of each policy option and

critically evaluates the pros and cons of each policy options, considering practical historical experiences.
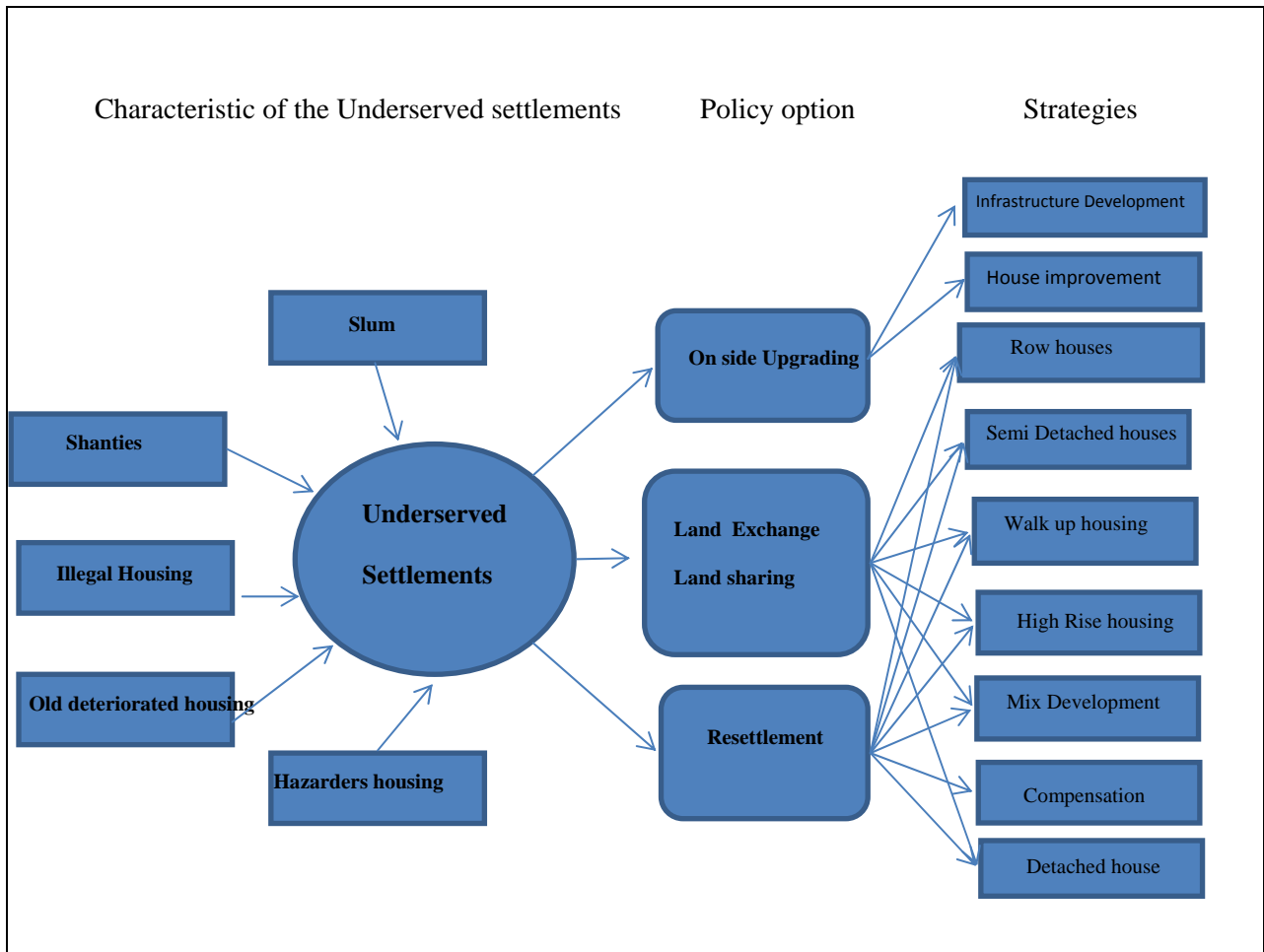
Figure 3.3 Alternative approaches to address the under-served settlements

Source:(Hisham, 2012; O'Hare and Abbott 1998; Rabe, 2010; Viratkapan & Perera, 2006; World Bank /UNCHS, 2000)

3.3.1 ON-SITE UPGRADING

Slum upgrading is one of the most common strategies used to address the problem of squatter settlements in many parts of the world. Upgrading has been identified as an effective way to make a significant difference in terms of improving the quality of life of the urban poor

within a short period of time (Hamdi, 1990). Upgrading is a process consisting of physical, social, economic, organisational and environmental improvements undertaken cooperatively among all stakeholders engaged in the slum upgrading development. In 2000, the World Bank/UNCHS released an Action Plan for Moving Slum Upgrading which identified 10 criteria for upgrading slums (World Bank /UNCHS, 2000):

1. Installing or improving basic infrastructure, for example, water reticulation, sanitation/waste collection, rehabilitation of circulation, storm drainage and flood prevention, electricity, security lighting and public telephones

2. The removal or mitigation of environmental hazards

3. Providing incentives for community management and maintenance

4. Constructing or rehabilitating community facilities such as nurseries, health posts, community open spaces

5. Regularising security of tenure

6. Home improvement

7. The relocation of and compensation for the small number of residents dislocated by the improvements

8. Improving access to health care, education and social support programs in order to address issues such as security, violence and substance abuse

9. The enhancement of income-earning opportunities through training and micro-credit

10. Building social capital and the institutional framework to sustain improvements

A review of the international and local literature shows that on-site upgrading combined with participation from the community, such as building their own housing, is regarded as the best

practice for low-income people who suffer from the lack of safe and affordable housing in developing countries. According to Turner:

Housing is best provided and managed by those who are to dwell in it rather than being centrally administered by the state. (Turner, 1977)

Additionally, Turner believes that allowing people to build their own houses is the most practical long-term option and will provide the slum dwellers with the freedom, training and ability to manage their own finances (Turner 1977).

However in order for slum upgrading to have a positive outcome, it needs to be accompanied by institutional, financial and legislative reform. UN Habitat identified four issues that are necessary for the success of slum-upgrading programs (World Bank /UNCHS, 2000):

- *Good governance:* the capacity of local governments must be strengthened so they can carry out their responsibility for the equitable provision of infrastructure and services to all urban residents while planning for future growth. The capacity of provincial, state and national authorities must be strengthened to ensure their critical normative roles, to establish facilitating policy environments and to ensure there is no corruption with land markets and the provision of public services.

- *Legal system:* property rights and security of tenure are critical to sustainable approaches to upgrading. Most residents of urban slums live without any form of secure tenure and therefore under a constant threat of eviction, which vitiates their ability to access credit and limits or removes their motivation to improve their homes and neighbourhoods.

- *Financial system:* coupled with security of tenure, access to credit is key to unleashing the vast potential of the urban poor to improve their living and

working environments and livelihoods. Micro-credit and other facilities to expand access to credit to the poor can provide critical elements of institutional support in creating financially self-supporting and sustainable urban upgrading programs.

- *Social framework:* community participation in the conception, development, financing, upgrading and maintenance of infrastructure and services is a critical element of sustainable programs. Experience has shown that the most successful programs address community priorities. Communities must be enfranchised through knowledge-sharing and security of their civil rights (World Bank /UNCHS, 2000).

The UN Habitat Action Plan for Moving Slum aimed to improve 5 to 10 million of the most squalid, unhealthy, unserved settlements worldwide by 2005 and 100 million settlements by 2020 (World Bank /UNCHS, 2000). However, there is some opposition to and criticisms of both the slum-upgrading program and the UN's mission to reduce the 100 million slums in 2020. Opponents of the scheme argue that upgrading does not have a significant impact on city development and upgraded slums are not habitable housing (PTFHUD, 1998). Past experiences support this argument. These examples show that slum upgrading is a temporary solution and should not be considered as a permanent solution to the problem of squatter settlements in cities (PTFHUD, 1998).

In Sri Lanka, slum upgrading was a key strategy of the One Million Houses program, under which thousands of slums were upgraded between 1984 and 1989 (NHDA, 1990). As part of this program, most slums in Colombo received improvements to their infrastructure, including electricity, common water taps, common toilets, community centres and internal road improvements. Additionally, most slum dwellers obtained small financial grants to

improve their houses. However, even after the settlements were upgraded, they were still considered slums and shanties: none of these slums overcame the 'slum' status (Deheragoda 2007). Despite this, the One Million Houses program was very popular among the shanty dwellers and the government received a lot of positive attention and goodwill from the low-income people as well as recognition from housing researchers (Hamdi, 1990).

Taking into account the popularity of the One Million Houses program and the successful adoption of the UN project 'Cities Without Slums', in 2008 the Ministry of Urban Development introduced a new slum upgrading program called Kusum Niwasa, which planned for the on-site upgrading of 100,000 under-served settlements in urban areas. To implement this program, the government established a new authority under Act No. 36 of 2008 called the Urban Settlement Development Authority (USDA). The funding mechanism for this authority was provided by a 1 per cent tax that was placed on all buildings exceeding 500 square metres (Key Informant Interview, 2011). However, within two years the entire program had failed and it has been criticised as a politically motivated attempt to give hope to slum dwellers that their living conditions would improve without actually instituting any significant improvement in the slums or any contribution to city development (Key Informant Interview, 2011). The Urban Settlement Development Authority is now a totally redundant organisation. The present government (2010) has abolished the 1 per cent tax and the USDA receives no support from the government (Key informant interview 2011). Despite these issues, this program was very popular among the low-income people because they received direct financial support of up to LKR 125,000 (AUD 1,250) so they could improve their existence. Even though this program is considered a total failure and has been abolished, the minister who introduced this concept won the following election with a huge majority (Samaratunga 2009).

Based on these historical instances, city planners in Colombo do not think slum upgrading is a long-term sustainable solution for Colombo (UDA 2011). However, they do not totally reject slum-upgrading programs and this strategy is still practiced outside of Colombo city. On-site slum upgrading is not compatible with the Colombo 2030 plan, which aims to develop Colombo into a main commercial hub in south Asia, literally transforming Colombo into a 'city without slum' (UDA 2011). Accordingly, the present government is not utilising the slum-upgrading strategy in Colombo since they acknowledge that upgrading is a short-term temporary solution that does not have a significant impact in the city's long-term overall development. Instead, the government is concentrating on off-site permanent housing within the city limit for under-served settlements, primarily with high-rise housing for the urban poor.

Under the Million Houses Program, building regulations were relaxed in slum areas and slums were given legal recognition once they were upgraded and were integrated to the Colombo development plan (Sevanatha, 2006). However, today slum upgrading is considered an illegal construction and slum-dwellers are subject to evacuation under the UDA building regulation act (UDA,1986).

3.3.2 LAND EXCHANGE AND LAND SHARING

Land sharing and exchange is another strategy that can be used to provide habitable housing for under-served settlements and secure tenure for low-income people in urban areas. The land sharing and exchange technique has been used to address the problem of how to provide housing for low-income people since the 1970s (Rabé, 2005). Thailand is the best example of the adaption of this technique and, during the 1970s and 1980s, several successful land sharing and exchange programs were undertaken in Bangkok (Rabe 2010). Other Asian cities, such as Colombo in Sri Lanka, Phnom Penh in Cambodia and Mumbai India, all used

this process in the 1990s (O'Hare and Abbott 1998). In Mumbai, India, the Slum Redevelopment and Rehabilitation Program uses this technique to re-house slum dwellers in new high-rise apartment blocks (Rabe 2010; O'Hare and Abbott 1998). Land is the main factor in this process and, with the land-sharing technique, residents occupy one section of a site while developers invest in commercial or mixed development on the other section. The final result of this process is that the occupants get new habitable housing in the same location as previously, with a legal right to stay in the city instead of being evicted, while at the same time, investors can obtain prime lands in the inner city with the blessing of the city authority (Rabe 2010; Shlomo & Sopon, 1989).

Land exchange is somewhat different to land sharing in that usually the habitable housing and legal tenement the occupants receive is away from the existing location. Land exchange is usually more practical than land sharing because most of the proposed developments are not compatible with on-site relocation, and the cost of new housing cannot be recovered if a portion of the land is used for relocation. From a city planning point of view, on-site relocation is not considered a long-term practical solution and off-site relocation is recommended and has been implemented in many projects (Rabe 2010; Shlomo & Sopon, 1989).

Bangkok, Colombo, Phnom Penh, Mumbai and many other cities have used land exchange as a more practical alternative to on-site relocation. In many instances, it is found that communities prefer to live in better residences on the outskirts of the city rather than live in small high-rise units in the same place where they previously lived. Rabe (2010) cites the Phnom Penh land-sharing project in Cambodia as an example of a housing project where land swap was a more practical alternative to on-site relocation. Rabe states (2010):

The land swap model was being applied all over Phnom Penh during the 2000s, and the community leaders considered that the model offered several advantages, including the prospect of larger houses than they could obtain in the city centre through land sharing, and at lower densities. In addition, the community leaders reasoned that land prices in the periphery of Phnom Penh were rising steadily, so their new houses and plots of land would represent a good investment over the long term. (Rabe 2010)

However, with this process the land occupants often needed to relocate either on-site or off-site in new housing. Sometimes temporary residences were provided prior to eventually receiving habitable housing with a secure tenure. However, the entire process could take years and it is not as simple as slum upgrading. The involvement of a central or local government is essential for the success of this process and active community participation is required. The value of the land and its location are the main motivating factors in both the land sharing and land exchange processes and this strategy is not applicable to low-income squatter settlements where the land is not valuable or in a good enough location.

Land sharing and land exchange is theoretically based on the principle of a 'win win win' policy (instead of the win win policy) (Deheragoda, 2007; Shlomo & Boonyabancha, 1988). With this approach the community, municipality and developer all receive benefits. Therefore, as Rabe states:

The approach holds out the prospect, in principle, of a 'win-win-win' solution for all the main parties involved: 1) the communities, who would be able to stay in the city centre, in improved housing, and with rights to land and housing; 2) private developers, who would receive the right to develop on prime land in the city; and, last but not least, 3) the Municipal authorities, who would make good on the government's upgrading campaign pledges, while at the same time ensuring commercial development in the city. (Rabé 2005)

In Sri Lanka, the land sharing and exchange technique has been identified as a possible solution for fixing the problem of under-served settlements in Colombo. Recommended by the Presidential Task Force in Housing and Urban Development (1998), land sharing and exchange is an approach that would address housing issues and urban development simultaneously (PTFHUD, 1998). This approach was given the motto 'Housing for poor and land for urban development' in Sri Lanka, and Sahaspura (see Chapter 6) was the first outcome under the land sharing and exchange process. However, although the government officially accepted the land sharing and exchange technique, it was not well established and, due to various political, economic and social issues, did not properly function until 2009. Since the end of the civil war, the Sri Lankan government has given top priority to the development of Colombo city and land exchange and land sharing have been considered as a strategy for addressing the under-served settlements and city development in Colombo. At the time of writing this thesis in 2012, the construction of nearly 10,000 new housing units has commenced as the first part of meeting the target of 35,000 new housing units within the next few years (UDA, 2011). Table 3.2 shows the proposed and ongoing housing projects in Colombo that are happening as part of this process. More than 50 hectares of prime lands have been identified to be made available under this relocation plan and both land sharing and land exchange techniques have been used at selected sites. According to the feasibility study done by the UDA, the land value of the vacated lands is much higher than the cost of the relocation of low-income people who have been living in under-served settlements (UDA 2011). The UDA believes this approach will be a 'win win win' situation, with benefits for poor people, developers and the city authority. Ultimately, according to the UDA, everyone experiences betterment and the economic, social and physical development of the city is directly benefited (UDA 2011).

	Name of site	Allocated Land extent (hectare)	Proposed number of housing units
	TABLE 3.2 PROPOSED AND ONGOING HIGH-RISE LOW-INCOME HOUSING PROJECTS IN COLOMBO		
1	Mayura Place	0.169	120
2	Dematagoda Railway Land	2.023	500
3	Estate 54	0.887	720
4	Estate 66	0.457	432
5	Aluthmawatha	1.821	1 392
6	Henamulla	1.214	1 137
7	Cyril C Perera	0.607	322
8	Maligawaththa CGR Land	3.642	2 304
9	Jewel Art Land	1.821	1 750
10	Ferguson Rd	1.214	912
	Total	14.568	10 356
	Source: UDA 2011		

3.3.2.1 CHALLENGES IN THE LAND SHARING AND EXCHANGE PROCESS

From a review of the literature and looking at historical experiences of the land sharing and exchange process, it is clear several preconditions need to be in place for this technique to be successful. As the process is both time-consuming and requires considerable amounts of funding, it is important to ensure that the requirements that increase the chances of obtaining

a positive end result are met. Additionally, the process has a very high risk factor and the program may collapse because of internal or external reasons (Boonyabancha, 2005; Viratkapan & Perera, 2006). Therefore strong government intervention and accurate feasibility studies are necessary before signing a land-sharing agreement and relocating slum dwellers (Boonyabancha, 2005). Figure 3.4 shows the most common factors that have been identified in the literature that contribute to the success of the land sharing and exchange process.
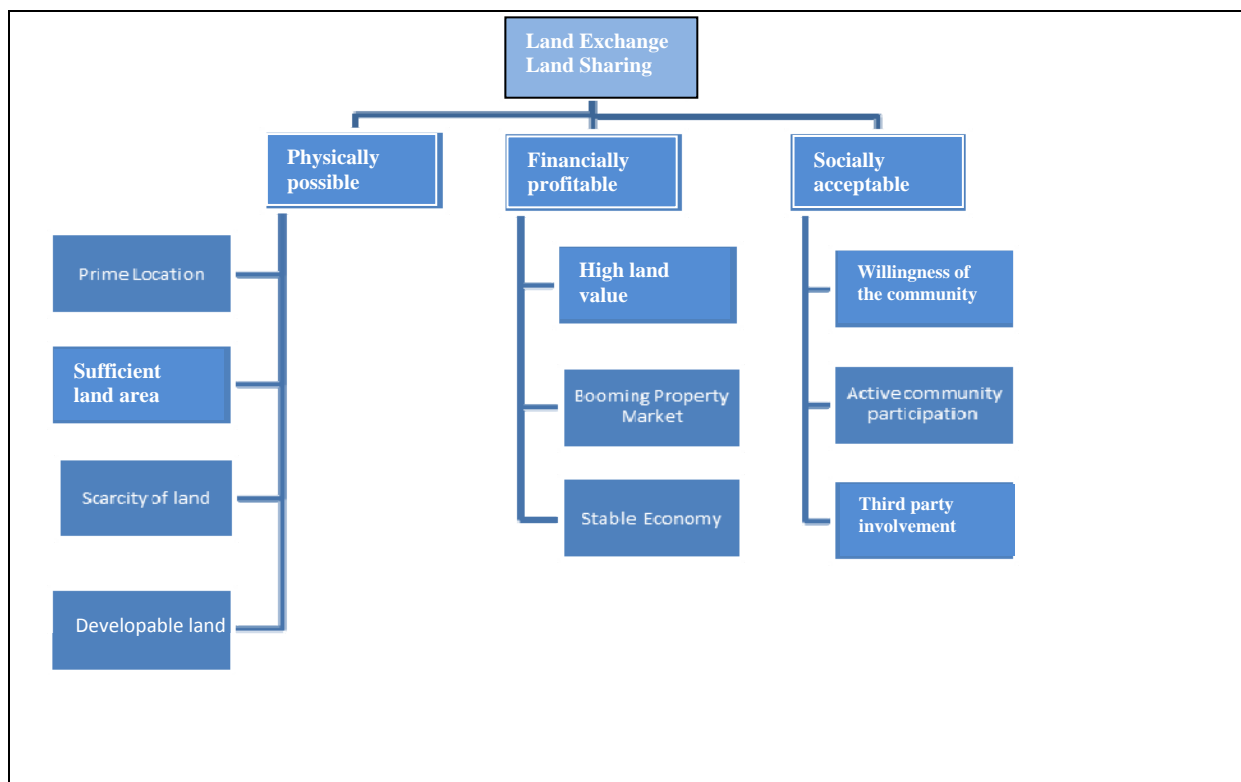
Figure 3.4 Challenges in the land sharing and exchange process
Sources: (Hisham, 2012; O'Hare and Abbott 1998; Rabe, 2010)

Physical feasibility, financial viability and community acceptability are needed for the program to be successful. Figure 3.4 illustrates the relationships between the main three variables as well as listing other factors which should be considered before deciding to adopt a land share or exchange program.

Physical Feasibility

Land is one of the primary factors in both the land exchange and land sharing process. This process can be applied only in urban areas where low-income people occupy prime land in the inner city. The scarcity of prime lands is a consideration in this process and the land area should be sufficient to be a decent investment (Boonyabancha, 2005). It is vital that the land be suitable for development and hazardous or legally restricted areas cannot be considered under this strategy. Therefore physical feasibility is a very important part of this process and very few areas meet all of the selection criteria. Hisham (2012) sees the physical feasibility of the land as a main downside to the implementation of this technique. He states:

> *Developers in many Asian countries often have a problem because plots in the urban fringe are small, irregularly shaped and lacking access to public roads. Furthermore, as many of these plots are not for sale, it is often difficult to find a sufficient number of plots next to each other and, thus, building development becomes scattered* (Hisham, 2012).

Financial Feasibility

Other key factors in the success of land exchange and land sharing programs are a booming property market, high land value and a stable economy. Government investment and intervention is generally minimal in this process and the private sector has the primary role in implementation. However, private investors may not consider the social uplift of the poor people, as their target is profit oriented. Accordingly, private investors invest only in profitable projects, meaning that the property market, land value and a long-term stable economy are the key factors to be considered by the developers.

Community Acceptability

The community of the people who live in the land is the most vulnerable part in this process and the project's success requires passion and active participation from the community

(Hisham, 2012). Strong community leadership and local or national government intervention is also needed in this process due to the time and risk factors Positive attitudes and the willingness of the community to participate are also important (STP & REEL, 1999). Most communities do not like to change their location, if in doing so they will receive habitable housing. Forced evacuation or relocation is no longer used in Sri lanka, so therefore negotiation and compromise between community, private developer and city authority are necessary key strategies (UDA 2011). However, the entire process takes years and during this time poor people may continue to suffer by living in inhabitable housing. Therefore, strong three-party agreements as well as constant monitoring are needed for this process to succeed (STP & REEL, 1999; Rabe, 2010; Hisham, 2012).

3.3.3 RELOCATION

Taking into consideration practical issues and time constraints, only a limited number of under-served settlements can apply the land sharing and land exchange technique to provide decent habitable housing in either an on- or off-site location (Rabe, 2010; Ekanayake, 2001). The majority of under-served settlement areas do not qualify for this strategy, meaning they need an alternative housing solution. On-site upgrading and the improvement of services are two of the strategies historically used for these kinds of settlements. However, most city authorities do not like to have under-served settlements in the city and they often attempt to evacuate and relocate slums to outside of the city periphery (Bhattacharya, 2012; UDA 2011, Viratkapan & Perera, 2006). The majority of under-served settlers do not have any legal rights or documentary evidence to prove their ownership of a tenement and therefore they are always vulnerable to eviction at any time with or without relocation or compensation. With the land exchange and land-sharing process, the demand for their land provides them with some power to demand and negotiate with the city authority. However, the people who live in

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crown lands, fragile areas, reservations and hazardous areas do not have any ability to protect their houses or prevent being evicted even though housing is considered a human right.

There are three major reasons for the relocation or evacuation of people who live in under-served settlements in urban areas. The first reason is development pressure. Developers have a special interest in prime lands in city centres which, in these instances, low-income people occupy. The second reason is infrastructure development. Under-served settlements are often located in road and railway reservations, and infrastructure development frequently leads to informal occupants being evicted with or without relocation. City beautification is the third reason for evacuating under-served settlements and this occurs in situations where the city authority thinks that unplanned, poor, under-served settlements gives their city a bad image. Bawana, a slum relocation project in New Delhi, the Baseline Road slum relocation project in Colombo, the Slave Island redevelopment project and Bare lake redevelopments in Colombo are example of slum relocation due to city beautification (Dupont, 2008; UDA 1998; Bhattacharya 2012).

When slum relocation occurs, the government or city authority usually provides temporary or permanent relocation outside of the city periphery to compensate the slum dwellers for the loss of their existing housing. However, it is not unusual for relocation programs to cause huge social, economic and physical damage to the poor (Chularatima, 2000).

Bawana, a slum relocation project in New Delhi, is one of the best examples of the failure of a slum relocation program. As part of a city beautification program in New Delhi, in 2003-2004, 5,000 people who lived on the banks of the Yamuna River were forced to relocate to Bawana, a slum relocation project 40 kilometres north-west of New Delhi (Singh, 2009) This move affected many of the slum dwellers negatively as their main income had been based on city activities and many people lost their jobs as day labourers or domestic workers because

they were relocated too far away to be able to get to their place of employment. Schools, shops, public transport, water supply, electricity and sewerage were promised at the new location but were never built (Singh, 2009). Basic services such as toilets, clean water and electricity that had been available in their previous location were absent in Bawana. Drug and alcohol abuse became rampant and levels of crime increased. Ultimately, the new location became worse than the original slums (Singh, 2009). Suryatapa Bhattacharya (2012), in an article on the failure of the Delhi slum relocation, states that:

> *An ambitious project to re-house millions of Indian slum dwellers is coming unstuck because the new sites are becoming worse than the slums they are meant to replacing* (Bhattacharya 2012).

To support this argument he notes that the water supply, electricity, sewerage, schools, shops, and public transport that were promised were never provided, meaning that the relocation sites has fewer facilities and less infrastructure than the previous one (Bhattacharya 2012).

Many housing professionals and researchers also expressed considerable doubt about the success of relocation of under-served settlements to outside of the city due to the socioeconomic issues. Khan (1994) critically evaluates several of the economic and social issues that arise when the people are evacuated from their existing location:

> *When a community is forced to move away from its location it experiences a range of hardships and costs. The social and economic consequences may involve:*
> - *Loss of income and employment;*
> - *Loss of investment in housing as most of the building materials are lost even though some may be re-used at the new site;*
> - *An increase in the cost of housing due to the limited number of options available;*
> - *An increase in the amount spent on transportation as alternative sites are usually located further away and/or access is more difficult; and*

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- *Loss of already small amounts of savings due to the high costs of resettlement and new debts due to loans required for new construction* (Khan, 1994).

Viratkapan & Perera, (2006)Virakapan (2006) supports Khan's argument and also highlights the socioeconomic hardships involved in resettlement and relocations:

Resettlement and relocation has been a subject widely discussed for the last three decades. The discussion has generally centred around various impacts on re-settlers, with a particular focus on socio-economic hardships. Studies of relocation projects invariably highlight the sufferings of people that occur due to changes in their places of living and the livelihoods. The critics of resettlement projects usually argue that relocation creates tremendous negative impacts on communities as well as the micro-economy of the area. (Viratkapan & Perera, 2006)

These scholars find that when making the decision to relocate slum dwellers, city authorities do not pay sufficient attention to attention to reducing the suffering of the poor people or acknowledge their contribution to the city and the economy (Viratkapan & Perera, 2006). Additionally, they do not take into consideration lessons that can be learned from past relocation failures or rethink the relocation approach to minimise the risk to the urban poor (Dupont, 2008).

However, there are some circumstances in which relocation is essential, especially with infrastructure development projects where it is necessary to relocate the people who are living in the area while the site is being worked on. Various agencies, researchers and policy-makers have identified several contributing factors to the successful relocation of poor people. United Nations Centre for Human Settlements (UNCHS) (1991) states that the main components of a successful relocation are the participation of relocated members, the physical development of the resettlement area, awarding of compensation to those affected,

social development and consolidation of livelihood opportunities (UNCHS, 1991). Additionally, the Asian Development Bank (ADB) highlights that community participation and socioeconomic restoration activities are also equally important for effective relocation (ADB, 1998).

As well as these contributing factors, for a relocation to be successful the positive attitude of the community towards the relocation is equally important:

> *If people are optimistic about life in their new location, that will contribute to the success of the process. In contrast, if the people are pessimistic about the new life at the new location, the chance of failure of the project is high.* (Viratkapan & Perera, 2006)

Viratkapan & Perera (2006) also note that in order to ensure a positive end result, positive attitudes must be maintained throughout the relocation process, from the eviction stage through the transition stage and the consolidation stage.

Location plays a vital role in the success or failure of the entire relocation process, especially since community participation, positive attitudes, physical development and consolidation of livelihood also depend on the relocation site being a suitable location. In order to obtain a positive result, the relocation site should not be far away from the existing location and should be within the city boundary. This recognises that most poor people's income generation and day-to-day activities are based in the city and removal to outside of the city deprives them of income and social requirements. For many slum dwellers, housing is a secondary factor after livelihood. Even though they may be able to be housed with full infrastructure far away from the city, economic necessity may force them to return to another slum in the city. Therefore, relocating in the city may be more successful than relocating outside of the city. The literature shows that most cities with slums appreciate this economic

consideration, however scarcity of land and high land value prohibit relocation in the inner city (Dupont, 2008; Chularatima, 2000; Deheragoda, 2007).

To address these concerns, high-rise development should be considered as a practical option for keeping poor people within the city periphery as it allows for many low-income people to be housed in a small land area. Converting horizontal slums to vertical housing is a common approach in many countries and is being used in Colombo, Sri Lanka to keep low-income people within the city boundaries (Rabe, 2010; UDA 2011). However, the development of high-rise housing for low-income people is a very controversial topic and the main purpose of the thesis is to critically evaluate the appropriateness of high-rise housing for low-income people both generally and especially in Colombo City. To do this, the thesis discusses the history of high-rise development and present and past experiences of the high-rise approach for low-income people in different parts of the world including Asia, Europe and America, examining the factors that contribute to the success of high-rises as an alternative solution for re-housing under-served settlements in cities.

3.4 HIGH-RISE DEVELOPMENT

The history of high-rise development goes back many centuries. The Pyramids of Egypt were built about 4000 years ago and some historical evidence indicates that the development of high-rise structures goes back to a much earlier period of human history. However, building technology and a lack of appropriate materials with which to construct safe many-storeyed buildings meant that these structures were uncommon. The emergence of modern building technology which makes use of steel frames and concrete meant that high-rise buildings became common by the early 19th Century (Shetty, 2001). Constructed in 1864, the Oriel Chambers Building was the world's first metal-framed glass-curtain building and it comprised of five floors (Leslie 2010). The ten-storeyed Home Insurance building in Chicago, built in

1885, was a benchmark in high-rise history. The popularity of elevators made high-rise buildings both more fashionable and more convenient. In 1913, the 793-feet high Woolworth building was deemed a brilliant example of a tall building in early 20th Century America (Leslie 2010). Built in 2010, the 160-storey high Burj Khalifa building in Dubai is one of the world's tallest buildings (Leslie 2010) (Figure 3.5).

The list of the tallest buildings in the world is updated annually as new buildings replace the existing list. The Council on Tall Buildings and Urban Habitat (CTBUH) is the organisation who officially certifies buildings as the 'World's Tallest'. To be considered as the world's tallest, a building needs to have at least 50 per cent of its height made up of floor plates containing habitable floor area. Communication towers and structures are not considered as 'buildings' but are defined as 'towers' (CTBUH 2011).
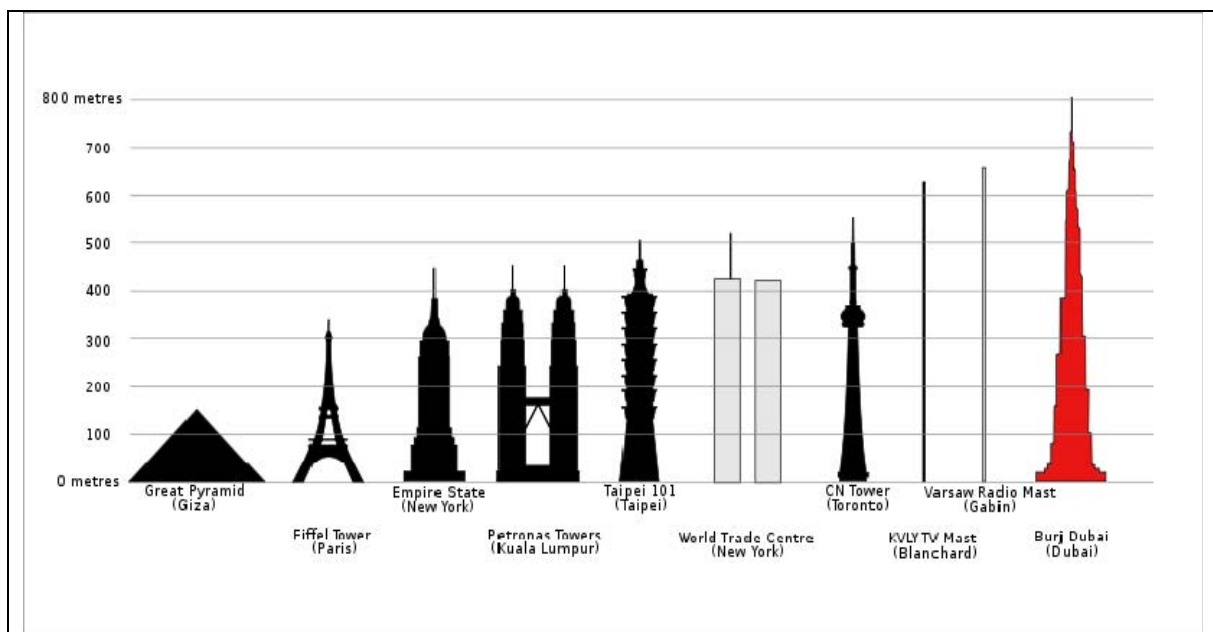
Figure 3.5: History of high-rise structures
Sources – Council on Tall Buildings and Urban Habitat (CTBUH)

Until the early 19th Century, high-rise buildings were not a part of a city's fabric. The debate surrounding high-rises starts with the Industrial Revolution in Europe and America in the early 19th Century. During this period, the debate around high-rises was concerned with technical, planning and social issues. Environmental and sustainability issues were not considered (Prasad 2001). Revolutionary ideas about possible vertical cities and the effect of high-rises on contemporary cities were the most debated aspects of high-rise living in the early 20th Century. Most of these concepts were radical, with hypothetical buildings of heights up to a mile (1.6 kilometres) tall that could become cities by themselves (Corbusier 1987). The planners thought that by concentrating residential and business development they would be able to releases large areas of land for recreational purposes where city dwellers would be able to enjoy nature (see Figure 3.6). The key to these ideas was to use a minimum footprint (area of ground under the building) and go as high as possible.

The architects Le Corbusier (Charles-Édouard Jeanneret) and Frank Lloyd Wright also conceived vertical cities where the horizontal land uses of city would be placed vertically with industries, commercial buildings, markets and residents in various floors of the same building (Corbusier, 1987). They felt this type of city design would not only free ground area but also would solve infrastructure problems.(Gupte and Shivkumar, 2000). However, these ground-breaking visions were not only impossible to build with very high costs, they also required people to behave in a new social pattern, which society was not ready for.
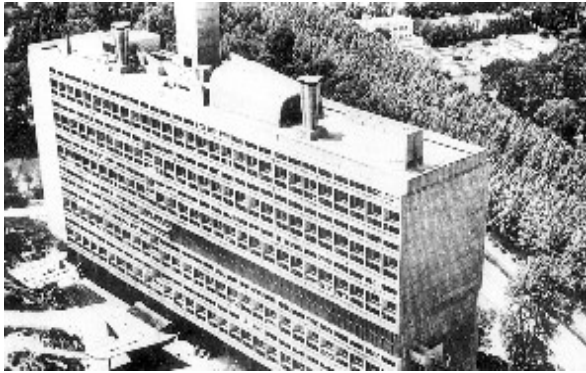
Le Corbusier, Unite D'Habitation, 1946-52, Marseille, France, (Source: Frampton, 1992)
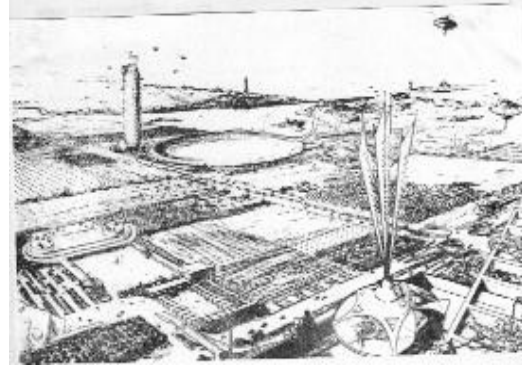
Broadacre city – Frank Lloyd Wright 1934-35(Source: Frampton, 1992)
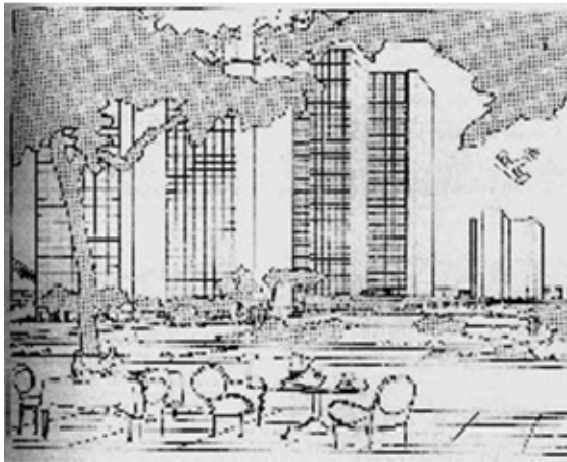
Le Corbuseir's ideas for the new cities 'Vision Plan for Paris' 1925, the expression of the age of the Machine (Source: Frampton, 1992)

Figure 3 6: Visionary ideas of high-rise development

Most contemporary debates about high-rises focus on environmental and sustainability issues, social issues, and security and safety issues. After the attack on the World Trade Center in the US in 2001, many authors, professionals and property investors doubted the

future of tall buildings, and high-rise buildings in general have been subject to debates about security (Aurand 2010). This discussion was not limited to the US and Europe, but was common globally. In Sri Lanka, due to the civil war, investors as well as the government become afraid to build tall buildings because they could be targets for terrorists. In Britain, the security of tall buildings has been an important topic of debate, with real threats made to high-rises in London. Each planning decision is thoroughly debated before approval is granted for a new high-rise development. An example of this process is the Shard Tower near Vauxhall Bridge, compromising 72 floors. There were many arguments concerning strict safety and security guidelines before approval was granted for the building (Kunze 2005).

According to Aurand (2010), two powerful groups favour tall buildings in London: the property developers and the Corporation of London. The Mayor of London Ken Livingston (2002) said:

> *I made my view absolutely known - I raised it again and again at meetings - that I would favour higher buildings and higher densities.* (Ken Livingston in Minutes of London assembly meeting, 18 July 2001, cited (Aurand 2010))

In the London Plan (GLA 2004) the official policy on tall buildings reads as follows:

> *The Mayor will promote the development of tall buildings where they create attractive landmarks enhancing London's character, help to provide a coherent location for economic clusters … or act as a catalyst for regeneration and where they are also acceptable in terms of design and impact on their surroundings. … [The boroughs] should not impose unsubstantiated borough-wide height restrictions. … The compact city and intensive development does not necessarily imply high-rise buildings. ... However, tall buildings can be a very efficient way of using land and …can support the strategy of creating the highest levels of activity at locations with the greatest transport capacity.* (GLA 2004; Kunze 2005)

From the point of view of the environment and sustainable development, many environmentalists believe that high-rise high-density buildings can reduce travel demands, energy consumption, pollution and provide greater benefits for the environment and quality of life (Jenks 2004). However, the Green Building Council of Australia (GBCA) and World Green Building Council chair Tony Arnel challenged this, stating at the Green Day Conference in the US in 2010 that "high-rise buildings were not more sustainable than the suburban home" (GBCA 2011). Arnel, the Victorian Building Commissioner, stated there was "no conclusive evidence that vertical living was more sustainable than conventional homes." A New South Wales Energy Australia study found a that high-rise apartment uses 30 per cent more power than a typical detached house (GBCA 2011).

Land use planners, real estate developers and land economists argue that even if high-rise is not the best option, highly populated compact cities do not have any other favourable alternative to develop (Jenks 2004). According to Xing (2004), a land-scarce economic policy and topography barriers always pull towards the development of high-rise rather than low-rise low-density structures (Jenks 2004).

In Le Corbusier's compact city concept, he argues that "we must greatly increase planned areas so we must therefore build the city vertically" (Corbusier 1987). City planners agree with this idea and regard high-rise and high density as the main answer to reducing urban sprawl and creating more sustainable cities (Blundell 2011). Even the countries which have enough undeveloped land like Australia also try to reduce urban sprawl with policies targeting high density and high-rise development, particularly along transport nodes and main cities (Blundell 2011). Blundell (2011), the director of the Centre for Sustainable Built Environments, states that:

There are considerable challenges in creating more sustainable high-rises, both residential and commercial, but urban sprawl is far less sustainable. Even with the energy downsides of high-rise, urban sprawl is a far worse option. Transport problems alone have enormous social and health effects. People who travel long distances to work spend less time with their families and their health is impacted. Then there are increased emissions and health costs associated with urban air quality. (Blundell 2011)

Technological developments in the 20th Century allowed for the development of a large number of high-rise forms and structures. The debates about high-rise buildings and their inhabitants are not new, having started with the earliest developments of multi-storied buildings. As this section has illustrated, throughout history professionals, academics and scholars have examined high-rise development from many different angles but have not been able to reach any concrete absolute conclusions.

3.4.1   HIGH-RISE RESIDENTIAL DEVELOPMENT

The development of safe high-rise multi-storey buildings has developed from technological development and innovative thinking. Prior to the 19th Century, high-rise living was very uncommon. However, after the industrial revolution in the 19th Century, where building materials and technology improved, the traditional living pattern changed and more high-rises were built, leading to more instances of high-rise living. People like to live in the places which are most compatible with their day-to-day life, and high-rise living in cities means more people can live closer to a central location (Deheragoda, 2007). In contemporary society, high-rise living is one of the main residential options in many cities, and is very popular among the middle and upper income category.

Luxury high-rise apartments are becoming increasingly popular in both developed and developing countries (Evans 2004). According to the CTBUH, Dubai's 23 Marina became the world's tallest building when completed in 2011 (CTBUH, 2011) This building was completed in June 2011 and is 395 metres (1,296 feet) tall. Elite Residence, which is also in Dubai, became the second tallest residential building in August 2011, with a height of 381 meters (1,250 feet). Q1, on the Gold Coast, Australia, was the third tallest residential building in the world in 2011 (CTBUH 2011). To be classified as a residential building, 90 per cent of the building should be allocated for residential use (CTBUH 2011). Gupte and Shivkumar, (2000) identify four historical phases of high-rise residential development:

1   late 19th Century development of high-rise buildings for both housing and commercial purposes in the context of the industrial city;

2   responses of mid-century planners to the decaying state of industrial settlements and their ideas of high-rise developments;

3   visionary developments during the 1960s; and

4   the contemporary situation of high-rise living in the contexts of strong urbanisation and the emergence of the global city.

There were two reasons that high-rise developments occurred between the end of the 19th Century and the beginning of the 20th Century. The main reason was the establishment of a large number of industries in the cities of Europe and America that meant there was a need to house the huge number of immigrants who came to work in those industries. These immigrant labourers needed to be housed within the city and near the factories, leading to the development of a number of industrial cities. These cities subsequently saw improvements in infrastructure, often as a result of mass dissatisfaction with the living conditions, but also as a mandatory requirement for easy transfer of goods within and outside such cities.

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The second reason for the development of high-rise buildings was the rapid advancement in technology. Prior to the that time, buildings were made using materials which were not strong enough to support tall buildings. Reinforced concrete and steel provided a solid and safe frame for high-rise buildings. These developments in the framed construction of beams and columns yielded a possibility for providing adequate technology for the high-rise high-density developments (Gupte & Shivkumar, 2000). Louis Sullivan became one of the first innovators of such a development, with his high-rise commercial buildings in Buffalo, New York at the end of the 19th Century. Later, this type of building was adopted for housing purposes. By the mid 20th Century, architects like Mies van der Rohe became the prime promoters of such developments (Gupte & Shivkumar 2000; Frampton, 1992).

During the middle of the 20th Century, planners and architects envisioned various alternatives to house those in uninhabitable living conditions, including alternative kinds of cities with large public spaces. Le Corbusier's new concepts dominated in this period. Some concepts were revolutionary, with buildings growing about a mile tall and becoming a city themselves (Corbusier 1987). While Le Corbusier's and Wright's ideas were considered beyond their time during the 1940s, the '60s and the '70s saw a revival of these ideas, specifically in the works of Peter Cook and Ron Heron (Deheragoda 2007). These architects envisioned that society was not only ready for the ideas of large building units that contained all activities of the city as envisioned by the mid-century planners, but required far more innovative solutions like the moving city or an attached city (Gupte and Shivkumar 2000). The concepts revolved around the ideas of compact cities with a central core of infrastructure within a building, but went further in developing them into large organisms that could move and attach themselves. Moshe Safdie developed high-density high-rise residential units cantilevered over one

another like matchboxes in Montreal. Most of these 1960's concepts were never designed or realised. However, they became very important references for further works (Domingo 2011).

After the end of the Second World War through to the early 1960s, there was a remarkable increase in construction of high-rise housing throughout Europe. Before 1960, most high-rise houses were three to five storeys and were walk-up apartments. Originally these flats were not equipped with lifts and central heating and typically, the size of the apartments is small and the quality of these flats is poor (Whitehead & Scanlon, 2007). This situation started to change since 1980. This may be attributed to the purpose of the development of high-rise housing. Many high-rise dwellings built in Europe during the 1960s and '70s were intended to be social housing, built as a response huge housing shortages. Since 1990, however, there has been a shift to build luxury high-rise apartment buildings in many cities, with wealthy people preferring to occupy luxury high-rise housing instead of single detached housing and villas (Whitehead & Scanlon, 2007).

Man contemporary cities experience problems relating to rapid urbanisation (UN-Habitat 2003). In the past few decades, a number of cities have populations that have increased to more than 10 million people (UN-Habitat 2003). While these and many more cities around the world are faced with problems of growing population, they share a certain generality in becoming 'global cities' where they are able to generate their own behavioural patterns. Some of these cities also harbour a large number of informal settlements within them.

Globalisation brings with it several conditions. According to Shetty (2001):

> *These conditions have changed behavioural patterns in the city and have been subsequently changing the requirements for living conditions. In the context of very high land prices and equally high densities, the nature of developments in the cities have often led to some versions of high-rise high-density living. The concept of apartment housing developed in the early twentieth century overlapped with a very*

high ratio of built up area to ground cover (Floor-Area Ratio) and this has been dominant in contemporary housing. Governments have considered high-rise high-density apartments as a solution to the problems of informal settlements in many countries. The pattern for housing is dominated by such developments in most of the cities.(Shetty, 2001)

3.4.2 HIGH-RISE LOW-INCOME HOUSING

The United Nations Universal Declaration of Human Rights recognises housing as the right of all people. This Declaration, adopted by the United Nations in 1948, establishes an internationally recognised set of standards for all persons, without qualification. It states that:

Everyone has the right to a standard of living adequate for the health and wellbeing of himself and his family, including food, clothing, housing and medical care and necessary social services. (UN Habitat 1948 cited Sidoti 1996)

The 1996 Habitat 11 meeting in Istanbul identified the steps required by governments to "promote, protect and ensure the full and progressive realisation of the right to adequate housing" (UN Habitat 1996). Therefore, housing is not just a basic human need, it is the right of people and governments have a responsibility to recognise and acknowledge this right. Considering the importance of housing, almost all the governments in the world are directly or indirectly involved with housing for poor people or weaker groups in the society (UN Habitat 1996). The Housing Minister of Sri Lanka, Wimal Weerawansa addressing the national ceremony to mark World Habitat Day 2011 in Colombo, stated that:

The state or government must adopt the major role and should give due preference on this matter. No one else can solve this gigantic task. It is a duty as well as a responsibility. These low-income groups or in other words people living in houses with less facility are not in a position to live in a decent house or in a comfortable housing complex with their meagre earnings. For their wellbeing some other party or

body must mediate and interfere. This government is compelled to mediate on this matter. (Weerawansa 2011)

Different countries apply various methods, strategies and policies to deal with the situation of how to house their poor. In urban areas, the most common strategy is developing affordable housing for the urban poor. In highly populated cities, high-rise high-density housing is one of the main methods used to increase the supply of affordable housing within city limits. As shown in Table 3.3, Singapore and the Netherlands are examples of this: 85 per cent of Singapore housing is high-rise public housing and about 35 per cent of housing in the Netherlands is social housing, with 67 per cent of these houses high-rise apartments (Whitehead & Scanlon,2007; Oxley 2009).

TABLE 3.3: PUBLIC HOUSING TENURE AND SIZE		
Country	*Number of public housing units*	*Percentage of public housing*
Netherlands	2,400,000	35%
England	780,000	18%
Sweden	780,000	21%
Australia	300,000	4%
Singapore	973,259	85%
Source: (Oxley 2009)		

Even though high-rise housing can be considered a practical and appropriate housing solution for the urban poor, past experiences of high-rise low-income housing have not always been successful, leading to much debate about using high-rises as an appropriate solution for housing for urban poor (Oxley 2009).

In 2000, the Sri Lankan government made a policy decision to build high-rises to house those who were living in slums and shanties in Colombo. However, the civil war in Sri Lanka meant that until 2010 this was limited to one building. However, after the end of civil war in 2009, the government started to implement that policy, commencing 12 high-rise housing projects in Colombo in 2010 (UDA 2011). This thesis critically analyses global experiences of high-rise housing for low-income people to examine whether high-rise housing can address and fulfil the housing needs of weaker groups in cities. Additionally, this thesis reviews housing policies in Sri Lanka, exploring whether high-rise housing would be an appropriate solution for housing scarcity for low-income people in Colombo city.

3.5 INTERNATIONAL AND SRI LANKAN PERSPECTIVES OF HIGH-RISE LOW-INCOME RESIDENTIAL DEVELOPMENTS

High-rise development is one of the most popular methods for providing housing for low-income people in urban areas. The history of multi storey high-rise housing for low-income people goes back two centuries, from the Industrial Revolution in America and Europe that sparked huge population migration to cities. Asia and Sri Lanka do not have a long history of high-rise development and most Asian cities have only built high-rise housing for low-income people since the 1950s The following section contains a detailed analysis of various high-rise low-income housing approaches used in different parts of the world. This section critically reviews the successes and failures of past projects that have used high-rise developments to house low-income people.

3.5.1 HIGH-RISE LOW-INCOME HOUSING IN THE WESTERN WORLD

In the western world, there is a centuries-long tradition of high-rise housing for low-income people that dates back to the influence of the industrial revolution and massive migration

from rural to urban areas in the late 19th century. Multi storey housing was one of the most economical and practical options to accommodate the huge number of immigrant labourers who lived within the city. However, these Multi storey houses were three- to five-storey walk-up apartments with minimum facilities. Between the end of the Second World War and the early 1960s, there was an increase in the construction of high-rise public housing throughout Europe. Most of these high-rise dwellings were tower blocks or deck or corridor access buildings based on the modernist architecture ideas of the Swiss architect Le Corbusier. This housing was taller than five storeys and had elevators installed. The incentive for this construction was the need for European cities to address the enormous housing shortage following the war. Most of the high-rises apartment built in those decades were social housing for weaker groups in the society and were constructed by government, a local authority or cooperative societies (Roeloffzen, Lanting, & Scholte, 2006).

The main criticisms of these high-rise dwellings were that they decreased the quality of life of the people who live in them, that high-rise social housing would not provide a good living environment and would not be a suitable place for poor families with children (Shaftoe 2001). In the 70s and 80s, the social high-rise housing built in the Western countries during the post-war period became the symbols of the deficiencies and failures of post-war public housing policies and management. However, studies in the Netherlands have shown that the problems ascribed to high-rise housing were not been restricted to that type of housing only: among the post-war housing estates, uniform, single-family housing projects have also faced similar problems (Roeloffzen, et al., 2006; Musterd 2010). Secondly, evidence exists that even in high-rise estates that are homogenous in terms of housing type, age and rent levels, considerable differences in vacancy, occupancy and the incidence of social problems occur (Roeloffzen, et al., 2006; Musterd 2010).

Today high-rises are the main housing option for low-income groups in urban areas in the Western world. A survey by the London School of Economics (LSE) found that 60 per cent of the people who are living in high-rises have moderate or low-income and low rents attract poor people to high-rise housing (Whitehead 2007). Table 3.4 shows the figures for tenure split and the number of social housing units in selected countries in Europe. The percentage of social housing ranges from a high of 35 per cent in the Netherlands to a low of 4 per cent in Hungary. France has the highest number of social housing units, with almost 4.25 million and most of them are high-rise housing (Whitehead & Scanlon, 2007).

TABLE 3.4: HOUSING TENURE/SIZE OF SOCIAL SECTOR				
Country	**Owner occupied housing (%)**	**Private rental housing (%)**	**Social rental housing (%)**	**Number of social units**
Netherlands	54	11	35	2,400,000
Austria	55	20	25	800,000
Denmark	52	17	21	530,000
Sweden	59	21	20	780,000
England	70	11	18	3,983,000
France	56	20	17	4,230,000
Ireland	80	11	8	124,000
Germany	46	49	6	1,800,000
Hungary	92	4	4	167,000
Source: Housing statistics in the European Union cited 2000				

Public housing in the US is very different to Europe and many other countries in the world. The US has the biggest public housing stock in the world and there is considerable literature about American public housing and the challenges it has faced during the last six decades. While public housing is the term used to describe subsidised housing in the US, they are colloquially called housing projects (O'Neil 2007). Public housing is administrated by federal, state and local agencies and subsidised housing is provided for low-income earners and those living in poverty. The first public housing project initiated in the US was in 1935 in New York. Its driving idea was slum clearance. While launching public housing projects in 1938 in New York, Franklin Roosevelt, the 32nd President of the United States, proclaimed that "Today, we are launching an attack on the slums of this country" (Adams 1982). Initially, American public housing was focused on slum clearance and providing habitable housing for people living with poverty. However, this situation has shifted gradually and now public housing is not limited to slum clearances: it is also assigned to working-class and middle-class people much more than in the 1970s (Adams 1982). American public housing has not succeeded as well as expected and considerable mistakes have been throughout its history. The Final Report of the National Commission on Severely Distressed Public Housing (1992) reports that "Public housing was regarded as one of the biggest and most visible failures of social welfare policy" (NCSDPH 1992).

Robert Taylor Homes was the largest urban public housing project built in Chicago during the 1960s as part of the Chicago Housing Authority's redevelopment plans. It was plagued with problems before being torn down, and is considered the biggest failure of those plans. Madera (1996) states:

> *The obituary for the Taylor Homes might read this way:*
>
> *'Born in 1962. Welcomed by politicians with fanfare. Doomed by age 5. Ailing for decades. Dead at age 44. Among the causes: mismanagement, shrinking federal*

dollars, government blundering, neglect, poor design, drugs and, above all, too many poor people packed in too little space'. (Madera 2006)

Robert Taylor Homes was not the only high-rise low-income project to fail. Madera (1996) adds that by the mid-1990s "nearly 186,000 public housing units have been approved for demolition in Detroit, Atlanta, Philadelphia and several other cities, according to the U.S. Department of Housing and Urban Development. About 80 per cent already are gone" (Madera 2006).

St. Louis' Pruitt-Igoe and Philadelphia's Schuylkill public housing projects are well-documented examples of other colossal failures in American public housing sector (see Figure 3.7). Both of these were demolished less than two decades after they opened (Cohn 1985). The Pruitt-Igoe housing project has been the most discussed public housing project in America and will be discussed in detail in the latter part of this chapter, with a specific focus on the mistakes made by the public housing sector as a whole.

Figure 3.7. Demolition of Pruitt-Igoe high-rise public housing complex
Source: Paddington (2010)
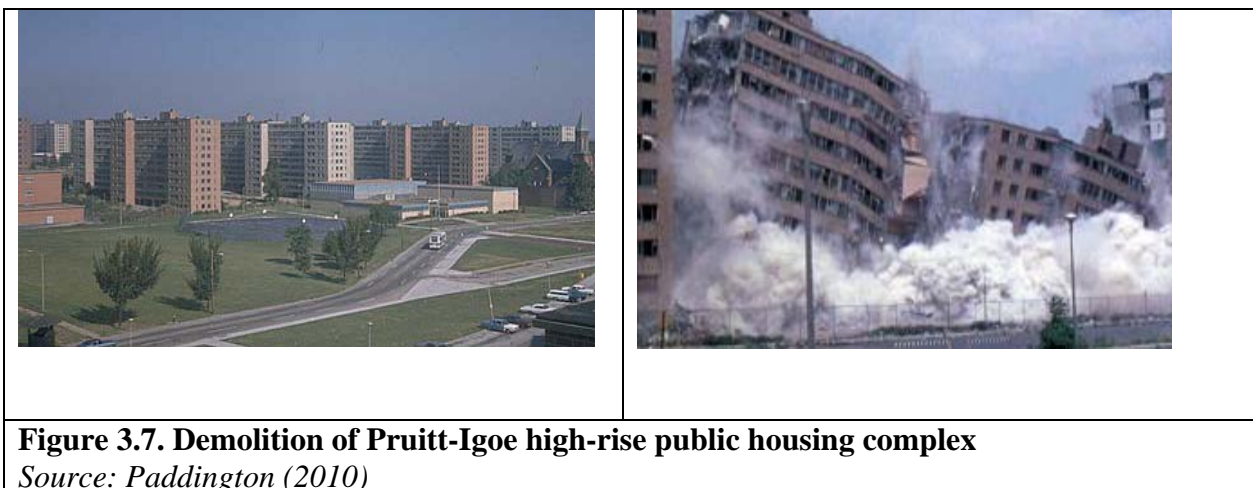
However, in New York this situation is very different. The New York City Housing Authority controls the country's largest subsidised housing stock. Most of the public housing is high-rise buildings which are considered desirable places to live (Cohn 1984; Hoffman

1993). The New York approach is different to other American cities, and the tenants are not highlighted as a poor or isolated by living in high-rises (Hoffman 1993)

Lifestyle changes, globalisation and rapid population growth over the past two decades have seen several Western cities, including those in the US, that once abandoned high-rises returning to this form of building construction (Cisneros, Engdahl, & Bond, 2009) (Wamelink 2007). The best example is the HOPE VI program in Baltimore in the US. In 1989, the U.S. Congress established a National Commission to study the issue of dilapidated public housing. The HOPE VI program was one of the main outcomes of that Commission and the program began in 1992, with formal recognition by law achieved in 1998 (Cisneros 2009). HOPE VI is a major housing and urban development plan meant to redevelop the worst public housing projects into mixed-income developments. The philosophy is largely based on New Urbanism and the concept of reducing negative social behaviour through architectural and urban design.

The HOPE VI solution to public housing problems is not sought in government but in the communities where public housing is located, in the belirf that local residents and government officials, in partnership, can transform public housing projects into attractive and liveable communities (Cisneros, et al., 2009). Lafayette Courts in Baltimore's central business district is considered the first success story of this program (Cisneros, et al., 2009) Even though the program could not address all of the housing challenges in the area, HOPE VI is claimed to have brought hope to thousands of Baltimore's low-income residents. Most low-income residents of public housing in Baltimore believe that HOPE VI was positive and a dramatic reform of traditional public housing in the US (Cisneros, et al., 2009).

The HOPE VI is one successful attempt to mitigate high-rise public housing issues in the US. However, there are many similarly successful examples in other parts of the US and Europe

(Fincher 2007). To fully understand social high-rise housing, it is important to look at both well- and ill-functioning high-rise low-income housing blocks to examine the relationship between the problems of high-rise housing and the built form.

3.5.2 HIGH-RISE LOW-INCOME HOUSING IN ASIA

A vast amount of literature exists on various aspects of the housing sector in developing and developed countries in Asia (Yuen, et al., 2006; Fincher, 2007; HDB, 2002; Ha, 2008; Phang, 2001; URA, 1991). Historically, most attempts to build high-rise public housing in cities in Europe and the US have resulted in negative experiences with the high-rise developments being underutilised and, in some instances, even demolished. However, some Asian cities, for example Singapore, Hong Kong, Kuala Lumpur and Seoul, have had positive experiences with high-rise public housing facilities, resulting in overall satisfaction from both the governments and the residents.

Singapore is a densely populated city-state with 3.9 million people and the majority of the city population lives in high-rise high-density housing (Yuen, et al., 2006). Today, living in public housing in Singapore is not generally considered as a sign of poverty or a lower standard of living. Land cost and scarcity mean that public housing in Singapore differs from other countries where land constraint is less of an issue and property is significantly cheaper (Phang, 2001).

The process of integrating high-rise low-income housing into the city fabric of Singapore was a lengthy process that required considerable government intervention. A 1947 Colony of Singapore Housing Committee Report states Singapore had some of the world's worst slums that were "a disgrace to a civilized community" (URDA, 1991). In the decades following this report, the situation did not improve and surveys in the 1960s estimated about 300,000 people were living in temporary squalid dwellings in squatter areas with no sanitation, water or any

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other basic health facilities (Yuen, et al., 2006). The need to provide housing for those living in squalor, combined with the limited land available for development and a growing population, led the city towards high-rise development (Sock, 2001) and today in Singapore the majority of people live in high-rises. High-rise living is not limited to those with a low-income and all income groups live in high-rises and enjoy the same urban privileges.

While the success of Singapore's housing approach has been a remarkable story, it was not achieved quickly. When Singapore decided to use high-rise development as a housing solution for slums and shanties in 1960s and 1970s, they faced enormous challenges, difficulties and criticisms. However, today the high-rises in Singapore are widely admired and their housing developments are some of best city planning in the region (URDA, 1991; URD, 2012)

There are some similarities in housing and policy approaches between Singapore in the 1960s and the situation in modern-day Colombo. In the 1960s 300,000 people lived in slums and shanties in Singapore and currently in Colombo nearly 350,000 people are living in under-served settlements (URDA, 1991; UDA 2011). As in Singapore, the Sri Lankan government selected a high-rise option to re-house dwellers from under-served settlements as part of contributing to a well-planned city in south Asia. Additionally, the Sri Lankan economy is also recording above 8 per cent annual growth and has a stable government since the end of 30 years of ongoing civil war in 2009 (Central Bank, 2010). Given these similarities, Colombo can learn from Singapore by critically analysing their experiences with high-rise low-income housing. In order to explore the research area of this thesis – whether high-rise housing is an appropriate solution for low-income people in Sri Lanka – Singapore in the 1960s is a very valuable comparative study as the socioeconomic and political situations are very similar to Colombo today .

Like Singapore, land is also scarce in Hong Kong. Both countries adopted the same city planning strategy and now high-rises are the main housing option for the majority of people. Out of all Asian cities, Hong Kong and Singapore have had the most success with high-rises, particularly for low-income groups. Land scarcity, a fast-growing economy, political stability and strong leadership directly contributed to the success of high-rise housing in both cases (Rooney, 2003; Yeung and Wong, 2003; Phang, 2001). However, in those countries 'high-rise' does not refer to buildings of 10 to 15 storeys - buildings are commonly 50 to 70 storeys high. The remarkable thing in these cases is not just the increasing height of the buildings but also the high level of resident satisfaction with high-rise living, especially with young people who prefer to live in the upper floors (above 30 storeys) (HDB, 2002).

Seoul, Korea, is another example of where high-rise living has been successfully incorporated into an Asian city. In Seoul, high-rises have been the main housing option for decades. Constructed in 1962, the Mapo apartment complex is considered the first large high rise apartment complex in Seoul (Kyu-Ha, 2004). According to the 2005 census, 54.2 per cent of the total housing stock in Seoul consists of high-rises and 76 per cent of the houses under construction in 2006 were high-rise apartment buildings. Additionally, 100 per cent of the housing in urban renewal areas in Seoul is high-rise (Kyu Ha, 2008). Accordingly, high-rises have played a major role in housing in Seoul, with the city authority encouraging the building of many apartment complexes in order to accommodate the city's growing population.

However, in 2004, nearly one-quarter of all low-income houses in Seoul were considered below minimum standards in terms of floor space and basic facilities (Korean Statistical Information Service, 2010). Low-income housing programs in South Korea are largely divided into two types: supply-side programs and demand-side programs. The major type of supply-side programs is the provision of public rental housing for low-income people. A

permanent public rental dwelling program was launched in South Korea in 1989 (Kyu Ha, 2008). At present, 8.9 per cent of Seoul's housing is classified as social housing, with the majority of these houses high-rise. In order to tackle the low-income housing problems, the Korean government formulated a 10-year public housing supply plan for the purpose of constructing one million dwelling units between 2003 and 2012 (Kim & Sun, 2011).

The rent for the public housing in Seoul is about 25–35 per cent of market price for the same size housing and this low rent is the main attraction of public housing in Seoul. Social housing is heavily subsidised by the government and no tenant eviction occurs from the social housing as long as residents meet qualification requirements (Kyu-Ha, 2001).

Like Singapore and Hong Kong, Seoul's high-rise public housing is considered a successful approach to address the problem of providing affordable, safe and habitable housing for low-income people in a highly populated city (in 2010, Seoul had a population of 7,061,200) (Wai & Lai, 2010).

However, in India, the story concerning high-rise housing for low-income people has been much more complicated and problematic. High-rise housing was first used for low-income people in India in the early 1900s while India was under British colonial rule (O'Hare & Abbott, 1998). At this time, the promise of employment in the booming cotton mills or any of the other industries in the strong city economies led to a huge population migration to Mumbai and other main Indian cities. These booming industries required a large labour force and finding housing near to industrial areas was a major problem for labourers and factory owners (Karandikar, 2010). 'Chawls' were built as a cheap housing solution for factory workers. A chawl is a type of building that originated in India and is typically a three to five-storied building filled with single all-purpose room tenements with shared common toilets and bathrooms (Karandikar, 2010). Most of the chawls were constructed by the colonial

government and the private sector for low-income factory workers in the early and mid-1900s.

Since that time, chawls have developed a long and rich city planning and architectural history and are an example of the use of high-rise housing to accommodate low-income people in India, especially in Mumbai where chawls are considered a city icon (Choudhury, 2011). According to Choudhury (2011):

> *Mumbai would not be the city it is today without its chawls. These three- and four-storey blocks of one- and two-room tenements dotting all of south and central Mumbai, built on a massive scale over the 19th and early 20th centuries by both the colonial government and private landlords, stand at the centre of the city's social history* (Choudhury, 2011).

However, economic and policy changes had a significant impact on the traditional system of chawls. After the passing of the Rent Control Act of 1947, rents were frozen and many more rights were granted to tenants, with the owners having limited authority to increase the rent or evacuate the tenants (Choudhury, 2011; Karandikar, 2010). Therefore chawls were no longer a profitable investment and most settlements subsequently underwent rapid decay due to poor maintenance and a lack of mechanisms to sustain them. Often these places became socially prohibitive. The shared spaces and spaces in between buildings became dump yards and the chawls were prone to outbreaks of disease and hazardous fires (Shetty, 2001). However, even today chawls are the primary source of housing for low-income people in the city. From a city planning point of view, chawls demonstrate that high-density multi-storeyed housing can have a significant impact in providing a massive scale of housing for low-income groups in highly urbanised and rapid population growth cities. In addition to the chawls, many Indian cities have used various methods to provide decent housing for slum and shanty dwellers and a number of distinct housing strategies and policies have evolved over the years. However,

India has the world's biggest slums and in Mumbai over 6 million people live in slums and shanties. Therefore, this example demonstrates how providing housing for low-income people is a very challenging and controversial issue. The main policies and programs which have been adopted by the Indian government to address the slum situation in the major cities in India (O'Hare & Abbott, 1998; Rizvi, 2010) are:

- Slum clearance and redevelopment (1896–late 1970s)

- Slum improvement and upgrading (1976–present)

- Sites and services provision (1983–present)

- Slum redevelopment and rehabilitation (1991–present)

Slum clearance and redevelopment (1896–late 1970s) is a traditional method of eradicating squatter settlements and poor housing based on guidance from a master plan. However, these approaches were implemented not as a solution for the problem of slums in the city: instead they were concentrated on removing unauthorised slums in order to open up more area for city development. This approach was not popular among the people and slum eradication declined in the late 1970s due to their negative impacts and political backlash and new policies that were more favorable to slum dwellers were introduced (O'Hare & Abbott, 1998). Slum improvement and upgrading was the preferred policy option for slum clearance in the mid-1970s and under this approach cities tried to upgrade the living condition of the people instead of evacuating them. During the late 1970s, slum improvement and upgrading was utilised in many parts of the world, especially Asia. International organisations including the World Bank financially and technically supported this approach and millions of slums dwellers obtained benefits from it (Slum Rehabilitation Authority, 2012). Site and services provisions (1983) comprised a similar kind of program which was implemented to improve

the living condition of slum dwellers with assistance from the World Bank and the United Nations. However, none of these programs could provide a sustainable solution for slums and instead just improved the living condition of slum dwellers (Slum Rehabilitation Authority, 2012). Therefore, the Indian government introduced a new policy in 1991 to re-house slum dwellers in participation with the private sector. This policy, which was called the Slum Redevelopment and Rehabilitation Program and was declared under the Development Control Regulation of 1991, planned to re-house millions of slum dwellers in new high-rise apartment blocks (O'Hare & Abbott, 1998). India's new economic liberalisation policies, fast-growing economy and the high demand for urban land have encouraged and attracted the private sector to support this housing policy.

In Mumbai, the city authority developed a new housing policy to create a slum-free environment using better city planning (Slum Rehabilitation Authority, 2012). Government intervention and direct funding is minimal and so the policy facilitates the private sector building housing for slum dwellers based on the land sharing and exchange process. Using this approach, the Mumbai state government plans to provide 1.2 million houses for slum dwellers within a period of 10 to 15 years, with slum dwellers entitled to 225 square feet of free housing in a high-rise building (O'Hare & Abbott, 1998). In theory, this approach is very favorable for both the private sector and slum dwellers and ultimately the entire city benefits with a slum-free environment. However, the practical situation is totally different from the original concept and at the time of writing this thesis, the Mumbai government has not been able to achieve their target. Only a few isolated projects have succeeded under this approach. O'Hare and Abbott (1998) evaluate the Mumbai government's approach and observe that:

> *In the five years since its inception only about 50 projects out of 250 have been started. Even if all 250 proposals are implemented this will cover only 50,000 families, representing less than 5% of the target group. Up to the present time only*

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1500 families have been given free houses. At this rate it will take at least another 100 years to build enough tenements to house Bombay's slum dwellers (O'Hare & Abbott, 1998).

Additionally, the houses that were constructed as part of this program have been criticised, with many professionals describing the housing scheme as an attempt to transform horizontal slums into vertical slums (Rizvi, 2010) . Even though Mumbai could not achieve the target set by the government and there were considerable issues in re-housing the slum dwellers in high-rise apartments, it is clear that as a policy, Mumbai believes that high-rises are an appropriate solution for housing for slum dwellers in urban areas.

In conclusion, since the 1970s high-rises have emerged as the main residential option in the regeneration agenda of many Asian cities. However, this does not always result in the success of high-rises housing for low-income people. Some countries have significant success with high-rises and other countries are unable to achieve their projected targets. However, some Asian countries agree that high-rises are one of the most practical options to deal with under-served settlements in highly populated cities (Rabe, 2010; Slum Rehabilitation Authority, 2012; UDA, 2011) .

3.5.3   HIGH-RISE LOW-INCOME HOUSING IN SRI LANKA

In Sri Lanka, the concept of multi-story residential buildings was imported from Europe by the British to house their employees and non-Sri Lankan natives. The people of Sri Lanka, however, prefer to inhabit houses that are structured as a single unit on a plot with open spaces around them. The residential streets, with their individual residences and close social interaction between members have characterised traditional living in the city (Samaratunga 2001). However this situation has changed gradually in urban areas as a result of rapid population growth, migration, land scarcity, economic growth, increased real estate value and

changes in social and cultural norms, and these changes are having a dire effect on the traditional living pattern in Sri Lanka. These trends have resulted in the emergence of the new concept of residential development obviously catering to a Western culture, popularly known as the high-rise. In the early 1960s, high-rise housing was built for middle-income groups in Colombo and it was not an option for high or low-income groups in the city. In the 1970s and 1980s, multi-storey housing was introduced on the low-income housing agenda and involved building three- to five-storey housing blocks for low-income people. However, before 2000 no low-income housing project was higher than five storeys or had an elevator and Sahaspura was the first high-rise housing complex to go up to 14 storeys with elevators.

The Colombo Metropolitan Region Structural Plan (CMRSP) 1998 outlines a strong direction in urban development, housing, and land use strategy in Colombo city. The mission of the Colombo Metropolitan Region Structural Plan (1998) is:

> *..to develop the most urbanised region of Sri Lanka, known as the Colombo Metropolitan Region, to confidently enter the 21st Century with a vision, articulated strategy and an action plan to fulfil the socio-economic and spatial needs of the region and to provide the people in the region a living environment which is sustainable and beneficial to the nation as a whole.* (CMRSP 1998)

The above mission reflects the objectives of the Urban Development Authority and the Ministry of Housing and Urban Development. These objectives have been formulated based on government policy statements and the guidelines of the World Bank and other international funding agencies.

The overall objective of the CMRSP was to design a Strategic Physical Plan and prepare an action program for the development of the region with a view to meeting the aspirations of and improving the quality of life of the people. To achieve this target, the planners have proposed several alternatives. One of the main proposals is converting 20 per cent of

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residential land for commercial activities (CMRSP 1998). The allocation of additional land for commercial and mixed development in the city is expected to come from land that has been made available by relocation of activities and limited land earlier allocated for housing development in the city. The city planners propose to compensate for this reduction in residential land by providing increased density of housing units. In other words, housing development in the future will give priority to intensive development with more high-rise housing schemes to supplement the total land needed for the increasing population in the future (CMRSP 1998). However, Colombo still does not have a proper urban housing policy for low-income people and the government is implementing with both high-rise and low-rise residential options.

This thesis evaluates the Sri Lankan Government housing policies on high-rise and low-income housing and the radical changes seen since 2000 under the influence of the CMRSP plan. The Sahaspura high-rise low-income housing project was the first project to be built as part of this directive in 2001. It consists of 14 floors with 670 housing units. Chapter 6 discusses in detail the Sahaspura housing project, including the experience of the ten years since it was constructed. In practice, this concept has been limited to one project, Sahaspura, with no more developments proposed until the end of the civil war in 2009. Since the end of the civil war in 2009, the Sri Lankan government has given priority attention to city development, especially in Colombo as it is the commercial capital of the country. The main constraint in Colombo city development was that 51 per cent of the city's population live in under-served settlements. The alternative considered best by Colombo urban planners was to implement a high-rise high-density vertical housing strategy, which was begun in 2001 with the Sahaspura project. At the time of writing this thesis, nearly 12,000 housing units are commencing with a goal to construct 35,000 dwellings by 2015 (UDA 2011). Chapter 6 will

discuss in detail the present housing policies of the Sri Lankan government for housing for the urban poor, comparing nearly 100 years of government housing policy.

3.6 THE ACADEMIC DEBATE ABOUT HIGH-RISE LOW-INCOME HOUSING

High-rise low-income housing is a controversial topic. Some countries have been highly successful with high-rise low-income housing and they have been able to upgrade residents from slum dwellings to the middle class through the benefits that come from living in high-rise housing. On the other hand, some other countries have experienced large-scale failure with low-income high-rise housing, with some low-income high-rise housing facilities being demolished within decades of being built. High-rise low-income housing is an often-debated subject among the professionals, scholars and researchers in the field. Colombo has had both successful and unsuccessful low-income housing projects in the past and the controversy surrounding this topic is exemplified in the dialogue between critics and academics about Sri Lanka's first high-rise low-income project, Sahaspura. Consequently, it is important to critically evaluate why some high-rise housing projects succeed while others fail. To do this, the main arguments about the high-rise low-income housing need to be discussed and the common mistakes made in designing and building high-rise housing in the past identified.

3.6.1   WHY HAS HIGH-RISE LOW-INCOME HOUSING BEEN SUCCESSFUL IN SOME COUNTRIES AND FAILED IN OTHERS ?

Some critics argue that high-rise housing is a total failure as a housing concept for low-income people, as many countries have stopped constructing high-rises for low-income people and a significant number of high-rise low-income housing buildings have either been demolished or are planned to be demolished in the future (Roeloffzen, et al., 2006). However, when critically evaluating this statement in reference to the literature it is clear that the

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number of existing high-rise low-income housing that has been demolished has not been established and it is only a few well-known American high-rise projects that are always highlighted to prove that statement (Roeloffzen, et al., 2006). A report published by the Ministry of Housing, Spatial Planning and the Environment in the Netherlands (2004) clearly states how the decision whether to demolish or refurbish existing high-rise public housing is made:

> *If maintenance alone is not sufficient to provide the scope to keep the dwelling habitable, there may be a need for refurbishment, or it may be decided to demolish it. The choice between refurbishment and demolition depends on the specific circumstances of each case. The reason for demolition may be that the condition of the high-rise is too poor (there is simply no other choice). Extended and expensive vacancy may be a factor, and in many cases demolition is chosen as a means of bringing about change in the population of the surrounding area.* (Roeloffzen, et al., 2006)

According to the report, renovation is the first strategy for to address problems with existing high-rise public housing and demolition of the high-rises is the last resort. The main factors that play into the decision to demolish or refurbish are:

- focusing on the block of flats or the surroundings;

- focusing on the block's use now and in the future; and

- maintaining or changing the market position.

The literature shows that in Europe, most of the reported failures in high-rise low-income housing have occurred with post-war social housing. Only a few housing projects had been demolished due to being uninhabitable for the occupants. In the UK, an official statistic issued by the Office Of Disaster Preparedness and Management states:

..more than 4,000 buildings with more than 5 storeys built after World War II still exist with roughly 800,000 people living in them. The majority of tower blocks are owned by local authorities and a small number is owned by housing associations. Only very few are private developments. (Ministry of National Security 1998)

Clearly, there are many high-rises that have not been under pressure of demolition. In Asian countries, especially in South Asian countries, it is hard to find any demolition of high-rise low-income housing that has been undertaken based on a reduction of the occupancy rate or any other socioeconomic reason. Most of the time, the original beneficiaries and the occupants have changed and it is very common that upper-income groups dominant over low-income housing in the cities.

Some property developers argue that tall buildings are only appropriate for offices, hotel, luxury apartments and commercial purposes (LSE, 2002). It has been conceded that luxury high-rises are suitable for high-income people but high-rise housing is less suitable for low-income people. To support this argument, critics highlighted that some low-income residential buildings in London have been successfully converted to office and hotel developments (GLA, 2001). However, in this situation it one can be argued that conversion was not based not the failure of the high-rise low-income residential building - it was based on the land value and the prime location in London (McNeill, 2002). Developers can make more profit from commercial buildings rather than residential units. According to the Greater London Authority (GLA), the total number of high-rise residential buildings in London is far greater than tall office and commercial buildings and this situation changes when the buildings are higher than approximately 70 metres (GLA 2003).

Although, high-rise living is one of the most common housing options in urban areas and millions of people have been living in high-rises for decades, the choice to develop high-rise housing for low-income people is controversial. While some countries have had successful

experiences with high-rise low-income housing, other counties have experienced failure with this type of housing. From evaluating past successes and failures, it is clear that success and failure are not dependant on which country the project was in. Rather, it depended on the individual housing projects. Accordingly, when critically examining the past successes and failures of high-rise housing projects in urban areas, some common issues always arise unrelated to any geographical, social or economic barriers. Therefore looking at the major issues with practical examples provides a clear picture of why some high-rise housing developments succeed while others fail, sometimes in same city. The following section discusses common issues associated with high-rise low-income housing by revisiting at the Pruitt-Igoe development, one of the most talked-about public housing projects in the US.

3.6.2 Major Issues in High-rise Low-income Housing - Learning from Pruitt-Igoe

Sri Lankan housing professionals and policy-makers have mixed feelings about adopting high-rise low-income housing in Colombo. Lack of literature and research are the main impediment in the field and Colombo City needs more academic research to discover what the main factors are in the success or failures of low-income housing, especially high-rise low-income housing. Even though high-rise low-income housing is new for Sri Lanka, it is not new for many other countries in the world. Therefore, the knowledge gained from international experience and critical evaluation of past experiences, would be very beneficial for Sri Lankan high-rise housing.

The Pruitt-Igoe public housing project in St Louis, US is one of the most discussed public housing projects as well as a symbolic icon and the most well-known case study, which ended in the demolition of 2,800 housing units in 1972 (Bristol, 1991). There is a correlation between the Pruitt-Igoe case and the current Colombo high-rise low-income housing program

entitled Relocation of Underserved Settlements, in that the main aim of both projects was slum clearance by providing high-rise housing for the urban poor. Therefore, understanding the Pruitt-Igoe experience is extremely important for Sri Lankan professionals and policy-makers to reduce the risk and not repeat the same mistake in developing high-rise low-income housing in Sri Lanka.

In critically evaluating the Pruitt-Igoe public housing project and other well-known high-rise public housing projects, it is clear that most issues fall into four main categories:

1) social and cultural issues;

2) architectural, planning and technical issues;

3) financial issues; and

4) management and operational issues.

The success or failure of high-rise low-income housing depends on how these four sectors are managed and mitigated. After the high-profile failure of the Pruitt-Igoe public housing scheme, most housing professionals considered high-rise public housing no longer an option in the US (O'Neil, 2007). Therefore, to understand the issues surrounding high-rise low-income housing, it is worthwhile to conduct an in-depth evaluation of the Pruitt-Igoe housing project with comparison of how social and cultural issues, architectural planning and technical issues, financial issues and management and operational issues affected this project.

Pruitt-Igoe was a large public housing project built in 1954 on a 57-acre site in St Louis, comprising of 33 eleven-floor buildings which would house over 2,800 apartments. The complex was designed by well-known architect Minoru Yamasaki, who also designed the World Trade Centre in New York. Pruitt–Igoe was a critically acclaimed design and in 1951 the Architectural Forum gave Pruitt–Igoe an award as the 'the best high-rise apartment' of the

year (Bristol, 1991). Pruitt–Igoe was styled as a project that followed the principles of Le Corbusier's concept in modern architecture. Although criticisms of inadequate parking and a lack of recreation facilities were levelled at this project, no one anticipated Pruitt–Igoe would become a symbolic failure in the public housing sector (Cisneros, Engdahl, & Bond, 2009).

Shortly after its completion, this award-winning project began its decline. The project had failed on an architectural and social level. Maintenance and many other qualitative features proved to be expensive and difficult to upkeep. In 1972, state and federal authorities decided to demolish the $57 million investment project, making it the biggest disaster in high-rise public housing history (Bristol, 1991).

What went wrong with Pruitt–Igoe? The explanation for the spectacular failure is complex. Many people believe it was purely architectural failure and the construction did not meet the needs of the city or its residents. Other critics bring in social factors, such as a lack of shared space to create community feeling and the lack of recreational areas. Some argue poor maintenance and management caused the building to fall into disrepair. However, no single reason could cause such a huge disaster, and the most common theory is that several mistakes were made throughout the project. According to Cohn (2005), Architectural social, management and policy issues equally led to the qualitative decline and kept people out of the project (Cohn, 1985).

3.6.2.1 ARCHITECTURAL PLANNING AND TECHNICAL ISSUES

Pruitt-Igoe is famous among architects because its demolition was heralded as the death of modern architecture, and it came to symbolize a general loss of faith in architects' abilities to design a solution to problems in general and high-rise public housing in particular (Domingo, 2011; Hoffman, 1993). Prominent urban planner Oscar Newman stated that "Architects love to build high-rise buildings because that's what impresses other architects[and] most

architects give priority to their personal goals rather than the real requirements of the project"
(Cohn, 1985). The dialogue around iconic buildings and large-scale projects generates direct
and indirect popularity for the architect. With Pruitt–Igoe, the initial proposal for a mix of
high-rise, mid-rise and walk-up buildings, but the final result was 33 buildings, each with
eleven floors – a considerably denser housing scheme (Hoffman, 1993).

Thomas P. Costello, the former director of the St Louis Housing Authority, said in an
interview "The entire public housing program was always geared to production, not to
providing decent housing for poor people" (Cohn, 1985). Costello believed that badly
designed high-rise buildings, like those at Pruitt-Igoe, "virtually guaranteed failure" (Cohn,
1985). Technical failures and the negative attitudes of the architects also had a very bad
impact on public housing in this era. O'Neill (2007) states "most of the architects who plan
public housing for low-income people didn't really care about the people who were going to
live in it. The public's image was they were just considered poor, illiterate people, so the
attitude was, 'Let's put them all in one place, in these huge buildings, and just let the damned
things go' (O'Neil, 2007). That statement rings especially true in context of the Sri Lankan
low-income housing, as governments tend to think only in terms of literal improvement of
living space, believing is it enough to uplift the living condition and social life of the urban
poor. For example, in "Sahaspura" the minimum unit size is 35 square metres, which is not
much space for an entire family and their amenities. However as the family's previous
dwellings in the slums likely consisted of a space smaller than 35 square metres without any
amenities, it is an improvement (Wickrema, 2005).

According to Cohn 1985, there are common features to high-rise public housing that mean it
will not wear well over time. Some examples of these features are poor maintenance, the
regular breakdown of elevators, a low-cost design, a lack of insulation to prevent excesses of

heat and cold, a lack of open space and landscaping as well as isolation of individuals due to a lack of common space. Furthermore, if an area consists of only low-income people, then it will be labelled as 'a place where the poor people are living' (Cohn, 1985). The Pruitt-Igoe development experienced all of the above-mentioned weaknesses, and they have been very common in most low-income housing projects in Sri Lanka.

Location is another issue in many public housing projects. Planners tend to propose poor and isolated areas for public housing. Considering the land value and demand, locating public housing far from the city center is much cheaper and can reduce the cost of the project. Pruitt-Igoe, although located relatively close to downtown St Louis, was located in an area demarcated as a poor residential area. Fortunately, Sri Lankan urban planners have avoided locational mistakes by attempting to provide low-income housing near to the CBD and other workplaces. The best examples are Gunasinghe Pura Flat, just five minutes walking distance from the CBD; Central Sation Kotahena Flats, five minutes walking distance from the Colombo Harbour; and Maligawatha Flat, which is 10 minutes walking distance to the railway yards and industrial areas. In addtion Sahaspura, Sri Lanka's first high-rise low-income housing project, is also located at the centre of the city. Prime location is one of the main strengths in Colombo low-income housing, and even though low-income housing tends to have minimal facilities and amenities, no project has resulted in demolition or mass vacancies like Pruitt-Igoe.

Sometimes implementing innovative ideas and experiments also leads to a bad result for high-rise buildings. Pruitt-Igoe's recreational galleries and skip-stop elevators, once heralded as architectural innovations, became nuisances and danger zones (Cisneros, et al., 2009). From an environmental and sustainability point of view, the skip-stop elevator is a creative way to protect the environment and reduce electricity consumption. From a health point of

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view, reducing where elevators can stop encourages people to walk and climb stairs, thus receiving beneficial incidental exercise. However, a skip-stop elevator causes enormous difficulty to elderly people, sick people or those with a disability, pregnant woman and parents with small children – the very people who are often concentrated in low-income housing. Unfortunately, the same thing happened in Sahaspura when the Sri Lankan architects also incorrectly assumed that having galleries would help promote community interaction in what was bound to be a harsh social environment, and so the lift only operated above the fifth floor. Today, these huge corridors are the most difficult part to maintain and that unnecessary communal space could have been added to residential units for the same cost. Fortunately, the Sri Lankan architects did not structurally restrict the elevators, but simply manually restricted usage up to the fourth level. Therefore those people who need the elevator can obtain special permission to use it when they need (Samaratunga, 20011), and elevator management processes can be reviewed in the future.

3.6.2.2 SOCIAL ISSUES

The Pruitt-Igoe development made several mistakes in the social aspect of the project from the very beginning. Basic design negligence can cause massive damage to the entire social lives of the people who live in the project. Hoffman (1993) said "The Pruitt-Igoe structures were very successful, but the designers ignored the very basic social requirements".

Regardless of income level, racial desegregation was another social issue in Pruitt-Igoe. Originally Pruitt-Igoe was conceived as two segregated sections, with Pruitt for blacks and Igoe for whites. However, attempts at integration failed and Pruitt-Igoe became an exclusively black project (Bristol, 1991), with stigma arising from the negative social perception of the project as a poor black project. In Colombo, Sri Lanka, ethnic and religious diversification is not a big problem. Despite this, social recognition can be very negative and

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with a perception that low-income people who live low-income housing are 'looked down upon' and lack privilege in the city (samaratunga, 2011).

Critics claim that another mistake made in Pruitt-Igoe was to house many people in too little space, without easy access to the world beyond the site (Cohn, 1985). Sociologists were warning of the dangers of isolating the poor in dehumanising structures, even as the US push for high-rise public housing got underway in the early 1950s (Bristol, 1991). A similar situation is currently occurring in Sri Lanka. Following the end of the 30 years civil war, planners and the Colombo City authority are attempting to build as many high-rise low-income housing units as possible in a limited area to clear the slums in the city. As with the US public housing push of the 1950s, Sri Lankan urban planners and policy-makers often pay more attention to housing production than to the social issues. If Sri Lankan policy-makers do not learn lessons from past unsuccessful examples of isolated high-density low-income housing, similar failures could happen in Colombo.

Further social issues such as vandalism, illegal business, violence, drugs and organized crime also contributed to the failure of the Pruitt-Igoe development (Bristol, 1991; Cohn, 1985). These types of social issues are not uncommon in slums and when slum dwellers relocate to the high-rises, they bring their existing social issues with them. Therefore, planners should be aware of this problem and avoid placing thousands of slum dwellers in one place, thus reducing their vulnerability to crime and creating a safe environment.

In the 1980s the Max Plank Institute in Germany received funding from the European Union to establish the relationship between high-rise low-income housing and vulnerability to crime, focusing on whether this problem of crime has something to do with the design and construction of high-rise housing or whether it is to do with broader social and demographic factors (Shaftoe, 2001). The research found that crime and a decrease in the quality of life is

not limited to high-rise buildings and that physical security and design improvements aimed at crime reduction alone will not in themselves guarantee a safer environment. Community safety is reliant more on socioeconomic conditions, community cohesion, demographic and estate management factors. Good design and appropriate levels of security can provide the setting for a better quality of life for residents of high-rise housing (Shaftoe, 2001).

3.6.2.3 MANAGEMENT AND MAINTENANCE ISSUES

Experiences with the management and maintenance of high-rises in the past have shown that high-rise housing is difficult and complicated to manage, whether privately owned, government owned or belonging to a housing association. High-rise housing often shares too many facilities and amenities including public spaces, lifts, combined electricity and water networks, but lacks clear allocation of responsibility for the maintenance, management and cleanliness of the building. Therefore having a management corporation is essential for undertaking the management and maintenance of the building. It is vital that the management body has sufficient funds to keep the building in a good manner. Privately owned luxury high-rise apartment buildings have their own mechanism to maintain the building which includes adequate funding, but it more complicated when it comes to low-income high-rise housing. Poor maintenance is one of the biggest contributors to the deterioration of high-rise buildings and low-income housing associations often have little or no money to undertake regular maintenance. With the Pruitt-Igoe housing project, a decline of the occupancy rate and a difficulty in collecting rent from very low-income residents resulted in a reduction of the funds available for maintenance, which led to a decline in the quality of the building which in turn discouraged people from moving into the building. This situation is very common in Sri Lankan low-income housing where no one has taken responsibility for the maintenance of low-income housing. Low-income house-owners believe it is the

responsibility of the government or city council and blame the government and city council for the deterioration of the building. The previous Sri Lankan government did not establish a requirement to have a management corporation for low-income housing projects and all maintenance was done by the Common Amenity Board in the Housing Ministry. However, this system has been changed since the Sahaspura project and now it is a legal requirement to establish a management corporation responsible for taking care of the building and supporting the residents of new high-rise low-income housing projects. However, even with a compulsory management corporation, raising funds is still critical.

This problem is not exclusive to Pruitt-Igoe and Sri Lanka. It is a very common scenario for low-income high-rises around the world. Extensive research and critical dialogue has been done on this issue and a range of possible solutions exist. According to Daheragoda (2007):

Renovation of high-rise low-income housing[in Sri Lanka] is often less expensive than building new housing. Most forms of low-income housing are difficult to manage. This, however, does not mean that there are no solutions at hand. The key is to be more creative, allow for more input from those who live in these developments and have experienced these problems first hand, and not seek to implement a single 'successful' model in all cases. (Daheragoda, 2007)

3.6.2.4 FINANCIAL ISSUES

Mary K. Nenno, the Associate Director of the National Association of Housing and Redevelopment Officials in the 1950s, stated that:

> *The construction of high-rise public housing was to a large extent a response to cost pressures.... The federal government wanted to get as many units on a site as was humanly possible – not only because it would be cheaper to build per unit, but also*

because it would be cheaper to operate once it was built and would mean more rental income coming in. (Cohn, 1985; Gillis, 1977)

Accordingly, it was clear that under the urban renewal and slum clearance projects of the 1950s, the housing authority target was to provide as many units as possible for low-income families with a limited budget. Budget restrictions were one of the main reason changing the original proposal of Pruitt-Igoe, which was a mix of high and low density housing projects, to only high-density 11-storeyed housing. The Pruitt-Igoe project was also severely restricted by cost-cutting as an attempt to reduce costs from the original budget. The cost-cutting limited the architects and forced them to change the original designs. Several changes were made to the design of the Pruitt-Igoe public housing, for example elevators and corridors were constructed on the outside of most buildings and cheap material and poor-quality finishes were used. Additionally, to save money on doorways, elevators were designed to stop only on every third floor, and while the elevators and hallways constructed along the outside of buildings may have reduced initial costs, they also virtually ensured there would be maintenance problems. This post-concept reduction of construction costs also happened in Colombo while developing its high-rise low-income housing. The government wanted to minimise the cost of housing while building as many units as possible within a limited budget. In Sahaspura, the initial minimum unit size was 45 square metres. This area was reduced to 35 square metres due to the huge cost pressure and to increase the number of units.

Currently the Sri Lankan government plans to construct 66,000 high-rise housing units in Colombo to relocate the residents of under-served settlements in the city. This is the biggest relocation program in the country's history and the estimated budget is LKR 2.5 million per unit (AU$24,000).

Gotabaya Rajapaksha (2010), the Secretary of the Ministry of Defence and Urban Development in Sri Lanka and the key person in the relocation of under-served settlement program, during a speech on World Town Planning Day (2010), highlighted that:

> *At least Rs 2.5 million is required to resettle one of these families at a small housing unit. We have to find money to relocate these families. Town planning comes in here. Town planning should be realistic and town planners have a big challenge while doing this.* (Rajapaksa, 2010)

His statement makes clear he believes that cost is the main challenge for low-income housing and he asks city planners to find the way to generate funds through city planning and to ask how innovative planning can reduce the cost of the project.

In conclusion, housing professionals, policy-makers and researchers can learn many lessons from critically evaluating the Pruitt-Igoe housing project. The literature review demonstrates that many issues of the issues experienced at Pruitt-Igoe are not limited to just that project and it can be a useful example for other low-income housing projects, regardless of the different geographic and socioeconomic situations.

3.7   GAPS IN THE RESEARCH

From a review of the literature, it is very clear that housing is not just a vehicle for human shelter; it represents and links many social, economic, political, environmental and cultural issues of society. On the other hand, housing is the most difficult basic need to fulfil and around the world millions of people live without habitable housing. Housing shortages are a severe problem in Asia and it is getting worse in urban areas. Therefore, it is an urgent requirement that a practical mechanism be developed that will address this issue. Government involvement is necessary to solve the housing issues of disadvantaged social groups.

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Different governments have chosen different strategies to overcome the problem of a shortage of habitable housing for the poor.

Since the beginning of the 20th Century, one option that is commonly used in highly urbanised areas in both developing and developed countries is high-rise housing. However, high-rise low-income housing is a controversial option. Some countries have been highly successful with high-rise low-income housing and have been able to upgrade residents from slum dwellings to the middle class through the social and economic benefits that come with urban high-rise living. On the other hand, some other countries have experienced large-scale failure, with low-income high-rise housing facilities being demolished within decades of construction. In terms of this study's case study of Colombo, Sri Lanka, there are examples in the literature of successful and unsuccessful high-rise low-income housing and low-rise low-income housing globally. However, there is a lack of literature that focuses on Sri Lanka specifically and little research has been done in this field. Without a proper and in-depth evaluation of local and international experiences of high-rise low-income housing, the Sri Lankan government has made a policy decision to build 66,000 housing units in high-rise within next six years (UDA 2011). At the time of publishing this thesis, 12,000 housing units are being built and millions of rupees being spent through Urban Development Authority with the aim of improving the wellbeing of the city. The primary aim of this research is to fill the gap between academic knowledge and practical knowledge and thus reduce the possibility of errors when building houses for the 51 per cent of the Colombo population who are low-income people and need new, affordable and sustainable housing.

3.8 CONCLUSION

This chapter discussed and critically evaluated the different concepts, definitions and literature concerning high-rise housing for the poor and explored whether and how that

knowledge can be applied in a practical situation. A large number of theories, concepts and literature have been written about housing development in general as well as high-rise housing specifically. With the considerable volume of research that has been completed globally, it is extremely hard to address all published literature in a single thesis or paper. Therefore, this thesis evaluates aspects of the subject area that are directly related to urban housing issues for low-income people. Additionally, this chapter critically evaluated the concept of high-rise housing to examine whether it addresses housing shortages in an urban scenario while paying particular attention to recent policy changes in Sri Lanka and the adoption of high-rises as an appropriate solution to deal with the housing shortage in the Colombo.

Chapters 5 and 6 will discuss in detail Sri Lanka's housing policies, looking closely at Sahaspura, the first high-rise low-income housing development built in Sri Lanka. These chapters discuss and evaluate nearly 100 years of housing policies in Sri Lanka, including the decision to use high-rise housing as a solution to the housing shortage in Colombo. Chapter 5 will discuss the practical situation concerning high-rise low-income housing in Colombo and the adoption of new government policy changes concerning high-rise low-income housing.

Meanwhile, the next chapter, Chapter 4, outlines the research methodology and provides an in-depth analysis of the research methods that will be applied in this research.

4   RESEARCH METHODOLOGY

4.1   INTRODUCTION

As outlined in previous chapters, the main objective of this research is to evaluate the Sri Lankan Government's housing policy and explore whether high-rise high-density vertical housing is an appropriate solution to the scarcity of housing for people of low-income in Colombo. Considering the research objectives in this study, a qualitative research approach was chosen as the most appropriate method for investigating the research problem in depth. This chapter outlines how the research was conducted and which methods were employed in collecting and analysing data. The discussion will include the purpose of the research, the research approach and strategy, the data collection method and data analysis and quality standards. Research processes will be focused on three key aspects (Kumar, 2011):

What: What the research question answers

How: How to gather evidence to answer the research questions

Collecting: The required information

The outline of the research process is shown in Figure 4-1.
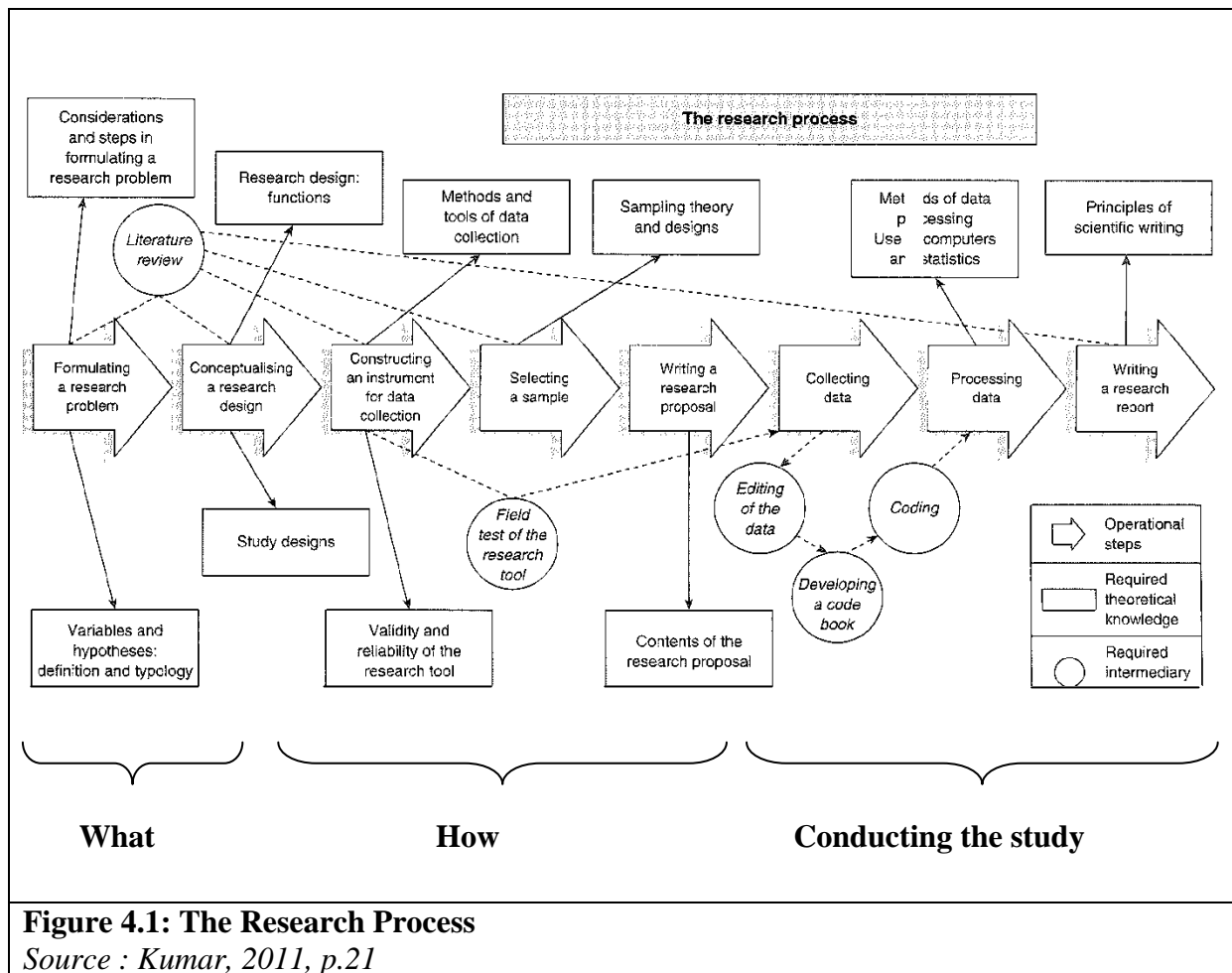
Figure 4.1: The Research Process
Source : Kumar, 2011, p.21

4.2 RESEARCH APPROACH

This research uses an inductive approach. A tentative hypothesis guided the research and theory was developed after the analysis of collected data. The inductive approach is a 'bottom-up' approach, moving from specific observations to broader generalisations or to theories (Trochim 2006). Inductive reasoning begins with specific observations and measures, detecting patterns and regularities and formulating tentative hypotheses that can be explored, finally ending up developing general conclusions or theories (Trochim, 2006).

The inductive research approach contents with a more top-down deductive approach which might begin with thinking up a *theory* about the topic of interest and then narrowing it down

into more specific *hypotheses* that may be testable with specific data, providing a *confirmation* (or not) of the original theories (Trochim, 2006). Because an in-depth understanding of an evolving phenomenon was sought, an inductive research approach was considered to offer move utility to this research. A diagrammatic representation of the difference between these two approaches can be seen in Figure 4.2.
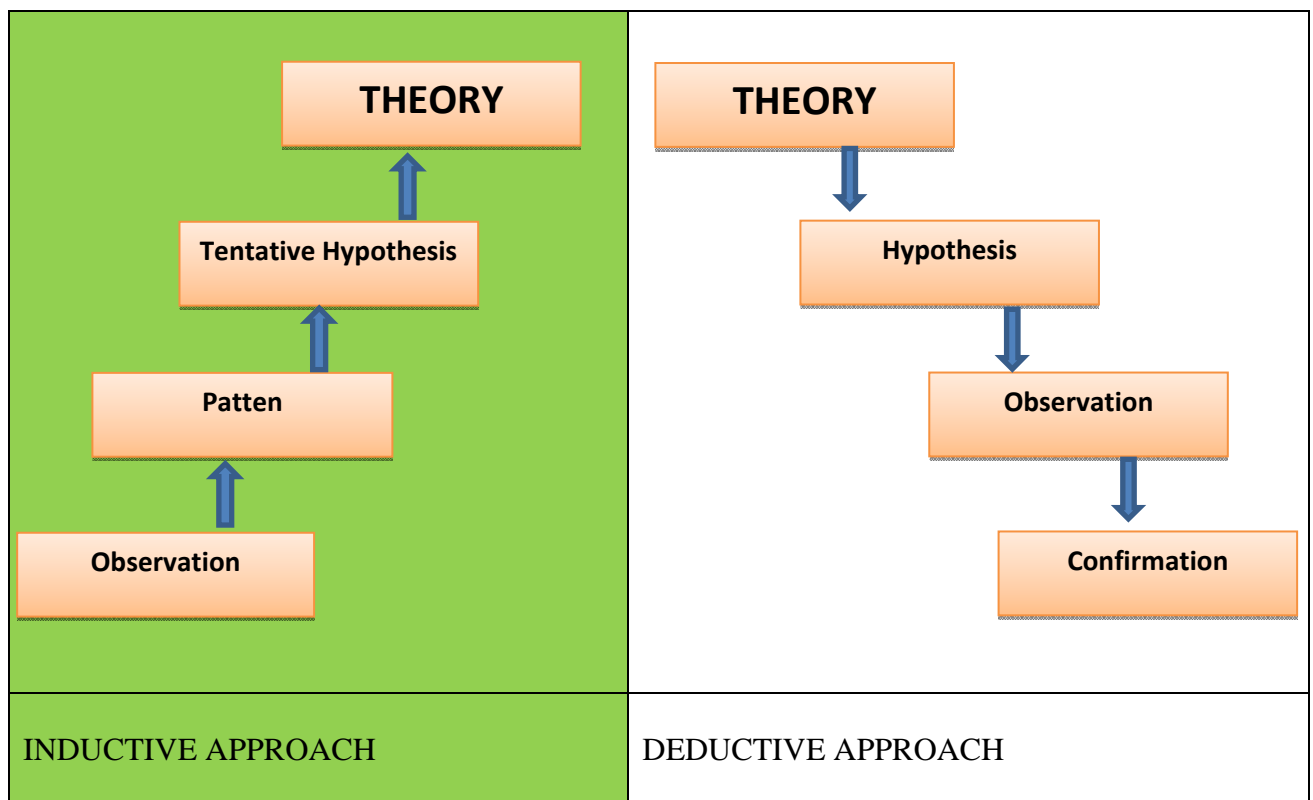
Figure 4.2: Research approaches
Source: Trochim 2006

RESEARCH PHILOSOPHY

A research philosophy is defined as a way of thinking about the development of knowledge. There are three viewpoints that can describe the research process: positivism, realism and interpretivism, as shown in Figure 4.3 (Saunders, 2003).

Figure 4.3: Research philosophy
(Shading denotes research philosophy undertaking this thesis)
Source: after Saunders 2003
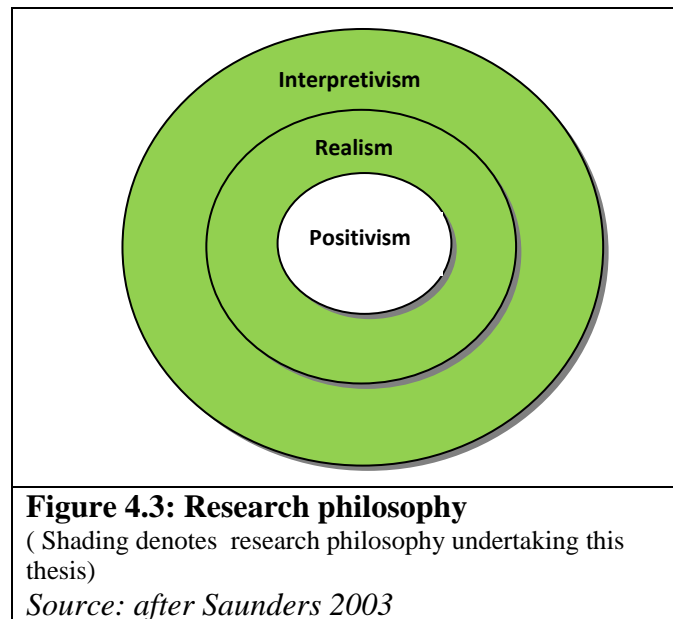
A positivistic view is when an adoption of the theoretical stand of a natural scientist has been made. It explains the "truth" of the social appearance and the results of positivistic research can be compared with laws or theoretical rules. The method is highly structured and independent from the topic of the study (Saunders, 2003).

Realism is the belief in a reality that exists and is free from human thoughts and processes at the same time as there are significant effects on people from social forces and processes. Realism shares some theoretical characteristics with positivism, for example the view of an exterior objective nature that exists in a social framework (Saunders, 2003).

Interpretivism is the opposite of positivism, and recognizes that social phenomena are too complex to define by theory 'laws' in the same way as the physical sciences. According to the literature, interpretivism does not strive for generalizability, and interpretivism accepts that there is no objective reality, only a subjective reality where it is important to understand participants' purposes, behaviours and goals (Saunders, 2003).

This thesis is based on a research philosophy that is a mixture of both interpretivism and realism. The information that was collected through this research was qualitatively analysed.

4.4 RESEARCH DESIGN

Table 4.1 shows the main difference between qualitative and quantitative methods. The following section explains the choice to use qualitative methods for this research.

TABLE 4.1: QUALITATIVE AND QUANTITATIVE RESEARCH METHODS		
	Quantitative	**Qualitative**
Validity	Objectivity	Inter-subjective
World view	World exists	World constructed
Sampling	Representative, large	Guided, small
Emphasis	Patterns, laws, generalisation	Meanings, interpretation
Researcher	Passive, separate	Active, interactive
Theory	Tested	Generated
Methods	Inflexible, rigid static	Flexible and dynamic
Source: (Berg, 2009; King & Horrocks, 2010; Kumar, 2011)		

4.4.1 QUALITATIVE RESEARCH

Qualitative research methods are widely used in the social sciences. A qualitative research approach is most suitable when human activities or behavioural patterns will be investigated. Qualitative methodology includes a process of inquiry that enables the understanding and exploration of social or human problems (Kumar, 2011). Qualitative research methodology collects 'soft data' in the form of words, sentences, phrases, pictures, et cetera, which are used to identify people's attitudes, opinions and feelings. According to Dwyer and Limb

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(2001), the choice of whether or not to use qualitative research methods for research is shaped by the dimensions of the research questions. However, the choice of method will also depend on the way in which the researcher understands social reality: the selection of qualitative research methods reflects the attitudes and responsibilities of the researcher (Dwyer & Limb, 2001).

Qualitative research is useful when evaluating the policy and attitudes involved in a particular research subject – in this case , a government policy for high-rise low-income housing. Qualitative research can answer certain important questions more efficiently and effectively than quantitative approaches in Colombo. This is particularly the case for understanding how and why certain housing outcomes were achieved, rather than just what was achieved, and also for answering important questions about relevance, unintended effects and the impact of programs (Marshall & Rossman, 2006).

The thesis evaluates the Sri Lankan Government's policies regarding high-rise high-density housing development, particularly recent policy changes, in relation to the urban low-income housing sector in Colombo city. A qualitative research approach is the most insightful method to research this and it provides the advantage of allowing for more diversity in responses as well as the capacity to adapt to new developments or issues during the research process itself. However, qualitative research can be more expensive and time-consuming than quantitative research. Therefore, well-designed and well-organised research is necessary for cost-efficient and timely results.

4.5.   RESEARCH STRATEGY: CASE STUDY METHOD

A case study is a research method popular in social science. The case study method is based on an in-depth investigation of selected cases related to the study area. Case studies may be

descriptive or explanatory and this approach provides a systematic way of looking at events, collecting data, analysing information and reporting the results (Merriam, 1998). As a result of examining a case study, the researcher may gain an in-depth understanding of why a particular instance happened as it did and what might become important to investigate at more extensively in future research.

Another suggestion is that a case study should be defined as a research strategy: an empirical inquiry that investigates a phenomenon within its real-life context (Merriam, 1998). Case study research consists of single or multiple case studies, can include quantitative evidence, relies on multiple sources of evidence and benefits from the prior development of theoretical propositions. Case studies can be based on any mix of quantitative and qualitative evidence. Single-subject research provides the statistical framework for making inferences from quantitative case-study data. Lamnek notes that: "The case study is a research approach, situated between concrete data taking techniques and methodological paradigms" (Lamnek, 2005).

A qualitative investigation of existing high-rise high-density low-income residential developments in the city of Colombo will be undertaken through analysing a detailed case developed by the government for low-income residents. The data for this case study will be collected through primary and secondary sources. This landmark example of low income high-rise residential development can be used as part of an analysis of the appropriateness of high-rise housing for low-income people in Colombo city.

The Sahaspura high-rise low-income housing project is an excellent subject for this research as it was the first high-rise low-income housing project in Sri Lanka that had more than five storeys, housing 671 families in 671 units across 14 floors. According to the 1998 Colombo Metropolitan Regional Structure Plan (CMRSP), the Sri Lankan government constructed

Sahaspura to achieve future city planning goals. It is the biggest high-rise relocation program (where highly subsidised houses were given to the poor) in Sri Lanka.

It is important to note that until the year 2000, in Colombo city the general trend in high-rise residential development built by the public sector was limited to five storeys (Deheragoda, 2007; Niriella, 2010). With 14 floors, the Sahaspura high-rise set a new standard for high-rise residential development and it has become the benchmark for high-rise low-income residential development in Colombo (Niriella, 2010). Therefore, Sahaspura has been selected as a case study to understand the application of government policy in high-rise low-income residential development in Colombo city.

Yin, (2003) states that there are three different categories of case study research: exploratory, descriptive and explanatory (illustrated in Figure 4.4). Which category to choose depends on the information needed to fulfil the purpose of the research.

Figure 4.4: Different types of case study research
Source: (Yin, 2003)
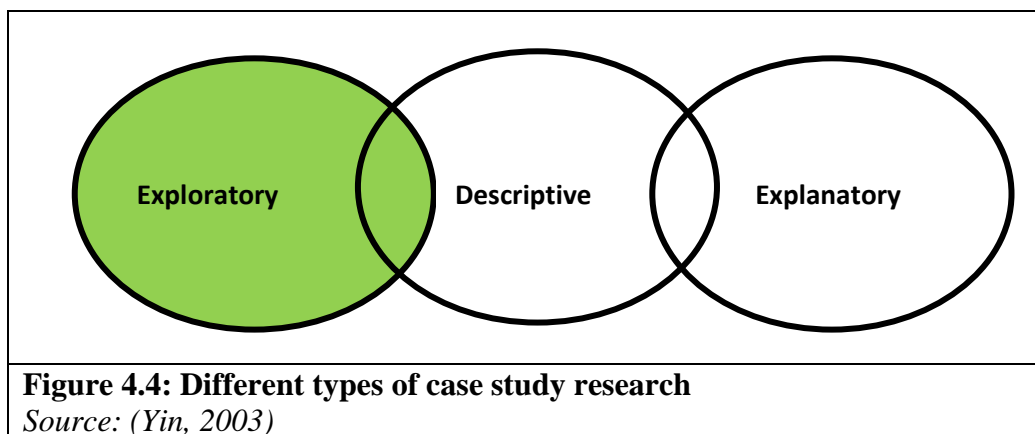
Exploratory research is used for the understanding of a phenomenon and is suitable when it is difficult to determine important characteristics and relations (Yin, 2003). To describe means that the researcher registers and documents facts. It also means identifying and mapping out a certain phenomenon. Descriptive research is appropriate when the problem is clearly

structured and the focus of linkage between cause and relations is low. When describing a phenomenon, the researcher chooses perspectives, aspects, levels, terms and concepts and also observes, registers, systemises, classifies and interprets (Berg, 2009).

To explain means that the researcher analyses causes and linkages. An explanatory approach is useful when there is a strong focus on the linkages between certain factors and the phenomena they cause (Berg, 2009). Considering the complexity of this research and the newness of high-density high-rise low income housing in Sri Lanka, an exploratory approach is selected to determine the important characteristics and relations in the case study.

4.6   DATA COLLECTION

This research uses both secondary and primary data collection methods to enhance the quality of the research. A literature review, documentary research, internet references, case study analysis, observation and key informant interviews are the main data collection strategies which have been used throughout the research (see Figure 4.5).

Primary data can be either qualitative or quantitative. Qualitative research can be data based on meanings expressed through words intended to provide insight and understanding which should be classified into categories (Saunders, 2003). A quantitative research methodology includes seeking data based on meanings deduced from numbers that results in mathematical and standardised data. Analysis of quantitative data is used in diagrams and statistics (Saunders, 2003).

Figure 4.5: Methods of data collection

Source - Berg 2009
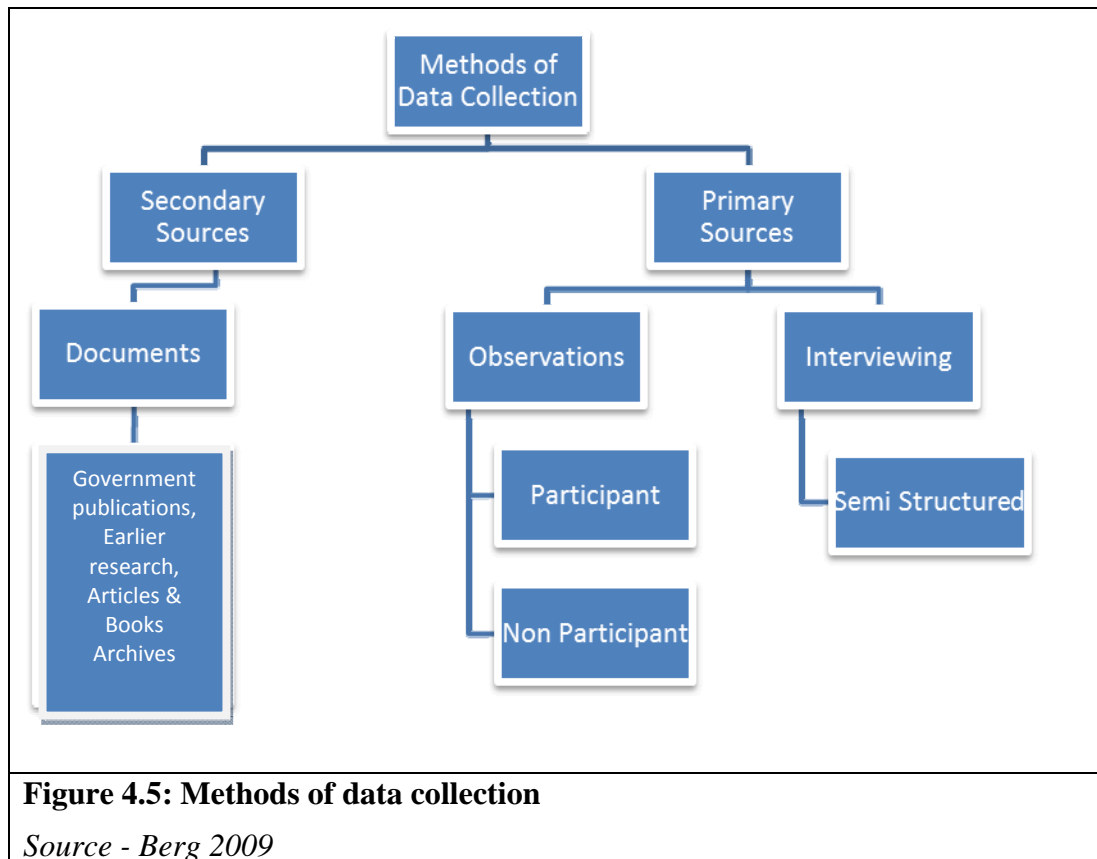
4.6.1 SECONDARY DATA

Secondary data are collected by analysing and interpreting existing secondary sources like journal articles, books, government publications, previous research and the internet. This kind of research is time-consuming as it is often a lengthy process to locate the accurate and pertinent data. However, the collected information needs to be sorted in order to obtain the required details relevant to the research objectives (Kumar, 2011).

After examining the requirements of this study, the relevant secondary data have been gathered to fulfil the research objectives. The data were collected from the following sources:

1   data collection on the concept of high-rise, high-density low-income residential development in an international context, paying special attention to Asian experiences of this concept.

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2   documentary research into the background and history of high-density, high-rise residential development in Colombo city. This step was completed using secondary data on the subject and the statutory documents, where applicable.

3   the Sri Lankan Government's census reports from previous years were used to gather data related to information pertinent to the study such as population, poverty, housing backlog, land used, land value and GDP.

4   the internet has been a primary mechanism to gather relevant local and international secondary data for this research. Data researched on the internet enables the comparative analysis of the research in international contexts.

4.6.2   PRIMARY DATA

Primary data are collected in research that is being undertaken for the first time (Kumar, 2011). Key informant interviews and observations will be the main primary data collection methods used in this research study. After collection, the data are interpreted using qualitative analysis. This is a perceptive method and provides accurate end-results. However, collecting data using primary data collection methods is a difficult and time-consuming process.

4.6.3   KEY INFORMANT INTERVIEWS

Using key informant interviews is a popular and well-established method for finding information in almost every professional area and academic field. Key informant interviews are a form of strategy in qualitative research in which attitudes, opinions or perceptions towards an issue, product, service or program are explored through a free and open discussion between an interviewee and the researcher (King & Horrocks, 2010). According to Kumar (2011): "Social, political and behavioural scientists, market research and product testing agencies, and urban and town planning experts often use this method for a variety of

situations". Berg (2009) states that with key informant interviews it is often possible to collect valuable information from a few members in the field who are particularly knowledgeable and expert in the subject area. An interview is a mutual exploration of issues that occurs without the researcher imposing his or her ideas. The major forms of interviewing technique are structured, unstructured and semi-structured (see Table 4.2). A structured interview is a standardised interview where questions are decided upon before the interview and do not change in the course of the interview. A semi-structured interview has a pre-defined list of questions to address but also has an amount of flexibility to explore some areas of interest in more depth. An unstructured interview may consist of themes or a list of points to explore. This technique is very flexible and allows the informant freedom to influence the course of the interview (Berg, 2009). Key informant interviews are used in this research to uncover in-depth knowledge to supplement the literature review, documentary research, policy analysis and observation. The interview questions are semi-structured with a number of open-ended questions regarding personal opinions, professional experiences and attitudes concerning the subject. The interview questions are attached in appendix D.

TABLE 4.2: INTERVIEW STRUCTURE CONTINUUM OF FORMALITY

Structured	Semi-Structured	Unstructured
No deviations from question order	More or less structured	Completely unstructured
Wording of each question asked exactly as written	Questions may be reordered during the interview	No set order to any questions
No adjustment of the level of language	Wording of questions flexible	No set wording to any questions

No clarifications or answering of questions about the interview	Level of language may be adjusted	Level of language may be adjusted
Formal structure	Interviewer may answer question and make clarifications	Interviewer may answer question and make clarifications
No additional questions may be added	Interviewer may add or delete probes to interview between subsequent subjects	Interviewer may add or delete probes to interview between subsequent subjects
Similar in format to a pencil and paper survey		
Source: Berg 2009		

One of the most important aspects parts of qualitative research is finding the right people and the correct number of people to interview, so selecting and contacting the key informants is an important but also challenging and time-consuming component of qualitative research. Key informant interviews are used in qualitative research because the key informants have specific knowledge and experience about a given topic, therefore the information provided by them is helpful in understanding the practical aspects of a subject area. Sometimes the information discovered during key informant interviews is not available from secondary sources (Denzin & Lincoln, 1994; Dwyer & Limb, 2001). The use of key informant interview data enriches the data available to the research by providing access to information with in-depth knowledge and/ or involvement in high rise low income housing in Sri Lanka.

In this research, twelve key informant interviews were conducted with top-ranking experts in the Sri Lankan housing sector, including representatives from the government sector, the private sector and independent professionals. All participants are senior critical decision-

makers and well-known people in the housing field and have considerable experience in low-income housing in Colombo City. The three selection criteria for key informants in this research were knowledge, experience and designation. While most of the key informants in this research met all three criteria, for some informants their designation was the main key factor for selection. An example of this was the choice to select the Minister of Housing in Sri Lanka. Housing ministers do not necessarily have outstanding knowledge of the housing field or long-term experience in housing. However, he has authority in policy-making concerning housing and he is the most powerful person in the housing sector in Sri Lanka, especially in regards to subsidised housing for low-income people. Therefore his vision, attitudes towards low-income housing and future plans have a strong influence on housing policy in the country.

In order to ensure information was balanced and to avoid bias, this research selected an equal number of government and non-government informants to participate in the research. All of the interview questions were semi-structured open-ended questions and the key informants had enough time to openly express their views without any interruption from the researcher. Additionally, the researcher was neutral and impartial when conducting the interviews and was careful to not highlight his professional background as a town planner in the government sector. A consistent effort was made to counter potential bias attending to the researcher's own background, including clearly declaring his affiliation in the thesis.

Research interviews were held in Colombo, Sri Lanka. The duration of each interview was approximately one hour and the interviews were conducted by prior appointment. When analysing the interview data, the key informants' identities were kept anonymous as much as possible. Table 4.3 contains a list of the selected key informants with their job background and the selection criteria they meet as a key informant in the research. Key informants 1 to 6

work in the government sector and key informants 7 to 12 are independent professionals or work in the private sector.

No	Designation	Organisation	Selection Criteria	Comments[3]
TABLE 4.3: LIST OF KEY INFORMANTS				
1	Minister	Ministry of Housing and Construction, Sri Lanka	Designation	The Cabinet Minister of Housing
2	Senior government officer	Urban Development, Authority, Sri Lanka	Designation, Knowledge, Experience	Chartered Architect / Town planner : Over 20 years' work experience in City Planning
3	Board member	Urban Housing Development Authority, Sri Lanka	Designation	Senior Lower – Over 20 years' work experience in Property Low and Community Work
4	Senior government officer	Real Estate Exchange (PVT) Ltd, Sri Lanka	Designation, Knowledge, Experience	Chartered Town Planner: Over 20 years' work experience in Urban Housing and specialised for Low Income Housing in Colombo
5	Senior government officer	Relocation of Underserved Settlement Project, Sri Lanka	Designation, Knowledge, Experience	Chartered Engineer: Over 20 years' work experience in Housing construction and City Planning
6	Board member	Sahaspura Low-income Housing Project, Sri Lanka	Experience	Community leader and resident of Sahaspura housing project
7	Board member	Organisation of Professional Association, Sri Lanka	Designation, Knowledge	Chartered Town Planner/ Architect: Over 20 years' work experience in City Planning and Urban Housing
8	Retired Senior government officer	National Housing Development Authority, Sri Lanka	Knowledge, Experience	Chartered Town Planner: Over 20 years' work experience in Urban Housing and former General Manager of Sahaspura housing project
9	Investor	Prime lands (PVT) Limited, Sri Lanka	Designation, Experience	Chartered Accountant : Chairman of the largest property development company in Sri Lanka
10	Senior Academic	University of Sri Jayawardanapura, Sri Lanka	Knowledge, Experience	Chartered Town planner- UN Habitat consultant and senior lecture of City Planning with over 20 years' experience
11	Board member	Non-Government Organisation (NGO)	Knowledge, Experience	Chartered Town Planner / Senior Lecture and UN Habitat Consultant with over 20 years' experience in Low Income Housing
12	Board Member	Institute of Town Planners, Sri Lanka	Designation, Knowledge, Experience	Charted Town Planner: 20 years' work experience in City Planning

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[3] Expertise, motivation for participating, potential for biases, etc.

4.6.4 OBSERVATION

Participant and non-participant observation are the two main observation methods commonly used in qualitative research work (Drury and Stott 2001). Nonparticipant observation is the most commonly used observation method, as participant observation is often difficult for people who are not directly engaged in a practical manner with the subject. However, participant observation is one of the most productive methodological approaches in sociological research (Drury and Stott 2001). In participant observation, the observer participates, attends ongoing activities and collects data through playing the role being studied. In this research, an element of participant observation was present due to the author's professional background as a chartered town planner engaged in the government housing sector in Sri Lanka. Nevertheless, the researcher was able to attend some ongoing housing projects in Colombo as an independent researcher rather than a government officer in the project.

In qualitative research projects, the expert knowledge of the researcher and the researcher's cognitive bias may have a negative effect. The researcher therefore must always be neutral and consciously balanced when collecting data through participation observation and conducting interviews with key informants (Rubin & Rubin, 2005). In this research, the researcher always attempted to avoid bias in the research by not basing findings on the researcher's personal feelings and assumptions, as well as avoiding making conclusions based on one single piece of evidence.

Photographs can also be used as evidence to ascertain the true situation in an area and can illustrate multiple ideas in just one photo. Most of the photographs used in this thesis were taken by the author during field work in Sri Lanka, with some other photos extracted from the

UDA photo archive and the internet. Survey maps, development plans, aerial photographs and other historically valued archives are other important data sources used in this research.

4.6.5 ETHICAL CONSIDERATIONS

Gaining ethics clearance is one of the main requirements in higher degree research and, as a social science research project, obtaining ethics clearance from the university was required before conducting the interviews. This section of the dissertation outlines the ethical implications of the research undertaken and the precautions that will be taken to protect the rights and well-being of the research subjects. Informed consent is an important ethical consideration in any research involving human subjects and, in this research, this included:

- a brief description of the study and its procedures;

- a full identification of the researcher's identity;

- an assurance that participation is voluntary and participants are free to withdraw at any time if they feel uncomfortable;

- an assurance of confidentiality[4];

- a description of the benefits and risks associated with participation in the study; and

- the contact details of the Bond University Ethics Officer should participants have any complaints regarding the study or the manner in which it was conducted.

Ethics clearance was obtained under the ethics clearance number RO-1265 from the Bond University Research Ethics Committee (BUREC) prior to the commencement of data collection. To interview the Sri Lankan government officers, it is necessary to obtain proper approval from the relevant ministry. A gatekeeper letter is very important in interviewing senior government officials in Sri Lanka. A senior government employer in Sri Lanka, my

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[4] The Housing Minister specifically stated that he did not request anonymity.

work organisation (the Urban Development Authority), arranged the required permissions and it has been an advantage in this research project to have had the assistance of the UDA.

The Explanatory Statement (Appendix B) clearly explains the research and code of ethics. A consent letter was provided to respondents when seeking their participation in the research and permission to use the interview findings in the final thesis. Each participant was required to sign an informed consent form prior the interview (Appendix C). The names and designations of key informants are important to the credibility of this research. Analysis is easier if records are kept about the participant, (for example, if we need to check that we have correctly interpreted their response). All interviews were recorded in their entirety (with permission from the participant) and the recordings will be securely stored in accordance with the ethics consent. Please refer to Appendices A, B. C and D for more details about the ethical clearance and other related documents.

4.7 DATA ANALYSIS

The data and information collected from the key informant interviews, case studies and other sources has been scrutinised and edited, coded and analysed using qualitative data-analysis methods (Yin, 2003). Figure 4.6 illustrates the data analysis method utilised in this research.
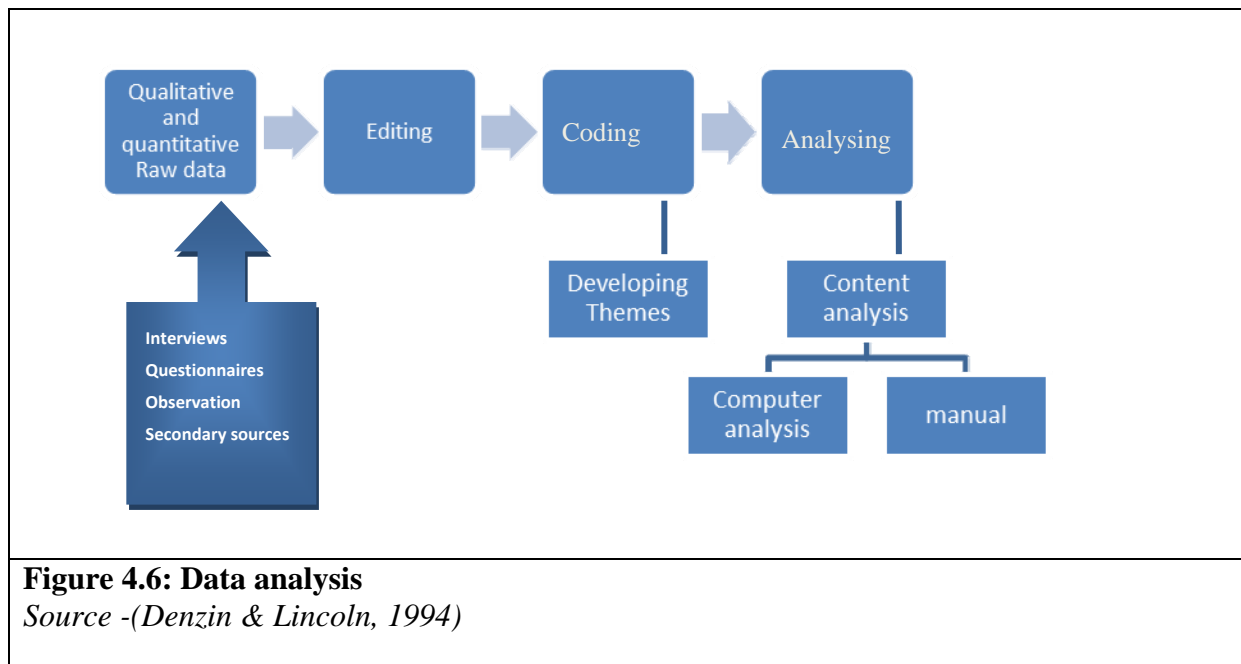
Figure 4.6: Data analysis
Source -(Denzin & Lincoln, 1994)

This study relied on theoretical propositions where the data collection is based on research questions as outlined in Chapter 1.

Figure 4.7 describes the steps of the data-analysis strategy. Accordingly, it can be divided into three stages: data reduction, data display, and conclusion (Kumar, 2011).

- *Data reduction:* Selecting, focusing, simplifying, abstracting and transforming the data. The purpose of this step is to organise the data in logical order and get a clear idea of the research.

- *Data display:* Taking the reduced data and displaying it in an organised and compressed way so that conclusions can be easily drawn.

- *Conclusion drawing/verification:* Noting regularities, patterns, explanations, possible configurations, causal flows and propositions.

Figure 4.7: Steps in data analysis
Source- Kumar 2011
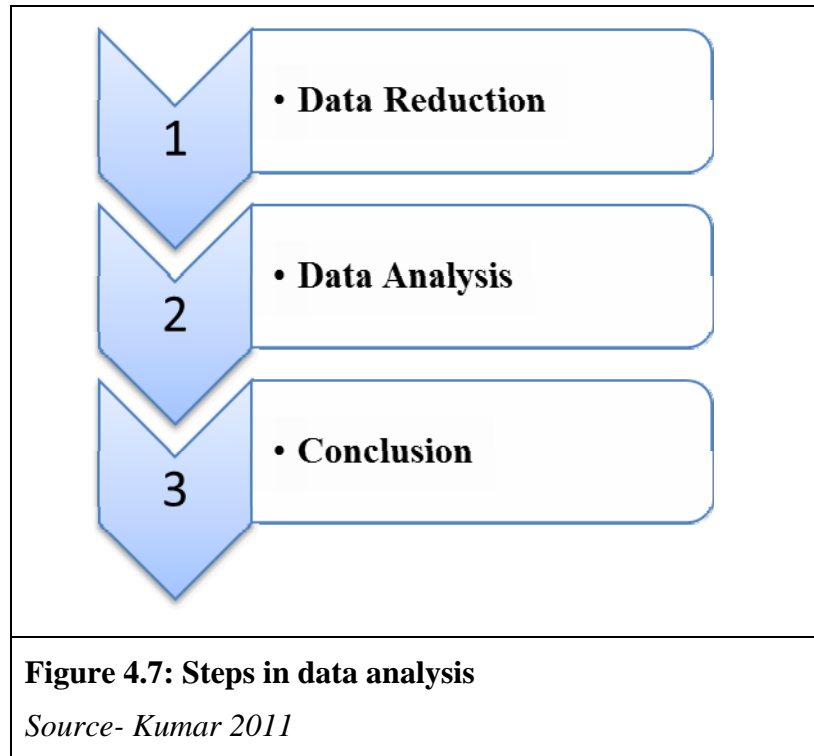
Here, the researcher uses patterns, explanations, regularities, propositions and explanations to find relationships and draw conclusions (Miles & Huberman, 2004). In the present study, the recommendations by Miles and Huberman (2004) have been followed when analysing the collected data. The analysed data is thus represented in the form of diagrams, pie charts and tables to allow for better understanding (Miles & Huberman, 2004).

4.7.1 CODING

Coding is the main method for analysing the collected data from the interviews and the literature. Coding is an interpretive data method and most coding requires the analyst to read the data and demarcate segments within it. Each segment is labeled with a 'code' – usually a

word or short phrase that suggests how the associated data segments inform the research objectives. However, some qualitative data sets are analysed without coding. A common method here is recursive abstraction, where datasets are summarised (Miles & Huberman, 2004). A frequent criticism of recursive abstraction is that the final conclusions are several times removed from some important data. Poor initial summaries will yield an inaccurate final report (Nahmias, 2009). Therefore, close attention has been paid to summarising the data as well as using coding methods for the qualitative analysis.

This research used both software and manual systems to analyse the data. Many computer programs offer greater efficiencies in editing and revising coding, which allow for work sharing, peer review and recursive examination of data. NVivo is software used for qualitative data analysis which was utilised in this research, although the research is not totally dependent on software analyses. Whole data collection and interviews were undertaken by the author, who used in-depth knowledge about the data and software to crosscheck and ensure the analysis is correct. With the 12 key informant interviews, manual coding is much more reliable and so comparisons were done manually in this research.

4.7.2 NVIVO IN QUALITATIVE RESEARCH

NVivo has been designed for qualitative researchers working with very rich text-based non-numerical or unstructured data. The NVivo software package will be used in conducting this qualitative analysis. The reason the NVivo software was chosen for this study is that it helps to manage and synthesise ideas and offers a range of tools for pursuing new understandings and theories about the data and for constructing and testing answers to research questions. NVivo also allows the researcher to recheck the manual analysis by comparing it with software analysis.

4.8   CRITERIA FOR EVALUATING RESEARCH

Evaluating qualitative research is a significant challenge for many researchers and scholars disagree as to how qualitative research can best be evaluated. While some (for example Yin 2003) find that the criteria used to evaluate quantitative research are equally applicable to evaluating qualitative research, others (for example Denzin and Lincoln 1994) suggest using a different set of criteria. For the latter, terms such as credibility, transferability, dependability and conformability replace the usual criteria of internal and external validity, reliability and objectivity (Denzin & Lincoln 2004). Credibility, transferability, dependability and conformability are mainly associated with qualitative research, and these terms collectively evaluate the 'trustworthiness' of the research (Irava, 2009).

4.8.1   VALIDITY AND RELIABILITY: VERIFICATION OF DATA

The validity and reliability of qualitative study is significant for obtaining a credible end-result. In qualitative studies, terms such as 'validity' and 'reliability' are not as easily 'proven' as in statistical research design. This is mainly because the purpose of this type of study is rooted in the subjective interpretation of an investigation of human subjects (Denzin & Lincoln 2004). This does not mean the present analysis is necessarily biased with the researchers' subjective opinions, as systematic analytical approaches have been used to induce the theories. However, research methodologies require validity, and reliability efforts have been made to increase the objectivity of this qualitative research (Kumar, 2011).

4.8.2   INTERNAL VALIDITY THROUGH TRIANGULATION

Merriam (1998) defines internal validity as dealing with the question of how one's findings match reality. It is the question about whether what is studied and found is what is really

happening, and whether what investigators are actually observing is what they think they are measuring (Merriam, 1998).

Triangulation is one strategy employed to strengthen internal validity in this research. Triangulation uses multiple investigators, multiple sources of data or multiple methods to confirm the emerging findings. This study presents multiple viewpoints on the specific phenomenon discussed. The study also provides multiple documentation from the case study to support the evidence found in the various points of view. Merriam (1998) defines external validity as being concerned with the extent to which findings of one study can be applied to other situations. External validity (or generalisation) in qualitative case study research is always questioned based upon its reliance on data from single case studies (Merriam, 1998). Traditionally, researchers hold the view that:

It is impossible to generalise from a single case study. Therefore, it is a limitation of the study or method if it only consists of one case study.

External validity can be strengthened by using standard sampling procedures.

In this study, the research plan is based on grounded theory and coding, which is in opposition to the notion of external validity, as there have been no sampling procedures applied or measured. However, there is strong support for using grounded theory as a qualitative approach because of its ability to generate general instability (Glaser & Strauss, 1967; Merriam, 1998)

4.8.3   RELIABILITY

Reliability considers the extent of the explicability of research findings. This is problematic because no one can expect to replicate human behaviour exactly. Additionally, in relation to

this study, housing and housing policy are dependent on political will and priorities in a government's political agenda.

To enable the balance between the two disciplines and to avoid researcher bias, this research has been conducted in the School of Sustainable Development at Bond University and is being supervised by a professor of Urban Planning, who will critique the integrity and balance of the study. The researcher is also aware of his bias and aims to minimise that as much as possible. The research attempts to provide a balanced viewpoint of the two disciplines and to define the interactions between the two.

4.9 REDUCING THE LIMITATIONS OF THE METHODOLOGICAL APPROACH

Any research work has limitations and barriers. These vary from project to project as well as person to person. The methodological approach used in this particular research has some limitations that place boundaries on how the approach works. The objective of this section is to understand what these limitations and weaknesses are and how they can best be addressed within the research process. Some weaknesses occur due to the adopted methodological approach. Another limitation of qualitative research is that it is often very time-consuming with associated costs that are often greater than that those incurred by its quantitative counterpart. There is greater potential with qualitative research for bias because of the reliance on the human instrument who defines the problem, does the sampling, designs the tools, collects the data, analyses it, interprets it and then writes it up (Denzin & Lincoln 1994).

Furthermore, during collection of data via interviews, respondents may say what they think researchers want to hear rather than what they honestly think, and may be inclined to paint positive scenarios of 'not so positive' situations. This introduces the respondents' biases

(Denzin & Lincoln 1994). The following strategies can be utilised to minimise the limitations of my adopted methodological approach:

- triangulating the research by using multiple and different sources, methods, and theories;

- a peer review or debriefing of the research process;

- advances in light of negative or disconfirming evidence; and

- clarifying the researcher bias and position of the study.

The limitations of this study have been reduced by triangulation of data sources, by maintaining a critical openness about the potential for researcher bias, by developing working propositions, and by directly addressing matters that might throw into question current government policy.

4.10   CONCLUSION

This chapter discussed the major research approaches in qualitative research, the specific research methods adopted to guide this particular research study and why those methods were adopted. Considering the research topic and research questions, a qualitative research approach is the most appropriate and reliable for this research. A tentative hypothesis guides the research and theory has been developed after the analysis of collected data. Therefore, an inductive research approach guided this research work and the data collection from primary sources and secondary sources according to the objective of the research. Key informant interviews are one of the main data collection methods in this study, alongside documentary policy analysis. Twelve key informant interviews were conducted with officials in various government ministries, private-sector investors and professionals who are engaged in the housing sector in Colombo city. The NVivo software package and manual coding and

analysis strategy will be utilised in conducting this qualitative study and the research is considered and evaluated in terms of its internal and external validity. Finally, the limitations of the adopted methodology were discussed.

The next chapter, Chapter 5, will discuss housing policies in detail and critically analyse nearly 100 years of Sri Lankan housing policies, including the adoption of high-rise housing policies for the urban poor in Colombo Sri Lanka.

HOUSING POLICIES IN SRI LANKA

5.1   INTRODUCTION

Housing policies are a series of legislative and administrative measures that have a bearing either directly or indirectly on the provision of housing in a particular country or region. If urban housing policy in considered in a global context, only a few countries or societies have achieved high levels of effectiveness in their urban housing policies, regardless of whether they are developed or developing countries or capitalist or socialist in their ideology (Niriella 2010; Tipple & Speak, 2009). According to the United Nations Centre for Human Settlements (UNCHS 2000)

> *Homelessness represents the most obvious and severe manifestation of the unfulfilment of the distinct human right to adequate housing. Few, if any, countries have entirely eliminated homelessness and in many nations this phenomenon is clearly increasing rather than declining.* (UNCHS 2000, cited in Tipple & Speak, 2009)

Accordingly, housing is a hot political issue in relation to development planning and policies and most countries struggle with the supply of habitable housing for low-income people. Housing policy is usually analysed in economic terms. In theory, markets lead to efficient allocation of housing through a complex process of matching supply and demand. Housing construction is both an important economic activity and a critical element in the social upliftment of poor people (Senanayake 1995). The supply of affordable and sustainable housing has been assigned a prominent place in the list of priorities drawn up by various governments at different periods of time.

Housing policies in Sri Lanka can be divided into two major categories: urban housing policies and rural housing policies. This research is interested in the urban housing policies.

The history of Sri Lankan urban housing policy can be divided into three stages: prior to independence from British rule (before 1948); after political independence and during the civil war (1948–2008) and the contemporary situation after 30 years of civil war (2009 onwards) (Niriella 2010). This chapter evaluates the urban housing policies and related housing programs introduced by the various Sri Lankan governments over the last 100 years.

As housing policy is a government document, it is freely available and housing professionals have had varied opinions about Sri Lanka's past and present housing policies. Deheragoda (2004) strongly criticises Sri Lankan housing policies:

> *Sri Lanka still does not possess national policies for many sectors, including a shelter policy. Often, the current housing and shelter development strategies are not compatible with the urban, regional and environmental laws and requirements. The shelter strategies of Sri Lanka are basically determined by individual political interests rather than the development need of the country. Thus they are inconsistent, often contradictory, and are handled on a 'case-by-case' basis with no transparency and integrity* (Deheragoda 2004).

Deheragoda (2004) further notes that: htytryrsy

> *In the absence of a policy construct, the common practice in Sri Lanka is the introduction of new concepts, 'plans and policies' by each new government. Also, the emphasis given to certain aspects of housing, i.e., urban, rural, plantation, etc. are tending to change from one to another minister, even within the tenure of the same government* (Deheragoda 2004).

While all Sri Lankan governments over the last 100 years have publicly stated that they considered housing as one of the most important methods of reaching out to every corner of the country, political manoeuvring, a lack of vision and poor policy development and planning has led to the discontinuation of some key programs. This situation has resulted in the duplication of projects, the wastage of resources and the reluctance of investors to invest in the housing sector (Niriella 2005).

The most significant attempt to develop an effective high-rise housing policy for urban areas, specifically Colombo, was made by President Chandrica Bandaranayake in 1996, with the appointment of a Presidential Task Force on Housing and Urban Development (PTFHUD). Until this stage, housing policy was not considered a separate issue to urban development. The PTFHUD covered five major areas: urban development; water and sanitation; environment and sustainable development; human settlement development; and physical planning (STP & REEL 1999).

In the post-colonial era, successive governments have applied various strategies and policy options to address the issues related to Sri Lanka's housing problem. However, the housing programs and policies developed were limited by the country's economic and security situation. Welfare work, such as the construction of housing for low-income groups, was very limited and stopped altogether in 1983 due to the economic recession created by the civil war. Between 1983 and 2009, governments prioritised national security over welfare work (Niriella 2010). However, after the end of the civil war in 2009, the government returned its attention to the development of Sri Lanka and housing construction once again came into public focus. The government's 2009 housing policy had two main aims. The first priority was rebuilding houses for certain areas in the north and east of the country; the second priority was the relocation of under-served settlements in Colombo city. The housing programs in the north and east were required due to humanitarian issues caused by the end of civil war. The Colombo shanty relocation program, however, was motivated by an economic imperative rather than lifting the living standards of shanty dwellers, as part of the program's aim was to reclaim prime lands that were being occupied by slums and shanties (Wikramasinghe 2011).

5.2 THE PRE-INDEPENDENCE BRITISH COLONIAL PERIOD (BEFORE 1948)

Britain ruled Sri Lanka for nearly 130 years (between 1818 and 1948) and the Sri Lankan legislative and administrative systems were dominated by British rules and legislation. During their occupation, the British focused on the improvement of town facilities and sanitation rather than on micro-level housing development. Only one government housing project was completed during the British colonial period: housing for senior
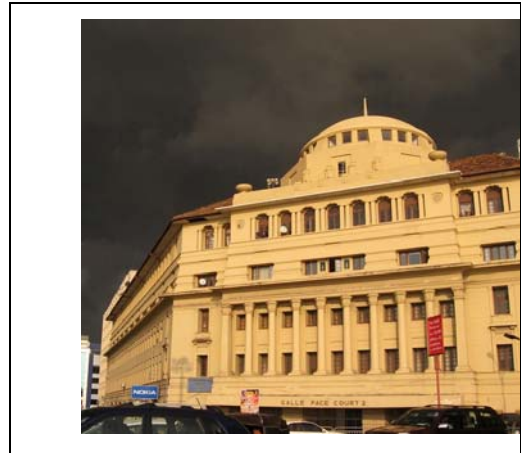
Figure 5.1–British government servant quarters
Source – UDA photo archive

government employees and military persons. Figure 5.1 shows a current photograph of the famous government staff quarters which were constructed in the 1890s. With the aim of improving town facilities, the British enacted the Sanitation Ordinance (1882) which sought to improve sanitation in the country and the living conditions of the people in urban areas. The ordinance ruled that the British government was to regulate housing development in Colombo city, including shanty improvement in the inner city. During this period, local authorities had the power to intervene in building and construction developments and the following ordinances were enacted for housing developments and improvement of the towns (Niridila 2008):

1. Municipal Council Ordinance (1865)

2. Sanitary Ordinance (1882)

3. Housing and Town Improvement Ordinance (1915)

4. Urban Council Ordinance (1939)

5. Town Council Ordinance (1946)

6. Town and Country Planning Ordinance (1946)

Developing these Ordinances and Acts led to the establishment of an advisory board which was responsible for advising the local authorities on the execution of housing schemes and determining to whom houses could be let. Under these ordinances, the local authorities also held the power to initiate a housing extension fund (Samaratunga 2008).

Before World War II, most of the housing activity in Sri Lanka happened in the private sector. During this period there was no central public authority vested with the regulation and control of housing (Dayaratne & Kellett 2008). However, the situation during World War II created conditions which gave rise to the gradual state intervention and control of the housing sector. To understand the changes in Sri Lankan housing policies, it is useful to examine the evolution of housing legislation and how the earlier legislation influenced existing private sector housing policy.

In 1942, it became evident there was a scarcity of housing in urban areas (Senanayake 1995). The government anticipated further deterioration in the housing situation, and introduced legislation designed to prevent the exploitation of tenants by landlords exploiting the wartime housing scarcity. The Rent Restriction Act (RRA) of 1942 forced rent to remain at the levels prevalent at the time. The main developments in housing and urban policies have taken place since independence in 1948 (Senanayake 1995).

5.3 THE ORIGIN AND EVOLUTION OF THE URBAN HOUSING POLICY (1948 TO 1969)

After gaining political independence, the Sri Lankan government directly intervened in the housing sector. In 1949 the Housing Loan Act was enacted and the Housing Loans Board (HLB) was established in order to promote private sector involvement in housing. The objective of the Housing Loans Act of 1949 was to promote private sector investment in

Figure 5.2: Bambaiapitiya flats
Source – UDA photo archive

housing for the middle and working class. Meanwhile, the government also gave grants to local authorities to set up housing schemes for the lower and middle income groups in urban areas (Niriella 2010). In 1953, the Department of National Housing was created to provide housing through government delivery mechanisms. The National Housing Fund was established in 1954 to provide housing loans to middle-income residents. During the 1950s and 1960s, the Department of National Housing oversaw many urban housing schemes. Government institutions, such as the Colombo Municipal Council, the Public Works Department and the Department of National Housing, were responsible for these efforts. The State Engineering Corporation (SEC) joined this group in the mid-1960s, and was responsible for innovative design-build projects for lower and middle income groups. During this period, the government mostly provided high-cost, high-quality houses; effectively middle-class housing in the city for public servants. The noteworthy projects were the housing complexes at Kiribathgoda Housing Project, Enderamulla Housing Project, Bambaiapitiya Flats and Anderson Flats (Niriella 2010). Figures 5.2 shows an example of a middle-income housing project that was implemented by the government for government servants in 1960s, Bambaiapitiya Flats.

In this period a new building concept was introduced in Colombo - multi-storied housing with fewer than five storeys. Due to lack of experience designing and building multi-storied housing, these buildings were considered only marginally better than previous accommodation and residents were reportedly unhappy (Senanayake 1995).

5.4 SOCIALIST HOUSING POLICIES (1970-1976)

The 1970 General Elections placed in power a coalition government that was led by the world's first woman prime minister, Sirimava Bandaranayakee (1970-76). The Housing Minister was Pieter Kenamon, a member of the Sri Lanka Communist Party (CP). The leftist orientation of the Housing Minister clearly influenced the government's shelter policy, as he enforced radical social legislation on ownership of houses with an

Figure 5.3: Slave Island flats
Source: UDA photo archive

emphasis on increasing welfare housing (Senanayake 1995). Expanding public sector housing activities was encouraged by the introduction of two new programs: the direct construction program and the Aided Self-Help (Mohit, et al.) program.

The new government created a ministry that was responsible for housing. This ministry pursued the nationalisation of urban management agencies and adopted a policy of planning for the abolition of under-development (Horen, 2002;Niriella 2010). The government hoped to use housing policy to increase housing output by the construction of housing by the government directly as well as encouraging private sector construction. Figure 5.3 demonstrates the existing condition of one housing project which was constructed in Colombo for the urban poor during this period.

The first legislation related to high-rise developments in Sri Lanka was the Condominium Property Act No. 12 of 1970, which reflected the housing policies of the government. The government was very concerned about the high number of households who were paying rent in high-rise buildings and wanted to make them owners of their apartments.

As well as encouraging renters to become owners through the new legislation, the government attempted to restrict private ownership. The Ceiling of House Property Law (1973) sought to limit the number of houses that could be owned by a member of a family or an individual (Samaratunga 2001). The Ceiling of House Property Law was one of the most radical policy decisions made by the coalition government, and demonstrates the clear influence of socialist political parties. It was initially viewed as a positive and 'pro-poor' program, however the end result was the decline of private sector investment in housing supply. When Bandaranayakee's government lost power in 1976, the policy was withdrawn (Samaratunga 2009).

Another important piece of legislation that was enacted that was almost parallel to the Apartment Ownership Law of 1973 was the Common Amenities Board Law No. 10 of 1973 which required the establishment of the Common Amenities Board. The Common Amenities Board was empowered with responsibility to control, manage, maintain and administer the common amenities and common elements of residential and non-residential units of condominium properties (Samaratunga 2001).

There were three main components of the government's program: the Aided Self-Help Housing; Model Villages; and Fisheries Housing. The Aided Self-Help program (Mohit, et al.) was another creative housing program that was specifically targeted at middle-class people. The ASH was introduced in 1972 and stated that the government would meet the cost of the land, building materials and certain necessary services required for a low-cost house

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while the buyer provided the labour. An interest-free 20- to 25-year loan covered the cost of building materials, while a normal ground rent was charged for the land. Model Villages and Fisheries Housing were intended almost exclusively for the rural poor. This approach enabled the government to effect considerable reductions in the cost of low-income housing units and spread the benefits of public sector investment over a larger number of beneficiaries. More importantly, these programs contributed to community participation and consequently to community development (Wikrama 2005).

5.5 HOUSING POLICY (1977-1983)

The 1970–1976 socialist political strategies were no longer popular in Sri Lanka and many people had become frustrated with the radical decisions made by Bandaranayakee's government. The 1977 election was dominated by the United National Party, who won with a 5/6 majority (Mendis 1995). The key election promises made by the new government were economic reform, social welfare and housing and, as promised, open economic policy was introduced in 1978. The government was also concerned about the provision of houses to the lower and middle-income groups in urban and rural areas.

Ranasinha Pramadasa was the Prime Minister and Housing Minister of the new government during this period. He adopted several outstanding housing policies and projects and undertook significant institutional reform while he was in power. The popularity and success of the welfare policies implemented in this time paved the way for his election as President of Sri Lanka in 1989 (Senanayake 1995). During this period, housing policy was not developed in isolation - it took place within the context of overall city development (Ganepola 2004). To achieve the target set by the government, the Urban Development Authority (UDA) and the National Housing Development Authority (NHDA) were established in 1978 and 1979 respectively. The programs implemented by the government during its 17 years of

power were the Hundred Thousand Houses Program (1978-1983), the Million Houses Program (1984-1989) and the 1.5 Million Houses Program (1989-1994). Ranasinghe Premadasa understood that problems with housing are a global issue and successfully proposed to the United Nations General Assembly in 1980 that the year 1987 be declared the 'International Year of Shelter for the Homeless' (NHDA 1990,)

5.5.1 THE HUNDRED THOUSAND HOUSES PROGRAM (1977–1983)

The Hundred Thousand Houses Program was the first initiative of the UNP Government. The newly established National Housing Development Authority (NHDA) led the program. 50,000 houses were built in rural areas through the aided self-help method. Another 30,000 houses (including high-rises for the middle class) were built in urban areas through direct construction by

Figure 5.4: Maligawatha flats
Source: NHDA
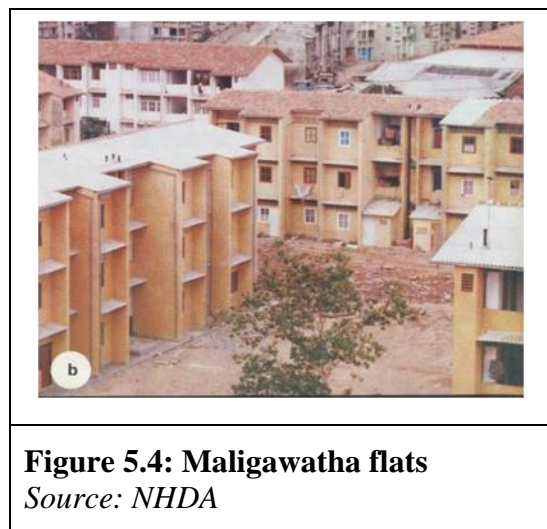
the private sector. The remaining houses were targeted at the urban poor in Colombo through a slum and shanty upgrading component headed by the Urban Development Authority (UDA). Figure 5.4 shows one of the biggest low-income housing projects that was implemented by the NHDA during the 1980s, Maligawatha Flats. Following the success of the Hundred Thousand Houses Program, the government introduced the One Million Houses Program, hoping the new expanded program would be even more successful than the previous one as it could draw from the experience gained in the development and construction of the previous project (NHDA 1984).

5.6 ONE MILLION HOUSES PROGRAM – "HOUSING FOR ALL" (1984-1989)

In 1984, the Government initiated the Million Houses Program (MHP). The National Housing Development Authority (NHDA) was in charge of the massive nationwide program. The program consisted of six sub-programs covering rural and urban areas, the private sector, plantation housing and major resettlement projects (NHDA 1984). After the early success of the first rural housing sub-program in 1984, the urban sub-program, consisting of about 300 housing projects in 51 local authority areas, was launched in 1985.

The MHP was notable because all the procedural mechanisms were completely institutionalised by the government of Sri Lanka through a national policy. The national policy encouraged the local governments, community organisations and the beneficiary groups to make decisions regarding the housing development at their respective levels (NHDA 1984). A main feature of the MHP was the minimum intervention and maximum support provided by the government and maximum involvement of the builder families (NHDA, 1984). The Urban Development Authority (UDA), meanwhile, carried out an urban slum and shanty upgrading program.

The MHP was an important initiative because it was a community-centred, participatory housing program administered by local authorities and supported by national institutions As the MHP resonated deeply with the prevailing World Bank and UN-Habitat ideology of 'enabling' growth and markets, it is often referred to as a 'best practice' method that should be to be emulated by other countries (Wickrema 2005). At a seminar organised by the Professional Association of Sri Lanka (OPSSL) which was held in Colombo in 1990, President of Sri Lanka Pramadasa said about the MHP:

> *The role of the state is as a supporter, guide and monitor of poor communities. All*
> *deciding and doing is done by the poor communities themselves. The poor family-the*

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poor communities are at the very centre of their own self-development process. The poor are the subjects. And government supports their initiative and intervenes only in matters and areas where they cannot solve problems on their own. (NHDA, 1990)

The MHP was made up of six sub-programs, including two that were implemented by the National Housing Development Authority (NHDA): the Urban Housing Sub-Program (UHSP) and the Rural Housing Sub-Program (RHSP). The remaining four sub-programs were implemented by other institutions: the Private Sector (Formal) Housing Sub-Program (PSFHSP); the Private Sector (Informal) Housing Sub-Program (PIHSP); the Plantation Housing Sub-Program (PHSP); and the Mahaweli Housing Sub-Program (MHSP) (NHDA 1990,). Funding for the MHP was generated through the national budget, foreign grants and the income from the Housing Lottery.

5.7 THE 1.5 MILLION HOUSES PROGRAM (1990-1995)

After the success of the One Million Houses program, the government introduced the 1.5 Million Houses Program in 1990. However, there has been much discussion about the actual number of houses which were constructed under the One Million Houses Program. Regardless of exactly how many houses were actually built, a significant number of houses were constructed under that program. The approach of the 1.5 Million Houses Program was slightly different from the One Million Houses program as it addressed housing issues across all levels of society. There were eight sub-programs (NHDA 1990): the Urban Housing Sub-Program (UHSP); the Rural Housing Sub-Program (RHSP); the Disaster Housing Sub-Program (DHSP); the Provincial Council Housing Sub-Program (PCHSP); the Mahaweli Housing Sub-Program (MHSP) (MSP); the Plantation Housing Sub-Program (PHSP); the Employee Housing Sub-Program (EHSP); and the Individual Family Housing (NHDA 1990,).

Between 1978 and 1993, the UNP Government invested many million rupees on housing programs in the country. The main funding mechanisms for these programs were treasury grants, foreign aid and income from the Housing Lottery (the Sevana Lottery), which was run by the Ministry of Housing. The Housing Lottery paid approximately 400 to 500 million rupees per annum to the Sevana Fund, which provided direct assistance to low-income households (Niriella 2010).

5.8   COMPACT CITY DEVELOPMENT (1994-2005)

In 1994 the People's Alliance (PA) Government won power after 17 years of domination by the United National Party. Under the new government, housing policies took a new direction and institutional reform and professional involvement significantly improved. The government reformulated housing policies and created legal and institutional conditions more favourable for private and government sector involvement in housing development. The major housing policies in this period were the provision of more houses in urban areas and a qualitative improvement in rural/estate houses. The main strategies used by the government to meet these goals were (Niriella 2010):

- the government changing its role from being the direct provider to a facilitator;

- facilitating investment through joint ventures;

- promoting cost-effective construction methods;

- assisting lending institutions to improve their capital bases;

- designing and constructing houses for specific socioeconomic groups;

- providing concessionary finance to low-income families;

- encouraging private developers to provide houses for the urban middle class; and

- Providing more loan facilities to government employees through financial institutions.

Institutional reform and professional involvement are essential to developing proper policy frameworks in housing. The People Alliance Government expended much effort and funding on reforming the policy framework and preparing long-term sustainable development plans. In the Six-Year Development Plan (1999-2005), major thrust areas and strategies for housing sector development were identified (Karunaratne 2002). They were:

- the adoption of a settlement development policy where future housing development was to be undertaken according to strict guidelines set by a settlement development plan;

- the provision of adequate infrastructure services in all new settlements;

- granting incentives to private sector developers for investing in housing development;

- supporting financial institutions to increase their home-lending portfolios; and

- providing assistance to socially and economically disadvantaged groups in acquiring housing or improving their dwellings.

National strategies for achieving the goals of the housing and construction sector were also developed. These were the redevelopment of prime urban lands for residential-cum-commercial purposes, fiscal incentives to encourage private sector developers to invest in small- to medium-scale housing developments and housing assistance programs that were targeted at socially and economical disadvantaged groups (PTFHUD 1998).

5.8.1 THE SUSTAINABLE TOWNSHIP PROGRAM (STP) AND REAL ESTATE EXCHANGE (PVT) LIMITED (STP & REEL)

The Presidential Task Force on Housing and Urban Development was appointed in 1998 to draw up a macro-policy framework and an action program for both the short and long-term physical development of Sri Lanka, with a view to improving the quality of life of its inhabitants and meeting the aspiration of being a modern 21st Century city (STP & REEL 1999).

Figure 5.5: The Sahaspura Housing Project

Sources – Real Estate Exchange Limited

The task force made a recommendation to the government of Sri Lanka and the Ministry of Urban Development, Construction and Public Utilities that a new company named Real Estate Exchange (Pvt) Limited should be established. This company is fully owned by government and its main shareholders are the Urban Development Authority (UDA), the National Housing Development Authority (NHDA), the Sri Lanka Land Reclamation and Development Corporation (SLLR&DC) and the Colombo Municipal Council (CMC). The motto of REEL is simple: "Homes for people and lands for the development". The operational arm of REEL is the Sustainable Township Program (STP), which was also established in 1998. It has been working in the city of Colombo by promoting high-density housing within a broad urban planning and development framework. This program aims to re-house those families who are encumbered with no titles on the valuable lands within the city of Colombo in modern compact townships, and release those lands for urban redevelopment (PTFHUD 1998).

The main functions of REEL are to issue securities against prime lands in Colombo and to create a secondary housing market and secondary mortgage instruments. REEL also promotes private-public sector partnership in real estate and urban renewal and development. REEL offers a low-cost, market-based solution for re-housing poor householders in Colombo and offers incentives to investors to participate in mortgage and financing, housing and infrastructure conditions and urban renewal and development. It is expected to change the outdated laws pertaining to housing and real estate development when and where necessary (Weerawansa 2011). The STP is discussed further in Chapter 6 in reference to its role in the Sahaspura high-rise development.

5.8.2 THE REEL PROCESS

A field survey conducted by Real Estate Exchange (Pvt) Limited (STP & REEL) in 1999 revealed that in the city of Colombo there were 1,506 poorly served settlements which contained a total of approximately 66,000 urban low-income householders. These 66,000 householders occupied nearly 300 hectares of land area (STP, 1998). About 70 per cent of these under-utilised land parcels existed in strategic locations where land value is comparatively high. Most of the land was state-owned but state entities could not realise the value of their lands due to heavy encumbrances. The clearance of encumbrances and creation of small-holdings can greatly impact urban development in Colombo and it was hoped that vacating these lands would play a key role in changing Colombo's land use as planned by the Colombo Development Plan and the Colombo Metropolitan Regional Structure Plan (CMRSP) (K Deheragoda, 2004).

REEL proposed to vacate 70 per cent of the encumbered lands and dispose of them in a public market for alternative uses. The income realised through this disposal would be allocated for the construction of high-density housing in the balance lands with the houses

constructed through the building industry for this program given free to the affected households, respective of their previous ownership status. It is a house-to-house exchange process. The benefits of this plan work two ways: the beneficiary family can enjoy a brand-new standard apartment while the STP is able to provide prime lands for guided urban development, thus adding standard houses to the national housing stock without cost to the state government. The effect of employment generation though the building industry is significant and its contribution to the productivity of the city labor force is remarkable. This program was a market-based, self-financed property development strategy rather than that of a state-sponsored, aid-led, conventional strategy (Samaratunga, 2011).

However land sharing is not unique to the STP and similar approaches have been used in slum-upgrading programs in other countries. Bangkok and Phnom Penh (Cambodia) are the best examples of programs similar to the STP (Rabe, 2010). During the 1970s and 1980s, Bangkok used the land exchange approach to successfully upgrade shanties. Additionally, in 2003 Cambodian authorities launched four pilot slum-upgrading projects in Phnom Penh, the capital city of Cambodia, also using the technique of land exchange. The general idea of land exchange is to attract private development on lands occupied by slum dwellers and provide better housing through cross-subsidies from commercial development (Rabe, 2010).

5.9 TSUNAMI HOUSING

The tsunami of 26 December 2004 was the largest natural disaster ever experienced in Sri Lanka and nearly 60,000 Sri Lankans died. The area most affected when the tsunami struck was the relatively thin but long coastal region stretching over 1,000 kilometres, or two-thirds of the country's coastline. The damage stretched from Jaffna in the north down the

Figure 5.6: Tsunami housing
Sources: UDA Archive

entire eastern and southern coast, and covered the west coast as far north of Colombo as Chilaw. About 88,500 houses were damaged, of which more than 50,000 were completely destroyed. In an effort to overcome various difficulties and issues concerning the reconstruction of houses and to address the needs of the tsunami-affected masses, the government revised the housing policy and established a Reconstruction and Development Agency (RADA). Building regulations were also strengthened and costal development was highly restricted during the reconstruction period (2005-2009). Later on, that regulation was abolished due to the economic value of the coastal belt. Under the Reconstruction and Development Agency (RADA) nearly 50,000 houses were built within a four-year period with local and international support (Samaratunga 2008).

5.10 THE 'MAHINDA CHINTHANA' PROGRAM (2005-2010)

The 2005 election was won by the same ruling party which had held power since 1994 and a new president, Mahinda Rajapaksa, was elected. His election manifesto 'Mahinda Chinthanaya' categorically stated that "Every family in Sri Lanka should own a house" (UPFA 2005). The Jana Sevana housing program was in line

Figure 5.7: Dematagoda Relocation Flats
Sources – UDA Archive

with the 'Mahinda Chinthana' vision, under the supervision of President Mubinda Rajapaksa. Several sub-programs have been implemented under this project, and under one sub-program, 1,000 selected families received a 500,000-rupee loan to construct their houses and another 1,000 low-income families were granted housing loans up to a maximum 100,000 rupees (Somarathne 2006). Additionally, the "Diriya Piyasa" housing program, implemented by the Sri Lanka Samurdhi Authority (SLSA) built 5,000 houses in 2005, providing a last–ditch solution to the acute shelter problem of low-income families (Somarathne 2006).

There were several government institutions engaged in facilitating the development of groups targeted for housing support. The National Housing Development Authority (NHDA) was the primary public sector institution concerned with implementing housing programs. The NHDA had introduced several housing programs especially for the targeted low-income households. Under the various housing development programs, the NHDA completed 46,021 housing units. The Real Estate Exchange (PVT) Ltd. (STP & REEL) is also planned to improve the living standards of the approximately 66,000 shanty dwellers in urban centres by providing them with better housing and other infrastructure and facilities over a 10 year

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period (Somarathne 2006). The UDA has undertaken the relocation of dwellers in unauthorised slums and shanties which are located in the project areas which have been identified as essential for city development. Figure 5.7 shows one relocation program which was implemented by the UDA in 2007, the Dematagoda Relocation Flats.

Under President Mahinda Rajapaksa's long-term housing development policy, as outlined in the Ten-Year Vision and the "Jana Sevana" One Million Houses Program, the Ten-Year Horizon Development Framework was issued in November 2006. This is a broad policy framework consistent with the "Mahinda Chinthana" Program, and it envisages a plan to meet a large part of the growing demand for houses in Sri Lanka (Central Bnak 2001 - 2009). The policy aims to ensure the planned human settlements take into consideration population density, land suitability and environmental sustainability. The housing policy also consists of the adoption of the vertical development approaches in high and medium density areas, implementation of participatory approaches wherever possible, developing the housing finance market with primary and secondary mortgage financing facilities and providing government assistance for needy groups (Central Bank 2001 - 2009).

The Arunodaya Urban Poor Housing Program was another low-income housing project implemented by the Rajapaksa government. The Ministry of Urban Development and Sacred Area Development ran it. The Ministry of Urban Development was responsible for slum and shanty relocation with the aim of implementing the present government's policy 'Mahinda Chinthanaya' with sustainable urban development. This program was funded without allocations from the Consolidated Fund of the Government harnessed through regulatory provisions made under the UDA law. Lack of funds is the main constraint in this kind of subsidised affordable housing program. However, this program could create an avenue for revenue and then obtain sufficient funds without any difficulty, using as a main funding

source a service charge of 1% levied as the estimated cost of construction of buildings exceeding 5,000 square feet in floor area for the issue of Development Permit. However, the program was carried out solely based on initiatives and drives of organised slum and shanty dwellers and local level leadership with the specific initiatives, drives and practices of shanty and slum dwellers to be accommodated in a clear framework methodology (Samaratunga 2009).

The involvement of slum and shanties communities in the planning and development of urban low-income housing increased in this period. The Urban Housing Development Authority (UHDA) was established in 2009 for dealing with urban housing issues. However, although the new authority was developed with good intentions it did not succeed as expected, and at present the UHDA is a redundant organisation attached to the Ministry of Housing.

5.11   2010 ONWARD - RELOCATION OF THE UNDER-SERVED SETTLEMENT PROGRAM

The civil war in Sri Lanka ended in 2009. In 2010, President Mahinda Rajapaksa won another extension of his presidency with a huge majority. As a response to the end of 30 years of civil unrest, the government's priorities and political agendas have been changed and have shifted from military and defence to a focus on the economic situation and overall well-being of the country. The 30-year civil war resulted in huge economic damage to Colombo as the commercial capital of the country and since its end the government has made the economic development of the country a priority. The building industry was totally paralysed during the civil war, which greatly discouraged the construction of high-rise low-income projects in the city, as high-rise buildings were easy targets for terrorists (Central Bank 2010). A peaceful environment and political stability have provided the right environment for radical policy decisions, especially in regards to housing. The political slogan of the Rajapaksa

government is "The miracle of South Asia" (UPFA 2011). The gateway of that miracle is Colombo port, but the removal of the huge number of slums and shanties that are located in that area are one of the main challenges to the government achieving their goals. Historically, most of Colombo's under-served settlements have encroached on government-owned prime lands in the city, providing another barrier to city expansion and discouraging foreign and local investment into the city. Considering all of these factors, the government decided to take immediate action in re-housing under-served settlements in Colombo. According to the government city planning policies and master plan guidance, there was no space in the under-served settlements where on-site upgrading could be completed, meaning the only available option was relocation. Under the relocation process the government had two options: to relocate the slum outside the city or relocate within the city limits (UDA 2011). Previous experiences with slum relocation have shown that moving a slum far away from its original location can have a harmful effect on low-income people and therefore affect the popularity of the government.. Accordingly, the government decided to relocate within the city boundary in close proximity to their existing location. The only way to do this was to refocus on the compact city concept (figure 5.8) which had been first introduced in 2000.

The relocation of under-served settlement project, also called the 66,000 Low-Income Housing Project, was the main program for addressing the issue of under-served settlements in Colombo. Considering the priority and urgency of the outcome, this project is supervised by the president Mihinda Rajapaksa and all logistic, planning and implementation work has been coordinating by the Urban Development Authority as a top priority project (Wickramasinghe, 2011).

Figure 5.8: Proposed High-Rise Low-Income Housing under the Relocation Program
Sources: UDA Archive

Land exchanges and land sharing were the main funding mechanisms of this re-housing program and more than 300 hectares were identified as suitable under this process. The government expected to release two-thirds of this land (approximately 200 hectares) for sale on the open market to provide funding for the re-housing project.

The initial capital for the project was generated by issuing debentures in the open market and 8.2 billion rupees were received within four days of opening the initial public offering on 24 September 2010 (UDA 2011). The debentures will also be listed on the Colombo Stock Exchange (CSE). The 66,000 re-housing project is two-way process as is demonstrated in its slogan "Houses for People and Land for Investment". Unlike previous government initiatives, this is not solely a housing or shanty upgrading project - housing is amalgamated with city development with an ultimate objective of overall city development (UDA 2010). However, the relocation of low-income people in high-rises is a difficult challenge for city planners and the relocation is not expected to be a smooth process. One issue in previous global experiences of relocation has been forced evacuation, which often involves protests and violence (Niriella, 2010). The main advantage of this program is that low-income people receive free habitable housing within the city limits with legal tenement and move voluntarily instead of being evacuated or relocated far away from the city.

The total estimated cost for the construction of all 66,000 housing units is 132 billion rupees, with each unit valued at two million rupees (UDA 2010). Nihal Fenando, the Director General of the UDA, states that that "Phase One construction of 12,500 housing units as high-rise apartments were implemented in 2011 as a priority" (figure 5.9). Furthermore he adds that "[The] phased out relocation program is expected to be completed within three years" (UDA 2011).

Private investors also are hopeful about this process and they expect that the re-housing program will free up valuable land for future investment. Surath Wickramasinghe (2011), the President of the Chamber of Construction Industry in Sri Lanka, states:

> *We must commend the Government and the Ministry of Defence and Urban Development in particular for embarking on a challenging project to relocate 60,000-70,000 housing units in under-served settlements occupying prime land in the City Colombo.* (Wickramasinghe 2011)

Furthermore, he expects that after the relocation there will be more than 1,000 acres of the land in the city of Colombo that will pave the way for the development of a world-class city with integrated state-of-the-art infrastructure that will attract leading investors and developers and be competitive with other Asian developing countries. This would trigger growth in foreign and local businesses with all other services also expected to flourish and further develop the city (Wickramasinghe 2011).

The slogan of the re-housing program - Houses for People and Land for Investment - clearly states the aims of the project. It can only be considered sucessful if both parties (the low-income people and the investers) are satisfied what they received. If not, the entire process, which is based on vacating prime land which is occupied by low-income people and selling it to developers, would be a failure and only the developers would receive any benefit while low-income people suffer.

Figure 5.9: On-going Projects under the Relocation of the Under-served Settlement Program
Sources: UDA Archive

5.12 HOUSING POLICIES FOR HIGH-RISE HOUSING

The multi-storeyed housing concept was introduced to Sri Lanka in the 1950s by Sirimavo Bandaranayake's government. It was a new type of housing for most of the urban population of Colombo and it was believed this type of housing was suitable for most residences for low and middle-class families. Almost all of the multi-storied housing complexes that were built at this time had a maximum height of five storeys, with most of them being four-level (ground plus three levels) compact housing units. However, it takes time for people to adapt to the multi-storied housing lifestyle and, due to lack of experience living in this kind of housing, people initially struggled to adjust to multi-storeyed housing. (Niriella 2010).

The first legislation related to high-rise developments in Sri Lanka was the Condominium Property Act No. 12 of 1970, which was a formal statement of the housing policies of the then government. The government was very concerned about the households who were renting in high-rise buildings and wanted to make them the owners of their apartments. The construction of large-scale multi-storied buildings in Sri Lanka started with the formation of the Apartment Ownership Law No. 11 of 1973. Before 1973, to subdivide a multi-storey building and then transfer of part of the ownership of the building was very difficult and

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complicated. This law provided opportunities to divide a multi-storey housing complex into a number of independent dwelling units which would then continue under separate ownership. The apartment ownership law was amended by the Condominium Act No. 45 of 1982. This Act defines a condominium as:

> *..an independent unit in a condominium plan which is designed for independent use consisting of one or more rooms whether occupying the entire or part of one or more storey and which is shown as a separate unit in a condominium plan and includes a unit specified as accessory unit area in such plan; provided that, such defined space has a common area leading to a road access and not through it any enclosed space of the description.* (Niriella 2010)

The recent market conditions have witnessed the development of two kinds of condominiums, one kind which is considered in the 'luxury' category for upper income groups and the other one which is considered in the 'necessity' category for lower income groups. The Sri Lankan legislation (Condominium Law No. 45 of 1982) uses the word 'condominium' to refer to a multi-owned apartment block, usually high-rise and high density. In Sri Lanka, two laws govern the legality of condominium development. These are the Apartment Ownership Law (No.11, 1973) and Condominium Act (No. 45, 1982). Both these laws provide for the possibility of multiple ownership of a property where each unit within a building could be owned by separate users (Samaratunga 2001) Several other laws also define the comfort conditions, set-back restrictions, building heights, volumes, rents and other physical characteristics of such developments. It is interesting to note that, when defining a condominium, the Sri Lankan Condominium Act specifies how each unit is constituted and also specifies that each is an independent dwelling unit with defined area but has abstained from defining the ownership aspect of each unit. This implies that ownership of the property could be of the whole condominium or of the individual units separately.

Accordingly, the legal background of the high-rise housing is very clear and it encourages the private sector to build high-rise apartments for upper income groups with multiple owners. However, high-rises for low-income groups are a more complicated situation, and direct government intervention is necessary to develop high-rises for low-income people. In 2010, the government made a policy decision to relocate 66,000 low-income people from under-served settlements into high-rise housing. This was the second and largest wave of high-rise low-income housing in Colombo after Sahaspura in 2001. Cabinet approval has been granted for this project and the entire project is to be directly coordinated by the Ministry of Defence and Urban Development. Before 2009 most of the low-income housing projects in Colombo were coordinated by the Ministry of Urban Development. However, in 2010 the Ministry of Urban Development amalgamated with the Ministry of Defence due to the usage of military resources (human and technical) for city development after the end of the civil war. The Urban Development Authority is the operational arm of this relocation project. The construction of 7,000 housing units commenced in 2011 and another 12,000 housing projects are in the planning stages (UDA 2011).

High-rise housing has been selected by the government as the key strategy to provide housing for low-income people in Colombo and other approaches like slum upgrading, infrastructure development and low-rise housing have been discouraged, although alternative approaches such as slum upgrading programs are still ongoing in other cities in Sri Lanka (UDA 2011). However, there is still much that must be done to ensure the government's policy achieves the targets the country expects and needs from this policy reform. Even though high-rise low-income housing is relatively new to Sri Lanka, it is not a new concept and has been tried in other countries. Therefore, an understanding of international experiences is essential for

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reducing the risks associated with high-rise housing and well-qualified housing experts are needed to take on this challenge.

5.13 CONCLUSION

Legislation and policies are the main governing factors of any physical development in a country. Ministries, authorities, departments, corporations and designated entities are the operational arm of the laws and policies. A good combination of these two mechanisms will have a positive end-result, achieving the targeted aims. However, policies and institutions have changed frequently in Sri Lanka, with much development and legislation heavily influenced by political interest. Looking at the past 100 years of Sri Lankan housing policies, it is evident that housing policies were closely aligned with party politics, and changed as constantly as the political vision rather than real requirement. Government housing policies were created to fit a political agenda rather than address the real issues of Colombo's and Sri Lanka's housing requirements. This chapter divided Sri Lankan housing policies into three categories: prior to independence (before 1948); after political independence and during the civil war (1948–2008) and the current situation after 30 years of civil war (2009 onwards). This chapter paid attention to urban housing policies for the low-income residents and policy developments regarding high-rise housing as a solution for urban housing issues. Finally, this chapter analysed the contemporary housing situation in the country after end of 30 years of ongoing civil war and the institutional reform that resulted in the massive under-served settlement clearance program undertaken by the Ministry of Urban Development and Defence.

Chapter 6 discusses the practical outcomes of the high-rise high-density vertical housing policy (section 5.8) which was implemented in 2000 by critically analysing Sri Lanka's first high-rise low-income housing project, Sahaspura.

6. SAHASPURA: THE FIRST HIGH-RISE HOUSING PROJECT FOR LOW - INCOME PEOPLE IN COLOMBO

6.1 INTRODUCTION

The Presidential Task Force on Housing and Urban Development was appointed by the president in 1998 (PTFHUD, 1998). One of its responsibilities was to draw up a macro policy framework and action program for creating and building the infrastructure required for the development of Sri Lanka in both the short and long terms, with the goal of improving the quality of life of its inhabitants and fulfilling the aspirations of the country heading into the 21st century (STP 1998).

Figure 6.1 Sahaspura housing project
Source-Sustainable Township Program

To meet this aim, the task force recommended policies and strategies for urban growth to be adopted by the government and the Ministry of Urban Development, Construction and Public Utilities. Its recommendations were accepted and the Sustainable Townships Program (STP) was created.

The Sahaspura high-rise low-income housing project (referred to in this thesis as 'Sahaspura') was the pilot project under the STP program. Sahaspura was designed to house the inhabitants relocated from under-served settlements in Colombo (see Table 6.1), therefore releasing the prime land they occupied for the future development planned by the STP. The construction of Sahaspura was completed in 2001 and the project was launched with much fanfare to all stakeholders in the housing sector. It was the biggest high-rise relocation

program undertaken in Sri Lanka, housing 671 families in 671 units over 14 floors (Liyanage 2001). Its apartments were allotted free of charge to the poor.

This chapter will discuss the history of Sahaspura, report on the STP and critically analyse the Sahaspura project that was launched with such optimism just over 10 years ago in 2001. Figure 6.2 shows the transformation of Sahaspura over time, with three photographs taken in different years.

| 1996 | 1999 | 2001 |

Figure 6.2: Sahaspura - before, during and after construction
Source – Real Estate Exchange (pvt) Limited
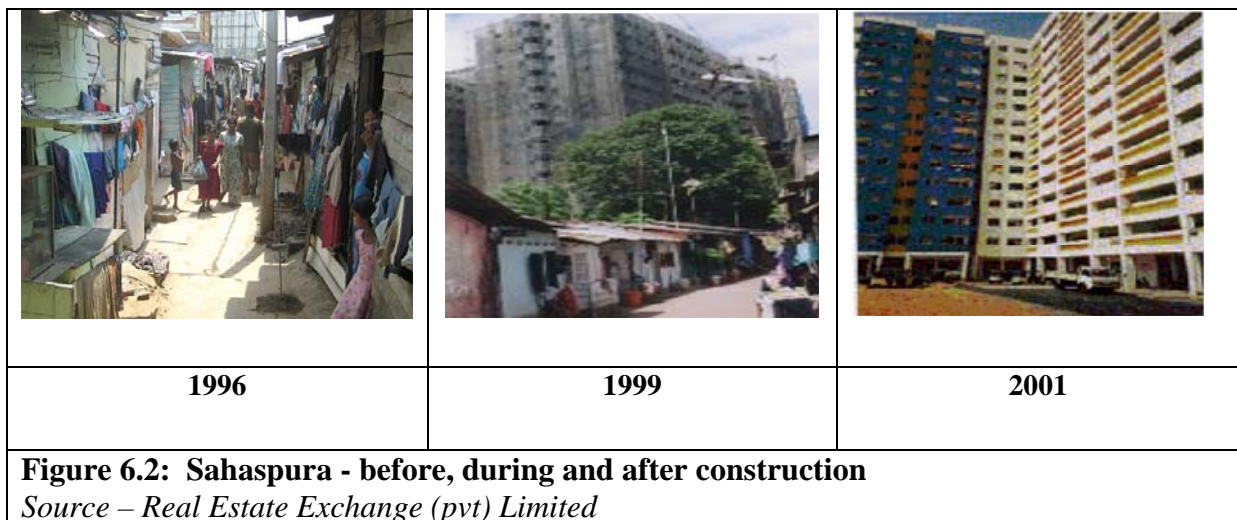
6.2 THE NEED FOR REDEVELOPMENT

Since Sri Lanka became politically independent in 1948, no government or city authority has been able to develop a feasible and sustainable solution to the slum and shanty problem in Colombo city. Poorly developed ad hoc solutions such as slum and shanty upgrading, on-site infrastructure development in the under-served settlements and land regularisations were attempted without success (PTFHUD 1998). The National Housing Development Authority, the Colombo Municipal Council and local and international funding agencies have spent enormous amounts of public funds carrying out these works, yet none of the approaches was effective from an urban and social development perspective (UN-Habitat 2003). Although

some Sri Lankan housing programs, such as the Hundred Thousand Houses Program and the Million Houses Program, were recognised as world best practice by UN Habitat, in 2011 51 per cent of the population of Colombo city still live in under-served settlements (Wickrema 2005; STP, 1998; UDA, 2011).

The perpetuation of poverty, land fragmentation and the destruction of common amenities, as seen in Colombo's slums and shanties, created huge economic and environmental problems while threatening the entire fabric of social security and the sustainability of the city (UNEP 2003). A lack of literature about housing in Sri Lanka is one of the main barriers to critically evaluating the effectiveness of the housing policies that have been enacted in Sri Lanka. Key informant interviews were one of the key strategies utilised in this research to overcome this problem and to identify the issues and benefits of present and past Sri Lankan housing policies. The key informants chosen include politicians, housing professionals, government critical decision-makers, representatives from professional institutes and leading private housing investors. Key informants with long-term professional and practical knowledge added the information necessary to complete this research and to fill the gap that exists due to the lack of literature in the industry.

In a key informant interview with the author, the Housing Minister, the Hon. Wimal Weerawansa (2011), was highly critical of the previous attempts to resolve the problem of low-income housing. He commended the current Sri Lankan Government's record and defended it against accusations of "interference in the low-income housing matter in urban areas", stating that low-income housing policy has become a politically sensitive issue and that many political parties consider the subject easy prey for their political gain (Key Informant Interview, 2011). It has become politically advantageous for the opposition parties to constantly refer to the problems of the communities that remain in squalor, particularly

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during election campaigns. Even small issues such as the blockage of a small water tap or clogged drainage are considered important issues at election time. Promising to undertake the modernisation of a decayed and rusted drainage system provides an opportunity for politicians to gain ground and win votes and has become an advantageous tool for politicians, who use it to rouse the masses (Key Informant Interview, 2011; Niriella, 2010). However, despite this political rhetoric, past history shows government has taken steps to review the situation (Key informant interview 2011).

Minister Weerawansa was also highly critical of the international donor organisations who work in Sri Lanka. He claimed that foreign institutions like UN-Habitat and other non-government organisations do not provide appropriate or practical assistance for these communities. He said they were:

> *..keen to take photographs with bare-bodied children in front of slums to be shown abroad and raise funds or collect money. This is a fine way of earning money to fatten their purses. They carry on their process unhindered or unabated* (Key informant interview 2011).

Finally, he argued that the present government takes the issue of housing seriously and has made a firm commitment to improve living standards for low-income groups, creating a healthy atmosphere and good environment by providing the necessary space in high-rise development. The government intends to rearrange the land-use pattern in Colombo, creating more spaces for economic development. During the interview, the Minister stated that he appreciated the Sahaspura concept and his only worry was that no one would continue that concept till 2010 (Key informant interview 2011).

6.3 THE SUSTAINABLE TOWNSHIPS PROGRAM: MISSION AND POLICY FRAMEWORK

The mission of the Sustainable Townships Program (STP) was to help Sri Lanka enter the next millennium meeting the shelter requirements of the urban poor by creating socially acceptable, economically viable, technically feasible and environmentally friendly housing and urban and spatial developments to ensure sustainable living in an environment, both beneficial to the Colombo Municipal Council (CMC) area in particular and to the Sri Lankan nation as a whole (Central Bank 2000; STP & REEL, 1999).

The unique implementation strategy of the STP was a market-based process directed at establishing key commercial markets. The STP involves two major projects (Liyanage 2001):

1   a redevelopment program to re-house the 66,000 households living in slums and shanties in the city of Colombo in modern compact townships within a five-to-seven year period; and

2   a urban development program to sell the lands vacated through the re-housing program for urban renewal projects and thereby generate capital for financing the re-housing program.

The Sustainable Townships Program was based on new concepts developed by Sri Lanka's town planners, housing professionals and policy makers based on the positive and negative experiences of local and international urban shelter development programs. The projects developed as part of the STP were designed to be self-funding rather than requiring direct funding from the government. The main funding mechanism was based on the land exchange and land-sharing technique. Community consultation was a key component of this process and there were several awareness programs conducted throughout the project's development and implementation (Ekanayake, 2001; Wickrema, 2005). One of the biggest attractions of

this program is that the relocation of slum and shanty dwellers was voluntary and enough time was allocated to allow families to move from their existing location to the new building, thus encouraging people to relocate to the new building without having to use forced evacuation. The voluntary relocation process took nearly two years before all of the units in the building were occupied. It was a slow process and the first groups that moved had a better opportunity to select a good location in the new building (Ekanayake, 2001; Wickrema, 2005). Opposition political parties highlighted some negative aspects of delays to the relocation and launched a fear campaign again the project. These political parties and some NGOs discouraged people from moving into the new building due to various hidden agendas such as criticising the ruling government and highlighting the negative aspects of their policies rather than concentrating on what is best for the shanty dwellers (Wickrema, 2005; Niriella, 2010). The very time-consuming voluntary relocation process had a negative impact on the main concept of the Sahaspura land sharing process (ie that the land would be sold to pay for the development) as it was difficult to re-sell the land without it being fully vacated. Therefore, the Real Estate Exchange Company experienced financial difficulties in repaying government treasury loans which extended the process beyond its expected end date (UDA 2011).

6.4 MAIN FEATURES OF THE SAHASPURA PROJECT

6.4.1 LOCATION AND DEMOGRAPHIC PROFILE

Sahaspura was the first building constructed by the STP. It was built in an eastern part of the city called Borella Colombo 8, which is where most of the low-income people who lived in Colombo city at the time of construction resided (see Figure 6.3).

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Figure 6.3: Location map

Source: Urban Development Authority (1996)

That part of the city has good access to infrastructure and the main roads and the railway line provide quick and efficient connectivity with other parts of the city (Kumarasinghe 2001). Direct access to the nearby Colombo harbour, railway yard, wholesale markets and other main industrial and service centres are key advantages and mean this area is a popular residential location (see Figure 6.4A). According to the Colombo master plan (2008), this

area has been identified as suitable for mixed development and high-rise developments are encouraged due to the land value, location and infrastructure availability. From a city planning point of view, the main disadvantage of this area is that it has traditionally been considered a low-income shanty area, which means it has had a poor reputation for investments (Weerakoon 2003)**.**
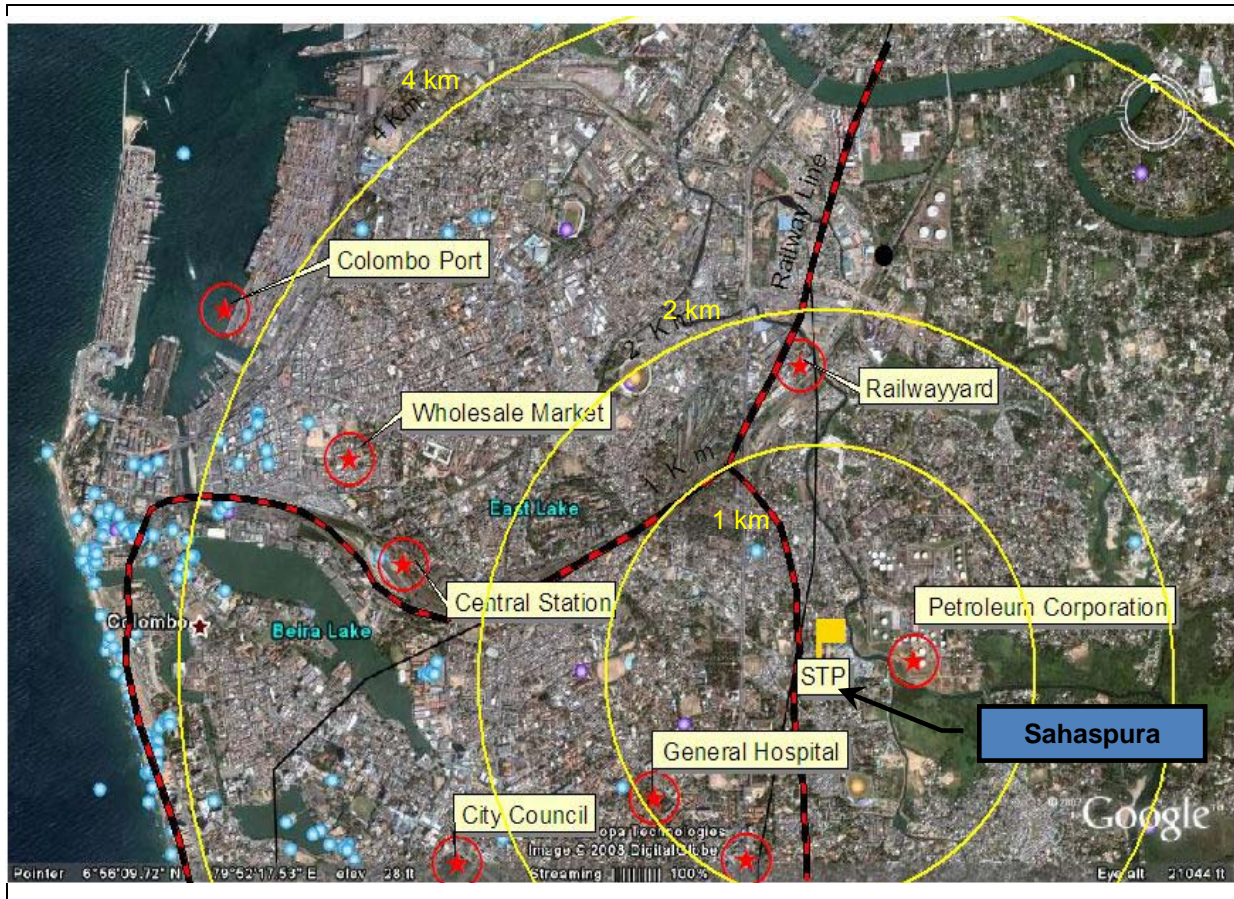
Figure 6. 4A Location map – Sahaspura
Sources – www. http://maps.google.com/

According to a survey completed by the REEL, in 2002 the total population of Sahaspura was 2,818. While the average family size in Colombo is 4.3, the average family size in Sahaspura is 4.2. In terms of gender classification, 52 per cent of Sahaspura's population is female and 48 per cent is male. Religiously and ethnically, this community is well balanced, with the

majority being Sinhalese (62 per cent), with Tamil and Muslims representing 24 per cent and 14 per cent respectively. Buddhists, Christians and Hindus are also represented in significant numbers (IMCAP, 2003). The selection of the beneficiaries of Sahaspura was not based on an ethnic or religious basis and this reflects the demographic distribution in both the under-served settlement and city of Colombo more widely (Department of Census and Statistics, 2010). Accordingly, the building itself can be considered as a good example of how different ethnic and religious groups can live together well. Since 2001, no major incident concerning ethnic or religious issues has been reported in the Sahaspura development (IMCAP, 2003; Key Informant Interview, 2011; Niriella, 2010;). However, political divisions are very common in this kind of community and party politics can cause significant damage to the peace in under-served settlements (IMCAP, 2003; Wickrema, 2005)

6.4.2 ARCHITECTURAL DESIGN AND FACILITIES.

Sahaspura was designed by Singapore-based consultants in collaboration with Sri Lankan planners and architects under the guidance of the Ministry of Housing and Urban Development in Sri Lanka. Sahaspura consists of 671 housing units, with between 45 and 55 units on each floor over the whole complex of 14 floors. The ground floor of the complex is rented out to commercial establishments and community facilities including a day care centre, community room, a police post and a management office. Apart from the ground floor, each floor contains two spaces for commercial or small domestic industry. The terrace floor is rented to telecommunication and advertisement companies (STP & REEL 1999). Figures 6.4 and 6.5 show the ground floor and upper floor plans.

Figure 6.4: The ground floor plan of the Sahaspura housing project

Source: Sustainable Township Program (1999)
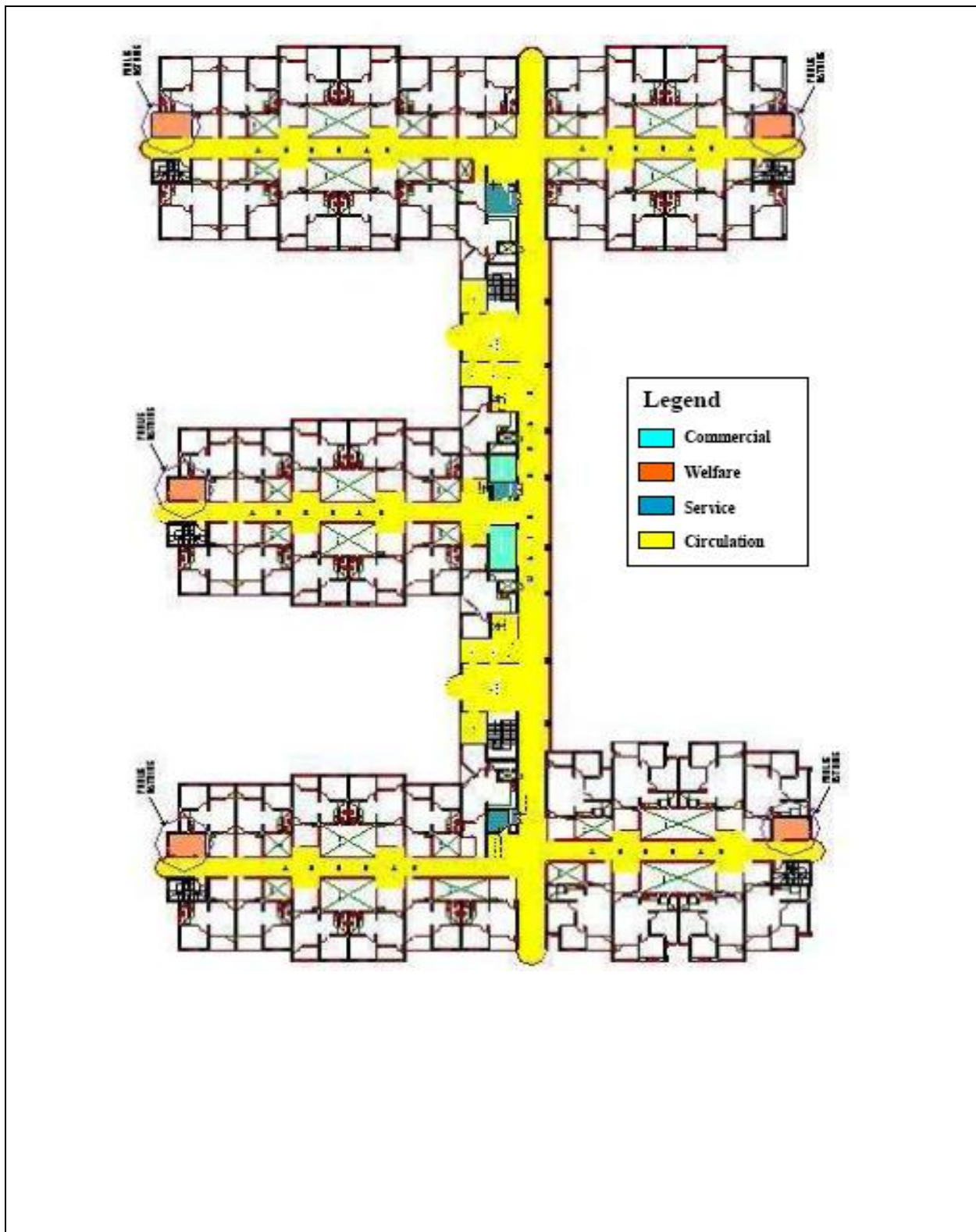
Figure 6.5: The upper floor plan of the Sahaspura housing complex

Source: Sustainable Township Program (1998)

For the individual housing units, the primary design is either a one or two-bedroom unit with an area of between 35 and 45 square metres, with an entrance hall, living room, bathroom and toilet. The units were allocated based on the resident's previous housing size (square metres) and plot size. However, the minimum unit size was 35 square metres and even the people who had a plot of less than 10 square metres in the slums also received a 35-square metre house in Sahaspura. Additionally, each unit has basic services like electricity, water supply and sewerage and storm water drainage. The individual services available to each resident combined with the access to good infrastructure has provided a feeling of upward social mobility for those who live in the building, supporting the findings that housing standards are an indicator of wealth (STP & REEL, 1999). The residents greatly appreciated having their 'own' services such as water, electricity and sanitation, which they didn't have when they lived in the slums (Weerakoon 2003; Wickrema 2005). One of the main advantages of Sahaspura is the presence of bathrooms in each unit. Residents no longer need to line up to use the common bathroom and have independence and privacy (Weerakoon 2003). Within the apartment complex, women are more satisfied than men. This is because most of the young women and girls had serious social problems in their shanty communities, where shared facilities like toilets, water taps and common bathing places with crowded environments meant dealing with a lack of privacy and inappropriate and unbecoming language and behaviour. The individual facilities in Sahaspura means they can secure their privacy and safety (Niriella, 2010).

6.4.3 FINANCING

The project was financed by means of an initial government loan and an additional bank loan and mortgage on the rest of the land that was expected to be vacant after re-housing. Government treasury bonds were also issued as security in order to encourage banks and

other financial institutions to invest in the project. Under this project, 665 under-served settlements had been identified in ten different land clusters (see Table 6.1). Those selected land clusters fulfilled the REEL requirements and all locations are prime places in the city. The re-housing of 665 households from the ten settlements has been completed, meaning an extent of 9.18 acres was vacated for both urban development and re-housing purposes. Of this, 4.16 acres was allocated for the Sahaspura project and the remaining 5.02 acres of land were made available for sale (Kumarasinghe 2001). According to the land value in the year 2000, the available land for sale was worth nearly 800 million rupees, thus the construction cost of 671 million rupees could be easily repaid out of the sale proceeds, even if a 10 precent interest rate per annum were to be charged by the financial institutions and the bonds were repaid with the same interest rates. Using these calculations, theoretically some profit could be made under this program, with the profit reinvested to the continuation of the program. However, due to negative political involvement in reselling the land, the collapse of the land market due to security situation of the country, economic instability and other unavoidable circumstances, no profit was made and the money generated only covered the basic construction cost of the building (Kumarasinghe 2001).

TABLE 6.1: EXTENT OF LANDS VACATED FOR THE SAHASPURA PROJECT		
Name of the Land	**Number of Houses**	**Land Extent (Acres)**
Sri Vajiragnana Road	17	0.32
St Sebestian Street	04	0.23
Union Place Cluster	47	0.64
Lick Gate Cluster	125	1.96
Punchchikawatta	82	1.22
60 Watta, Borella	13	0.22
54 Watta,	199	2.10
Bosevana, Borella	28	0.64
66 Watta	93	1.13
45 Watta	57	0.71
Total	665	**9.18**
Source: Sustainable Township Program (1998)		

6.4.2   OWNERSHIP STRUCTURE

All the housing units were given to the relocated people as freeholds, with the condition that the units cannot be sold but only passed on to the next generation as ancestral property. This provided shanty dwellers with the opportunity of decent housing, not only for the present generation but also for future generations (Deheragoda 2007). The basic idea behind this provision was that through this program the government would provide shelter and a home for the poor, not gifting them a valuable asset that can then be sold. If this clause were not inserted in the document of ownership, slum dwellers could sell their unit in Sahaspura and encroach upon other prime land elsewhere in the city (UDA 2010). However, the experiences

since Sahaspura's occupation have been different to the planned situation. Even though beneficiaries cannot legally sell their houses, ownership of some houses has changed during the last 10 years without a proper transaction occurring. A study done by Urban Development Authority (2010) found that 30 per cent of current householders are not the same owners listed in the official records (UDA 2010). There are a number of reasons for this. After moving to Sahaspura, some families experienced a positive uplift in their education and employment status, so that they resettled either in better housing in Colombo or in a suburb. This indicates that living in Sahaspura has improved the standard of living for some of the re-housed people (Ekanayake, 2001). However, other people sold their houses and moved to another slum area in worse conditions than the one they lived in prior to moving to Sahaspura. Some changes in the circumstance of residents should be expected and policy-makers should not expect that the re-housed people will live forever in the same unit they were initially given. People's situation in life does change and they can improve their lives and gain the capability to enter the open housing market, yet when the people sell their new house and resettle in a slum, it should be considered a serious issue and action must be taken to reduce instances of this happening. However, looking at the Sahaspura project overall, the majority of people have experienced an improvement in their living condition and most of people who sell their houses and leave the project move to better places than Sahaspura (UDA, 2010). Additionally, the people who purchased the houses in Sahaspura were not shanty dwellers but middle-income people. This is positive for the original relocates as it uplifts the social status of the building. But it reduces the available stock of quality affordable housing for low-income earners.

6.4.3 OPERATION AND MAINTENANCE

Maintenance is the main challenge for any high-rise development and it is especially critical for low-income high-rise developments. Globally, in high-rise low-income developments, maintenance has been the main issue contributing to success or failure (Zhang 2004). It is a serious problem given

Figure 6.6: Sahaspura Management Corporation
Source: Authors' Photograph

that, in the long term, poor maintenance can cause considerable damage to an entire project. Having been aware of the importance of making adequate provisions for maintenance since the proposal stage, the REEL has taken several precautions to overcome repeating the mistakes that were made in previous developments. The Sahaspura Management Corporation created an initial maintenance fund with 50 million rupees from the sale proceeds of the land cleared of encroachments and a managed fund was established. Additionally, every household is required to contribute a one-off initial compulsory payment of 25,000 rupees for the maintenance fund that is collected on the day they receive the key to their new unit (Niriella 2010). Funding the regular maintenance of the complex was also achieved using these additional methods:

- by renting out the ground floor of the complex to commercial establishments;
- by renting out the terrace of the complex to telecommunication and television companies;
- making the civic amenities in the building, like cultural halls and community centres, available on a rental basis;

- creating sub-management committees who are in charge of the maintenance of each floor, represented by residents living on the respective floors; and

- ensuring residents of individual units are responsible for the day-to-day maintenance of their respective units.

However, even with these measures in place the regular maintenance of this very large building is a serious issue and the bank interest of the maintenance fund is not enough to pay for major repairs in the building (Wickrema 2005).

In Sri Lanka, under the Condominium Act of 1983 a management corporation (body corporate) is a compulsory requirement in any high-rise housing development. Sahaspura legally established a management corporation with members drawn from various organisations (UNEP 2003). The members were:

- an Urban Development Authority representative;

- a Colombo Municipal Council representative;

- a Real Estate Exchange Limited Cooperation representative;

- the council members of the area;

- a National Housing Development Authority Representative; and

- a community representative.

The community representative is selected by the community and the community have the authority to nominate their representative to the management corporation.

6.5 STAKEHOLDERS AND ACTORS INVOLVED

Several stakeholders have been involved in this project. The key stakeholders in Sahaspura are described in the following sections and summarised in table 6.2.

6.5.1 SUSTAINABLE TOWNSHIPS PROGRAM (STP)

The office of the Sustainable Townships Program is the main authority concerned with the redevelopment of under-served settlements. The aim of this program is to re-house all impoverished families, who are encumbered with no titles on the valuable lands within the City of Colombo, in modern compact townships and thereby to vacate over three-quarters of such lands for redevelopment (STP & REEL 1999). Through the sale of those vacated lands, the STP would find the necessary capital to fund the re-housing program, making it not only a self-financing but also fully market-based and private sector-driven program. The STP actively participated in the study of land as the key stakeholder of the study (Ekanayake 2001).

6.5.2 URBAN DEVELOPMENT AUTHORITY (UDA)

The Urban Development Authority (UDA) is a multi-disciplinary government organisation engaged in urban planning and sustainable urban development in Sri Lanka. The UDA is responsible for the planning and development of urban areas throughout the country. The STP follows the UDA regulations for their township programs. Collectively, officials from the UDA, including the Chairman, participate as one of the main actors in the Sahaspura development (Ekanayake 2001).

6.5.3 COLOMBO MUNICIPAL COUNCIL (CMC)

The Colombo Municipal Council is the main institution responsible for developing the city to meet the residents' basic requirements for housing and infrastructure. They are also responsible for the development of urban infrastructure with a long-term, integrated perspective and for launching comprehensive urban development plans for the city of Colombo. The CMC plans projects for the construction and renewal of housing, providing basic infrastructure facilities and the improvement of social, cultural and environmental

spaces. The CMC also provides technical assistance and supervision in the implementation of projects funded by other institutions.

Population density is rapidly increasing in Colombo City and it was nearly 19,000 people per square kilometre by the end of 1990 (Department of Census and Statistics 2010). The housing problems of urban low-income families who live in slums and shanties is a serious economic, social and environmental issue for the Colombo Municipal Council. The clearing of slum and shanty areas and enhancing urban development are major responsibilities of CMC, therefore, Colombo Municipal Council is one of the important actors and relevant stakeholders of the redevelopment program of under-served settlements (Ekanayake 2001).

6.5.4 COMMUNITY PARTICIPATION

For slum redevelopment to be successful, community participation is essential (Hamdi 1990) and all households in the community should be involved in the process of redevelopment. The participation of community members is required in a number of key decisions during the reconstruction process. The input of community members is mandatory in some decisions, while in others it can be introduced to strengthen the confidence of the people within a community and to build trust and a sense of cooperation among people and the initiators of the program (Ekanayake 2001). The decisions in which participation is necessary are:

- the identification of bona fide community members;

- the selection of leaders and allocation of responsibilities;

- negotiations with the government and related agencies; and

- agreement on layout and house design.

Failure to involve the people who will be living in the new development in any of these decision areas may result in serious errors as well as lead to community members not participating in the stages where resistance may threaten the success of the redevelopment program. The entire process of redevelopment involves the community of the area and requires the consensus and the participation of the community at all stages of redevelopment (Deheragoda 2007).

TABLE 6.2: THE COMPOSITION AND DESCRIPTION OF RELEVANT STAKEHOLDERS		
Stakeholders	**Composition**	**Description**
Sustainable Townships Programme (STP)	• Chairman • General Secretary • City planners • Financial advisors • Engineers • Experts	• To use a market–based solution to finance the re-housing program of target communities who currently live on the under-served settlement (USS) lands, with no financial burden to either the state or the beneficiaries. • To offer different market-based shelter options to the poor communities encumbered on the USS and opportunities for the private sector to join urban development programs based on the lands liberated through the redevelopment process. • To implement new delivery mechanisms enabling effective community mobility through a systematic pro-poor marketing strategy and opening the program to the private sector, real estate development and financing on a participation and partnership basis according to prudent market principles
Colombo Municipal Council (CMC)	• The Mayor • The Deputy Mayor • Elected members of different political parties • Commissioners • City planners • Engineers • Technical	• To carry out integrated planning and physical development within the municipal council areas. • To implement related development programs, activities and services in areas that are consistent with integrated planning. • To prepare and implement development plans and capital investment plans approved by the government. • To undertake the execution of development

	assistants	projects and schemes approved by the government. • To formulate and implement an urban land use policy. • To formulate and execute housing schemes. • To organise the clearance of slums and shanty areas and to undertake the development of such areas.
Community	Members of the affected groups or beneficiaries	• Beneficiaries will individually choose the building that they want to move to. • In a non market-based program where the community does not have purchasing power at the individual level, it is preferable to bargain as a whole community in a collective spirit. Neither the members of the community nor the local politicians will be able to influence the individual decisions in this process of the beneficiaries.
Source: Real Estate Exchange (Pvt) Limited		

6.6 MAIN CRITICISMS OF THE STP POLICIES

The STP has been criticised by many professionals and policy-makers since its inception. A senior town planner in Sri Lanka, Manhalika Ekanayake (2001) states that:

> *Subsidies on a large scale for housing the poor no longer appear feasible. Slum redevelopment must, therefore, proceed on a cost recovery basis. The cost of construction must be recovered from the sale of properties. If there are to be subsidies, they must be sufficiently low to afford a repetition of the program in other locations in the urban area.* (Ekanayake 2001)

According to the STP policy statement, the Sustainable Township Program was not solely concerned with under-served settlement development and housing was only one aspect of the entire city development program (STP, 1998). Housing professionals working in the field have had mixed feelings about this program due to its radical approach to traditional urban

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living mixed with overall city development (Niriella, 2010; Sevanatha, 2006). The main criticisms of the STP's policies are outlined below (Ekanayake 2001; Niriella, 2010; Sevanatha, 2006; Wickrema, 2005).

The STP's financial policies were based solely on commercial principles and the redevelopment program was a mix of commercial and high-rise developments. As little economic value is held by land located along main roads, railroad lines and canals (although this land is often environmentally valuable), the STP cannot fund the relocation of those who live there. The STP also does not deal with small low-income settlement areas; these households have to be served under other programs. However, dwellers from small areas should be relocated where the housing projects will be built and developed. It is emphasised that for under-served settlement redevelopment to be economically feasible, external subsidies should be minimised and cross subsidies maximised.

The STP policy also does not take into account the implication of re-housing on the social and cultural aspects of the community and the importance of these aspects to the traditional social relationships in existing communities. Often low-income communities are tightly knit social organisations which have gradually developed over time. Redevelopment tends to destroy these existing communities without replacing them with other communities with equal social values and controls (Sevanatha, 2006). The STP strategy required moving low-income people from slums and shanties to a high-rise high-density residential building, which would change the existing social dynamics, meaning there may be social resistance (Ekanayake 2001; Wickrema, 2005).

Lack of transparency in the awarding of lands to developers, widespread irregularities in identifying beneficiaries and the allocation of housing were also critical issues in the STP (Niriella, 2010). However, when examining the same kind of programs in other Asian cities,

it can be noted that these kinds of issues are not limited to Sri Lanka and the same kind of criticism has also occurred in other countries. The best example of this is the Borei Keila shanty upgrading project in Cambodia (Rabe, 2010). In 2003, Cambodian authorities launched four pilot projects to upgrade slums in the capital city of Phnom Penh using the same land-sharing technique employed by the STP. The projects aimed to attract private development on lands occupied by slum dwellers and to move the slum dwellers into new housing on-site using cross-subsidies from commercial development. The Borei Keila shanty upgrading project was a milestone in the Phnom Penh slum upgrading program (Rabe, 2010). The project introduced a number of innovations in the area of social housing in Cambodia. However, despite its innovations, the Borei Keila project had some serious flaws. According to Rabe (2010):

> *[There was a] Lack of adequate consultation with the residents about the land-sharing agreement and building designs, even though most residents enjoyed possession rights to the land and properties they occupied. Other flaws included the lack of transparency in the awarding of the land-sharing contract to the developer, and the widespread irregularities in the procedures to identify eligible beneficiaries and the allocation of housing units, insufficient community consultation about the program and land-sharing process, inadequate monitoring and enforcement procedures as a result of Borei Keila have ended up occupying the new buildings completed thus far.* (Rabe, 2010)

6.7 IDENTIFICATION OF KEY PLANNING CHALLENGES

The Sahaspura housing program was based on a series of concepts developed with knowledge gained from both local and international successful and unsuccessful experiences of past urban shanty development programs. The most important and dynamic aspect of this project was that it addressed both housing and social issues simultaneously. This project can be divided into two phases: firstly, to provide decent housing for shanty dwellers and

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secondly, to keep those people in their new locations and improve the social status and rehabilitation of shanty dwellers. The second task is the most challenging one for planners and policy-makers (Samaratunga 2011). The construction of 14-storey buildings is expensive and totally dependent on budget allocation and may take as long as two years. However, social mobilisation and building a sustainable community is about more than just the construction and these factors also take many years to develop (Samaratunga 2011). Lack of social mobilisation has been the main element missing in shanty improvement programs. Without the vital community infrastructure, shanty dwellers do not remain in their new houses, often returning to the location of their previous dwelling or another shanty area, sometimes without even acknowledging the new housing. This is because for those who are used to living in a place with a strong community, housing is a lower priority than their social values (Sevanatha, 2006). Using new concepts aimed at addressing the problems that had caused other projects to fail, the mission of the STP was billed as:

> *..entering the next millennium with a vision to fulfil the shelter aspirations of the urban poor, and to create socially acceptable, economically viable, technically feasible, and environmentally friendly, housing, urban and spatial development to ensure a sustainable living in an environment, beneficial to Colombo Municipal Council (CMC) area in particular, and to the Nation as a whole.* (STP & REEL 1999)

Sahaspura is not just a housing complex. It is the outcome of a multi-disciplinary work program that relates to the entire urban fabric and city development of Colombo city by uplifting the living conditions of the people who reside there. Creating a socially acceptable, economically viable, technically feasible and environmentally friendly housing project and ensuring sustainable living is not an easy task, and planners and policy-makers addressed this challenge by prioritising the development of a sustainable community within Sahaspura. They understood that if the new community is not financially stable, socially healthy and

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environmentally friendly, then it is hard for it to become a sustainable community. The main theories planners used to design a sustainable community in Sahaspura are displayed in Figure 6.7 and discussed below.

Figure 6.7: Planning for a sustainable community

Source: Samaratunga 2011-a
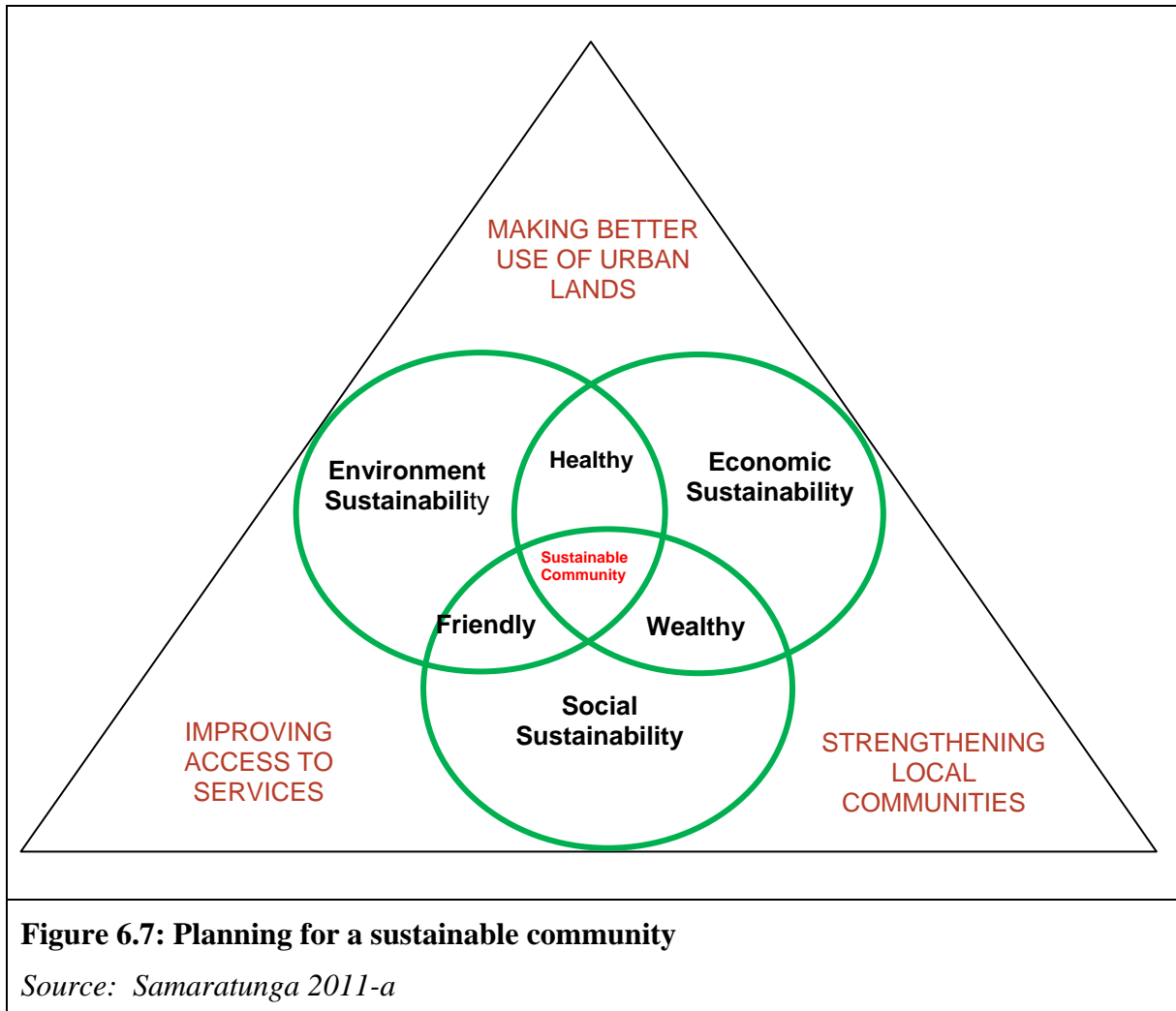
6.7.1 FINANCIAL SUSTAINABILITY

In 2009, the Sri Lankan national unemployment rate was 8.4%, while only 3.8% of the Sahaspura residents were unemployed (Wickramasinghe, 2011). Most of the people in Sahaspura are engaged in small businesses, for example informal venders, cobblers, domestic industries, taxi drivers and labourers in the port and/or the central wholesale market. The

average household income of Sahaspura community is much higher than the poverty level in the country (Wickramasinghe 2011). Moving to Sahaspura appears to positively affect the livelihoods of residents and provides them with more opportunities than they had in their previous residency. Young educated people now have more chances in the private sector because they are not considered shanty dwellers anymore as their mailing address is a building rather than a well-known shanty town (Wickramasinghe 2011). However, even today the majority of the residents of Sahaspura's living styles, attitudes and behavioural patterns place them into the poorest category in the city. The majority of people living in Sahaspura have no access to a formal banking system; therefore they depend on money-lenders for their businesses and day-to-day expenses. They can easily borrow money from a money-lender for 2% interest per day without any guarantee. While in the short term that appears reasonable, in many cases they end up paying 730% annual interest, compared to the 12% to 14% formal bank interest (Weerakoon 2003). Financial sustainability is an important part of building a sustainable community and to ensure it happens, government intervention and an awareness program are essential. Recognising the above limitations, community savings and credit societies have been formed by supporters of the government bank (micro-credit) and NGOs. Women have played a leading role in this process. However, the community savings and credit programs are totally dependent on the mutual understanding of the community, with a small group having the responsibility of taking care of all of their group members. In this system, they are able to lend money at 14% to 16% annual interest rather than the 730% quoted earlier (Samaratunga 2011). As well as implementing a micro-credit system, education programs are required for changing the financial behaviour patterns of low-income people. Looking between 2001 and 2012, the residents in Sahaspura have experienced a significant economic and social improvement and the majority felt that their financial life had improved since moving to Sahaspura (Weerakoon 2003).

6.7.2 SOCIAL SUSTAINABILITY THROUGH SOCIAL RECOGNITION

Social recognition is the most important factor for social sustainability. The government can provide decent housing to shanty dwellers but the government cannot give social recognition within the community; it needs to be built by the communities themselves. The social exclusion of the majority of the poor due to lack of recognition by formal sector institutions has made them more vulnerable in the past. Now the residents of Sahaspura have increased recognition in comparison to their previous status, however they are still largely looked down upon from outside their community and are still treated as shanty residents (Niriella 2005). If they are to receive positive recognition from formal society, they need to be strong financially, academically and socially and the improvement should involve better behavioural and mental conditions.

At the present, the majority of the Sahaspura community have recognised the importance of community-based organisation, the improvement of their social life and obtaining recognition from the formal society (IMCAP 2003). Education is one key factor for upgrading the social standing of new generations. Sahaspura records the highest attendance in the schools in comparison to other shanty areas in Colombo (Niriella 2010). The 2009 socioeconomic survey in Sahaspura by the Real Estate Exchange (Pvt) Ltd, found that moving into a high-rise apartment appears to have caused a shift in perceived social status. Hence, while many international donors, planners and academics oppose high-rise apartments for the urban poor, as discussed in Chapter 3 the upward mobility of Sahaspura illustrates that there can be conditions that are conducive to slum dwellers adapting successfully to life in high-rise apartments (Wickrema 2005). The Program for Improving Capacities for Poverty (IMCAP) surveyed the residents of Sahaspura in 2003 and found that 65 per cent of residents felt that their social life had improved since moving to Sahaspura, while 30 per cent felt their social

lives had stayed at the same level. Only 5 per cent felt it had become worse due to various unavoidable circumstances (IMCAP, 2003). Wickrema (2005) also studied the Sahaspura development and he states:

> *The residents interviewed were satisfied and felt better off than when they lived in the slums. Interestingly, they felt significantly better off than those still living in the neighbouring slums. They no longer felt embarrassed to have friends and relatives visit. In fact, many noted that during the first few months of residence, there had been masses of visitors from their former settlements, coming to admire their new apartments. Children mentioned that they were no longer ashamed to have school classmates visit them at home.* (Wickrema 2005)

One of the main attractions of Sahaspura for slum dwellers is each apartment's separate water tap and bathroom. Access to individual services is a huge benefit for shanty dwellers, as in slums they must queue to use the toilet and water tap. Women and young girls were most appreciative of having their new own services which were safer and less embarrassing than communal facilities (Niriella, 2010).

The researcher also notes that the social standard has been improved in Sahaspura and he found that people who had moved to Sahaspura were no longer publicly identified as slum dwellers anymore. This public attitute is one of the key markers of social upliftment. One young girl who lives in Sahaspura mentioned that the social stigma associated with living in a slum meant that girls in slum communities found it difficult to have a relationship with anyone outside the slums. However, since moving to Sahaspura, she no longer has that issue because now she is no longer considered a slum dwellers.

Previous Situation (Before)	Existing situation (now)

Figure :6.2 Changes of Life

Source - UDA photo archive

6.7.3 ENVIRONMENTAL SUSTAINABILITY

Sahaspura is a shanty improvement project that simultaneously addresses both the protection of the environment and urban housing problems. From an environmental point of view, this project has addressed both micro-level on-site sustainability and sustainability within the macro-level city environment. On a macro-level, this project provides sustainable housing for poor people who lived in commercially valuable and environmentally sensitive areas like retention areas, marshy lands, low-lying lands, public parks and public open spaces, therefore building Sahaspura has protected some environmentally sensitive areas in the city. At a micro-level, this project has been designed and built to protect the environment as well as to reduce the maintenance and operational cost through sustainable design. In order to create and maintain a sustainable environment, policy-makers introduced basic sustainability theories such as 'reuse, reduce and recycle' in a format compatible with the development (Domingo 2011). The following sections identify the sustainable strategies implemented from the initial design and planning stage.

Electricity

Creating an environment that used as little electricity as possible was the one of the key challenges for the Sahaspura development. Electricity supply disconnection is very common in these houses and most residents do not know or understand how to reduce their electricity bills. Two methods to reduce electricity usage in Sahaspura are to encourage the use of energy-efficient fluorescent lamps in the housing units and in common areas. The biggest consumer of energy in the complex is the elevator as in high-rise buildings, operating elevators accounts for approximately 60 per cent of electricity bills (Olsson & Soderstrom, 2007). Therefore, the community has a responsibility to reduce this massive cost. The main strategies used were restricting the lift access up to fourth floor, appointing a lift operator,

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avoiding using the elevator for only one person and encouraging the use of the stairs, which is also beneficial for physical and health reasons. Gaining maximum usage from daylight is another option to reduce electricity usage. Sri Lanka is a tropical country and enjoys a lot of daylight throughout the year. Therefore, people were encouraged to use daylight for light instead of artificial lighting sources, thus reducing the amount of electricity used for light during the daytime. Building orientation is also a very important element in availing maximum benefit of daylight (Domingo 2011), and was taken into account at the design stage of Sahaspura, with the building built at an angle to take maximum advantage of natural sunlight. Solar power is another alternative for reducing electricity consumption and improving environmental sustainability, however the initial outlay is extremely expensive. At the time of researching this paper, the Sahaspura management board was investigating the possibility of finding a solar panel company interested in using their building as advertising, negotiating a reduced cost for the solar panels and installation in return for advertising benefit (Domingo 2011).

Water

Water is another scarce resource in this community, with residents on the higher floors suffering from water scarcity during peak hours. Water is a limited commodity both in Sri Lanka and within Colombo, which has a very high population density. In Sri Lanka, water is used frequently for day-to-day activities without thought of water conservation. It is especially difficult for former residents of shanty communities, as in the shanties they commonly used water without restriction. In Sahaspura, they have to pay for water and lack the necessary knowledge and skills about how to use water properly for their domestic needs. The following actions were adopted to reduce water consumption in Sahaspura:

- installing water-efficient toilets;
- running community awareness programs about water usage;

- installing low-pressure taps; and

- encouraging the reduced wastage of water.

At the time of writing this thesis, there is no rainwater tank at Sahaspura, and it is proposed that a rainwater tank be constructed in the building. Rainwater could be used to clean all vehicles and common areas and for gardening purposes. If rainwater tanks were installed, the community could use rainwater for the purposes of washing and gardening, thus becoming more environmentally sustainable (Fernando 2002; Domingo 2011)

Solid Waste Management

Solid waste management is another problem in the Sahaspura community, as residents reportedly pay scant regard to the issue of solid waste and the importance of keeping a clean environment (IMCAP 2003). Solid waste management has become a critical issue in many

Figure 6.9 Garbage collection
Source – Author's Photograph

of these kinds of housing schemes. The individual and community commitment and capacity for internal garbage collection and disposal in an environmentally acceptable manner is highly unsatisfactory. The situation is worst in the multi-storied buildings and in the schemes where the housing density is very high. In many housing schemes in Colombo, there are no proper spaces meant for garbage bins. Even if these places are available, they are not properly maintained and have a capacity insufficient for the needs of the residents. As a result, people throw garbage into open areas like roads, drains and canals. The management authorities, for example the Colombo Municipal Council and the responsible ministries, do not have proper regulatory structures including policy, legislative frameworks and implementation plans to address the issues related to garbage disposal in the urban housing schemes. One critical

example is that the regulatory and management authorities condone the open garbage disposal due to its operational convenience. However, disposing of waste in this way is the primary reason for many environmental problems that relate to internal garbage management (Olsson & Soderstrom, 2007). Recycling and composting are good solutions for solid waste problems and should be considered in the Sahaspura community.

6.8 CONCLUSION

Sahaspura is the first high-rise low-income housing project in Sri Lanka and it was a new experience for the entire housing sector in the country. In order to meet the research objectives of this research, it is necessary to evaluate the Sahaspura development in order to examine practical experiences in a high-rise low-income residential development in Colombo. Sahaspura was not a just a housing project: it was one outcome of the entire city's development under the Sustainable Township Development Program (STP). Most of the previous urban shanty upgrading programs had involved either resident relocation or attempts to improve the living conditions of shanty residents by providing basic amenities like electricity, water, common toilets and sinks and roofing. In some cases, multi-storied walk-up apartment buildings of up to four storeys were constructed. With 14 storeys and a lift, Sahaspura was the first low-income housing project in Sri Lanka to be taller than four storeys. Additionally, the Sahaspura project approached the housing problems of the residents of under-served settlements in Colombo city in a way that had never been tried in Sri Lanka before, offering a long-term sustainable solution to the cause of housing issues. Under this program, shanty-dwellers were not considered an under-privileged group to be shifted to housing similar to their existing housing. The effort was made to provide the same urban infrastructure to shanty dwellers that other Colombo residents have while building a sustainable community and providing improved housing. The Sahaspura project was a new

experience for low-income people as well as for professionals and policy-makers in the housing sector in Sri Lanka (STP & REEL, 1999).

High-rise low-income housing is not new in many other countries and high-rise housing for low-income people always creates a dialogue among building and town-planning professionals and policy-makers. In Sri Lanka, housing professionals and policy-makers were doubtful about the success of high-rise low-income housing in Colombo, with some professionals forecasting the failure of the concept (Domingo 2011). However, a critical evaluation of the ten years since the construction of Sahaspura provides support for the argument that Sahaspura has not been a failed project or a disaster. Instead, it has successfully re-housed many shanty dwellers and contributed to their social and financial uplift. Sahaspura has also provided several important lessons to the professionals who are engaged in developing high-rise low-income housing in Colombo, which can be applied to other countries as well.

The next chapter focuses on the analysis of the research findings. Key informant interviews are one of the main data collection methods in this research and they will be analysed along with the literature, the case study, observation and other sources which have contributed to the research.

7 AN ANALYSIS OF HIGH-RISE LOW-INCOME HOUSING

7.1 INTRODUCTION

The purpose of this chapter is to present and analyse the empirical results of the study. The data was collected from both primary and secondary sources that related to the research objective, research question and the tentative propositions of the research. The main objective of this research is to critically evaluate the Sri Lankan Government's past and present housing policies, comparing them to local and international experiences of high-rise low-income housing, and to investigate whether high-rise housing is an appropriate solution to the problem of the scarcity of housing for low-income people in Colombo. The research proposition of this thesis is that high-rise high-density housing may be an appropriate solution for the housing scarcity of low-income people in Colombo. However, high-rise housing for low-income people is a very controversial topic, with high-rise low-income housing failing in some countries and succeeding in others. Therefore, questions arise as to why some countries fail in high-rise low-income housing while others have succeeded using the same concept. Finally, this research will try to reduce the knowledge gap around high-rise low-income housing in Sri Lanka, taking into account local and international experiences with low-income high-rises. In sharing the research findings with housing professionals and policy-makers, the research hopes to minimise the mistakes that can be made with this type of housing in the future.

To answer the research question, it is necessary to critically analyse the data collected from primary and secondary sources. The following sections contain details of the analyses with comparisons between the literature, observation, case study and key informant interviews.

7.2 KEY INFORMANT INTERVIEWS AND DATA ANALYSIS

Key informant interviews are used – alongside documentary research, policy analysis and field observations - as a major strategy in this qualitative research project. Interviews are used to investigate attitudes, opinions and perceptions towards high-rise low-income housing both in general and in Colombo. All participants are senior critical decision-makers and well-known people and include politicians, top ranking officials in various government ministries, professionals, academics, key members of independent professional institutes and private-sector investors who are engaged in the housing sector in Colombo city (See Table 4.4 for more details on the key informants). Key informants representing various sectors were carefully selected to reduce the bias of the data. The interview findings have been interpreted along with an analysis of the literature, the case study and observations. The key informant interviews were conducted using a semi-structured questionnaire with open-ended questions. The key informant interview process had three key objectives: clarifying the Sri Lankan definitions and adaptation of the main terminology used in this research; discussing the technical and personal ideas held by the interviewee on the subject area and critically evaluating the pros and cons of high-rise low-income housing as a solution for the problem of housing scarcity in Colombo; and developing a logical method, evaluation criteria and variables to develop a model to assess the success and failure of high-rise low-income housing both in general and specifically in Colombo, Sri Lanka.

The lack of literature on housing and housing policies in Sri Lanka is one of the main barriers in this research, as there is very little secondary data on current housing policies and the

ongoing high-rise housing solution in Colombo city. Accordingly, the key informant interviews were used to obtain updated knowledge in the field and a critical analysis of the current housing policies and high-rise housing option in Colombo from different perspectives. The information provided in the key informant interviews is based on the personal beliefs, knowledge and experience of the individuals. Additionally, some interviewees may have a personal interest in the subject matter. Therefore, unanimous agreement cannot be expected from all participants and the data must be carefully analysed. To do that, this research utilised manual analysis and NVivo software to analyse the data and reduce the bias, thus obtaining a more balanced data analysis.

7.3 DEFINITIONS AND INTERPRETATION OF KEY CONCEPTS

As discussed in previous chapters, most of the key terms and concepts used in this thesis do not have commonly agreed-upon definitions and vary from country to country. For example, 'low-income' is a relative concept and what is considered low-income in a developed country may be considered high income in a developing country. Therefore, before analysing the data it is necessary to clarify the definitions of these concepts in a Sri Lankan context.

Classifying the terms 'low-income' and 'low-income housing' in the Sri Lankan perspective was a major challenge in this project and it was one of the research questions asked in the key informant interviews. A senior government officer who was interviewed in this research stated that:

> *'Low-income' is a relative concept. There is no one single definition of low-income; it varies from country to country and place to place. Low-income housing is a controversial issue and sometimes, it does not have any relation with household income and housing.* (Key informant interview 2011)

The banking sector in Sri Lanka uses two logical measures to identify who is low-income: income level and loan size (Central Bank SL 2010). Though these are good measures to identify what constitutes the low-income housing segment, there are no agreed limits within these measures for planning and city development classification.

The key informant interviews illustrated that each different informant had their own definition of low-income. However, all conceded that most of the time people who are living in slums and shanties can be considered low-income people (Key informant interviews 2011). According to the literature, the terms 'slums' and 'shanties' are employed in popular usage to describe poor-quality shelters. These terms have varying scales. UN Habitat (2003) states that "anything from a house to a larger settlement can be classified as a slum or shanty housing, providing that it is perceived to be substandard and is occupied by the poor" (UN-Habitat 2003). Slums and shanties lack the most basic infrastructure and services and the people who live there exist in squalid, unsafe environments where they face multiple threats to their health and security. Their populations are marginalised and largely disenfranchised. They are exposed to disease, crime and vulnerable to natural disasters (Fernando 2002).

According to Hamdi (1990):

> *Slums, shanties or low-income housing have become an unfashionable terms in the planning vocabulary, being strictly pejorative and associated with all forms of negative social outcomes and squalor expressed in a spatial or housing sense.* (Hamdi 1990)

Most housing professionals in Sri Lanka do not like to use the terms slum and shanties to describe poor quality shelters. The preferred industry way to describe slums and shanties is as under-served settlements. Almost all of the key informants agreed with using the term 'under-served settlement' to describe groups of uninhabitable housing. Without taking into consideration individual household incomes, it was conceded that people who live in these houses are considered low-income people (Key informant interview 2011). However, it does

not mean all low-income people live in under-served settlements. This definition is used in government-involved housing projects and programs for low-income people in Sri Lanka.

In this context, the term 'low-income housing' also does not have a direct relationship with household income. Basically, it is used to describe the subsidised housing that is allocated for the poor people of Sri Lanka. In Sri Lanka most government-subsidised housing projects are called low-income housing projects. The best examples are the Sahaspura high-rise low-income housing project, the Maligawatha low-income housing project and the Gunasinghepura low-income housing scheme. Although this type of housing is often called public housing or social housing in other parts of the world, these terms are not in the Sri Lankan vocabulary, and low-income housing is the most common term used to describe subsidised housing in Sri Lanka. The key informants also used this term in their interviews when talking about subsidised housing and low-income housing has been used in this research in place of the terms public housing and social housing (See table 7.1).

TABLE 7.1: A SUMMARY OF THE KEY THEMES OF THE RESEARCH	
Under-served settlement	Housing which is not suitable for human habitation is considered an under-served settlement.
Low-income people	Unrelated to household income: people who live in under-served settlements are considered low-income people. This definition is primarily used in housing projects and programs in which the government is directly involved.

Low-income housing	Subsidised housing for poor people and the Sri Lankan term for public housing and social housing. Most subsidised housing is provided either free of charge, with very nominal rent or financed by a very low-interest rate without a formal mortgage or repayment system.
Source: Key informant interviews 2011	

7.4 UNDER-SERVED SETTLEMENTS IN COLOMBO CITY

Even though all of the key informants agreed to *the use of* the term under-served settlement to describe the substandard housing in Colombo, within the interviews there was a significant disparity in the ways that under-served settlements in Colombo were identified and thus the percentage of households who live in them. Therefore, the exact percentage of the people who live in under-served settlements is widely debated and different organisations, professionals and researchers have a different opinion of both the definition and the percentage of people who inhabit the under-served settlements in Colombo. The key informants did not agree on *the definition of* under-served settlements and each of them interpreted the concept differently. However, under-served settlement is the term which the government has officially recognised in terms of addressing substandard housing in Colombo (PTFHUD, 1998; STP & REEL, 1999; UDA, 2011).

Surveys done by the REEL and Central Bank of Sri Lanka in 1998 and 2006 respectively, show that 51 per cent of the city population are living in under-served settlements in Colombo (STP & REEL 1999; Central Bank 2006). However, many professionals working in the industry do not agree with this number (see Figure 7.1); in particular the NGO informant who had been working with housing issues in Colombo for a decade. They

strongly stated that they do not agree that the majority of the city population are living in under-served settlements.

Some professionals believe that prior to the Million Houses Program and its on-site upgrading programs (1984-1990), this figure may have been correct but at present the percentage is much lower than 51 per cent. The Sevanatha NGO poverty profile categorised the settlements into four categories: upgraded settlement, semi-upgraded settlement, under-served settlement and poor settlement (Sevanatha 2006). Therefore, the NGO representative mentioned that:

> *The settlements which were upgraded under the Million Houses Program may have*
> *been mistakenly identified as under-served settlements whereas upgraded settlements*
> *are not under-served.* (Key informant interview 2011)

The opinion of the UDA informant about the percentage is different again. The UDA is the government organisation that gives approval for any physical development in Colombo. There are separate building codes and regulations for housing based on sanitary requirements and from a city development point of view. Obtaining UDA approval of housing and a certificate of conformity (COC) are the legal requirements for erecting a house and using it as a shelter. If any house doesn't have these two documents, it is considered an illegal construction and can be regularised, evacuated or demolished under the UDA Act (UDA, 1986). Only 40 per cent of housing in Colombo has both building approval and a COC. That means 60 per cent of housing is vulnerable and therefore classified in the under-served settlement category (UDA 2008).

The percentage of Colombo housing that is considered under-served settlements was not agreed on by the main three organisations. The Urban Development Authority, the Urban Housing Development Authority (STP & REEL) and the NGO each had different opinions

about both the number of under-served settlements and what exactly constitutes an under-served settlement. Regardless of which percentage is correct, it is clear that a significant proportion of the city population is living in under-served settlements in Colombo.

As part of the re-housing for under-served settlement program in Colombo, the ongoing relocation project identified 66,000 under-served settlements in Colombo. This number included slums and shanties, hazardous housing, deteriorated old flats and informal housing and illegal housing (UDA 2011).

| REEL and Central Bank (SL) | NGO | Urban Development Authority |

Figure 7.1: Percentages of Under-served Settlements in Colombo according to different groups

Sources- Key informant interviews (2011)
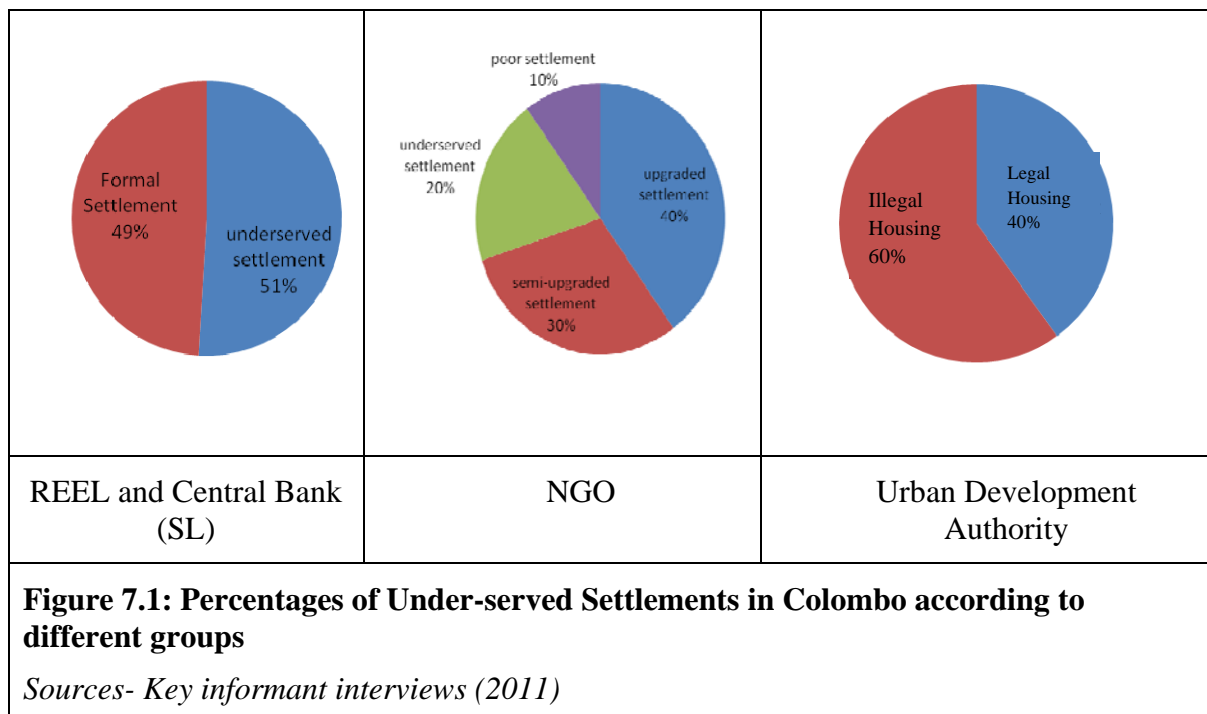
7.5 ATTITUDES TOWARDS THE SUITABILITY OF HIGH-RISE HOUSING FOR LOW-INCOME PEOPLE.

Analysing the opinions of the key informants of high-rise housing for low-income people was one aspect of this research. Out of 12 key informant interviews, only one key informant fully rejected high-rise living as an alternative for low-income people in Colombo city (Key

Informant Interview, 2011). Four of the informants completely agreed with this concept and seven had mixed feelings about the success of the high-rise low-income housing in Colombo. However, these seven did not reject high-rises as a housing solution for low-income people. Rather, they believed the success or failure of the high-rise low-income projects would be dependent on a few other activities related to high-rise housing (Key informant interview 2011). Figure 7.2 shows the responses to the interview question 'Is high-rise housing a good solution for low-income people in Colombo'. Based on the key informant interviews, Section 7.9 will

discuss in detail the main criteria for why some key informants believe high-rises are a good or bad solution for housing for low-income people in Colombo City.

Although the key informant sample size does not seek to produce statistically significant results, it does enable in-depth insights in to the rang of reviews held by key professionals and policy makers.

Figure 7.2: Key informants' response to the question 'Is high-rise housing a good alternative for low-income people?'
Source: Key informant interviews 2011
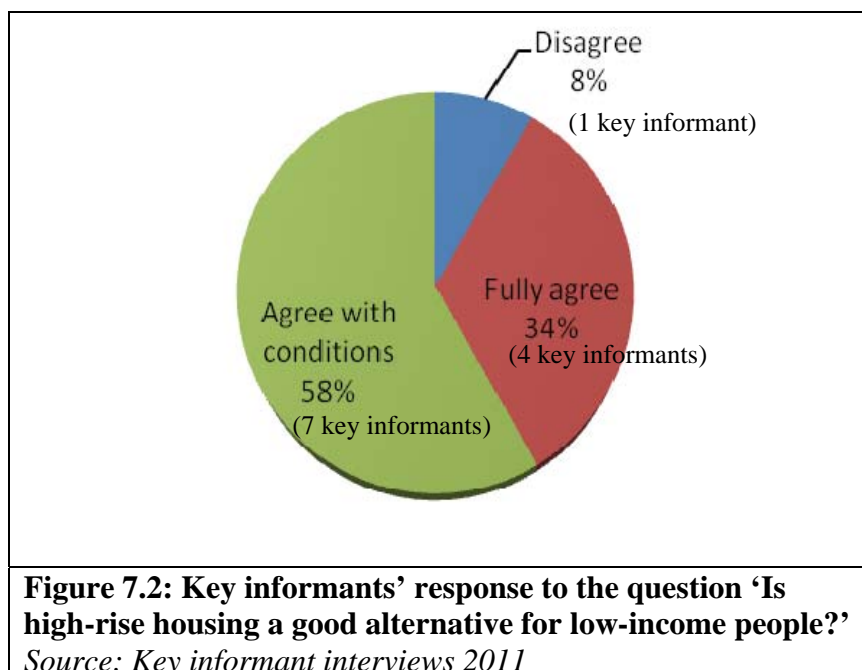
7.6   WHY COLOMBO NEEDS HIGH-RISES TO HOUSE LOW-INCOME PEOPLE.

Rapid population growth was one of the main reasons for building malty-story housing in urban areas. After the Industrial Revolution, most European countries built high-rises to cater for the huge number of people migrating from rural areas to urban centres. This pattern was repeated in Colombo after the British colonised Sri Lanka in 1815 and established Colombo as the commercial capital of the country. A senior town-planning informant describes the situation:

> *People migrated from rural areas to Colombo seeking employment when the rural economy was destroyed as a result of the plantations economy. The only option for the rural communities was to migrate to urban areas and to find employment. So, that there was a massive migration influx into Colombo* (Key informant interview 2011).

Today, Colombo plays a major role in the economic, administrative, social and educational aspects of Sri Lanka, with 35 per cent of Sri Lanka's gross national product created in Colombo. Almost all developments are highly concentrated in Colombo and its suburbs (Central Bank, 2006). As a result of rapid population growth and an economic boom which attracted people to the city, Colombo needed to find a better way to accommodate a large population in a limited land area. High-rise living then became a viable and attractive option in Colombo.

Table 7.2 contains the population growth in Sri Lanka from 1870 to 2010. The population growth in Colombo has been minimal since the 1981 Census due to the unrest caused by the civil war. City planners estimate significant growth in the next decade as a result of the end of 30 years of civil war. Therefore, it is anticipated that high-rise housing will pay major role in Colombo in the next decade.

TABLE 7.2: POPULATION DENSITY AND GROWTH RATE OF COLOMBO (1870–2010)				
Census Year	Extent (Ha)	Population	Density (P/Ha)	Growth Rate (%)
1871	2448.6	98847	40	-
1881	2448.6	110509	45	1.18
1891	2448.6	126825	52	1.48
1901	2720.6	154691	56	2.2
1911	3091.1	211274	68	3.66
1921	3350.3	224163	73	0.61
1931	3368.4	284155	84	2.67
1946	3438.4	362074	105	1.83
1953	3593.9	425081	118	2.48
1963	3710.4	511639	138	2.04
1971	3711	562430	152	1.24
1981	3711	587647	158	0.45
2001	3729	647100	173	0.45
2010	3729	682046	182	0.46

Source: Centenary Volume, CMC, 1963 and Urban Development Authority 2010

From the literature and key informant interviews, it is clear that a significant number of the city's population is living in under-served settlements due to lack of affordable housing in Colombo. The majority of key informants agreed that high-rises may be a good alternative for housing shortage in Colombo city. For example, land scarcity is of vital consideration in

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Colombo's town planning and construction. One of the senior government informants explains that:

> *When we consider the idea of supplying decent houses to all who are living in under-served settlements in Colombo – where can we find land to build these houses? How can we demarcate or divide land strips for highways, parks or economic centres to spring up in Colombo city? Then the question, how to use the available lands for these requirements will have to be taken for consideration. Then the only solution for lack of land is the construction of high-rise buildings (flats) or vertical/up-right buildings. I do not know or where there is any other alternative. At this moment we have suggested high-rise (flats) building complex. This is the main idea to solve this problem.* (Key informant interview 2011)

Land scarcity is a major contributing factor in the need for high-rise housing development. In 2010, the Colombo Municipal Council area extended over 3729 hectares and the population in Colombo was 682,046 in 2010. Because of the factors outlined previously, Colombo's city planners anticipate the population will reach one million by 2020 (UDA 2011). Therefore, accommodating one million people within the city periphery in a decent manner is a considerable challenge in Colombo.

Land value is another variable for encouraging high-rises in Colombo. The main concern of the private sector informant was about the high land value in Colombo. He highlights that:

> *Residential land value always keeps in-between three million to 10 million (US$ 30,000 to US$ 100,000) per perch (25 square metres). High-income people also struggle to afford detached housing in Colombo. Getting the maximum number of housing units in limited land area is the only solution for reducing the housing cost in Colombo and high-rises would be the only answer.* (Key informant interview 2011)

In addition to the cost and scarcity of land in Colombo, the existing building regulations are also another constraint for low-rise development in Colombo. Practically, detached or semi-detached housing cannot accommodate one million people within the city periphery of 3,729

hectares of the total land area in a legal manner (UDA 1986). The NGO informant was the only person who totally rejected high-rise housing as an option. When the author raised this regulation barrier for building low-rise housing in Colombo, his answer was "the regulation is wrong" (Key informant interview 2011). Legally, no one can build outside of the regulations and if someone does not agree with an existing regulation, they must go to court. Encouraging illegal construction cannot be accepted.

The Colombo Master Plan (2008) also discourages low-rise development in Colombo. Some areas have restricted low-rise developments, with 10 storeys the minimum height requirement for new construction projects (UDA 2008). Figure 7.3.shows the existing building height limits in Colombo. Nearly one-quarter of the city area has been restricted to buildings of less than 10 storeys. Discouraging low-density development and encouraging high-rise high-density development is not a new concept in city development and many highly populated cities apply this kind of radical restriction in city planning. The best examples are Singapore, Seoul and Tokyo. In Seoul, Korea, 100 per cent of housing in urban renewal areas is high-rise apartments (Kyu Ha 2008; Kim 2011).

	Minimum Height (Number of Floors)	Maximum Height (Number of Floors)
(red)	10	10 <
(dark brown)	2	20
(brown)	2	15
(yellow)	2	10
(grey)	1	6
(dark green)	1	3
(light green)	0	1

Figure 7.3: Minimum and maximum building heights in colombo
Source: Urban Development Authority
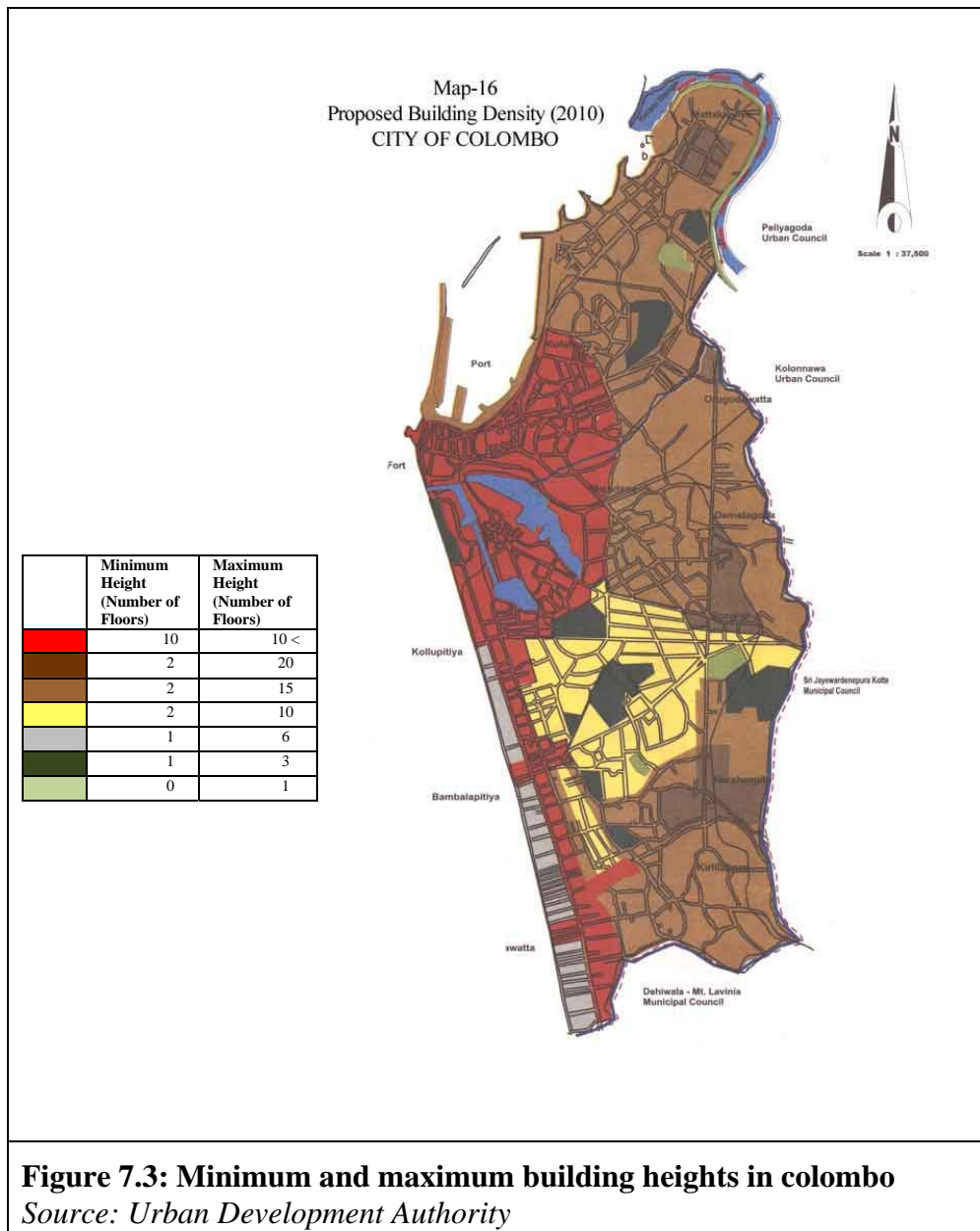
In support of this radical development planning guidance, Housing Minister Wimal Weerawansa states:

> *This is a requirement. A city like Colombo is the main business centre for us. With the termination of war and the dawn of peace, Colombo City has become a hub of commercial and business activity. Atmosphere for investment has become attractive and investments have increased tremendously. We require a clean and efficient city.*

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Any country in the world, there is only one capital city. There can be more cities. But only one capital city. As such the capital city should be clean and tidy and efficient in every sort of activity. To achieve this goal, we require high-level erections, constructions and projects to build flats. The community must be housed in these high-rise flats and buildings to make the city clean and tidy. (Key informant interview 2011)

From analysis of the key informant interviews and the literature, it is very clear that population growth combined with land scarcity, high land values, building regulations and guidance from the Colombo Master Plan are the main contributing factors in the need for high-rise housing development in Colombo. As one senior town planning informant points out:

Even though high-rise might not be the first and best option for housing, considering the population growth, land values, land scarcity, and other variables high-rises should be considered as a practical option in Colombo. (Key informant interview 2011)

7.7 ALTERNATIVES TO HIGH-RISE HOUSING FOR LOW-INCOME PEOPLE IN COLOMBO

High-rise housing is not the only solution to the problem of housing scarcity in Colombo. Since independence in 1948, politicians, planners and other housing professionals have been searching for a sustainable and practical solution to address this issue. However, no-one has been able to find a practical and long-term solution to solve this problem in Colombo. The research necessary to find a practical solution for this issue is being carried out and different solutions have been offered. High-rise housing is one alternative to replace under-served settlements in Colombo. However, some professionals and housing experts, in particular the NGO informant who was interviewed as part of this research, do not think building high-rises will be a good solution to under-served settlements in Colombo (key informant interview 2011). The idea that was commonly expressed in the key informant interviews was that

previously adopted housing and economic policies have made this problem so drastic and critical that only the proper and correct housing and economic policies can address these issues in a long-term sustainable manner. However, historically Sri Lanka has not had well-developed and strong housing policies, as often housing policies were changed according to a political agenda (Deheragoda 2004). The following section discusses in detail the key informants' views of other alternatives to high-rise development that address the problem of under-served settlements in Colombo other than high-rise development.

7.7.1 ON-SITE UPGRADING OF UNDER-SERVED SETTLEMENTS

According to the NGO informant, on-site upgrading is the best and most practical option for under-served settlements in Colombo. He approved of the Million Houses Program and stated:

> *On-site upgrading of slums and shanties was the main strategy for under-served settlements in Colombo of the Million Houses Program in 1983-1993. Under this program, the government played the role of facilitator and the people were the real implementer.* (Key informant interview 2011)

International and local literature show that on-site upgrading and participation from the community, such as building their own housing, is highly encouraged and recommended as a best practice for low-income people who suffer from the lack of safe and affordable housing in developing countries. According to Turner (1977): "Housing is best provided and managed by those who are to dwell in it rather than being centrally administered by the state." In addition, Turner believes that giving freedom to people for build their own housing is more practical as these people will also need the freedom to control their own finances (Turner, 1977). However, the current building regulations in Colombo make it impossible to allow shanty and slum dwellers to develop their existing places in a legal manner (UDA, 1986).

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During the period the Million Houses Program was in place, the Government officially recognised the slums' existence and relaxed the rigid building regulations in order to accommodate improvements to low-income communities (Niriella, 2010). The NGO informant strongly agreed with the Government's decision to relax regulations and argues that it was a very positive approach:

> *[The] significant thing was that their existence was recognised by the Government and also the Government changed the UDA building regulations. You know that is one of the remarkable things that all the countries can learn from that is that in order to accommodate the people in the city, this is the only country that changed the normal building regulations, not changed but actually relaxed the rigid building regulations in order to accommodate the low-income communities. And because of that, what happened was that most of the low-income people's settlements were improved.* (Key informant interview 2011)

This program did improve many of the settlements and the low-income people who lived there obtained the security of tenure, removing the fear many of the residents had about being evicted. The government provided small soft loans to cover construction costs and people were able to build houses themselves. This program had the potential to improve the living conditions of the poor people in Colombo but it did not do enough to change the characteristics of slums and shanties, effectively just creating improved slum and shanties. Sri Lankan professionals criticised the relaxation of regulations, seeing it as a political decision based on the government in power attempting to gain favour before an election (Key informant interview 2011). They argued that this relaxation encouraged slum development and provided a legal entitlement for slums. Most of the key informants also do not agree with changing building regulations to accommodate slums in the city and believe that slums should be developed according to the building regulations in the city, not the regulations developed according to the slums (Key informant interview 2011).

However, the Million Houses Program was very popular with the shanty dwellers and the Government received a lot of positive attention and goodwill from citizens as a result. In 2008, the Ministry of Urban Development introduced a similar program called Kusum Niwasa for the on-site upgrading of under-served settlements in urban areas. To implement this program, the government established a new authority under Act No. 36 of 2008 called the Urban Settlement Development Authority (USDA). The funding mechanism for this authority was provided by a 1 per cent tax placed on all buildings exceeding 500 square metres (Samaratunga 2009). However, after two years the entire program had failed and now the USDA is a totally redundant organisation. The present government has abolished the one per cent tax and USDA receives no support from the government (Key informant interview 2011). The Government received a gain in short-term popularity but the long-term result was failure. The key informant representing the biggest professional organisation in the country saw first-hand the failure of this approach of on-site upgrading, and he states:

> *[The] previous government created an Urban Settlement Development Authority. I cannot see a clear objective in that and they could pick anybody with a plot of land but living under very poor conditions. Then with a tax imposed on all the buildings, they upset the system and about 500 million rupees was earned through that one per cent taxation which was given to this Authority. If you take an audit on that, I think it's a disaster because nobody knows how many people have benefited and to what extent and what are the other benefits that the environment, society and the economy got out of it, So I think that mechanism was a total failure.* (Key informant interview 2011)

Despite these issues, this program was very popular among the low-income people because they received direct financial support of up to LKR 125,000 (AUD 1,250) as a way to improve their existence. Even though this program is considered a total failure and has been

abolished, the minister who introduced this concept won the following election with a huge majority (Samaratunga 2009; Key informant interview 2011).

From a city-planning point of view, on-site slum upgrading has not been considered as a long-term practical solution in Colombo (PTFHUD, 1998; STP & REEL, 1999; UDA, 2008). Other Asian cities, for example Bangkok and Mumbai, are also looking for an alternative to the on-site relocation of shanty dwellers in the cities (Rabe, 2010). The land swap process is one practical approach which can be used instead of on-site relocation. Under the Slum Redevelopment and Rehabilitation Program (1991) in India, the government planned to re-house millions of slum dwellers in new high-rise apartment blocks (O'Hare & Abbott, 1998; Slum Rehabilitation Authority, 2012). In Mumbai, the city authority also developed a new housing policy to create a slum-free environment using the land sharing and exchange process. Under this approach, the Maharashtra state government plans to provide 1.2 million houses for slum dwellers within a period of 10 to 15 years with slum dwellers entitled to 225 square feet of free housing in a high-rise building(O'Hare & Abbott, 1998; Slum Rehabilitation Authority, 2012). Accordingly, it is clear that not only Colombo, many other Asian cities are also searching for an alternative solution to on-site slum upgrading.

The forced relocation of slum dwellers to outside the city is not a good solution as it can cause significant damage to the livelihood of the slum dwellers as well as the city economy (Khan, 1994). Hence, high-rise housing is one option to keep slum dwellers close to income earning opportunities within the city limits and develop Colombo city according to its long-term master plan. However, some communities might reject high-rise housing in the city and would prefer to accept bigger residences on the outskirts of the city rather than live in a small high-rise unit in the same place where they previously lived (Rabe 2010). The Phnom

Penh land sharing project in Cambodia used land swap as a more practical alternative to on-site relocation. According to Rabe (2010):

> *The land swap model was being applied all over Phnom Penh during the 2000s, and the community leaders considered that the model offered several advantages, including the prospect of larger houses than they could obtain in the city centre through land sharing, and at lower densities. In addition, the community leaders reasoned that land prices in the periphery of Phnom Penh were rising steadily, so their new houses and plots of land would represent a good investment over the long term.* (Rabe, 2010)

7.7.2 LOW-RISE HOUSING (WALK-UP APARTMENTS)

Low-rise housing consisting of walk-up apartments (up to four storeys) is another proposal for housing the residents of under-served settlements in Colombo. Considering the financial constraints and other practical and technical barriers against building high-rises, some key informants proposed an alternative of low-rise housing in the form of walk-up apartments. Low-rise walk-up apartment blocks are much cheaper to build and maintain than high-rise buildings. However, the main issues with this suggestion are the land scarcity and high land value in Colombo. This strategy is much more favourable to other urban areas in the country where land is cheap and available. In Colombo, land value is the main restriction in housing, with land cost much higher than construction cost (Key informant interview 2011). The senior government informant who works with the relocation housing project in Colombo believes that low-rise housing would be a good for other urban areas in Sri Lanka that do not have issues with land scarcity, but not Colombo:

> *We have to consider a couple of facts. One thing is that we have to give better living for these under-served settlements. Then we have to give all the facilities, infrastructure facilities. But doing this, they occupied the valuable land in Colombo city. So then if we are going to give a three-storey structure, then we are again*

accommodating them in this same valuable land. But that will not be a good practice or economically viable for a country like ours, especially in the city of Colombo. But outside, of course it is ok because there is no land scarcity and the value of the land is low and so on. (Key informant interview 2012)

He also raised practical issues regarding low-rise walk-up apartments in Colombo city:

Policy wise, I don't think it is a four-storeyed one, because even for the 12-storeyed one, we have said we can go up to a maximum per acre around 350 houses. But if you go for the four-storied, we can construct only 100 houses per acre. 70,000 divided by 100, I don't think you can find land in Colombo for that. (Key informant interview 2012)

The senior government officer engaged in the relocation housing project mentioned that the high-rise option was arrived at after critically evaluating past experiences and the decision created much debate among the experts in the field. The national and regional urban plans highly recommend high-rises for low-income people in Colombo (Key informant interview 2011). The literature about the national and regional plans in Colombo supports the above statement and the CMRS (1998) Plan and the Presidential Task Force (1998) highly recommends high-rise housing for low-income people**.**

The overall objective of the CMRS Plan is to design a strategic physical plan and prepare an action program for the development of the Western region with the aim of meeting the aspirations of the people and improving their quality of life. To achieve the above target, the planners have proposed several alternatives. One of the main proposals is converting 20 per cent of residential land for the use of commercial activities. The allocation of additional land for commercial and mixed development in the city is expected to come from land that has been made available by the relocation of activities and land earlier allocated for housing development in the city. The city planners propose to compensate for this reduction in residential land by providing an increased density of housing units. In other words, housing

development in the future will give priority to intensive development with more high-rise housing schemes to supplement the total land needed for the increasing population in the future (UDA 1998). With the directive to reduce residential land use in Colombo, city planners have taken action and Table 7.3 illustrates the reduction of residential land use in Colombo during the last 30 years. Sahaspura and the Sustainable Township Program was the main outcome of the Presidential Task Force on Housing and Urban Development (1998).

TABLE 7.3: LAND USE DISTRIBUTION PATTERN IN COLOMBO (1981–2010)

Land use	1981		1997		2010	
	Extent (ha)	%	Extent (ha)	%	Extent (ha)	%
Residential	1484.4	40	1401.55	37	1267.86	34
Manufacturing industries	222.66	6	148.53	3.5	111.87	3
Transport, communication and utility	519.54	14	982.52	26	1006.83	27
Commercial	333.99	9	225.32	6	372.9	10
Cultural, environmental and recreational	148.44	4	249.44	8.5	279.675	7.5
Institutional	333.99	9	411.4	11	372.9	10
Vacant and non-urban uses	630.87	17	262.14	7	186.45	5
Other urban uses	37.11	1	48.1	1	130.515	3.5
Total	3711	100	3729	100	3729	100

Residential Land Use 1981 - 2010

Percentage	1981	1997	2010
	40	37	34
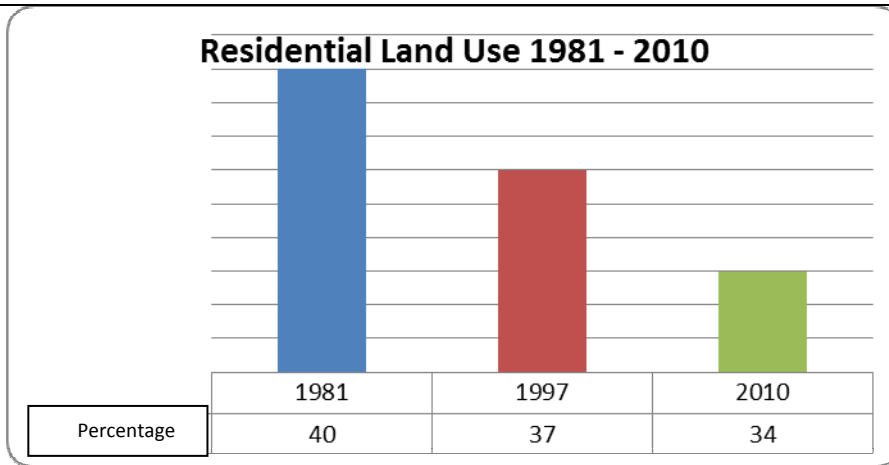
Source: Urban Development Authority 2010

During his interview, the senior government officer who worked on the Sahaspura high-rise low-income housing project said he believed that high-rise is only one option and the Government should not only focus on high-rise housing:

> *I remember 2003, 2004, the same Government thought of reducing the size because of the big challenge to construct high-rise. The best example is the adjoining housing scheme at Sahaspura constructed in 2001. It was five-storey buildings (see Figure 7.4). Therefore it does not mean that high-rises are the only solution and I should say that the Government is not strict on only high-rise* (Key informant interview 2011).

Figure 7.4 : Walk-up apartments adjoining Sahaspura and slum area
Sources: Author's photograph

The retired senior government informant, who has much practical experience in the housing field, argued:

> *This should be an incremental development rather than immediately going high-rise. Because even in Singapore, which is very successful, they also went step by step. You see, they first constructed three-storey houses, and then went to about five storeys and then they went about 10 storeys. Now they are demolishing 20 storeyed and going 40 storeys.* (Key informant interview 2011)

He believes that the success or failure of housing is not dependent on the number of houses which are constructed per acre. Other factors influencing housing including precipitate income, the economic growth of the country and people's attitudes towards high-rises. Therefore, he argues that incremental development is much more advisable than starting with high-rise development immediately.

The literature supports the retired government officer's idea. Singapore and other developed countries with high-rise low-income housing started with three to four-storey housing. Once that new living pattern was popularly accepted and the economic growth of the country supported it, they introduced high-rises gradually and now they have public housing of above 30 storeys (Yuen, et al., 2006).

7.7.3   ENFORCEMENT OF REGULATIONS FOR UNAUTHORISED CONSTRUCTION

Building regulations in Colombo state that almost all slums and shanties are considered unauthorised illegal constructions (UDA 1986). The majority of these under-served settlements are built on government land encroached upon by the poor people (UDA 2010). Therefore, the government could simply take legal action against the slum and shanty residents and evacuate all shanties without any compensation. Existing rules and regulations

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provide enough legal power to take action against the many unauthorised constructions in the city. However, no Sri Lankan government has made the decision to evacuate all shanties, even if they are illegal, without providing alternatives. There are two reasons for this. Firstly, as discussed, the right to housing is a basic need and a fundamental human right. The second reason is for political gain. No government is willing to risk losing approximately 51 per cent of the vote in the city by taking legal action against voters. Ever though radical planners and policy-makers propose taking legal action, the enforcement of regulations for unauthorised construction is not a practical solution at all.

7.7.4 RELOCATE UNDER-SERVED SETTLEMENTS TO OUTSIDE COLOMBO.

One proposal made by the UDA is to relocate under-served settlers to outside Colombo. Considering the land value in Colombo, constructing housing outside of Colombo is much cheaper and easier to implement than high-rise development (UDA 2011). At present (2012) one housing project has already commenced in the Kolonnawa urban council area, adjacent to Colombo. That high-rise low-income project consists of 1,034 housing units (UDA 2011). However, this proposal was not popular as most low-income people do not want to move outside Colombo and away from their existing employment and networks. Accordingly, the UDA has given up construction of new housing outside of Colombo and all other re-housing programs are to be built within the city limits in close proximity to the existing location (UDA, 2011).

Most of the key informants totally rejected relocating low-income people outside of Colombo and believe that any such relocations will not be successful (Key informant interview 2011). According to the NGO informant:

> *You have to ask why the low-income people are in urban areas. Why they are there is because they can find a livelihood. And because they are poor and have no other*

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alternative, they come to the city and find their own way to find a house, and it is the under-served, slum or shanty does not matter to them, if we taking them out of their livelihood. You make the poor more poor. (Key informant interview 2011)

Most of the under-served settlers' livelihood is totally bound to their existing housing and they cannot perform their jobs living outside of the Colombo. In addition, the literature shows that relocating low-income housing far from the city was one mistake made that contributed to the failure of low-income housing in other locations.

The key informant representing the professional institute sees this situation from a different angle. He believes that the city needs these people to live in the city periphery of Colombo to run the city economy:

We can't send all of the low-income people out of Colombo because they are actually running the city in addition to contributing to the informal sector. You know, they are the city cleaning, and there are so many activities conducted by the informal sector. The majority of the people engaged in these activities are living in under-served settlements. So the city needs them. (Key Informant interview 2011)

According to Nirialla (2010), there are two major groups of people living in Colombo: high-income and low-income. Middle-income residents prefer to live in suburbs, where they can live in single or two-storey good quality housing with a small garden, a lifestyle that is not feasible with the high land value in Colombo city. Historically, middle-income people have owned the majority of land in Colombo. They then sold their lands at a very high price and settled down in the suburbs with a much higher living standard. High-income people do not have any problem finding housing in Colombo and low-income people do not have any other option except for living in Colombo (Niriella 2010). Therefore, the relocation of poor people to the suburbs should be carefully handled and literature and past local and international

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experiences provide evidence of many failures that have occurred when relocating outside of the city.

7.7.5 DECENTRALISATION OF ADMINISTRATIVE AND INSTITUTIONAL ACTIVITIES

The decentralisation of economic and administrative activities outside Colombo is another option proposed by some of the key informants. Today almost all of the country's economic and administrative activities are highly concentrated in Colombo, with 35 per cent of the country's national gross domestic product originating from Colombo (Department of Census and Statistics 2010). Therefore, if development were equally distributed in other parts of the country, it would attract people and encourage them to live in other areas. City planners and policy-makers have identified this option as a long-term solution and they have already shifted some administrative capital to outside Colombo. Under this proposal, the Sri Lankan parliament and most government offices are relocated to the Btharamulla area and all government institutes are planned to be moved to a new administrative capital called Sri Jayawardanapura. This proposal may be a practical long-term solutions for the housing crisis; however, it does not provide an answer for existing under-served settlements in Colombo. This strategy does work for discouraging migration to Colombo and allowing more lands for economic developments (Key informant interview 2011).

7.7.6 DISCOURAGE HOUSING DEMAND IN COLOMBO

Discouraging housing demand in Colombo is another alternative proposed by some key informants. Housing demand can be discouraged by several means. Rigid building and zoning regulations are the current planning solution to discourage housing demand in the city. High land value and the scarcity of vacant lands for housing also restrict housing supply in Colombo. This strategy may be of limited effectiveness considering the number of low-

income unauthorised construction and shanties that exist within the shanty towns. Although discouragement is not a solution to the existing situation it may be a long-term solution for city planning (Key informant interview 2011).

7.8 HOUSING POLICIES CONCERNING HIGH-RISE HIGH-DENSITY DEVELOPMENT IN COLOMBO.

Housing policies and housing-related legislation are the main governance mechanisms for guiding housing development in Sri Lanka. After political independence was gained in 1948, governments in Sri Lanka have made several policy decisions in an attempt to upgrade the living conditions of poor people in Colombo city. Some of these policy decisions have resulted in enormous material changes in the housing sector in Colombo. Chapter 5 described in detail the housing policies implemented over the last 100 years in Sri Lanka. The key informants selected as part of this research are all key decision-makers in the housing industry, therefore they are very familiar with Sri Lankan housing policies and the effects of high-rise housing for low-income people in Colombo city. The interviews showed that the key informants have mixed feelings about the present and previous governments' urban housing policies as well as the current housing policy concerning high-rise housing for low-income people in Colombo. The key informants also have different opinions on the Sahaspura development. As discussed in previous chapters, built in 2001, Sahaspura was the first high-rise low-income housing project in Colombo and was part of a larger strategy to build more high-rises to house the low-income people residing in slums and shanties in Colombo. However, since the construction of Sahaspura until the end of the civil war in 2009, the Sri Lankan government had not made any attempt to continue this concept. After 2009, the present government has returned to the high-rise concept and at present nearly 12,000 housing units are under construction in Colombo (UDA, 2011).

When discussing the previous and present governments' policies in the country, the Housing Minister Wimal Weerawansa was highly critical of the housing policies and actions taken by the previous government to house low-income people in Colombo. He stated that the housing situation worsened in Colombo due to inappropriate development policies in the past (Key informant interview, 2011).

Most of the key informants agree with the current housing policy regarding high-rise housing for low-income people in Colombo without qualification. When asked to consider the example of Sahaspura, only the interviewee from the NGO thought it was an incorrect policy decision. He was highly critical of the government's forced relocation of slum-dwellers - he sees it as a serious violation of the human rights of poor people, while the other informants agreed with the policy on principle but noted there were both positives and negatives in the project. When the high-rise housing concept was introduced in Colombo in 1999, there were protests and misunderstandings about the concept and its adaptability to Colombo. Even professionals did not think high-rise development would be a good alternative for Colombo. The key informant who pioneered the Sahaspura project states:

> *I can remember 10 years back when we started to construct these high-rise buildings, big challenges came from these politicians and the people's relatives and the people saying that they can't live in high-rises. Nowadays it is not a challenge because they realise it is a good solution for them. They knew that without this approach they can't live in Colombo. Because they wanted to live in Colombo.* (Key informant interview 2011)

When Sahaspura was built in 2000, there was widespread protest from many politicians and community leaders about the high-rise housing project. Sometimes the government had to use forcibly removed residents and control the protesters due to reduced unnecessary delay of the

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projects. The Urban Development Authority informant also seconded the above statement, stating that:

> *When the government implemented high-rise housing in Colombo, there were big protests getting them [low-income people] out of their lands and there was lot of activity on the roads but now those people are praising the government for giving them better housing.* (Key informant interview 2011)

Similar situations have occurred in Singapore and Seoul, Korea. In the 1960s, the shanties in Singapore were much worse than Colombo's under-served settlements and the Singapore Government made the radical decision to evacuate slums and shanties in the city and relocate their occupants to high-rises. In preparation for the 1988 Seoul Olympic Games in Korea, millions of poor people were evicted from their residences and re-settled in high-rises without proper community consultation. According to Kyu (2001):

> *Millions of poor people, or squatters, have been evicted in the past two decades in Korea. It is observed that housing renewal projects typically involve serious human rights violations. The government usually justices evictions in two ways; 'beautify' or 'improve' the city and 'housing renewal'. Substandard settlements should be upgraded for the poor rather than cleared with bulldozers.* (Kyu 2010 cited; Murphy, 1990; UNCHS, 1996)

This demonstrates that city development and slum upgrading is not an easy or smooth task, even though on some occasions a city authority needs to make radical decisions to implement planning recommendations and improve the living standard of its residents. Today Singapore and Seoul are considered world-class cities and the housing betterment projects benefited all citizens in the country.

Redevelopment and high-rise living are relatively new concepts in Colombo and it was expected that there would be some resistance to high-rises in the beginning due to this unfamiliarity. Culturally and socially, people in Colombo are not used to living in high-rises,

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especially low-income people. For generations, low-income people in Colombo have lived in low-rise housing. So one big challenge for the success of high-rise development is to change the existing mindset and encourage low-income people to live in high-rises. It is necessary to change existing habits, cultural patterns and social networks before resettling parts of the population in high-rises (Key informant interview 2011).

When reviewing Sahaspura 10 years after its construction, most of the professionals interviewed agreed with the Sahaspura concept. The key informant of the Urban Housing Development Authority stated that:

> *I see that [Sahaspura] as good and fruitful. When we consider the space and availability of land, there is no question of constructing high-rise buildings with more than four storeys. Do not think that there are no problems at Sahaspura housing complex. It has become a village with 13 storeys - a high-rise settlement with more than 686 families living in flats. There is a problem there as to due garbage clearance. This is a problem even whether you are living upwards or downward.* (Key informant interview 2011)

His main concern is about waste management, since at the time of writing this thesis Sahaspura does not have an adequate waste management system to cater for the more than 600 families living in one hectare of land. The senior academic informant's opinion on Sahaspura was:

> *Sahaspura, actually, I can say, is a good attempt. It is an experimental basis, so the policies also seems very attractive, but the problem is whether the government can continue with that type of projects because it depends then on the land market and since the slogan is actually 'Land for Urban Development - Housing For Poor'. So that two things should go together. If they can't re-sell the lands that have been liberated from these low-income settlements, then the project will not be a success. But the mechanism, the concept is very good. So it depends on many other external things, one is political stability, the peace, everything. Because once we release these*

lands, these have to be sold at a very high price. Otherwise it is very difficult to find the financial resources for this type of housing programs. (Key informant interview 2011)

Her worry is about the continued funding of this kind of project, particularly given the early stage of the political, social and economic stability of the country.

As expected, the representative from the NGO does not believe in high-rise housing as a good option for low-income people. He states that Sahaspura cannot be considered a successful project (Key informant interview 2011).

Most of the housing professionals and key informants agreed with the concept of high-rise housing as an option for low-income people in Colombo and were interested in seeing whether it works on an experimental basis. If Sahaspura is considered a pilot project in high-rise housing for low-income people, it is fairly successful. However, Sahaspura made some fundamental mistakes as a result of the lack of experience with high-rise development in the country as well as the knowledge gap regarding international experiences with this type of housing. As it is a pilot project, lessons can be learned from this project and the experience gained through this project will be beneficial to upcoming housing projects in Colombo.

7.9 Awareness of the Successes and Failures in other High-rise Low-income Housing Projects Internationally

Even though high-rise low-income housing is new for Sri Lanka, it is not new for many other countries in the world. Therefore, using the knowledge gained from international experiences would be very beneficial for Sri Lankan high-rise housing. The question 'Why have some countries had success with high-rise low-income housing and countries have failed?' was asked during the interviews to explore this idea further.

One of the most surprising results from the key informant interviews was the poor knowledge and understanding of global examples of high-rise housing held by the key informants. Except for the academic and NGO informant, all other key informants had very minimal knowledge about international experiences with this type of housing or about the literature on the successes and failures outside Sri Lanka. The representative of the new relocation housing program demonstrated the common lack of knowledge:

> *I am not sure about the European countries – that situation, but I think it all depends on how you are going to settle the people.* (Key informant interview 2011)

In addition he assumes that the cold climate would be one challenge in Europe and that is why Singapore and Hong Kong do not have many issues with their high-rise low-income projects.

Another key informant said that:

> *I can say only Sri Lanka and especially in Sahaspura. I do not think high-rise low-income housing will fail in Sri Lanka. The main problem is elevators. If we can provide good elevators, high-rises won't be a problem. After 10 years of the Sahaspura, I feel that most people are living happily and their living standard has been improved.* (Key informant interview 2011)

Another senior government officer asked me to give a copy of this thesis. He was interested in this research and advised me to share my knowledge with other professionals who are engaged in the housing sector in Colombo.

Most of the key informants selected for this research were critical decision-makers in the housing sector in Sri Lanka and if they obtained a broader knowledge of high-rise low-income housing on an international scale, it would be beneficial to the industry and minimise the chance of repeating the mistakes made in other high-rise low-income projects. The lack of availability of literature and research in Sri Lanka is the main constraint to increased

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knowledge and the author hopes this research will fill this knowledge gap in the urban housing sector in the near future.

7.10 THE FUTURE OF HIGH-RISE LOW-INCOME HOUSING IN COLOMBO.

The final interview question concerned the current ongoing high-rise housing projects and their future. Under the Relocation of Under-Served Settlement Project, in 2011 there were 12,000 housing units undergoing construction with a further 30,000 housing units planned to be built before 2015 (UDA 2011). All of these developments are high-rises designed to house the low-income people who currently live in under-served settlements in Colombo. The Urban Development Authority is the government organisation responsible for this project, which is being directly supervised by President Mahinda Rajepaksha. The estimated budget of the first stage of development is 82,500 million rupees (AUD 720 million). Therefore, the success and failure of the housing projects and subsequent relocation directly affects the national economy of the country (Key informant interview 2011). At present, the Sri Lankan government and the Urban Development Authority have an enormous challenge to make this project successful as part of an active long-term economic goal for the city as well as the well-being of the entire nation. The key informant interviews demonstrated that almost all of those responsible have a clear idea about the magnitude of this challenge. The most common statement to come from the interviews was that the Relocation of Under-served Settlement Project is not yet a success and a lot of things still need to be done in every aspect of the project. The professionals involved still have to do a lot of work to ensure its success (Key informant interview 2011).

Another question asked was 'At present large low-income housing projects are going on. Do you think those projects will succeed?' As expected, the NGO informant said that it will be a disaster.

The NGO informant was highly critical of the new ongoing housing projects and he strongly believed this project will fail and will be a disaster for the entire low-income housing sector:

> *Yes, disaster in terms that new crimes will come. People will feel stressed. That is why you have to do the right policy. I don't know where they are located, but one thing I can say is that high-rises are not going to be successful for low-income people. You know what they are talking about - 66,000 families. You also don't agree with this, right? I think you have not seen where the people are really living in these areas. The people, how happy they are. They are not going to be happy in high-rise buildings. What is finally important is providing happiness.* (Key informant interview 2011)

He added that "the government's responsibility was not to provide housing, but the government's responsibility is to provide the right policy. Not housing".

What is interesting is that the NGO was the only representative who totally rejected high-rises as an option for housing. Even though all other key informants did not fully agree with high-rises, they accepted the concept with reservation. Their worries were about the sustainability of high-rise low-income housing and the strategy of the government towards overcoming the constraints and common problems concerning high-rise housing (Key informant interview 2011).

The Honourable Housing Minister Wimal Weerewansa was highly critical of the role of NGOs in the under-served settlements during the last decades. He pointed out:

> *According to past history not a single NGO has taken steps to review or relieve this community from this squalor condition of living. They look at this problem as a business trick to rouse the masses and for their own gains.* (Key informant interview 2011)

However, most of the NGO informant's arguments appear to be logical and sound. NGOs have strictly defined responsibilities in regards to urban housing and can intervene only when

these people live in poor conditions, like in the shanties and slums. With the high-rise housing concept, the NGO no longer has a role. Participatory housing, self-help housing and social upgrading are the main interests of most of the NGOs and they can get funds only for these kinds of projects (Key informant interview 2011). Finally, the author confronted the potential bias of the NGO representative, "You are the only person who is dead against high-rise development and the professionals are pointing their fingers at you, saying that you are trying to market poverty for your own gains." The NGO informant responded angrily to that statement and answered:

> *One of the disadvantages I have is that I am a planner. Even some of my students, they don't respect me as a teacher because I am [from] an NGO. But they don't know the type of work we do with the urban poor. So you are saying that we are marketing the poor... Don't say that we are marketing the poverty. It is baseless and they don't know what it is. Another unfortunate thing is that those who are planning for Colombo, they don't know about Colombo.* (Key informant interview 2011).

At the end of the interview, the NGO informant challenged me in response:

> *You write your thesis and keep it and may be after 10 years, you keep this recording and listen to it and you will know that what I have said is going to happen.* (Key informant interview 2011)

However, all other informants did not totally reject high-rise low-income living or anticipate that it will end in failure. Nevertheless, they do believe there are lot of things that must be done to make high-rise low-income housing successful. The informant representing the professional institute of planning pointed out:

> *If you ask me in terms of numbers, it's not going to deliver results. If you do not properly plan from that larger perspective in the background, then the numbers will never be successful. So there should be a community consultation process that you are going to get these houses under these circumstances and this sort of environment we*

are creating. Otherwise it is a numbers game. [A] numbers game will never be successful. (Key informant interview 2011)

He proposed that the government should pay more attention to the quality of the result rather than the quantity of housing units. This view is supported by the literature. In the early 1950s, most of the public housing projects built in America focused on delivering as many housing units in as short a time with as limited a budget as possible. The final result of this policy was most of their housing projects could not achieve their targets and were both symbolic and practical failures. Many, for example Pruitt-Igoe, have since been demolished (Cisneros 2009).

The key informant representing the Urban Development Authority has very positive views of the ongoing housing projects in Colombo:

> *We are very hopeful and we have come up with other parties who have participated with us. Everyone is excited about it. We are still in the preliminary stages of doing that. We have done the first housing schemes and re-housed the people and they are living very happily. And if you can get the media coverage on this, there was a big protest about getting them out from their lands, and then there was lot of activity on the roads, after that they were re-housed in temporary houses. But now those people are praising the government for giving them better housings and they are living in Dematagoda, you know the place, and they are very happy about it.* (Key informant interview 2011)

Furthermore, he is very optimistic about the economic feasibility of this project, where the main funding source is resale of "liberated" land from the shanty dwellers:

> *So in the same way we are hopeful and very excited about what we are doing and very soon the lands that are liberated will come into effect, and international and big companies will be participating in this program and funding won't be a problem within this mechanism.* (Key informant interview 2011)

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The informant representing one of the biggest and best-known private property developers in the country supported the UDA's statement about the private sector participation in land development in Colombo. Furthermore, he highlights:

> *The government is really committed. Yes, it can be done. I think yes. Financially also, we can relocate those people or else you give the land to private people. Now what happened some where there, near 'Samantha' that horizon, high-rise, that has been given to the private, it's a government land, so that 'Watta' - they have released that one, and they have asked the people who are living there, to be also given small low-cost housing unit. So that you give them good houses and you are also releasing land which can be well utilised.* (Key informant interview 2011)

However, the Housing Minister Wimal Weerawansa does not have any doubts about the success of high-rise housing for low-income people. When the author asked, "Do you think those housing projects will succeed?" he responded, "Success inevitable" (Key informant interview 2011).

The academic informant has a very good familiarity with the high-rise low-income housing process both in Colombo and on a global scale. As she is not affiliated with the project, this researcher believes that her answers are less biased than that of other respondents. She said:

> *Yes, it will be a success depending on many other factors. For example, it will be better if the government can do a kind of an evaluation survey on this reprocessing, regarding housing the poor, so then there can be lessons learnt. If they can identify what are the weak areas, what are the areas to be improved and if they have a good knowledge, then of course these housing projects will be a success to a certain extent.* (Key informant interview 2011)

In conclusion, when critically evaluating the key informants' views, the literature and observations, it is clear that the success of high-rise low-income housing does not depend on a single factor: it is always associated with several variables. Therefore it is hard to predict

success or failure of future high-rise housing projects without proper evaluation. Each individual case needs to be critically analysed across all of the different aspects to see how each issue contributed to the success or failure of high-rise low-income housing.

Taking into consideration the key informant interviews, observation literature and existing theories, the following section will discuss the main challenges which affect the success or failure of high-rise low-income housing in general and in Colombo, Sri Lanka.

7.11   MAIN CHALLENGES FOR HIGH-RISE LOW-INCOME HOUSING IN COLOMBO

Based on the key informant interviews, participant observation, case study, the literature review and existing theories, this section analyses how certain variables (see Figure 7.5) affect the Sri Lankan low-income high-rise housing sector and what strategies the key informants have proposed to overcome and minimise these issues in future high-rises in Colombo.

According to the evaluation model of success and failure of high-rise low-income housing shown in Figure 7.5, it is clear that the failure or success of a high-rise project does not simply depend on one reason: success or failure is always associated with the complicated issues that surround the project. Therefore it is not easy to establish why some high-rises succeed while others fail and each case needs to be critically evaluated, taking into account all variables. Existing theories, conceptual frameworks and models in housing research primarily evaluate social issues in the housing sector, particularly people's satisfaction with their housing, and none of them critically evaluates the success or failure of high-rise low-income housing with a multidisciplinary approach. Social issues are only one aspect of the success or failure of high-rise housing and successfully managing social issues alone is not considered the sole contributing factor to the success of high-rise urban structures. Therefore,

a multidisciplinary approach is really needed to evaluate the success or failure of high-rises. It is necessary to use existing theories designed to overcome social issues in high-rise living as well as financial, management and technical issues to critically evaluate high-rise housing for low-income people overall. Figure 7.5 provides a detailed overview of the main evaluation criteria and variables that are required to assess high-rise low-income housing both in general and in Colombo specifically.
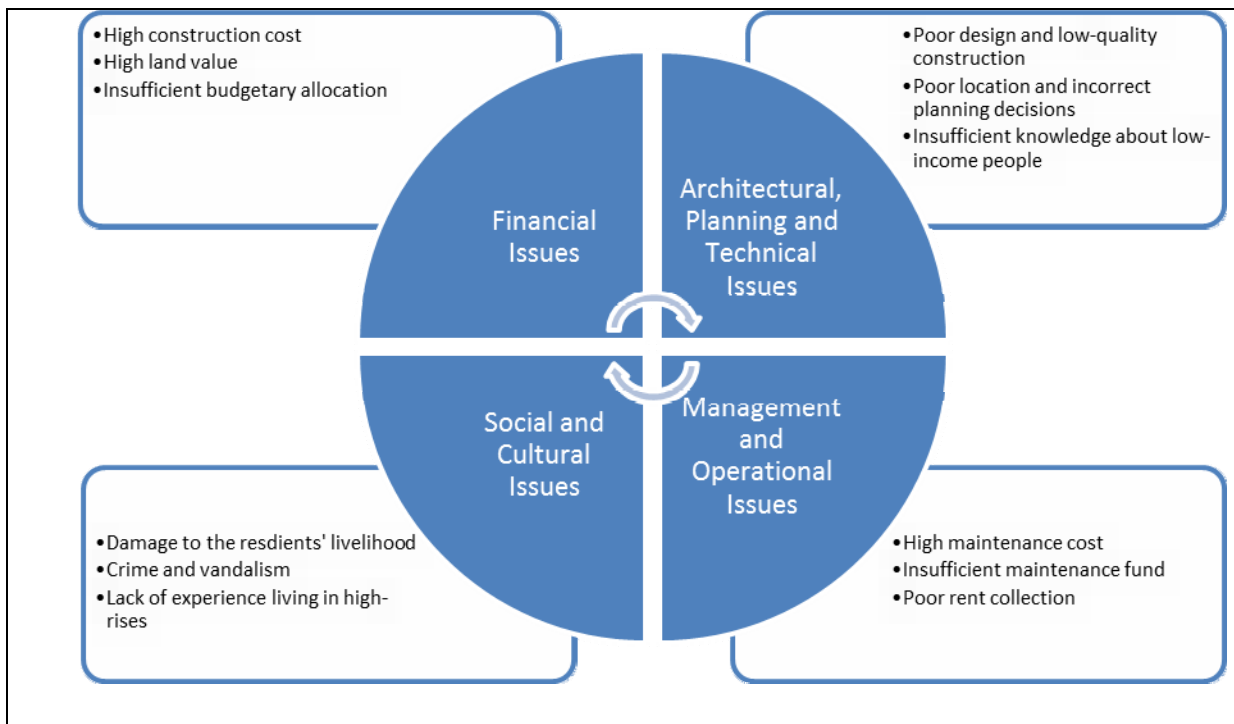

Figure 7.5 Evaluation model of success or failure in high-rise low-income housing

Source: Author's sketch : Based on (Key informant interview 2011; Julie, 2006; McCray & Weber, 1991; Mohit, Ibrahim, & Rashid, 2010; Samaratunga, 2011; Shumarker, 1985; Steggell, et al., 2003; Stokes, 1962)

7.11.1 SOCIAL ISSUES

High-rise housing for low-income people is a relatively new concept in Sri Lanka and most people do not have any experience living in a high-rise apartment. While creating homes in a high-rise, it is necessary to identify the natural human responses, common attitudes and social

behaviour of the people (Kavanagh, 2010). The key informants recognised that social issues are another challenge for high-rise housing. They highlighted that some high-rise low-income housing projects would be very successful from a planning, architectural and financial point of view but have a low people satisfaction level. According to the academic informant:

> *Socially, people [in Colombo] are not really used to living in high-rises, especially the low-income. For generations they have been living in very low rise, very low-density areas. So one big challenge is to make their mindset to live in the high-rise. Therefore we have to change their habits, the cultural patterns – everything.* (Key informant interview 2011)

This comment highlights the challenges of introducing a new housing form. High-rise living is a very different lifestyle from the experience of living in slums and shanties. People cannot be happy and content in a high-rise unless he or she understands what high-rise living really is. According to the town planning informant:

> *Before accommodating people in high-rises, first developers should have to orientate or to change their mindset. Especially the low-income people take time to change their environment and living patterns. Occupants have to be trained on how to use the common facilities and share with others. (Key informant interview 2011)*

Therefore, it is very important to handle social issues very carefully. Policy-makers have to understand the people who are going to live the housing projects on a social, cultural and educational level.

In addition to the lack of knowledge about high-rises and high-rise living, the other main social issue is the livelihoods of low-income people. Housing is the key to a livelihood for many of urban poor and they perform many activities in the place where they live. If the same activity cannot be performed in a high-rise building it would directly affect their income. According to the NGO informant:

Talking about low-income people, housing is more than a basic need. Housing also for the low-income people is a livelihood because the lower income people are living in such areas such as urban areas, not because they need the housing, but because first they need the livelihood. So that is why they don't mind living in an under-served settlement as long as they have the location to earn an income and that is an important thing. (Key informant interview 2011)

Furthermore, he was highly critical of the current government policy of constructing high-rises for low-income people. His comment was:

If we relocate these people to a high-rise without providing the proper livelihood, we make the poor, poorer. Because you are taking them out of their livelihood. I will give you an example. Let's say there is a guy whose livelihood is repairing bicycles and let's say we take him to the 12th floor of the high rise, so how he can do this? He cannot run his cycle repair. You can provide the concrete home, but no employment. (Key informant interview 2011)

He also argues that in spending 2.5 million rupees to relocate one low-income family, the government has spent 2.5 million rupees to deprive this person of their livelihood, rather than making an investment in their improvement. They may have good housing but no employment. Logically this argument is correct. People can't live without income and if high-rises restrict their income it would be a significant social issue.

The key informant representing the relocation program did not agree with the NGO informant's argument. He believed instead that most under-served settlements in Colombo consist of a non-migration population who live in the same place for 30-40 years and are used to city life. Many were casual employees, for example labourers, cleaning staff and Pavement venders, who did not depend on their residential environment for their livelihood. Therefore, location is more important than the house. This is supported by the literature, which shows that only six per cent of under-served settlers have their livelihood dependant on their

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housing (IMCAP 2003). In Sri Lanka's first high-rise low-income housing project, Sahaspura, only 3.8 per cent of residents were unemployed, compared to nationwide unemployment which is approximately 8.4 per cent (IMCAP 2003).

According to the author's observation and interviews with the main decision-makers in the low-income housing sector, necessary steps have been taken to minimise the damage to resident-based livelihood issues. In the Sahaspura project, the requirements of the community were identified and the ground floor and some places in the upper floors were allocated for small businesses to accommodate those people who engaged in business before moving to high-rise housing. Figure 7.6 shows examples of some of the small businesses running on the ground and upper floors in Sahaspura. In addition, Figures 6.4 and 6.5 show the Sahaspura floor plan to see how planners allocated spaces on the ground and upper floors.

Salon (ground floor)	Grocery (ground floor)	Bicycle repair (ground floor)
Dispensary (3rd floor)	Leather product (9th floor)	Shoe making (12th floor)

Figure. 7.7 Livelihood in "Sahaspura"
Sources- Authors' Photo

Crime and vandalism is another social issue common in high-rise low-income housing. The key informants had mixed feelings about crime and vandalism in high-rises. Only two informants believe crime and vandalism will increase in high-rises. The other informants feel it is easier to control illegal activities in formal housing rather than slums and shanties. However, crime and vandalism are serious issues in high-rise low-income housing and legal action alone would not work in this kind of society (Key informant interview 2011).

The lack of knowledge about the realities of high-rise living, livelihood issues and crime and vandalism are the main social issues associate with Sri Lankan high-rise low-income housing

that were discussed in the key informant interviews. Additionally, the informants advised the policy-makers to handle social issues very carefully and allow time for social issues to resolve themselves, as it takes time for socioeconomic groups to settle and become accustomed to high-rise living.

7.11.2 FINANCIAL ISSUES

Around the world, financial issues are the main challenge for providing housing for low-income people. Housing for low-income people is considered a welfare project and, as such, is based on the idea of the government supporting and providing for weaker groups in society. Due the higher cost of construction and maintenance, this situation is much more complicated with high-rises than single or low-rise developments. In Sri Lanka, funding is undeniably the main challenge in the development of high-rise housing for low-income people. Sri Lanka is a developing country, so it is not easy to allocate millions of dollars of government funds for housing when there are other pressing requirements such as education, health care and infrastructure. All key informants agreed that the main financial challenges associated with high-rise low-income housing in Colombo are a lack of budgetary allocation, the high land value in Colombo and the high construction cost of high-rises. This is demonstrated in the interview of the representative from the ongoing high-rise relocation programs in Colombo:

> *Challenges … of course, our project challenges are the funds. Basically, what we estimate is that we need at least 2.5 million [rupees] for a 400-square foot housing unit. That is carpet area. When it comes to common area, there is high expense. There are major challenges in the funding.* (Key informant interview 2011)

The construction of 66,000 housing units with a cost of LKR 2.5 million each is not an easy task. Simple calculations estimate the total cost of the entire relocation program proposed by

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the government at approximately LKR 165,000 million (AUD 1,500 million) (UDA, 2011). Therefore, regardless of considerations of whether high-rises are the most appropriate solution for low-income people in Colombo, the government needs to justify how they allocate that large amount of money in this project.

Responding to questions about the funding issues in this program, a senior government employer in the UDA stated that the relocation program in Colombo is not just a housing program, it is integrated with the entire urban development plan of Colombo and funds have been created through the project, particularly through the sale of land. Land exchange is the primary funding mechanism in this program, as is evidenced by its slogan: 'Land for Urban Development - Housing for the Poor' (UDA 2011). Theoretically, the concept of using the project as its own source of funding is very attractive; however, practically this situation is not progressing as smoothly as the government expected. According to the senior academic informant:

> *The concept is very good. It depends on the land market since the slogan is actually 'Land for Urban Development - Housing for the Poor'. So those two things should go together. [If] they can't re-sell the lands that have been liberated from these low-income settlements, then the project will not be a success. But the mechanism is good. So, it depends on many other external things, one is political stability, the peace, everything. Because once we release these lands, these have to be sold at a very high price. Otherwise it is very difficult to find the financial resources for this type of housing program.* (Key informant interview 2011)

The key informant interviews and literature demonstrate that historically funding has been one of the main constraints in building high-rises for low-income people and this problem has occurred in Sri Lanka. The Sri Lankan government has identified this issue and they have their own mechanism to address the financial constraints. Land exchange is one strategy for raising the funds for this program, an approach that the majority of the key informants believe

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is good. The end of the civil war, political stability, investment-friendly economic policies and an economic growth of over 8 per cent have added further confidence that this plan will succeed (Key informant interview 2011).

Looking at the broader global perspective of experiences of the land exchange and land-sharing process, many projects did not realise the success anticipated. Making a critical evaluation of the Bangkok and Phnom Penh experiences, Rabe (2010) identifies three main preconditions that need to be in place for the project to succeed. According to Rabe (2010), a booming property market, physical and technical feasibility and financial feasibility are the contributing factors of success in land exchange projects. Given the increased financial and economic security due to the end of 30 years of civil war, the property market has been significantly increasing in Colombo and well-managed and well-organised projects can reduce the physical, technical and financial risk associated with the projects.

As discussed earlier in this chapter and in the literature review, another alternative to address the funding issues with high-rises is reducing the construction cost. However, this strategy should be applied very carefully. Building cheap housing by cutting basic requirements, for example using inferior building materials, or relocating low-income housing away from the city where land is cheaper are not advisable (Key informant interview 2011).

7.11.3 Architectural, Planning and Technical Issues

Gotabaya Rajapaksha (2010), the Secretary of the Ministry Defence and Urban Development, gave a speech on World Town Planning Day (2010) where he highlights that:

> *At least 2.5 million rupees is required to resettle one of these families at a small housing unit. We have to find money to relocate these families. Town planning comes in here. Town planning should be realistic and town planners have a big challenge while doing this.* (Rajapaksa 2010)

The above statement shows that the government expects considerable professional input in this program in order for it to succeed. Therefore planners, architects, engineers and all professionals who engage in the relocation program have a huge responsibility to ensure its success and they have to be careful not to make any mistakes and to not repeat mistakes that have been made in other developments previously (Hauge, Magnus, Denizou, & Øyen, 2012). Professionals need to learn from local and international past projects and draw from existing experiences (Key informant interview 2011).
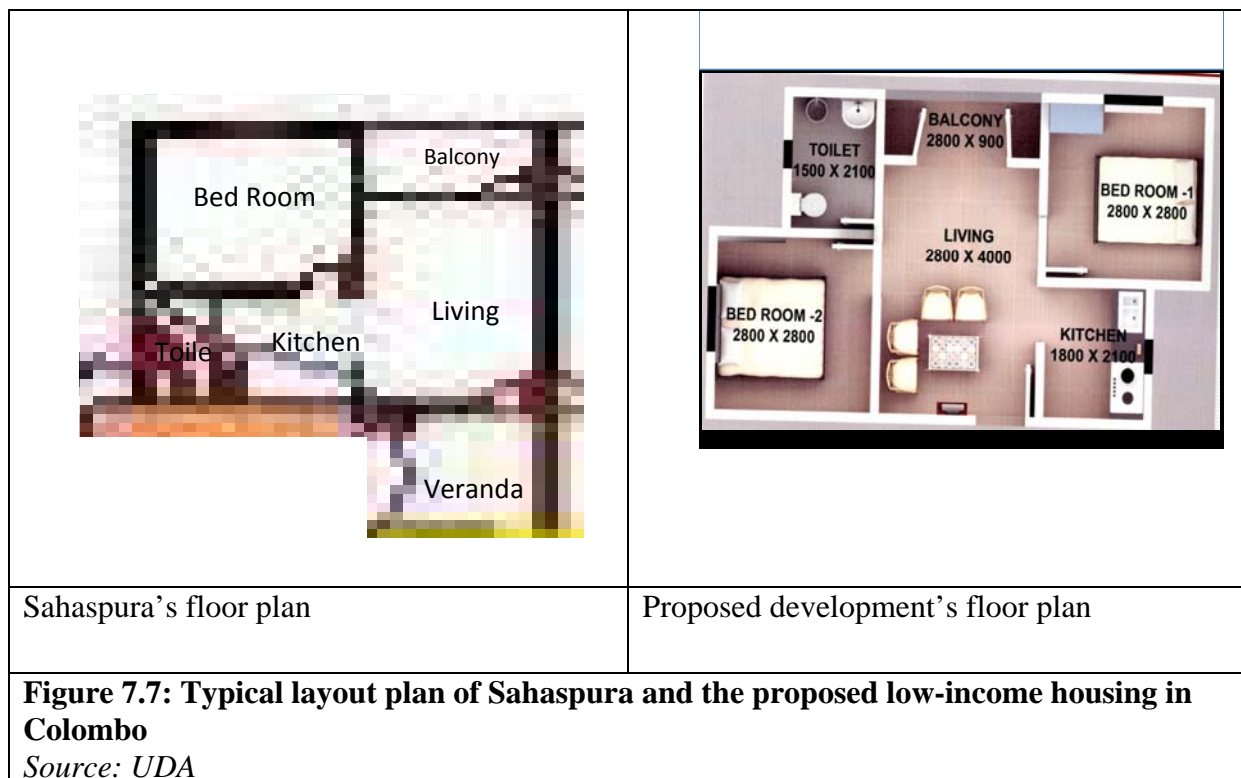
Technical issues, including planning, architecture and design and engineering issues, have been associated with the failure of high-rise low-income housing in the past. Professionals and decision-makers should take responsibility for these kinds of failures (Hauge, et al., 2012). Most of the key informant interviews highlighted professional failures in high-rise housing and their main concern was the same mistake being made repeatedly (Key informant interview 2011). Here, a lack of feedback from previous projects can cause major damage to the industry. One of the key informants was highly critical of the planners who were engaged in the urban low-income housing sector in Colombo. His suggestion is:

> *I think we have to train our planners. There is a process that we call 'unlearning'.*
> *What we learn in the universities and other places is not applicable. So planners must*
> *open their eyes to what is going on around them. The other challenge is the planners*
> *who do not have the proper exposure and experience of the global situation. If they*
> *really study the situation in other countries, they can correct a lot of mistakes. As a*
> *planner in this sector you will also learn lessons.* (Key informant interview 2011)

Referring to my job as a planner engaged in the urban housing sector, this key informant strongly advised the author to learn from past experiences. However, a lack of knowledge of past experiences is not the only perceived cause of failure. Bureaucratic decision-making, a

lack of coordination with other professionals who are engaged in the industry and negligent work also count as the professionals' failures (Key informant interview 2011).

In the design stage, the architect has a key role and creative design can reduce many of the risks associated with housing projects. However, most of the previous low-income apartment schemes have been designed prioritising financial constraints. During the interview with the senior architect engaged in the relocation program, he mentioned that they have learned from their experience with Sahaspura and even though they are under immense pressure about cost, they increased the minimum floor area of the unit and have given two rooms to every family instead of the one-room studio type housing used in Sahaspura (see Figure 7.7) (Key informant interview 2011).

| Sahaspura's floor plan | Proposed development's floor plan |

Figure 7.7: Typical layout plan of Sahaspura and the proposed low-income housing in Colombo
Source: UDA

Increasing the floor area, therefore providing families with two rooms, is good for poor people in Colombo. The housing density in a proposed high-rise low-income housing project has increased dramatically (see Table 7.4). The literature shows that massive construction, a large number of units in one area, over-population and moving all low-income people to the one area can have a negative impact on a project. Most key informants do not agree with increasing the density of low-income housing and believe it may contribute to a negative result in the process of creating appropriate and sustainable low-income housing in Colombo. According to the senior architect informant:

> *If [the] main concern [is] about numbers, it's not going deliver the result. Number games will never be a success. (Key informant interview 2011)*

Table 7.4 shows the housing density of the proposed housing projects in Colombo. The proposed average housing units per hectare is 710, increasing to 900 units per hectare in some areas. These are extremely high density by world standards: Paris, France has a density of 300 homes per hectare, Barcelona, Spain has 500 homes per hectare and in the Kowloon district in Hong Kong there are 1,700 per hectare (King 1988; Weaver 2003; Wai & Lai 2010). The density of Sahaspura was 671 units per hectare and most informants believe that density is too high (Key informant interview 2011).

	Name of site	Land extent (hectare)	Number of housing units	Housing units per hectare
	Table 7.4 Density of the Proposed Low-income Housing Projects in Colombo			
1	Mayura Place	0.169	120	710
2	Dematagoda CGR Land	2.023	500	247
3	Estate 54	0.887	720	811
4	Estate 66	0.457	432	945
5	Aluthmawatha	1.821	1,392	764
6	Henamulla	1.214	1,137	936
7	Cyril C Perera	0.607	322	530
8	Maligawaththa CGR Land	3.642	2,304	632
9	Jewel Art Land	1.821	1,750	961
10	Ferguson Rd	1.214	912	751
	Total	14.568	10,356	710
	Source: UDA			

In addition to density, location is another key factor in the success of high-rise low-income housing. According to the literature, one of the major contributors to the success of previous low-income housing projects in Colombo (including walk-up apartments) was the central location for low-income housing chosen by the city planners, which meant that low-income people had easy access to their livelihood and employment. However, under the new proposal some resettlements will be located far away from Colombo. Most of the key informants believe this is a wrong policy decision that will have negative ramifications (Key informant

interview 2011). The literature supports the relocation of low-income people away from the city as a factor for the failure of high-rise projects. During the 1950s, the Philippine government developed a massive slum clearance program and relocated their residents to good housing some 35 to 40 kilometres away from the capital city of Manila. Most of the slum dwellers quickly returned to the city and were soon living in situations that were worse than where they had resided previously (Dennis 1990). Therefore, relocating slum dwellers far away from their existing location is not a practical approach.

To summarise the key informants' views of the architectural, planning and technical issues related to high-rise low-income housing in Colombo, they believe most professionals do not have sufficient knowledge about low-income people and their social, economic and cultural background. The wrong planning decision, poor architectural design and low-quality construction would also contribute to the failure of high-rise housing in Colombo (Key informant interview 2011).

7.11.4 MANAGEMENT ISSUES

Maintenance is another issue in low-income high-rise housing, as can be seen with other high-rise low-income projects globally. Poor maintenance leads to the deterioration of the building and can create a very negative image of the entire housing project. However, maintaining large high-rise buildings is not an easy task and requires significant capital. The respondents interviewed believe that without a proper mechanism in place for maintenance, it is impossible to even consider high-rise housing for low-income people (Key informant interview 2011).

The key informants noted three core issues related to maintenance and management in high-rise low-income housing in Colombo during their interviews. The high maintenance cost in

high-rise buildings was the first issue. High-rises require significantly more regular maintenance than detached or semi-detached housing and the cost of that maintenance is relatively high. However, this problem can be solved if the high-rise's housing management corporation have enough money in the maintenance fund. The second issue, logically, was an insufficient maintenance fund. The third issue was poor rent collection and lack of contribution to the maintenance fund (Key informant interview 2011).

Understanding the magnitude of the problem, the key informants suggested two alternatives to overcome the maintenance issues in low-income high-rise housing: reducing the maintenance cost and raising extra funds for the management board.

Reducing the Cost of Maintenance

Reducing the maintenance cost is the best and most practical way to address the issues associated with the cost of maintaining high-rise low-income housing. Reducing maintenance costs can begin at the initial stage of planning and design. Planners and architects should have a proper understanding of the regular and periodical maintenance of high-rise buildings so they can remove any unnecessary aspects in the planning and development stage. Using standard and durable material can also reduce the need for regular replacements and maintenance. Community participation is another method to reduce the maintenance cost. Even if they cannot afford to contribute money for the maintenance fund, the community can contribute their labour for maintenance. The kind of community that would be housed in a Colombo low-income high-rise typically contains plumbers, electricians, masons and similar tradespeople who can provide their skills and services at cheaper rates and general labour work is done on voluntary basis. The manager should also be appointed from within the community and can be anyone from an unemployed graduate to senior citizen. As far as security is concerned, they need not hire the services of any private security service. Instead,

the residents can shoulder the responsibility of taking care of the security in the building. Education and awareness can also enhance the quality of the building and reduces regular maintenance (Key informant interview 2011; STP & REEL, 1999).

Raising Extra Funds for the Management Corporation

The management board is the legal entity responsible for maintenance and management of the building. It is their responsibility to collect and manage the funding required for management of the building. However, in practical situations it is hard to collect money for the management funds from low-income people on a regular basis. A suggestion from the retired senior government officer who worked on the Sahaspura project to solve this problem is:

> *What we are suggesting in future housing schemes, government should add at least 10 per cent of construction cost for maintenance fund and deposit it in the bank account for maintenance in addition to contribution of the tenant.* (Key informant interview 2011)

The most practical and realistic way to obtain the necessary money is not from monthly contributions but a one-time initial compulsory payment from the government and tenants. This strategy had been used successfully in the Sahaspura project - every single householder contributed 25,000 rupees (AUD 240) on the day they received the key for their unit, even though they received the unit free of charge (Niriella 2010).

The key informants also proposed other avenues for increasing the maintenance fund: renting out the commercial establishments within the development such as the community centres and allowing common space to be used for advertisements and publicity.

7.12 CONCLUSION

Key informant interviews, a literature review, policy analysis, documentary analysis,case study and observation were the main data collection methods used in this research. This chapter critically analysed the data gathered from the key informant interviews with the literature, policy analysis, case study findings and participation observation working in the urban housing sector.

The key informant interviews demonstrated clearly that Sri Lankan housing professionals and experts have different viewpoints about the current housing issues in Sri Lanka and how best to solve them, particularly in Colombo city. The option to build high-rises to house low-income citizens was as controversial issue. However, none of them underestimated the magnitude of the housing issue in Colombo. Whether or not the housing industry and housing professionals agree with the urban strategy of the current government, a policy decision has been made to build high-rise housing for low-income families currently residing in slums and shanties. To ensure the success of these projects, it is important to find out how to develop high-rise housing and evaluate major issues associated with high-rise housing for low-income people while minimising the risk of failure.

The final chapter of this thesis makes recommendations about high-rise housing for low-income people in Sri Lanka and outlines the contribution of this research to theory, literature, and the housing profession. It also discusses how this contribution fills the knowledge gap that this research has identified.

8. CONCLUSION AND RECOMMENDATIONS

8.1   INTRODUCTION

A city does not consist of only high-income occupants: a city needs low-income citizens for its survival and economy (K. Deheragoda, 2007) .Therefore, the need to provide housing for those who have a low-income who live within city limits is not just the responsibility of themselves or the government, but a common challenge for all. However, finding appropriate housing for low-income people can be difficult in cities like Colombo in Sri Lanka where land is both scarce and costly. Low-density detached or row housing is not a realistic option considering the land scarcity and high cost of land in urban areas, and slums and shanties are not desirable solutions for those living in poverty. This research is concentrated on Colombo, Sri Lanka, and the research proposition is that high-rise housing is a practical solution for housing for low-income people in this city. This in turn raises the issue of how to develop high-rise housing for the low-income people who currently reside in slums and shanties and how to improve their standard of living while causing minimum disruption or damage to existing living patterns and livelihoods. This thesis discusses the topic within a broad scope that considers international experiences with low-income housing and then addresses a specific research focus - the appropriateness of high-rise housing for low-income people in Colombo.

This chapter contains a final summary of the research and is divided into two sections. The first section evaluates the achievement of the research objectives and the contribution of this thesis to academic knowledge in terms of contribution to the theory, the field of research on Sri Lanka and to the housing and town planning profession. Secondly, this chapter proposes recommendations for addressing the financial, technical, social and management challenges

related to high-rise low-income housing projects which were identified in Chapters 3 and 7, focusing on low-income housing in Colombo city.

8.2   ACHIEVEMENT OF THE RESEARCH OBJECTIVES

This thesis studied the housing shortage in the city of Colombo in Sri Lanka. It focused on under-served settlements and attempted to determine whether the development of high-rise housing would be an appropriate solution for low-income people in Colombo City.

The main objectives of this research were to critically evaluate the Sri Lankan government's past and present housing policies in comparison to local and international experiences with high-rise low-income housing and to explore whether high-rise housing is an appropriate solution to address the scarcity of housing in Colombo. To meet these research objectives, Sri Lankan housing policies from the British colonial period through successive governments to the current government were evaluated. Analytical priority was given to the urban housing policies which had special reference to high-rise housing in Colombo city. Chapter 5 detailed the housing policies implemented by governments in Sri Lanka since British rule and then examined the current high-rise housing policy in Colombo city, in particular looking at how this housing policy works as a solution to the problem of low-income housing scarcity in Colombo.

The sub-objectives of this research were:

- to analyse the high-rise low-income housing solutions implemented in various parts of the world and to examine the challenges faced by those developments;

- to investigate the concept of high-rise residential developments and understand their relevance and importance to the contemporary situation in Colombo;

- to examine appropriate housing options for low-income people in Colombo; and

- to study, analyse and evaluate the nature of existing high-rise low-income residential developments and the Sri Lankan government's housing policy for low-income people in Colombo.

The literature review in Chapter 3 critically analysed the high-rise low-income housing solutions implemented in other cities in the world and the challenges faced by those developments. It also investigated the concept of high-rise residential developments, focusing on the relevance and importance of this type of development to the contemporary conditions in Colombo, using as case studies various policies implemented by the Sri Lankan government since the 1950s. The appropriateness of high-rise housing for low-income people was a key question of this research and it was difficult to find a specifically relevant theory, framework or evaluation criteria to assess the appropriateness of high-rise housing for low-income people both in general and in Colombo, Sri Lanka particularly. Accordingly, the thesis utilised an inductive approach using existing housing theories, literature, policy analysis, observation and key informant interviews as guidance to develop a theoretical framework in this research. Chapter 2 described the theoretical position of the research and Chapter 7 analysed the theoretical contribution of the research.

Finally, this research critically analysed and evaluated the nature of existing high-rise low-income residential developments in general and in Colombo, and the Sri Lankan Government's current housing policy for low-income people in Colombo. The Sahaspura high-rise housing project was the key case study in this research and Chapter 6 discussed this project in relation to the Sri Lankan government's housing policies, while also considering the future of high-rise low-income housing in Colombo. Chapter 8 links the theory about high-rise housing to the practical situation concerning high-rise low-income housing in Colombo through evaluating the key informant interviews, literature, policy analysis,

observation and existing theories. Accordingly, this thesis addressed all of the key objectives in the research while contributing to the literature about high-rise low-income housing in Colombo.

8.3 CONTRIBUTION OF THE RESEARCH

This research examined the scarcity of low-income housing in Colombo, Sri Lanka, investigating whether high-rise housing is a viable alternative to accommodate those who live in the existing under-served settlements. A study of the literature has shown that high-rise housing for low-income people is a controversial topic all over the world. However, what really interested the researcher was why some countries have been highly successful with high-rise low-income housing while other countries have experienced large-scale failure with the same type of housing. Colombo has had both successful and unsuccessful low-income high-rise and low-rise housing projects. Additionally, the key informant interviews showed that Sri Lankan housing professionals and policy-makers have mixed feelings about high-rise low-income housing in Colombo and the future of high-rise low-income housing in Colombo. However, there is a lack of literature in this area and Colombo city needs to be the subject of more academic research to discover what the main factors are in the success or failure of low-income housing, especially high-rise low-income housing. This research has provided several significant contributions to the theory, research and practice in the fields of high-rise low-income housing, both in general and also specifically addressing Colombo and Sri Lanka.

8.3.1 CONTRIBUTION TO THEORY

This research began by discussing the fundamental human need for housing. Access to safe and secure housing is a human right, yet worldwide millions of people live without habitable housing. This thesis placed low-income housing issues in Colombo, Sri Lanka within the broader perspective of local and international literature, theory and the practicality of housing

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issues in the urban low-income category. The proposition of the research was to investigate whether high-rise high-density housing may be an appropriate solution for the problem of housing scarcity for low-income people in Colombo. To address the research proposition, it was necessary to critically analyse and evaluate the theoretical and technical definitions of the main themes of the research and to develop on appropriate method to assess the appropriateness of high-rise for low-income people. Accordingly, the theoretical contribution of this research has two components. One discussed the theoretical and technical definitions of the key themes in the research and explored the most suitable definitions for the research interest and the options for providing housing for low-income people in Colombo city. The second component of the research attempted to find out logical ways to evaluate the appropriateness of high-rise housing for low-income people in Colombo city. Therefore, the research assesses the existing theories in the housing research field in combination with the literature, observation and key informant interviews and develops a model to evaluate the appropriateness of the high-rise low-income housing in Colombo, Sri Lanka.

Most of the existing theories in housing research concentrate on social issues and financial matters in the housing sector and are widely applied to analyse satisfaction with housing, housing decisions, residential mobility, housing preferences, meanings of housing and the effects of homeownership. However, the primary objective of this thesis is not to critically evaluate social issues or resident satisfaction in housing: the main purpose of this research is evaluating the appropriateness of high-rise housing as an approach to reduce the number of people living in under-served settlements in urban areas, particularly Colombo City. In this regard, it is difficult to find an exact theory or model that will evaluate the appropriateness of high-rise for low-income people, as social and financial issues are only two aspects of the research. This thesis broadly considers the city planning aspect of high-rise housing for low-

income people and resident satisfaction alone cannot be used as the only measure for success of high-rise in urban developments. Therefore, the research utilised a multiple criteria method to evaluate the research question and amalgamated social issues, financial issues, technical issues and management issues to develop an evaluation model in the research. That new evaluation model argues that the success or failure of high-rise low-income housing is not dependent on the place or country - it is dependent on how the key issues in the each project are addressed. Additionally, this research argues that the concept of high-rise housing for low-come people is not the key concern: rather the focus should be on matters arising from how each project address social issues, financial issues, technical issues and management issues in effective ways.

This research found that the main themes of the research, such as high-rise and low-income, are controversial topics and definitions and opinions of these topics differ between country, regions and over time. It is not easy to find exact and commonly accepted definitions for the key themes and the lack of literature and research in this field in the Sri Lankan context is one of the main issues for this research since most of the key themes did not have a clear or widely accepted definition. This research therefore has attempted to critically evaluate the existing literature and find out the most appropriate and accurate definitions for the main concepts of research interest.

High-rise, high density, low-income housing and low-income people were the most frequently discussed topics in this research and there are no single universally accepted definition for any of these terms. For example, there is no globally accepted definition of 'high-rise'. Under the 1986 building Regulation in Colombo, high-rise has been defined as a building of more than four storeys (UDA, 1986). Today, that definition is out-dated and this research has demonstrated the need for a new official definition of high-rise. Considering the

literature and city planning requirements of Colombo, this research proposes a building of seven storeys and above, or 23 metres high, should be considered a high-rise in Colombo. The above definitions are based on local and international literature, policy analysis, observation and the key informant interview and evaluation criteria included existing building regulations in the city, housing demand and population density, Colombo master plan recommendations, fire safety requirements, construction costs and financial feasibility of a building, land value and land scarcity. However, definitions are open to debate within scholarship in the field.

Sri Lanka does not have an officially accepted definition for 'high density'. In Colombo density is controlled by the building regulations and zoning plan (UDA). The ongoing low-income housing program has proposed a preferred density of approximately 800 housing units per hectare (Key informant interview 2011; UDA 2011) and almost all housing schemes have been planned to meet this target. Considering the literature, the key informant interviews and international experiences, 800 units per hectare is not the ideal density for this type of project. Land scarcity and high land value are the main governing factors for selecting that density figure. However, it is important to remember that constructing 66,000 low-income houses is not the only challenge in this program - the long-term sustainability of the entire project is also vital. Therefore, looking at the social financial, technical and management issues in high-rise low-income housing, 800 units per hectare is argumenly too high density. The research strongly suggests that density should be kept to manageable level to reduce the challenges that occur in high-rise housing.

The definition of what constitutes low-income housing is a crucial issue in this research. Most international research uses the terms public housing, affordable housing, co-operative housing and council housing to describe housing that is provided for low-income earners. The

term low-income housing has been used in this research. However, it is noted that referring to a housing project as a low-income or subsidised housing project can have negative connotations for the people who live in it and might contribute to social stigma. Therefore, this thesis proposes to that separate names be given to each project, like Sahaspura, to uplift and provide social recognition for the building's residents. One method to remove the stigma from low-income housing may be to use the internationally recognised term 'social housing', as low-income housing has negative connotations and is related to the income of its inhabitants, while social housing avoids any direct negative correlations with income.

Finally, the research discussed many theories and definitions dealing with urban housing and low-income high-rise housing on a global level. Accordingly, the research findings from this thesis will be helpful to future researchers evaluating housing theories on a local and global level.

8.3.2 CONTRIBUTION TO THE RESEARCH ON SRI LANKA

This research has provided several significant contributions to the fields of housing for the urban poor, high-rise low-income housing and the sustainability of high-rise low-income housing, particularly in the light of the research's context, conceptualisation and methodology. The best practice for high-rise low-income housing is a highly debatable subject and which has been often discussed the literature in the Western world and some Asian countries. However, in relation to Sri Lanka, high-rise low-income housing is a relatively new subject and the literature is extremely limited. Most of the Sri Lankan urban housing research has paid attention to upgrading slums, self-help housing, community participation in housing and innovative low-cost construction methods used in slums and shanties. The fundamental ideas explored in the existing research are the improvement of the

general living conditions of the poor while they remain in the same location. This micro-level research is funded by international organisations, including UN-Habitat. Micro-level housing improvements can be made without making a significant impact to the macro-level city development and the urban fabric of Colombo. This research addressed linking slums and shanties with the entire macro-level city development and providing a long-term sustainable solution for the low-income households currently living there, investigating the financial and social sustainability of low-income families as well as the entire city. Therefore, this research creates a pathway to move beyond the concept of 'something better than previous' to provide a permanent solution to the problem of uninhabitable housing in the city. Additionally, the research discussed the 'win win win' policy, which moves beyond just one-party or two-party satisfaction. Under the 'win win win' policy, under-served settlers, the city's government and investors all receive benefits while the ultimate betterment benefit goes to all citizens in Colombo.

The lack of literature in a local context was another limitation addressed by this research. This research goes some way towards filling the gap in this regards, and will be helpful for future researchers in this field. More than 200 references have been used in this research and extra value has been given to both the research and the field of urban housing in Sri Lanka. Additionally, two conference papers and three refereed journal articles have been published based on the research findings and knowledge gained through long-term study of the housing sector for low-income people in general and specifically in Colombo (see page vi).

Conducting key informant interviews was one of the main data collection methods for this research. This involved interviewing critical decision-makers and well-known professionals in the housing sector, including the Sri Lankan Minister for Housing. They discussed in detail the issues pertaining to low-income housing in Colombo, including possible alternative

solutions, and their perspectives gave extra value to the research. Therefore, the interview data itself will be a good resource for future researchers subject to the restrictions imposed by the ethics clearance. The author proposes future research by writing a separate publication about the interviews conducted for this thesis (with permission from the key informants) and aims to create a dialogue concerning these issues among the scholars and professionals in this sector.

Furthermore, this research evaluated over 100 years of Sri Lankan housing policy and how it was changed by different governments, looking at the positive and negative impacts of these changes on the entire housing situation in the country. Chapter 4 also lends significant weight to the research and aims to bridge the gap between policy and reality in the housing sector. Additionally, this research provides evidence to question and support theories and practicalities in the housing sector by critically analysing local and international experiences. The aim was to compare housing theories with practical experiences in the field and see how real-world circumstances relate to different viewpoints Thus, the research theory has contributed to extending the theoretical base and appresses the lack of literature in urban low-income housing research and practice.

8.3.3 CONTRIBUTION TO THE PLANNING PROFESSION

One of the main purposes of this research was the critical analysis of theory and practice in the urban housing sector, thus providing important contributions for the professionals, practitioners and policy-makers who are engaged in urban low-income housing issues, both in general and specifically in Colombo city.

This research critically analyses local and international cases related to low-income high-rise housing to examine whether the development of this type of housing has had a significant

impact on and contributed to the well-being of poor people in urban areas. Moreover, the research analyses the pros and cons of the housing industry, with special attention paid to mistakes made by professionals and policy-makers in this type of project in other parts of the world. It became evident that the same mistakes have been made repeatedly in different projects due to the lack of knowledge of developers and policy-makers of global experiences. Therefore, this research can educate professionals and policy-makers about common weaknesses in this sector and how these weaknesses were overcome in other projects.

This research addresses a real-world situation, and theory and literature are used to increase knowledge of the subject. Furthermore, these findings should be beneficial for politicians, decision-makers and institutions for assessment of their building projects. Academics, higher-degree researchers and university students also can use these research findings for their studies.

Finally, the ultimate goal of this research is to share academic and practical knowledge about the urban low-income housing issues and its investigation of the research proposition of whether high-rise low-income housing is an appropriate solution for urban housing shortage in Colombo. The subject is relatively new in Sri Lanka and, as discussed, the lack of literature was the main constraint to this research. However, this research will contribute to the field, filling some of the gaps in availability of literature in Sri Lanka.

8.4   RECOMMENDATIONS

One of the main research questions of this research was 'Why has high-rise low-income housing repeatedly failed in some countries and succeeded in others?' Chapters 3 and 7 discussed this question in detail and found that most of the failures can be isolated into four areas: social and cultural; architectural, planning and technical; financial; and management and operational. Success is also dependent on how certain variables are managed in the

projects. When critically evaluating the success and failures of high-rise low-income housing in relation to the main variables, it is clear the all issues have a direct relationship with academic and professional knowledge and practical experiences in the real world circumstances (see Figure 8.1). Therefore, knowledge is the central concept and all other variables depend on how the other issues are dealt with by planners, architects, engineers, policy-makers and all other professionals who engage in high-rise low-income housing. Therefore this research strongly recommends that knowledge become the key factor for addressing the issues about constructing high-rise low-income housing in a sustainable manner. All professionals who engage in this field need to pay attention to improving their knowledge. Additionally, the government can support more research in this field and encourage innovative ideas and experiments in the sector. Moreover, it is also advisable to link academics and professionals to create a platform to share their knowledge with each other to ensure the long-term sustainability of high-rise low-income housing in Colombo city.
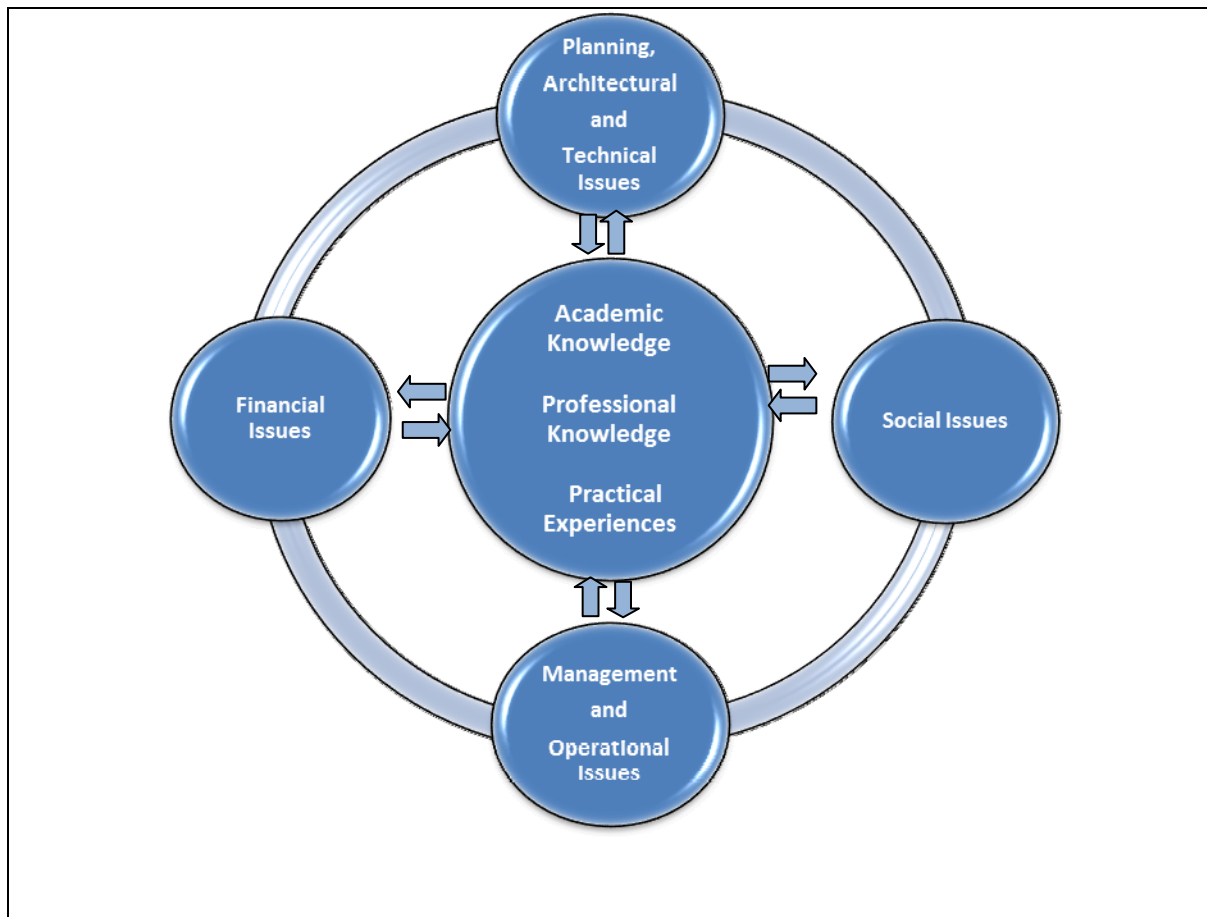
Figure 8.1:Interrelation between key issues and knowledge
Source: Author's sketch

8.5 LIMITATIONS OF THE RESEARCH

All research has limitations which must be recognised and acknowledged so that the validity, reliability and generalisability of findings may be properly assessed. Likewise, limitations highlight different approaches that may be useful for future research in further exploring the issues investigated. As with all research, this research has certain limitations that need to be taken into consideration when evaluating and interpreting the results, findings and their contribution. The thesis commenced in 2009, just after the end of 30 years ongoing civil war in the country. During the civil war, the Sri Lankan economy was not very stable and the construction industry was almost paralysed. Therefore, there has been very little high-rise construction in recent times. For the high-rise developments undertaken in the civil war

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period (1983–2009), the main challenge was security, as high-rise buildings in Colombo were often the targets for terrorist attacks. For example, the Central Bank was attacked in 1996, the World Trade Centre in 1997 and Internal Revenue building in 2009. As high-rise development was limited, the availability of data and information about high-rises in Colombo is limited, meaning that the literature available is also restricted. Another limitation in this research is the age of some data and census information. Most of the population and socioeconomic data is based on the 2001 Census. The census department of Sri Lanka have stated that they update population and social economic data every 10 years and the next count was in 2012, after the research for this project had been completed (Department of Census 2010). Therefore, most of the population data is based on a prediction and may not be totally accurate. UDA development plans also forecast a 10 to 15-year period, and some of their predictions may not match reality.

Moreover, the research method employed in this study was qualitative, using documentary research and primary data collected through key informant interviews. The researcher acknowledges some limitations as the interview questions were formulated prior to the full completion of literature review (due to work commitments affecting the timing of the return to Sri Lanka to conduct the interviews, and needing to get ethical clearance prior to departure). Consequently, interview questions may have been refined further had time been available for full completion of the literature review prior to departure. The subsequent refinement of the literature review has introduced a more iterative dimension to the research process than was initially envisaged. However, the researcher contends that this limitation does not weaken the value of the research.

All key informants were critical decision-makers and well-known people in the housing industry. However, some of their theoretical knowledge may be out-dated and their exposure

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to international experiences was minimal, meaning it was sometimes more difficult to get a proper idea of and analyse global scenarios in high-rise public housing. Therefore, it is important when interpreting the results of this research to understand such limitations, which are also limitations associated with the use of primary data. Research activity is also restricted due to limited budgetary allocations, particularly as this research was conducted by a sole researcher.

8.6 AVENUES FOR FURTHER RESEARCH

The thesis analyses the important issue of high-rise low-income housing and examines behavioural patterns based on socioeconomic conditions and how housing policy and planning developed in various part of the world and, specifically, in Colombo, Sri Lanka. During the course of this research, this researcher realised that housing cannot be considered independently from the prevailing socioeconomic conditions. The scope of this thesis does not fully address this issue but instead focuses on the planning aspects of the low-income sector's urban housing delivery system.

This research discussed the issues surrounding housing for low-income people in Colombo city and explored whether high-rise housing is an appropriate solution to the problem of scarcity of housing in Colombo. Although high-rise housing was the focus of this research, high-rise development is not the only solution for this housing shortage and further research should be done focussing on other available housing options for low-income people, in both Colombo city and other parts of the country. Rural housing is also a controversial topic and much research is needed in this sector as well.

Another significant area for future research is the examination of the affordability and sustainability of housing. High-rise development is not always affordable and providing affordable high-rises is the main challenge faced by many housing professionals around the

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world, particularly in the low-income sector. Sustainable housing is also a controversial and often-debated topic globally. Additionally, this thesis focused on an urban planning perspective of urban housing issues and does not attempt to comprehensively address the social, financial and architectural aspects of high-rise housing in Colombo. Social issues are critical in low-income housing and social inputs are vital for successful low-income housing projects. Adequate and effective management of high-rises is also a controversial topic and a significant avenue for further research would be examining the most efficient and effective management of high-rise housing.

Finally, this research opens up several issues in the high-rise low-income housing sector and, through the research findings and limitations, has suggested several further research opportunities from various angles within the subject area.

8.7 CONCLUSION

Poverty, civil war, population growth, rapid urbanisation, unplanned city development and many other variables have greatly influenced the development of Colombo city since Sri Lanka's political independence in 1948. Colombo has been the commercial capital of Sri Lanka since the 1800s and almost all developments are concentrated within the city periphery. Government policies driven by economics being prioritised over welfare policies have created an enormous housing shortage in the city and resulted in a situation where the majority of the city population live in under-served settlements unfit for human habitation. This thesis attempted to address the housing shortage in the city of Colombo, with special reference to under-served settlements, and to investigate whether high-rise housing would be an appropriate solution for low-income people in Colombo.

High-rise low-income housing is not a new housing alternative for low-income people. Many countries have used this strategy as an option to address a housing shortage for low-income

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citizens and this strategy is discussed in a review of the literature. However, whether high-rises are the right solution for low-income housing is highly debatable subject, and Chapter 3 of this thesis discussed this issue in detail, examining global examples of high-rise low-income housing successes and failures. Chapter 3 also discussed the negative and positive aspects of high-rise housing for low-income households.

This thesis consists of eight chapters. The first three chapters in the thesis discuss in detail the objectives of the research, outline the methodology used and conduct a literature review of existing literature on the research topic. Chapters 5 and 6 closely examine Sri Lanka's housing policy and the practical situation regarding high-rise housing in Colombo. Having demonstrated the magnitude and importance of this issue, Chapter 7 analysed the interviews with key informants in the housing sector who have expert knowledge of the low-income high-rise housing situation in Colombo.

Considering all of the above findings, Chapter 8 discusses how this research will contribute to filling the knowledge gap in the low-income housing sector in Colombo, discussing the research contribution of the theory, the contribution to the Sri Lankan research and the contribution to the housing profession. Finally, this chapter makes recommendations to the professionals and policy-makers who work with high-rise low-income housing on how to minimise the risk associated with high-rise low-income housing in Colombo and open a way of thinking about high-rise low-income housing.

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APPENDICES A: Bond University ethics approval documents

BOND UNIVERSITY
BRINGING AMBITION TO LIFE

HUMAN RESEARCH
ETHICS COMMITTEE

Bond University
Gold Coast, Queensland 4229
Australia

Ph: +61 7 5595 4194
Fax: +61 7 5595 1120
(from overseas)

Email: buhrec@bond.edu.au

ABN 88 010 694 121
CRICOS CODE 00017B

11 April 2011

A/P Daniel O'Hare, Thushara Samaratunga
Institute of Sustainable Development and Architecture
Bond University

Dear Daniel and Thushara

Project No: **RO1265**
Project Title: **High Density High Rise Vertical living: An appropriate Housing Solution for Low Income**

I am pleased to confirm that your Project, having been reviewed under the Expedited Review Procedure, has been granted approval to proceed.

It is important to remember that BUHREC's role is to monitor research projects until completion. The Committee requires, as a condition of approval, that all investigations be carried out in accordance with the National Health and Medical Research Council's (NHMRC) National Statement on Ethical Conduct in Research Involving Humans and Supplementary Notes. Specifically, approval is dependent upon your compliance, as the researcher, with the requirements set out in the National Statement.

Additionally, approval is given subject to the protocol of the study being under taken as declared in your application, with amendments, where appropriate.

As you may be aware the Ethics Committee is required to annually report on the progress of research it has approved. We would greatly appreciate notification of the completed data collection process and the study completion date.

Should you have any queries or experience any problems, please liaise directly with Caroline Carstens early in your research project: Telephone: (07) 559 54194, Facsimile: (07) 559 51120, Email: buhrec@bond.edu.au.

We wish you well with your research project.

Yours sincerely

Dr Mark Bahr
Chair

APPENDICES B : Explanatory Statement

BOND
UNIVERSITY
BRINGING AMBITION TO LIFE

INSTITUTE OF SUSTAINABLE
DEVELOPMENT & ARCHITECTURE

Bond University
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CRICOS CODE 00017B

Explanatory Statement

PhD Student Research – Thushara Samaratunga
Email – tsamarat@student.bond.edu.au
Ethic Protocol Number – RO 1265
Date 11 April 2011

Project Title : LIVING SKYLINE : High Density High Rise Vertical Living:
An Appropriate Housing Solution for Low Income People in Colombo Metropolitan – Sri Lanka.

Thushara Samaratunga is conducting this research towards a PhD at Bond University under the supervision of Dr. Daniel O'Hare, Associate Professor in the Faculty of Business, Technology and Sustainable Development – School of Sustainable Development.

The aim of this research is to evaluate the Sri Lankan government's policy of high-rise, high-density, vertical housing for low income people in Colombo, Sri Lanka and to investigate the concept of high-density high-rise residential developments as well as understand their relevance and importance to the contemporary conditions in Colombo.

Thushara Samaratunga is seeking to interview Politicians, officials in various government ministries, private sector investors and professionals who are engaged in the housing sector in Colombo. Completing the face to face semi-structured interview should take approximately 60 minutes and it can be done at a place of your choosing and at your convenience.

Participants' identity will be treated as confidential unless participants specifically request to have their identity used in the research. Without express consent the anonymity of the participant will be assured.

If there are any questions or concerns in relation to this matter then please contact Thushara Samaratunga on +6140S319111 or by email tsamarat@student.bond.edu.au . Should you have any concerns with regard to the conduct or nature of this research please feel free to contact the university at:

Senior Research Ethics Officer
Bond University Human Ethics Committee- c/o BURCS
Bond University, QLD, 4229.

Tel - + 617SS9S4194
Fax - + 61 7SS9S1120
Email : buhrec@bond.edu.au

Signed:

Thushara Samaratunga
Bond University Student

Dr Daniel O'Hare
Associate Professor of Urban Planning
Mirvac School of Sustainable Development

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APPENDICES C: **Participant informed consent form**

PARTICIPANT INFORMED CONSENT FORM

I .... agree to take part in the Bond University student research project described in the attached Explanatory Statement.

I understand that my participation is voluntary; that I can choose not to participate in part or all of the project and that I can withdraw freely at any stage of the project.

I have read the Explanatory Statement and I am willing to:

- Be interviewed by the researcher
- Allow the interview to be videotaped /audiotaped
- Make myself available for future interview should that be required

I also understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party

AGREED TO AND ACCEPTED:

Full name   : …………………………………………………..

Designation   :…………………………………………………………

Organization : …………………………………………………………

Signature   : …………………………………………….
Date

Appendix D : Key informant Interview questionnaires

The interview questions will be semi-structured with a number of open ended questions regarding personal opinions, experiences and knowledge concerning the subject. The questions have been divided into four categories: broad prompt question to open the interview, personal experiences and professional opinions in the field, government policy, technical and theoretical knowledge. Participants are free to withdraw at any time if they feel uncomfortable. The duration of the interviews will be approximately one hour and the interviews will be conducted with a prior appointment.

1. Broad prompt question to open the interview:

1. Why is housing important for people?

2. The Colombo Master Plan highlighted that 51% of the city population live in underserved settlements. What is your opinion of that statement?

2. Personal experiences and professional opinions in the field:

1. Do you think high rise housing is a good alternative for low-income people in Colombo? Could you please elaborate on your opinion?

2. High rise low-income housing has been successful in some countries and failed in other counties. What is your opinion about that?

3. What are the main challenges for high rise low-income housing in Colombo?

3. Government policy:

1. After independence all the governments have given top priority to overcoming the underserved housing problem in Colombo. However even today the majority of the city population live in underserved settlements. Why do you think that is so?

2. When addressing urban housing for low-income people in urban areas, until the year 2000 the government strategy was on-site relocation or low rise housing up to 4 storeys. In the year 2000, the government changed that policy and introduced high rise housing for low-income people. The first major example is "Sahaspura", consisting of 670 housing units over 14 floors. What is your opinion on this?

3. Why does Colombo need high density high rise housing and why cannot it build low density low rise housing for low-income groups?

4. Why should the government get involved in housing construction for poor people?

5. Do you think providing housing for low-income people is a government responsibility?

4. Technical and theoretical Knowledge

1. At present some large low-income high rise housing projects are going on. The best example is the "Salamulla" Housing project. It consists of about 2000 housing units in 14 storied housing blocks. Do you think those housing projects will success?