UNIVERSITY OF
KWAZULU-NATAL

INFORMAL HOUSING DELIVERY

ASSESSING ITS POTENTIAL CONTRIBUTION IN FORMULATING ENABLING LOW INCOME HOUSING STANDARDS: THE CASE OF KAMATIPA SETTLEMENT IN KITWE, ZAMBIA

by

MUNDASHI ALEXANDER MWANGO

Submitted in partial fulfilment of the academic requirements

for the degree of

Master of Housing

in the

School of Architecture, Planning and Housing

University of KwaZulu-Natal

Durban

2006

DEDICATION

To the memory of my only brother Raymond Chipo Mwango

February 1969

to

October 2005.

Looking forward to seeing again you when the trumpet sounds.
Sadly missed for now.

PREFACE

This study looks at the potential contribution of informal housing delivery in establishing enabling low-income housing standards in Kitwe, Zambia as a way of addressing the shortage of adequate and affordable housing for the urban poor. Informal housing delivery is increasingly being seen as the urban poors' response to the chronic shortage of housing in most cities in developing countries. Proponents of informal housing delivery have been alluding to the many positive impacts that informal housing has on the poor households since the 1960's. This aspect is slowly gaining acceptance in many housing policies in developing countries that are now opting to work with rather than forcefully relocated informal dwellers.

The Zambia National Housing Policy set an ambitious list of objectives aimed at realising its goal of providing adequate and affordable housing to all income groups in the country, including the reform of housing standards which currently inhibit the incorporation of informal housing techniques and materials into conventional practices. However, there appears to be no framework within which this objective will be achieved.

The study, therefore, investigated the positive attributes of informal housing delivery through a literature review of standards and general discourse and policies regarding traditional, informal and formal housing settlements. Through the literature review, a set of indicators was established to measure and analyse informal housing standards prevailing in Kamatipa, an informal settlement north of the city of Kitwe in Zambia and building regulations that substantially hinder the incorporation of these standards into conventional low-income housing standards.

They study establishes a number of positive attributes of informal housing in Kamatipa and the regulations that they contravene under current standards. It concludes by making recommendations towards establishing guidelines for assimilating these positive elements in a reformed regulatory framework to achieve enabling low-income housing standards in the city and country.

CERTIFICATE OF AUTHORSHIP

The research described in this short dissertation was carried out in the School of Architecture, Planning and Housing, University of KwaZulu-Natal, Durban, under the supervision of Professor Ambrose Adebayo.

This mini-dissertation represents the original work of the author and has not otherwise been submitted in any form for any degree or diploma at any university. Where use has been made of the work of others it is duly acknowledged in the text.

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LIST OF ACRONYMS

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CARE	Cooperative for Assistance and Relief Everywhere
CBO	Community-based Organisation
CBU	Copperbelt University
CSO	Central Statistical Office
DDCs	District Development Committees
DRC	Democratic Republic of Congo
DSA	District Situation Analysis
DWAF	Department of Water Affairs and Forestry
ESS	Enabling Shelter Strategies
FARs	Floor Area Ratios
FGD	Focus Group Discussions
FNDP	First National Development Plan
GDP	Gross Domestic Product
GRHS	Global Report on Human Settlements
GRZ	Government of the Republic of Zambia
GSS	Global Strategy for Shelter towards the Year 2000
HBEs	Home-based Enterprises
HIV/AIDS	Human Immuno Deficiency/Aquired Immune Deficiency Syndrome
IAP2	International Association for Public Participation
IIED	International Institute for Environment and Development
JCTR	Jesuit Centre for Theological Reflection
KCC	Kitwe City Council
KDDC	Kitwe District Development Committee
MDGs	Millennium Development Goals
MLGH	Ministry of Local Government and Housing
MSPs	Multi-Stakeholder Partnerships
NDPs	National Development Plans
NHA	National Housing Authority
NHP	National Housing Policy
PAP	Poverty Assessment Paper
PHA	Public Health Act
PHI	Presidential Housing Initiative
PPPs	Public-Private Partnerships
PRA	Participatory Rural Appraisal

RDCs	Residents Development Committees
SAPs	Structural Adjustment Programmes
SBE	School of Built Environment
SCD	Squatter Control Department
SKP	Sustainable Kitwe Programme
SNDP	Second National Development Plan
TDP	Transitional Development Plan
UN	United Nations
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1.0 INTRODUCTION

This study looks at how informal housing delivery methods can be assimilated into conventional low income housing standards in order to formulate new standards that are more supportive of local needs, aspirations and capabilities (UNCHS 1988). In Zambia, current standards, which are replicas of the colonial British standards introduced in the late nineteenth century, hamper the adoption of simplified designs and a more widespread use of local building materials and technologies. This is due to the restrictive construction, public health and minimum development requirements prescribed by local authority building regulations across the country (Schilderman & Lowe, 2002). By analysing local knowledge and techniques of housing production, this study endeavours to document the positive aspects of informal housing delivery. This with the view to inform the development of new standards that are more flexible and relevant to the urban poor in Zambia.

1.1 BACKGROUND

Housing is an important aspect of human livelihoods, which encompasses a lot more than the physical structure called the house. For man to live comfortably, the need for adequate shelter has to be fulfilled (Muchima 2004). According to the UN-HABITAT, "*adequate shelter means more than a roof over one's head. It also means adequate privacy; adequate space; physical accessibility; adequate security of tenure; structural stability and durability; adequate lighting, heating and ventilation; adequate basic infrastructure, such as water supply, sanitation and waste management facilities; suitable environmental quality and health – related factors; and adequate and accessible location with regard to work and basic facilities; all of which should be available at an affordable cost. Adequacy should be determined together with people concerned, bearing in mind the prospect for gradual development....*" (UNCHS 1997: 35).

Notwithstanding the above, there are many people who are too poor to access affordable and 'adequate' housing. According to the United Nations Centre for Human Settlements (UNCHS 1997), over 100 million people globally today have no

access to adequate shelter. They live in places which are variously referred to as *squatter settlements* in reference to the lack of title to the land they occupy, *spontaneous settlements* in reference to the absence of governmental aid and control, *uncontrolled settlements* in reference to their lack of regulation, *shanty towns* in reference to their poor quality of construction, *popular settlements* in recognition of the fact that they are inhabited by low-income people, *marginal settlements* in reference to the role their inhabitants are assumed to play in urban society and their location within the city, and *transitional settlements* which is an expression of the positive view suggesting they can, over time be consolidated and permanent settlements (Majale 1998). Informal settlements may be called by various local names such as *Favelas* in Brazil, *Kampungs* in Indonesia, *Tugurios* in Mexico and other local names depending on which part of the world they are located in, yet they share the same miserable living conditions (Schilderman & Lowe 2002). For the purpose of this study, the term informal settlements will refer to housing settlements that are built without formal guidelines and outside the context of comprehensively conceived layout plans (GRZ 1996: 12) built by informal builders.

Informal settlements are neglected sections of cities where housing and living conditions are appallingly lacking. They range from high density, squalid central city structures to spontaneous squatter settlements without legal recognition or rights, sprawling on the periphery of cities (Schilderman & Lowe 2002). Residents live in overcrowded and unserviced dwellings often situated on marginal and dangerous land. They struggle for access to clean water, for which they are expected to pay a premium. Their waste, which is not collected, surrounds them daily and affects their health. And as illegal or unrecognised residents, they have no property rights or security of tenure. Instead, they make whatever arrangements they can in an informal, unregulated and parallel market. (Muchima 2004 citing Cities Alliance 2002).

Findings of the 2003 Global Report on Human Settlements (GRHS) indicated that the majority of informal settlement dwellers in the world today live in developing countries, especially in sub-Sahara Africa and their population is increasing (UNCHS 2003). This trend is being looked at with increasing concern by the international

community and is part of goal seven of the Millenium Development Goals (MDGs). Goal seven of the MDGs seeks to "*achieve significant improvement in the lives of at least 100 million slum dwellers by 2020*" (UN 2000: 5). Informal settlements are seen as physical manifestations of urban poverty and intra-city inequality. Most of their inhabitants earn their living from informal activities, mostly from within the area (Majale 2002, Schilderman & Lowe 2002, Muchima 2004).

There has been a shift in the way the problem of informal settlements has been addressed by governments across the world today: from evictions and demolitions, to self-help and site and service schemes, and currently, more participatory approaches. Despite these efforts, the problem of informal settlements is still chronic and worsening especially in Africa, Asia and South America (Muchima 2004).

Solutions to the opportunity of informal settlements require a multi-dimensional approach involving all stakeholders. Enabling Shelter Strategies (ESS), promoted by the UNCHS and the World Bank, have been heralded as approaches that could effectively bring all key stakeholders together through Public-Private Partnerships (PPPs). They advocate the re-alignment of the state's role in the housing market from that of providing, to supporting housing development. The Global Strategy for Shelter to the Year 2000 (GSS) states that "*all efforts should be made to involve, in full partnership, all concerned governmental, non-governmental, public and private-sector bodies, agencies and institutions at all levels and, in particular, the communities and people concerned, in planning and implementation of shelter strategies*" (UNCHS 1988). This differs from Turner's (1976) autonomous approach, which advocates a housing delivery model that places households at the centre of the planning, budgeting and implementation processes. Turner (1976) contends that households should have the freedom, and right to choose their own housing, direct the construction, and play a major role in the delivery processes aimed at meeting their housing needs. This enables local communities to join government and other stakeholders in addressing their own housing problems.

1.2 RESEARCH PROBLEM AND STATEMENT

The Zambian Government adopted ESSs in the 1996 National Housing Policy (NHP) whose main goal was to provide '*adequate affordable housing for all income groups in Zambia*' (GRZ, 1996:15). The policy revealed that of Zambia's 1, 768, 287 housing units, only thirty-one percent of the total housing stock was formal and fully approved in accordance with prevailing statutory regulations and building standards. The remaining sixty-nine percent was informal because they were built using unconventional standards and methods thus illegal according to Zambian Building Codes (*ibid.*). It was estimated that to clear the housing backlog, which stood at over one million units in 1996, a building rate of approximately 110, 000 dwelling units per annum would be required over a ten-year period (*ibid.*). These statistics have not significantly changed since. There has been no significant improvement in the number of dwelling units, while the housing backlog has increased due to shortages in housing relative to population growth and migration (CSO, 2003).

Apart from the now defunct Presidential Housing Initiative (PHI), no efforts have been made practically to implement the recommendations made in the NHP because there is no coherent implementation strategy. Informal housing has therefore been poor peoples' response to the shortage of housing. It has long been acknowledged that perhaps *informal housing delivery constitutes more positive than negative aspects to it*, which, if harnessed, can potentially contribute towards the formulation of pro-poor housing policies and standards, thus contributing towards redressing the housing backlog (Turner 1976, GRZ 1996).

The Zambia NHP has established seven objectives in order to meet its aforementioned goal. The third and fourth objectives are (GRZ 1996:12):

3. *Streamlining of building standards, regulations and other controls so that they accord with the capabilities, needs and aspirations of the various sections of the population.*
4. *Encouraging the production and use of local and affordable building materials.*

As stated earlier, very little has been done to realize the abovementioned objectives because an implementation strategy has yet to be formulated. The formal sector, which includes both government and private agencies, still fails to deliver adequate affordable housing to the poor. Formal housing and human settlement solutions being used today are still too high, rigid, prescriptive, or beyond the effective demand of the urban poor (Turner 1976, Mitchell & Bevan 1992, Payne 2001). The Zambian government has been unable to engage effectively the informal sector in the formulation and implementation of the current housing policy. Despite the commitments to PPP approaches in its flagship project, the PHI, the public sector failed to provide a platform for the poor to participate in conceptualising, planning and implementing the programme. Consequently, the houses delivered by this programme only benefited the middle and higher income groups. Housing standards adapted from British colonial days, which historically excluded the use of local building materials, are still in use today. There have been no strategies or programmes put in place to standardise the use of local building materials and construction methods as a way of fostering the production of low income housing for the poor.

The informal sector has been able to provide cost effective alternatives to peoples' planning and housing problems, and delivers up to five times more housing units at very little cost to the end user than conventional solutions (Martin 1976a, Turner 1976, Silavwe 1998). Silavwe (1998) argues that by being outside the law, the informal sector has shown the irrelevance of some of the current building and public health legislation which the NHP admits are in dire need of review. He suggests that the informal sector has been evolving a new way of urban living which is more related to Africa by incorporating both traditional and urban-African lifestyles and practices (*ibid.*).

This study undertakes to investigate the standards and materials employed in informal housing delivery by analysing local methods of housing production in the city of Kitwe. It further seeks to identify ways of utilising the untapped potential of this form of housing delivery and the ability of the urban poor to satisfy their own housing needs. Lessons will also be drawn from this sector for local modes of producing more

flexible building designs, layouts and housing standards that are best suited to the local context and meet the needs of the urban poor. Only then will it be feasible to formulate pro-poor standards and policies that will support the development of local forms of housing and deliver sustainable human settlements that will be adequate, affordable and a true expression of local cultures harmonious with people's lifestyles (Zulficar 1990).

Prior to the emergence of enabling approaches in local and international housing policies, squatter upgrading and site-and-service schemes were the primary means through which the Zambian government attempted to meet the demand for housing (Mwamba 1996). The World Bank spearheaded this approach after Turner's watershed paper to the United Nations (UN) seminar on *Uncontrolled Urban Settlements* in 1966, in which he called for bottom-up approaches that encourage incremental housing solutions led and directed by the urban poor. This approach was, however, misinterpreted in most official upgrading and site-and-service schemes in many developing countries including Zambia, which were controlled by public officials, and aimed at finding ways of involving the poor in expert-led top-down housing programmes. These housing programmes employed strict statutory building regulations and conditions for beneficiary participation and occupation (*ibid.*). Consequently, most of these programmes failed to deliver adequate and affordable housing to the poorest in Zambia because the high standards adopted and strict building controls made the house unaffordable and unsuitable to the survival strategies of the urban poor. There has been a general realisation that the most successful programmes utilise true bottom-up approaches which endeavour to engage experts meaningfully in people-driven housing processes (Sudra 1980). It is now widely acknowledged by most scholars and governments that informal housing is largely more supportive of the poor's livelihoods, and should therefore be seen as the beginning of a solution rather than a problem (GRZ 1996). Nevertheless, no deliberate effort has been taken to engage the informal sector by the government to try and harness its potential.

1.3 RESEARCH QUESTION

What insights can informal housing delivery provide into the revision of statutory minimum low-cost housing standards currently enforced in Kitwe, in order to foster the provision of adequate affordable housing for the poor?

1.3.1 Sub-questions

1. What types of socio-cultural and economic factors influence informal housing delivery?
2. What types of construction and spatial standards does informal housing delivery employ?
3. What types of construction materials does informal housing delivery utilise?
4. Which aspects of current statutory building regulations are substantially in conflict with informal housing delivery?
5. How can the positive attributes of informal housing delivery be formalised without compromising public safety and health?

1.4 HYPOTHESIS

Standards that are currently being employed in the design and building of low-income housing units in Zambia are prescriptive and need to be amended in order for them to be more flexible and have any relevance to the poor in Zambia. Whilst acknowledging that informal housing delivery rarely produces housing that is aesthetically and environmentally pleasing, it is nevertheless often more supportive of the lifestyles and aspirations of the poor in terms of its '*fitness for purpose, economy, flexibility and identity*' (Martin 1976b: 6) than the conventional alternative. It is therefore important to harness these qualities so that the national goal of providing adequate and affordable housing and sustainable human settlements for all is realised and also contribute to the overall realisation of goal seven of the MDGs.

By broadening our knowledge of informal housing delivery, it is possible to draw some insights into how to establish pro-poor housing standards, which are proscriptive and are based on local knowledge, techniques and materials.

1.5 AIMS AND OBJECTIVES

The study aims to highlight the positive attributes of informal housing and will attempt to show how these can be integrated into today's statutory low-cost housing standards. It seeks to suggest ways for creating an enabling housing environment through a revised regulatory framework, which harnesses the poors' resourcefulness and supports their initiatives to create better human settlements whilst maintaining good public health and safety standards. This short dissertation will focus on informal housing delivery in urban areas and the standards employed therein from informal land acquisition through to final construction. It will also look at post occupancy use, maintenance and regulations obtaining in Kamatipa Settlement, Kitwe, Zambia.

In view of the above, the objectives of this study are:

1. To identify the positive aspects of informal housing delivery by means of Martin's (1976b) and Mabogunje *et al.* (1978) indicators and empirical studies in the field.
2. To identify building standards that constrain the incorporation of informal housing delivery techniques by means of Martin's (1976b) and Mabogunje *et al.* (1978) indicators, and a literature review of current discourse on building regulations, and
3. To establish a set of guidelines for incorporating the positive attributes of informal housing delivery into current statutory minimum low-cost housing standards in order to attain adequate and affordable shelter for all.

1.6 CONCEPTUAL FRAMEWORK

The concept of an ESS will provide the overarching framework for this study. It will employ Helmsing's (2002a) enabling citizens' approach as opposed to conventional neo-liberal, community development and empowerment approaches postulated by the World Bank and UN agencies in the mid-1990s.

Neo-liberal opinion emphasises the creation of an enabling environment, under structural adjustment programmes (SAPs), concentrating particularly on creating what is referred to as 'a level playing field', where state intervention and regulation is

reduced as much as possible. In contrast, the citizens' approach views enablement as policies, which enable local community actors to make the most effective contribution towards solving their own problems (Helmsing 2002a). The citizens' approach to enablement, in contrast with the neo-liberal approach, does not call for *reduced* regulation, but for *better* regulation. It posits that the state, being a crucial role player in regulating the economy and society, can improve the urban poors' position in the market. Through supportive policies and legislation, the state can strengthen the urban poors' position and relations with other civil society actors and with the state itself by protecting their minimal rights and improving their access to resources. Even though the state becomes less involved as a direct provider of basic services and of welfare, it still remains important as a regulator (Helmsing 2002a).

Community development approaches, on the other hand, tend to adopt perceptions and managerial practices where the poor are isolated from the mainstream economy and society, mostly under the protection of an umbrella poverty fund and special institutional arrangements (Jeppe 1985). The citizens' approach, however, seeks to enable the poor to advance their interests, and to protect and claim their rights in relation to other civic and economic actors (Helmsing 2002a). The citizens' approach further distinguishes itself from empowerment approaches, which focus primarily on the poor and their organisations or institutions, and much less on their interaction with other actors (Amalric 2001, Helmsing 2002a).

The citizens' approach to enablement views the poor as partners in the development of sustainable human settlements who require the necessary legislative support, enshrined in enabling strategies, to realise their full potential. It posits that enablement is about creating conditions for the poor to make the greatest contribution towards solving their own problems. Consequently, they need to be seen as proactive, rather than passive stakeholders, as they already produce more informal housing units in most third world urban areas than official government programmes employing conventional solutions (Turner 1976). This approach also states that the poor, as *citizens,* have the *right* to develop their own initiatives (supported by public and private actors) and to be involved in the definition of the policies that shape their livelihoods (Turner 1976, Helmsing 2002a). This right is

firmly entrenched in a number of international conventions including the Universal Declaration of Human Rights, the GSS, and Agenda 21.

This study contends that PPPs postulated in conventional enabling strategies do not provide a platform to effectively engage the poor in housing development programmes. It posits that the citizens' approach utilizing Multi-Stakeholder Partnerships (MSPs) is a more viable platform for maximising the poors' abilities and contributions.

1.7 BRIEF DESCRIPTION OF THE STUDY AREA

Kitwe is the second largest city in Zambia. The city covers a total area of 777 square kilometres stretching from the south where it is bordered by Ndola and Luanshya, up to the north where it is bordered by Mufulira and Kalulushi Districts. Because of its centrality and proximity to other districts, Kitwe is aptly called the 'Hub of the Copperbelt' (KCC 2002a). There are a total of 21 informal settlements, mostly located on the fringes of the city.

One such settlement is Kamatipa, (figure 1.1) selected as the case study area for this research. It occupies a total area of 131.64 hectares of state land north of Kitwe. The selection criterion for the study is discussed in Section 1.8 and Chapter Five. It has 2, 500 informal housing units occupied by 24, 000 people, most of whom are migrants from other parts of the country and the neighbouring Democratic Republic of Congo (DRC) (*ibid.*).

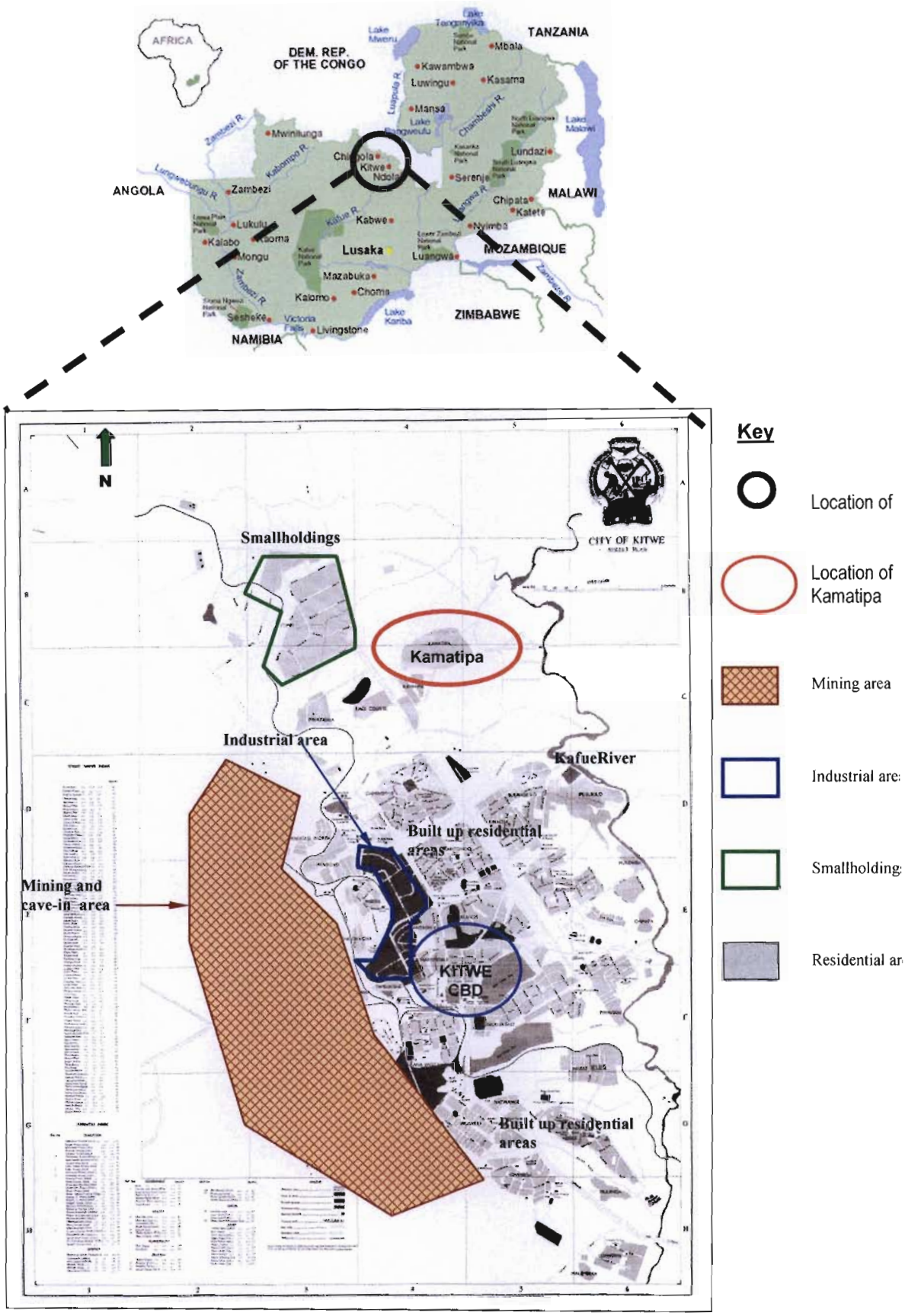


Figure1.1: Map of Zambia and Kitwe Street map (source: Kitwe City Council 2005)

1.8 METHODOLOGY

The study employed a case study approach to analyse informal housing delivery in Kamatipa Settlement in the city of Kitwe, Zambia. The choice of study area had largely been influenced by the fact that all the Residents' Development Committees (RDCs) in other informal settlements, except Kamatipa, had been dissolved in August 2005 due to mismanagement, to pave way for fresh elections at the time of the study. RDCs are local community-based organisations (CBOs) set up by all local authorities in Zambia to manage developmental projects in informal settlements on behalf of District Development Committees. Time constraints, therefore, compelled the researcher to limit the empirical study to one area. Notwithstanding this, the area still offered the researcher a good opportunity to study an area that has been informally evolving since 1968, as Kamatipa is the oldest and largest informal settlement in Kitwe. The availability of a member of one of the original seven families that settled in the area proved to be very valuable to the study as no written records were available to give a historical background to the development of the area. Further, it gave the researcher an opportunity to work with a well-run CBO that would help facilitate community introduction and data collection process.

The research was primarily descriptive and analytical in nature. It employed both qualitative and quantitative methods of data collection, which included semi-structured interviews, focus group discussions, direct observations, semi-structured questionnaires and a review of public documents and regulations. The researcher opted for semi-structured interviews and questionnaires in the survey because the flexibility of fixing the main questions in the interview and questionnaire schedules permitted improvisation and follow up questions to be made and the exploration of meanings and areas of interest that emerged. A structured approach would have restricted the researcher to a set of pre-agreed and fixed questions while and open-ended or unstructured approach would have led to a largely interviewee directed survey as the researcher would have had very few or no pre-set questions (Arksey and Knight 1999).

Qualitative research allowed the researcher to approach the study without any constraints of predetermined categories of analysis. It also enabled the researcher to take peoples' experiences into account and in so doing, gain a better understanding of their experiences (Terrre Blanche & Durrheim 1999).

Quantitative methods were also used to reveal general patterns in the study area, which was essential for understanding the extent and character of phenomena such as methods of construction employed, materials used, ethnic origin and household composition. These methods also provided an efficient way of collecting information on sections of the population in the area (Payne 2001).

1.8.1 Methods of observation and data collection

The primary research employed a case study approach to analyse informal housing delivery, and a secondary study of traditional and formal building standards present in the city of Kitwe, Zambia. The procedures followed in the primary research are outlined in Chapter Five.

The secondary study of traditional housing standards was limited to a desktop study due to financial and time constraints. Nevertheless, the study proceeded on the assumption that for the purpose of this short dissertation, a desktop review of traditional standards would actually offer more insights and cover more ground across the 73 different Zambian tribes than field studies of traditional settlements in the limited time. It also allowed the researcher to briefly study traditional housing and settlements in other parts of Africa. This was aimed at uncovering the underline influences of traditional standards on informal settlements in urban areas in Zambia.

A secondary study of the National Housing Authority's (NHA) low-income housing standards, which informs all standards and regulations for upgrading informal settlements like Kamatipa, was also undertaken. This involved a study of the housing layout plans as well as the housing standards employed therein. As was the case for traditional housing, it was assumed that this would offer more information for the purposes of this study as opposed to carrying out a field study.

A literature review of traditional housing in Africa was done as well as policies and precedents of informal settlements globally and in Zambia. The review also covered enabling strategies and housing standards employed internationally and in Zambia. Key documents like the NHP; the NHA Very Low Cost Housing Standards; and the Public Health Act, which informs most of the KCC building bye-laws and regulations regarding housing were also reviewed.

1.8.2 Methods of data analysis

Data collected was analysed using qualitative methods based on the indicators drawn from the literature review. Thus, data collected to meet the first two objectives was analysed using the following indicators of enabling housing standards (Martin 1976b, Mabogunje *et al.* 1978):

- Fitness for purpose,
- Economy,
- Flexibility and Identity.
- Cultural compatibility,
- Social responsiveness,
- Economic feasibility,
- Technological suitability,
- Physical and biological harmony,
- Temporal relevance.

These indicators have been extensively discussed in Chapters Three and Four.

1.8.3 Summary

Table 1.1 below encapsulates the relationship between the research objectives, research tools, sources of information and the information required from each source. Figure 1.2 summarises the research process.

Table 1.1: Relationship between research objectives, sources of information, research tools and information required mainstreaming

OBJECTIVES	SOURCES OF INFORMATION	RESEARCH TOOLS	INFORMATION REQUIRED
Identify positive attributes of informal housing delivery	Community leaders Community builders Households	Semi-structured interviews Focus group discussions. Questionnaires, site measurements and observations	Socio-cultural influences, construction and spatial standards employed and building materials used
Identify current building standards constraining delivery of adequate and affordable low-income housing	Central and local government documents Public officials from central and local government and parastatal organisations	Literature review Semi-structured interviews	Identify building regulations impeding informal housing delivery
Establish guidelines for incorporating local knowledge into the Zambian Enabling Shelter Strategy	Central and local government documents Public officials from central and local government, and parastatal organisations Community	Literature review Semi-structured interviews Semi-structured interviews, focus group discussions and questionnaires	Ways of mainstreaming informal housing delivery while upholding public health and safety

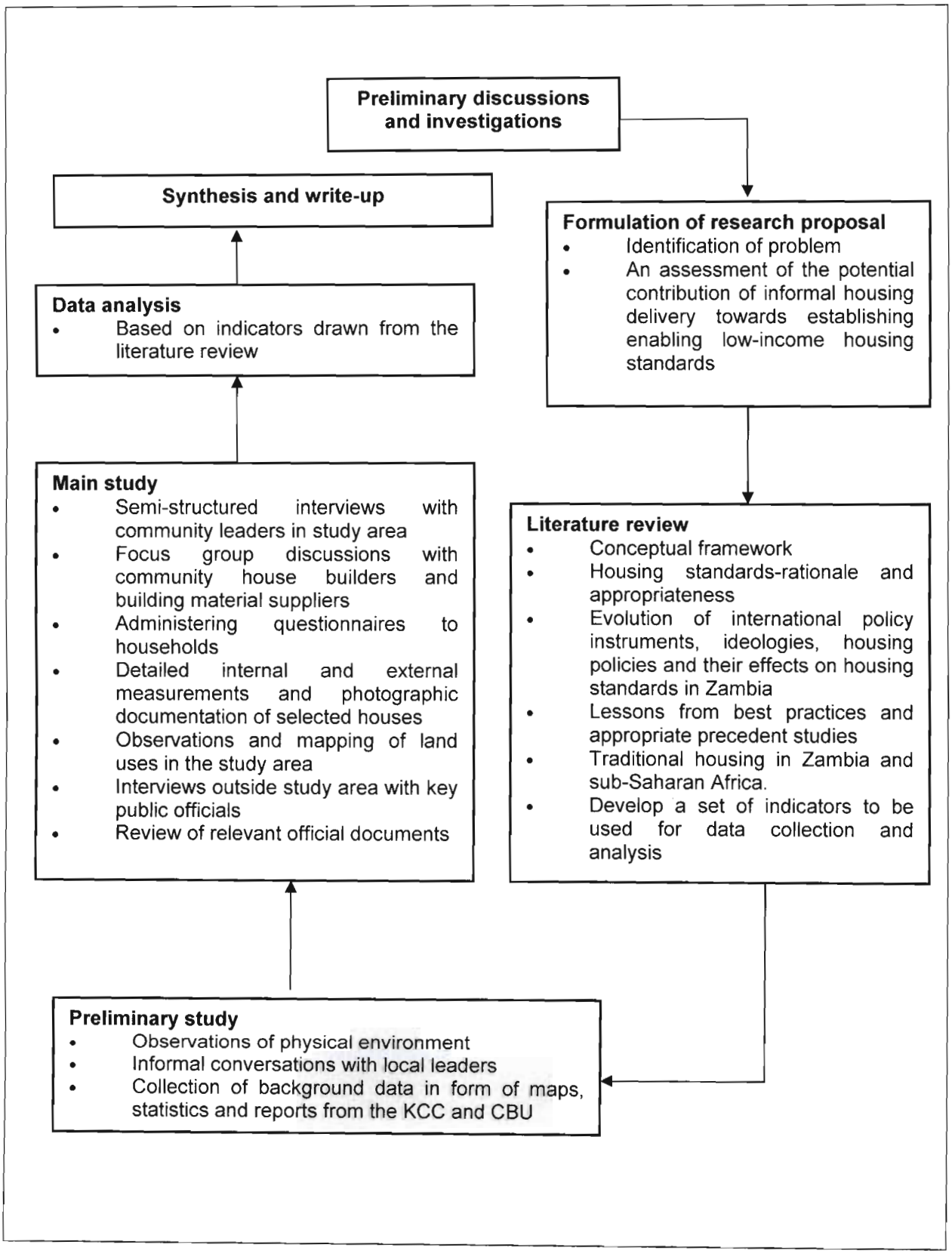


Figure 1.2: Research process

1.9 DEFINITION OF KEY TERMINOLOGY

For the purpose of this study, the following key terms will be taken to mean the following:

a. ***Housing standards:*** are defined as measures of the acceptability of housing at a given *time* and *place* and in a given *cultural, technological* and *economic* setting (UN 1977).
b. ***Housing delivery:*** refers to all processes of housing production from the acquisition of land through to the design, construction and occupation of housing.
c. ***Inappropriate standards:*** these are bye-laws or regulations that....*either deliberately or de facto .... prohibit or discourage the construction of affordable housing without sound reasons directly related to public health and safety or ....state or local statutes, policies, customs, practices or procedures that excessively increase the cost of new or rehabilitated housing, either by improperly restricting the location of housing or imposing unjustifiable restrictions on housing development with little or no demonstrated compensating public benefits* (Majale 2002)
d. ***Informal housing and settlements:*** refers to houses and settlements built without formal guidelines and outside the context of comprehensively conceived layout plans. This will also include traditional housing in rural and peri-urban areas (GRZ 1996: 12).
e. ***Local knowledge:*** refers to any method or technique utilised in a particular context and time that is passed on from one generation to another.
f. ***Urban poor***: in this study will refer to individuals and households living in and around urban areas who suffer from various deprivations, poverty and whose collective income is below the poverty datum line (CSO 2003; Mitlin & Satterthwaite 2004). It has been used interchangeably with the terms 'low income people' and 'the poor'.

1.10 STRUCTURE OF THE STUDY

Chapter One is the introduction to the study. It brings together a brief background to the challenge of housing the urban poor and then introduces the research problem,

research question, hypothesis, aims and objectives of the study. It also outlines the conceptual framework and gives a brief description of the study area, the methodology as well as definition of key terminology applicable to the study.

Chapter Two is a review of traditional housing standards in Africa, in general, and in Zambia in particular.

Chapter Three is a literature review of housing delivery and standards prevailing in informal settlements. It highlights some of the key policies dealing with informal housing internationally in general and Zambia in particular, and also identifies some positive attributes of informal housing and international best practices concerning their regulation and control.

Chapter Four reviews literature concerning enablement and conventional housing standards. It looks at the Zambia NHP, housing standards in conventional settlements, the rationale for setting housing standards.

Chapter Five gives a more detailed background of the study area, Kamatipa Settlement and discusses the procedures followed in upgrading Improvement Areas in Kitwe.

Chapter Six highlights the main findings of the research. It analyses, discusses and summarises the empirical data based on a set of indicators drawn from literature reviews in Chapters Three and Four.

Chapter Seven gives a synopsis of the conclusions and recommendations of the study.

2.0 TRADITIONAL HOUSING AND SETTLEMENTS IN AFRICA

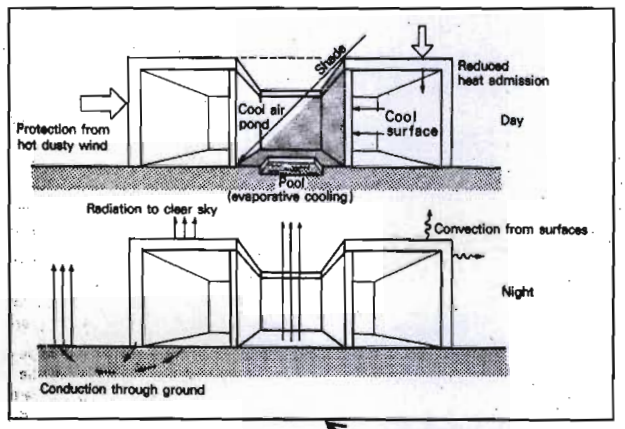
2.1 FACTORS INFLUENCING THE DEVELOPMENT OF TRADITIONAL HOUSING AND SETTLEMENTS

Traditional building represents the accumulation of centuries of wisdom in the techniques of transforming local materials into shelter for the community (Denyer 1978). It utilises materials that are immediately available within the vicinity and building techniques passed on from generation to generation (Rappoport 1969, Mitchell & Bevan 1992). Housing is a process rather than a product, which is fundamental to the cultural well-being of the society within which, and by whom it is constructed (Turner 1976). Thus, the processes by which a society builds its dwellings and lays out its settlements should be a significant consideration in the formulation of housing policies.

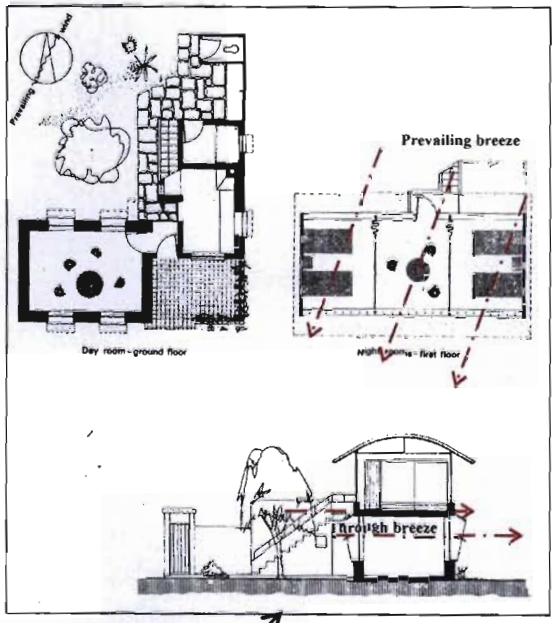
The evolution of traditional housing and settlement standards in any society is influenced by both internal and external factors over time. These include *inter alia* (Mitchell & Bevan 1992): climate, techniques and materials, social and cultural factors, economy and colonial or foreign influences.

2.1.1 Climate

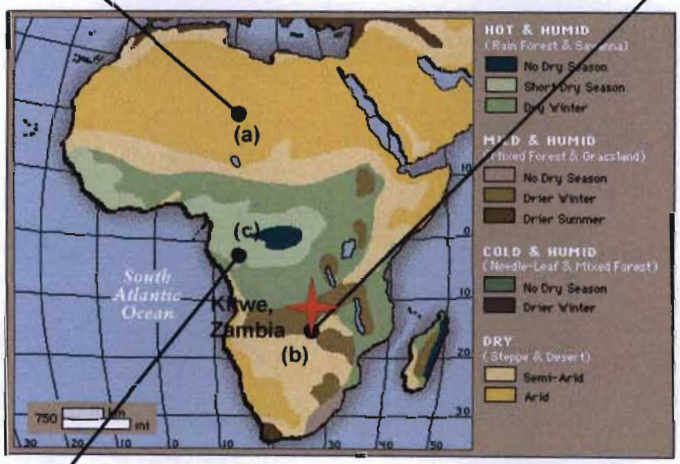
Traditional houses are often built to respond to extremes of local climate. This may be in the form of rain, heat, dust and natural disasters such as floods and mudslides. Mitchell and Bevan (1992) posit that traditional housing provides shelter from extreme climatic elements externally whilst modifying them to provide thermal comfort in the interior. Koenigsberger (1974) provides a detailed picture of the broad tropical climatic regions and the various ways in which traditional housing responds to them in order to achieve thermal comfort (figure 2.1) for its occupants:



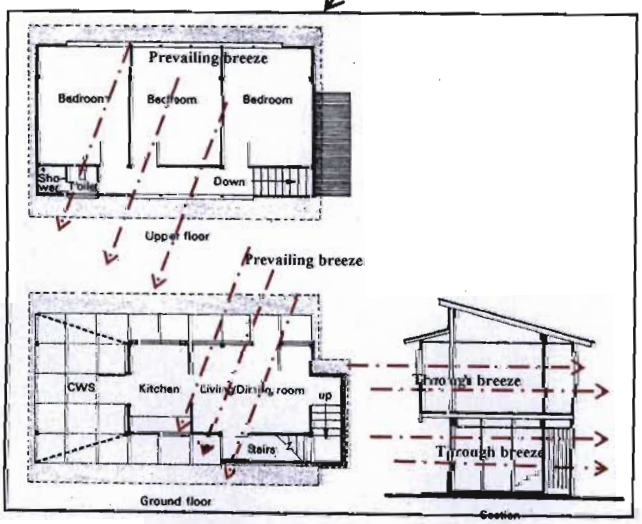
(a) Traditional housing in hot-dry or semi-desert regions e.g. Morocco



(b) Traditional housing in composite regions e.g Zambia



Main climatic regions of Africa



(c) Traditional housing in warm-humid equatorial regions e.g. Gabon.

Figure 2.1a,b & c: Map, plans and sections showing the broad climatic regions and housing typologies across Africa (source: Koenisberger 1974, http://encarta.msn.com/media_461533439_761572628_-1_1/Africa_Climate_Map.html)

a. *Warm-humid equatorial climate* – usually have two rainy seasons with a small diurnal temperature. Thermal comfort is achieved by preventing direct solar radiation from reaching the interior and by maximising natural cross ventilation. Single banked houses with steep overhanging roofs and large openings that face prevailing breezes usually attain reasonable comfort for the occupants (fig 2.1c). Countries found in this region include Gabon, Central African Republic and Congo
b. *Hot-dry desert or semi-desert climate* – typified by low rainfall and large diurnal temperatures. Housing design is intended to keep the excessive heat and dust out during the day and keep the interior warm during the night. This is achieved by using thick earth walls and flat roofs with a high thermal mass, which absorb the heat during the day and release it to the interior during cold nights. The openings are kept to a minimum on the outside to keep out dust and glare while the rising hot air in courtyards draws air out of the rooms through the large openings that face into them (fig 2.1a). Countries that typically experience this climatic pattern in Africa include Libya, Morocco, Mauritania and Algeria
c. *Composite or monsoon climate* – have a mixture of hot-dry and warm-humid seasons occuring during the year. Traditional housing design usually combines many of the characteristics of hot-dry regions and warm-humid regions discussed above. The degree to which housing design and construction responds to climate in such areas depends largely on which of the two main seasons is more extreme Fig 2.1b). Zambia, Zimbabwe and Malawi are good examples of countries experiencing this type of climate.
d. *Tropical upland climates* – large diurnal temperatures, at least one rainy season and continuous but slow air movement typify the climatic conditions of these regions. In response to this, traditional housing utilises some form of thermal mass to counter the extremes of the diurnal temperatures. The intensity of rainfall, glare and wind speed influences the roof pitch, and the size and location of openings. Kenya and Tanzania exemplify this type of climate.

2.1.2 Techniques and materials

Traditional housing is constructed from materials found in the vicinity of human settlements and utilises building techniques developed over many generations. With

no centralized industry and inadequate transportation systems to haul large quantities of materials from one area to another, traditional builders were compelled to get their materials from the earth and collect vegetative materials like bamboo and thatch from within carrying distance (Mitchell & Bevan 1992). This in turn influences a number of factors notably the selection of the site for the settlement and the construction methods. Traditionally, housing is built on the least arable land to maximise agriculture.

2.1.3 Social and cultural factors

Apart from the physical and functional aspects of traditional housing and settlements, Rapoport (1969) suggests that the aspirations of the inhabitants also have an important influence on house forms and settlement layouts. The interaction of individual relationships influenced by different socio-cultural aspects can exist even in societies with the same physical environment, and this is expressed in different housing and settlement structures (Denyer 1978, Mitchell & Bevan 1992). The following have been proposed as the main socio-cultural issues influencing traditional housing and settlement layouts (Rapoport 1969, Denyer 1978, Mitchell & Bevan 1992):

a. *Basic needs or activities* – including breathing, eating, sleeping, cooking, playing and working. All these activities will be expressed one way or another in different cultural settings as overlapping or non-overlapping spaces around the homestead and the general settlement.
b. *Family organization and structure* – monogamous and polygamous societies will be structured differently. For instance, in two northern Cameroonian tribes, one tribe builds a central hut for the husband within his homestead, who is then expected to invite a different wife at different times to his hut. In another tribe, the man does not have his own hut. Instead, he takes turns to visit each wife in her own hut within the homestead. This results in less huts being built in this tribe.
c. *Position of women* – the position of women in a society maybe expressed spatially in specific housing and settlement layouts. This aspect is especially characteristic of Islamic societies of North and West Africa where women are

expected to use separate rooms or entrances as expressed in the Bedouin tents and in the courtyard houses in North Africa.

d. *The need for privacy* – this depends on whether a society is hermatic (close-seal) or permeable (open). For instance, in the hermatic Hausa society, high walls around each plot provide complete privacy from passers-by while in most permeable societies of the savannah like the Ngoni and Tonga tribal groups in Zambia, privacy is only required for spaces used for sleeping and shelter from rain.
e. *Social relationships* – this refers to how and where people meet at individual, family, clan or village level. For instance, in Islamic societies visitors are often met in a lobby and then taken to separate private quarters, while other societies share almost all their spaces except sleeping areas. In some societies, men are not allowed in cooking areas.

2.1.4 Economy

Most traditional economies are predominantly agrarian based. As such, construction activities are usually only carried out during periods when agricultural activities are at their lowest. Construction is typically carried out on a co-operative and communal basis. Tasks and skills are often gender and age based with payment often made in kind. Skills transfer to the next generation happens naturally as most buildings rarely outlast a single generation, so the next generation learns from the elders by observing and participating in building processes (Mitchell & Bevan 1992).

2.1.5 Colonial or foreign influences

Foreign influences are accepted and assimilated into traditional housing delivery methods if they are sympathetic or complementary to local techniques and materials employed. For instance, European missionaries often built mission stations using local building materials and techniques, and as they moved across Africa, they often took with them the knowledge and techniques they learnt from other areas and re-employed them in the new stations they established. Transfer of knowledge and skills also occurred because of the thriving trade relations between Africa and Asia (Denyer 1978). This happened either through the direct exposure of African

merchants to new building techniques and materials, or when skilled tradesmen from other areas were brought back as conquered people (Mitchell & Bevan 1992). This knowledge and these skills were gradually assimilated into local building cultures if it enhanced, rather than lessened, the quality of life of people.

Mitchell and Bevan (1992) also cite a case in western Cameroon where, traditionally, raffia-poles and beehive shaped roofs were used before the Europeans came. The Germans introduced wall-building techniques based on clay blocks, which they had learnt from other parts of Africa. As forest products became scarce due to growth in population and subsequent demand, clay block walls eventually replaced raffia-poles as walling material in the area. The popularity of the new building materials was also due to the easy availability of suitable clay in the area and durability of the new structures.

2.2 IMPACT OF WESTERN STANDARDS ON TRADITIONAL HOUSING PRACTICES

An important characteristic of traditional housing and settlements is their ability to adapt and evolve with any changes to the aforementioned internal and external factors. Any change resulted in an adaptation of the housing and settlement pattern to match the specific change. This attribute of traditional housing ensured continued harmony between the built, physical, socio-cultural and economic environments which was passed to and carried on by succeeding generations.

However, the pace of colonisation led to the rapid uprooting of people from their ancestral land thus disrupting traditional building processes most notably building materials, and their associated techniques. Since the industrial revolution, stronger and more durable materials like steel and glass replaced earth, timber, thatch and bamboo. This inevitably introduced new housing standards building design and construction techniques, which are usually foreign to traditional building practices in Africa (Mitchell & Bevan 1992). Invariably, this has led to the lack of socio-cultural considerations in contemporary building design and construction as well as human settlement layouts. Whereas attempts are usually made to meet the requirements for thermal comfort in contemporary housing in Africa through standards and regulations,

very little attempts are made to understand the socio-cultural aspirations of the local people and how this might be translated into the built form (Turner 1976). Ive's (1985) findings indicate that even government sponsored research in Africa "*has ...overwhelmingly concentrated ...on technical rather than socio-cultural aspects of construction, with an emphasis in each case on the development of new construction technologies.....multilateral agencies have been highly influential in setting this research agenda*".

The adoption of western standards has led to an escalation of building costs in most developing countries, which are unaffordable by the majority of Africa's urban poor. It has also subdued the development of local forms of housing and human settlements, and research into local and more affordable building materials. Table 2.1 shows the relative performance of various building materials manufactured using Zambian and imported technology.

The need for inexpensive low-income housing adapted to today's cities climate, locally available materials and techniques is widely acknowledged in housing policy discourses. There is need for housing and human settlement standards, which match the new living and survival patterns, and a cultural identity in built form that is appropriate to contemporary ideas (Turner 1976, Sudra 1980). To achieve this, research efforts such as the ones done by Siuluta (2002) and institutions like the National Institute of Scientific and Industrial Research (NSIR) need to move into demonstration project stages before local standards can be widely replicated, and gain acceptance, especially within the private sector, political and professional circles whose vested interests hinder the adoption of local standards.

Table 2.1 Assessment of building materials (Source: Siuluta 2002)

	Foreign		Zambian		
	Concrete block	**Burnt bricks**	**Compressed earth block (CEB)**	**Compressed earth block (CEB)**	**Compressed earth block (CEB)**
Size of brick (mm) = Volume (m^3)	390 x 190 x 150 = 0.00612	*200 x 100 x 100 = 0.002	290 x 155 x 140 = 0.006295	290 x 155 x 140 = 0.006295	290 x 155 x 140 = 0.006295
Weight of brick	-	22 kg = 1,700 kg/m^3	11.7 kg = 1,850 kg/m^3	11.7 kg = 1,850 kg/m^3	11.7 kg = 1,850 kg/m^3
Stabilisation	Cement	Fire	5% Cement	10% Cement	10% Lime
Cost/ unit on site	K1, 630	K9, 000	K610	K915	K1, 053
Wastage	5%	15%	5%	5%	5%
Units per m^3 (raw material)	159	500	158	158	158
Mortar used	1 Cement 4 Sand	1 Cement 4 Sand	1 Cement 6 Sand 6 Soil	1 Cement 6 Sand 6 Soil	1 Lime 6 Sand 6 Soil
Units per m^2 of wall	13	50	22	22	22
Daily output per team	200 Blocks = $16m^2$	350 Bricks = $3.25m^2$	220 Blocks = $10m^2$	220 Blocks = $10m^2$	220 Blocks = $10m^2$
Cost of 1 m^3 of raw material (including waste)	K253, 353/m^3	-	K96, 000/m^3	K144, 500/m^3	K166, 418/m^3
Cost of mortar per m^2	K4, 784/m^2	K7, 357/m^2	K1, 728/m^2	K2, 601/m^2	K2, 996/m^2
Cost of wall per m^2	K26, 522/m^2 (150 mm thick)	K99, 425/m^2 (200mm thick)	K17, 225/m^2 (150 mm thick)	K25, 525/m^2 (150 mm thick)	K27, 572/m^2 (150 mm thick)
Pollution emission (CO^2)**	88kg/m^2	126kg/m^2	16kg/m^2	16kg/m^2	16kg/m^2
Energy consumption (wall)*	1, 157MJ/m^2	1, 657MJ/m^2	110MJ/m^2	110MJ/m^2	110MJ/m^2
Dry crushing strength	*(+)3.5N/mm^2	*(+)3.5N/mm^2	(±)3.24N/mm^2	(±)3.43N/mm^2	(±)2.53N/mm^2
Wet crushing strength	*(+)2.5N/mm^2	*(+)2.5N/mm^2	(±)1.42N/mm^2	(±)1.83N/mm^2	(±)1.4N/mm^2
Water absorption	-	10 – 14%	9 – 11%		8 – 10%

Below are additional sources of information used in the table as marked, respectively:

- *National Institute of Scientific and Industrial Research (NISIR), Zambia Bureau of Standards (ZS 007: 1973).
- **Internet http://www.adobebuilder.com
- Exchange rate used - 1 USD($) = ±K4 500, for October 2002.

- Material cost includes delivery on site. All costs are cost price. The burnt brick is the retail price excluding delivery to site.

Strength

Wet CEB are 27% weaker than burnt bricks and concrete blocks.

Pollution Emission

- CEBs are 5.5 times less polluting than concrete blocks
- CEBs are 7.8 times less polluting than burnt/kilned bricks.

Energy Consumption (during production)

- Consume 10 times less energy than concrete blocks
- Consume 15 times less energy than burnt bricks.

Box 2.1: Comparative summary of compressed earth blocks and other building materials (source: Siuluta 2002)

2.3 TAXONOMY OF ZAMBIAN TRADITIONAL SETTLEMENT AND HOUSING TYPOLOGIES

There are 73 different tribal groups that peacefully co-exist in Zambia today resulting in a mixture of cultures and practices including, housing and settlement patterns (www.zambiaarchitecture.com). Young men are taught how to build their own houses as early as 14 years of age. The typical rural house in plan takes the form of a square or circle. Walls are usually made of poles and clay with a thatched roof. In some parts of Zambia the walls are of earth blocks bonded with earth mortar (Denyer 1978, Musonda 2002).

Traditionally, the husband and wife have their own house while the boys and girls also have separate houses within the homestead. Homesteads generally have other structures for use as kitchens, food storage and *insakas* (traditional hut where men meet for common entertainment, social gatherings and meetings). During construction, gender roles are well defined; men cut the poles and execute the actual construction, women cut the grass for the thatch and draw water for all the building processes (Musonda 2002).

Colonialism in Africa brought with it the use of western materials and construction techniques, which have slowly been assimilated into local traditional practices even in rural areas (www.zambiaarchitecture.com). Whereas the number of chicken coops and the size of cattle *kraals* were the traditional modes of expressing affluence, 'modern' methods are now seen as a reflection of affluence as traditional materials and construction techniques are perceived to be substandard or 'primitive' (*ibid*).

Traditional practices are, however, more suited to the local context and persist in rural areas and informal settlements in cities where the recent migrants from rural areas have been developing housing solutions that combine both formal and informal practices.

2.3.1 Traditional Settlement Typologies

There are a number of traditional housing settlement types that have evolved in different parts of Zambia. They vary in layouts shape and sizes depending on the characteristics of the socio-economic, cultural and physical environments. In these layouts there is a distinct separation between the social and functional roles of spaces (www.zambiaarchitecture.com). Dotted around each homestead are a number of granaries, chicken coops and cattle kraals. The size and number of each gives an indication of the wealth of a homestead (figure 2.2).

The broad categories and factors that have influenced traditional settlements are discussed below.

a. Circular settlements

These are found mainly in the valleys of Southern Province among the Tonga tribe. The Tonga culture allows for polygamous marriages, and families traditionally live in extended family households. This is reflected in their homesteads, which may typically consist of different huts for the husband, two or more wives, in-laws and several children all arranged in an elliptical or circular form facing into a central open space (figure 2.2b). Other structures within the homestead include chicken coops, grain stores and cattle kraals. Kraals are always constructed in the direction of

prevailing winds, a few metres from the homestead to help keep flies and the smell of cow dung away from the homestead (Schmetzer 1995).

(a) **Lozi circular homestead on a mound in the Barotse Plain.**

(b) **Tonga oval homestead in the Gweembe Valley**

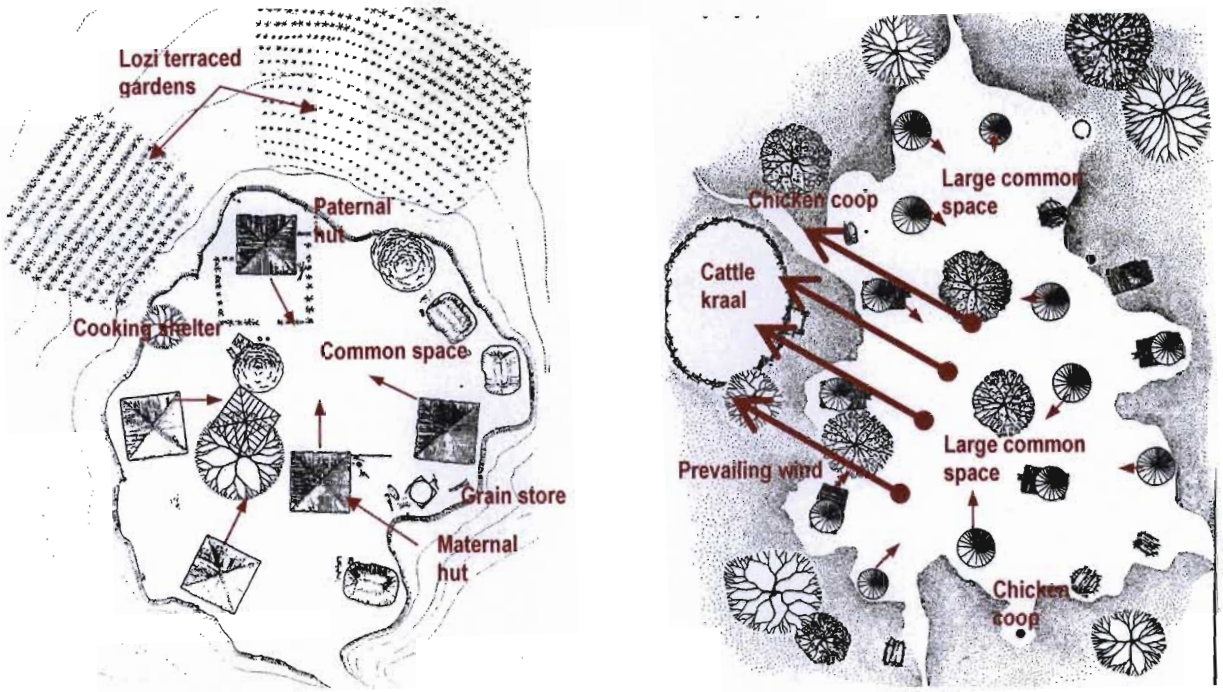


Figure 2.2 a & b: Circular homesteads in Southern and Western provinces, Zambia (source: Schmetzer 1995)

Tonga homesteads usually consist of one or two extended families dispersed across a large area and this system provides some form of traditional social safety net in dire times (www.zambiaarchitecture.com). A number of homesteads will form villages of up to 20 000 people each. The dispersed cluster of homesteads is believed to have emerged in the late nineteenth century when the Tonga experienced frequent raids from neighbouring tribes. Each cluster therefore served as an observation point alerting the rest of the village in times of trouble (Schmetzer 1995). Like most settlements in Africa's savannah, Tonga settlements are permeable, allowing easy movement of people from one cluster to another (Colsen 1949).

The landscape of Zambia's Western Province is dominated by the Upper Zambezi River and its 200km long and 30km wide flood plain called Barotse Plain. The Plain

experiences an annual flood from January to June and becomes a vast shallow lake forcing Lozi people, including the Paramount Chief, the *Litunga*, to leave for higher ground on the margins of the plain in a ceremeony called *Kuomboka* (getting out of the water). This phenomenon means that traditionally, the Lozi had two homes: one in the plain and another on the margins. Today most Lozis tend to establish permanent homes on the margins. This has led to the emergence of a string of villages along the plain's margins which has evolved into a major axis of development (Schmetzer 1995).

In the Plain, the Lozi build their villages on mounds dotted across the landscape, which have limited space of about 0.1 to 0.2 hectares to avoid the floods (figure 2.2a). An average homestead has about six to ten houses and is limited by the amount of space required for gardening and fishing. Because of the elevation of the mounds in relation to the surrounding flood plains, the Lozi are able to build their houses on the ground unlike the Tonga in Southern Province who often build their houses on stilts (figure 2.5 and plate 2.4). The gardens are used to grow pumpkins and gourds. Sorghum, rice and millet are also planted regularly (Schmetzer 1995).

b. Linear settlements

Linear settlements are found among the Nsenga and Lunda tribes of Eastern and Luapula provinces of Zambia respectively. The Nsenga migrated to eastern Zambia from the southern shores of Lake Malawi in the mid-nineteenth century together with the Chewa. Their settlement clusters normally have twenty to forty houses extending for about one hundred (100) metres and linked to the next cluster by footpaths (figure 2.3).

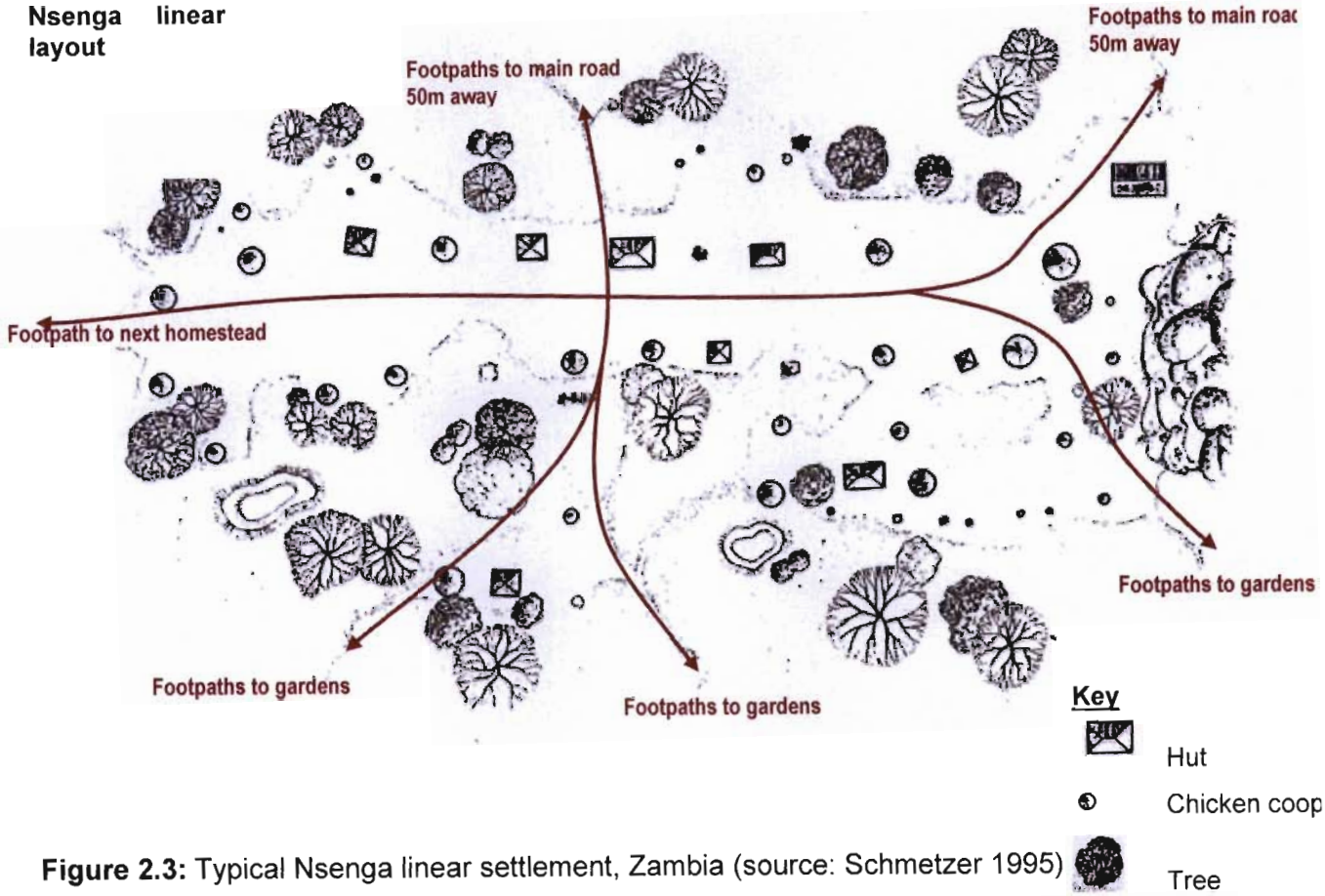


Figure 2.3: Typical Nsenga linear settlement, Zambia (source: Schmetzer 1995)

Plates 2.1 & 2.2: Picture showing a typical Zambian linear settlement and a connection path linking one settlement to another (Source: www.zambiaarchitecture.com)

The origin of the linear layout is not fully understood but two possible explanations have been given. The first suggests that it is simply a convenient way of laying out settlements as they usually follow the main roads, which are about 50 metres away from the houses. The second suggests that it is a continuation of the colonial system

of village regrouping which aimed at relocating villages close to the main roads for easier control and services (Kay 1967). Whatever the reason, this layout type is now found among the Nsenga in areas far away from main roads.

Linear settlements are also seen in Luapula Province among the Lunda. Their socio-economic life is centred around the Luapula River, which borders the province and the Democratic Republic of Congo (DRC), and swamps where fish abound. Good soils, owing to the rich deposits from the river, allow for the cultivation of their staple food cassava. Sweet potatoes, maize, beans and sorghum are also grown in almost permanent gardens unlike the *citemene* system (shifting cultivation employing slashing and burning of trees for enriching the soil) practiced further away from the river, which require people to constantly move to new areas (Cunnison 1959). Villages, therefore, tend to be established as close to fishing areas as possible. Fish not only provide an important part of the local diet but a valuable source of income from trading with the mining towns on the Copperbelt and Katanga provinces in Zambia and the DRC respectively. McKendree (1997) in discussing the theory of location, states that commercial enterprises often try to minimize transportation costs. This often includes concern for solving optimization problems of choosing the best location for a commercial activity. The location of Lunda villages exhibits this characteristic by trading-off proximity to fishing areas, suitable soils for subsistence cultivation, and markets offered by the north-south trunk road (Schmetzer 1995).

The layout pattern therefore takes on a characteristic linear form along the rivers, swamps and the major north-south trunk road for fishing and trading purposes. In one instance, a total of three hundred villages were recorded along a stretch of 180 kilometres comprising 110, 000 people and is said to be unique in Africa (CSO 1980). This 'village', the longest in Zambia, only spreads out at Kazembe town, the home of the Lunda Paramount Chief Kazembe, which is laid out with streets and shops and where all houses are of sun-dried bricks (Schmetzer 1995).

Although the British colonial administrative system has been mentioned as having influenced this layout form through their village regrouping programmes, Schmetzer

(1995) argues that the people themselves prefer to live close to the rivers for fishing and, later the roads for trading.

c. Rectangular settlements

As mentioned earlier, the Lozi traditionally had two homes: one on the Barotse Plain and another on the margins. Most Lozis today, however, live permanently on the margins of the plain which has grown into a development axis.

This development has now led to cases where extended families now live in close proximity to each other on the margins of the plains. The Lozi, thus, tend to build fences around their homesteads to provide a degree of privacy (figure 2.4). This rare hermatic character in Zambia also appears among the Leya of Southern Province (figure 2.4). It is believed that the Leya fencing has evolved more for protection from dust and flies than privacy or security (Schmetzer 1995).

Homesteads on the margins of the plain tend to take a rectangular form at right angles to the plain. Each will have six different types of gardens, working every one of them at different times of the year according to the flooding cycles. The rectilinear homesteads and rectangular buildings have evolved as a result of the higher densities obtaining on the margins. A notable difference between these settlements and those found in other parts of the country is the absence of plaster on the building. This is attributed to the lack of suitable clay in the region (Schmetzer 1995).

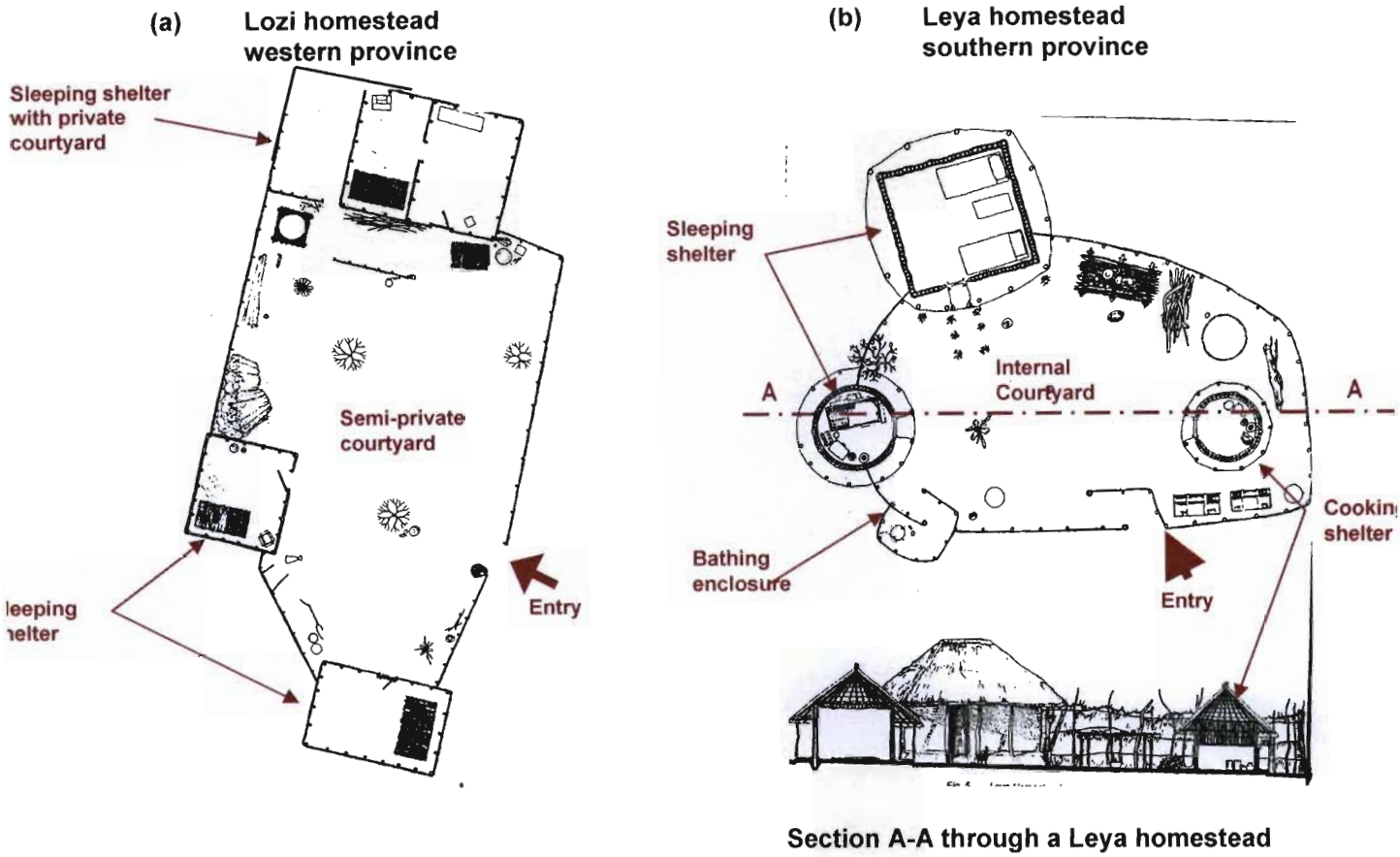


Figure 2.4 a & b: Lozi and Leya fence homesteads, Zambia (source: Schmetzer 1995)

Although there are some differences in the shapes, sizes and locations of traditional settlements in Zambia, there are some notable similarities that affect their housing standards. In all cases, the settlements tend to have large common spaces or courtyards into which most of the houses face (fig 2.2, 2.3, 2.4). Apart from fostering a sense of belonging and security, these spaces tend to be used for a multitude of activities including cooking, eating, working and family meetings. It is common to find chickens pecking around for food and people sleeping under shaded trees during hot summer afternoons. Because most activities take place outside the house, huts tend to be used mostly for sleeping and storage of a few personal possessions like clothes and bicycles. This means huts, like informal houses in urban areas, are usually only large enough to fulfil these functions (figure 2.4a & b). Thus, the spatial order is related to the function and space needed to fulfil those functions. This characteristic is also seen in the housing standards adopted in most informal settlements in Zambia as shown later in the study. These standards are also based on the size of the homestead and the socio-cultural characteristics of the particular tribe. For instance,

the monogamous Lozi have smaller households, and consequently smaller homesteads and common outdoor spaces (figure 2.2a) than the polygamous Tonga who often have larger households and homesteads, and often more than one common outdoor space (figure 2.2b).

2.3.2 Traditional Housing Typologies

Most traditional houses in Zambia are built from poles and clay for walls, grass tied to poles with bark and withes from trees, and raised floors of compacted mud much like the rest of the continent. All building materials are obtained from the vicinity of the homesteads. The poles used are from the *mopane* tree, a hardwood which, on removing of its bark, becomes resistant to termites, wood beetles and ants. The withes for binding are from the *mwiingili* or *mumpa* trees and the bark for lashing is from the *mopane*. Their water repelling and insect resistance characteristics make these trees especially useful as building materials. A grass locally called *sina* is used for thatching and is said to last up to 10 years. Clay used for floors and walls is harvested from termite mounds because of its ability to dry quickly, and its good compressive strength (Schmetzer 1995).

Construction of typical traditional houses follows the following basic sequence of events. A shallow foundation is dug and a burnt brick (or pole and mud or basket weave) wall is built to a height of about 1.8 to 2 metres. Poles are then placed into the ground about half a metre deep and the same height as the wall. It is not uncommon for the poles to be placed before the walls are constructed. The poles are either plastered into the walls or just sit outside of them. The roof structure is then built onto these poles from smaller and lighter poles, which serve as trusses. The trusses are securely tied together at an apex and at the wall plate level to a horizontal pole, which rests on the vertical structural poles to transmit the roof loading directly onto the subsoil. This allows for relatively thinner walls to be used in traditional buildings compared to formal solutions. Thatch is then added starting from the eaves to the apex (or ridge in case of rectangular houses) (www.zambiaarchitecture.com).

The use of specific trees to supply specific building components for housing construction means that other trees are usually left undisturbed. This quality makes traditional construction methods more harmonious to the natural environment than most formal building practices in Zambia today. Below is summary of the broad categories of house typologies present in Zambia today as documented by Schmetzer (1995) and Mitchell and Bevan (1992).

a. The Round Plan

This is commonly found among the Ngoni, Chewa and Nsenga tribes in the Eastern Province and among the Tonga's in the Southern Province. Materials commonly used for walls are bamboo baskets and pole and dagga (mud) while thatch is used for roofing. Variations to this house type often involve the inclusion of a veranda as shown in figure 2.5 (Schmetzer 1995).

The round plan is by far the most common form adopted in the country owing to its inherent strength. It is commonly used whenever poles or basket weaves are used together with dagga as the main building material. As stated earlier, the plastered poles or basket weave results in walls that may be as thin as 75mm but with considerable structural strength. The roof structure, often built onto the external poles, enables the entire structure to work together to resist any dead or imposed loads on the structure of the house (Schmetzer 1995). In order to protect these thin walls from being washed away by the tropical rain, traditional houses often have large roof over hangs or verandas all around the house (figures 2.5band 2.7b and plate 2.3).

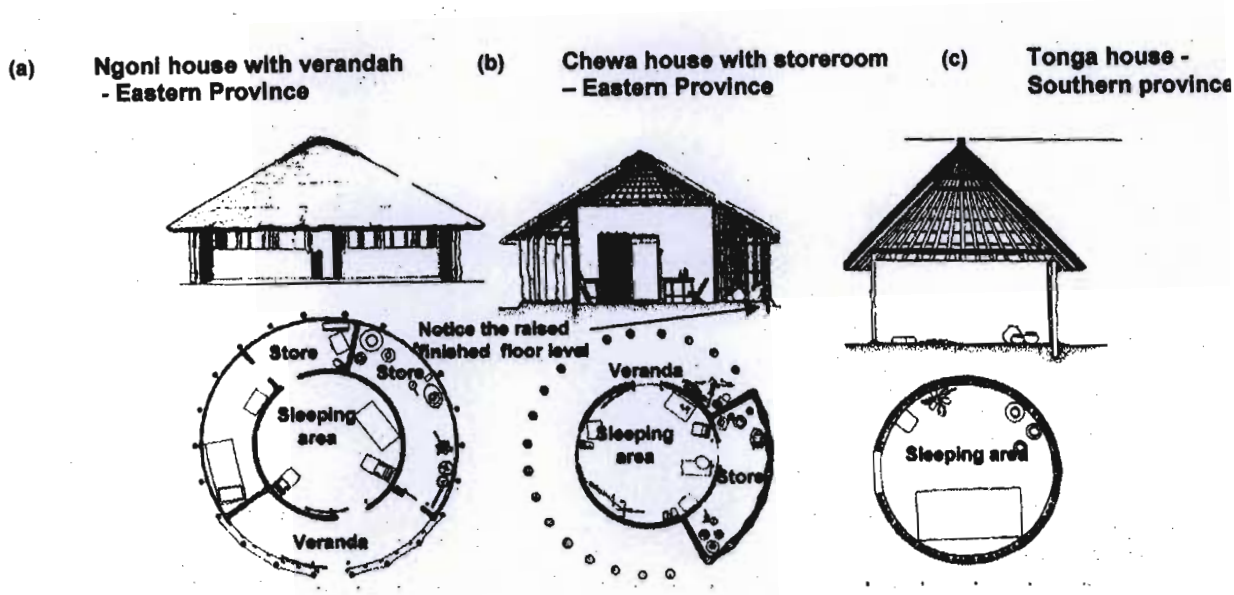


Figure 2.5a,b & c: Variations of round house form from Eastern and Southern Provinces, Zambia (Source: Schmetzer 1995)

Plate 2.3: Traditional veranda in Eastern Province (source: www.zambiaarchitecture)

b. The Raised Structure

This house type, shown in figure 2.6 and plate 2.4, is found among the Tongas in the Southern province. It has evolved here primarily due to the regions susceptibility to flooding during the rainy season and hot dusty conditions in the dry and hot season. Raising the structure offers a dry platform in the wet season and cooler, fresher air in the hot season. Typical materials are pole and dagga for walls and thatch for roofing.

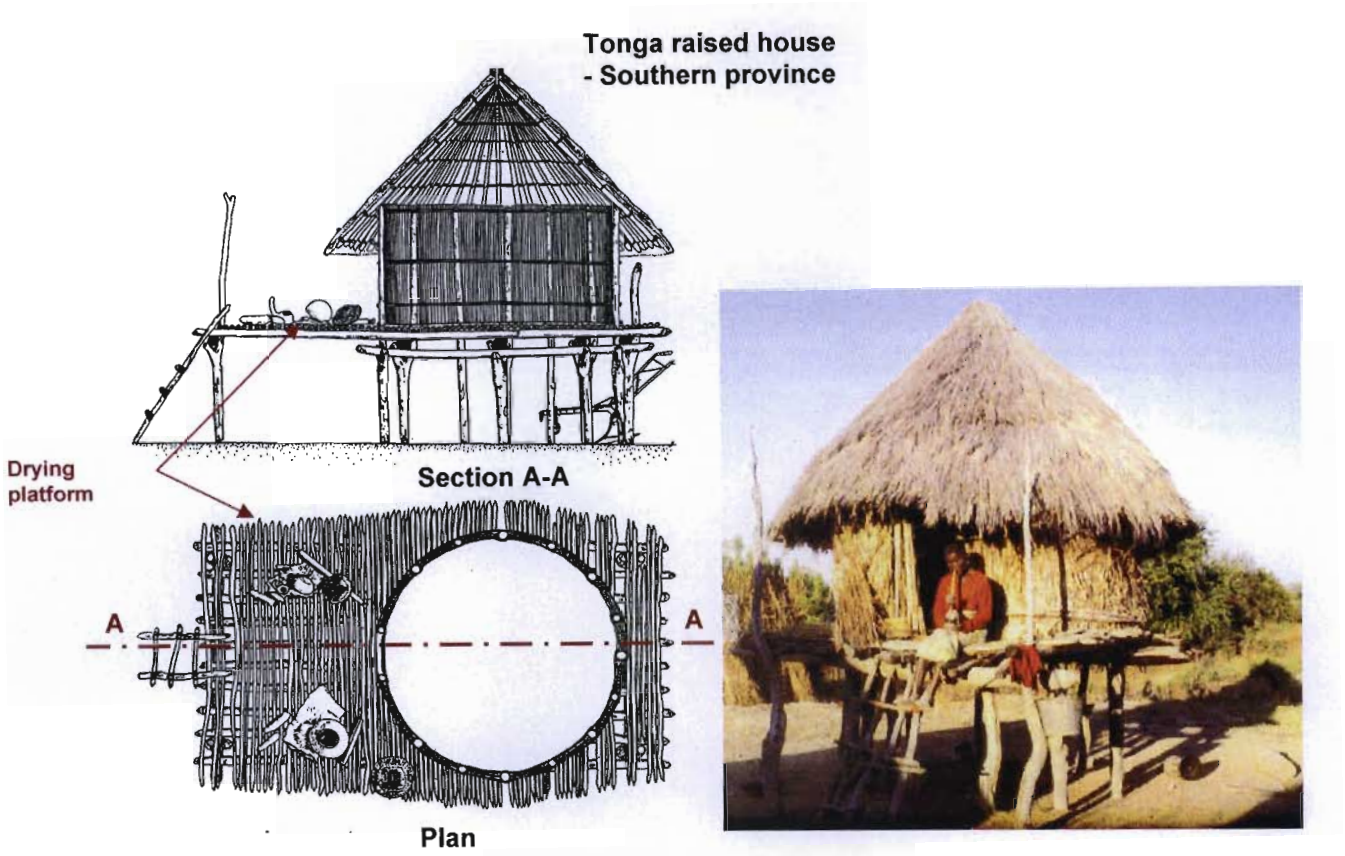


Figure 2.5 & plate 2.4: The Tonga raised house type, Zambia (source: Schmetzer 1995, www.zambiaarchitecture.com)

c. The Square Plan

The square plan is common among the Lozis in the Western Province but is also found among the Nsengas in the Eastern Province. However, there is a difference in the materials used to build the structures. The Lozis mainly use strong grass found in the sandy plains of western Zambia. They finish off their walls by weaving the grass between timber poles supporting the thatch roof. This is because the plains mainly consist of vast areas of grassland and reeds with very little tree cover. Further, there are very few areas of in the plains where good workable clay is found. The Nsengas, on the other hand, use poles and dagga for walls and thatch for roofing. This is because the Eastern Province has vast areas of Savannah grasslands, which have a lot of trees and workable clay. The properties of the dagga are utilised for thermal insulation, fire and insect protection. This renders these houses warm, comfortable to live in and durable. Variation of the Nsenga house type exists among the Ngonis and Chewas in the

Eastern Province and the Tongas in the Southern Province. These tribes often include a veranda to their square plans, which are utilised for a number of activities including daytime sleeping, and working. Verandas also help keep the interior of the house cooler during the day by shading the walls from direct sunlight (Figure 2.7) (Schmetzer 1995).

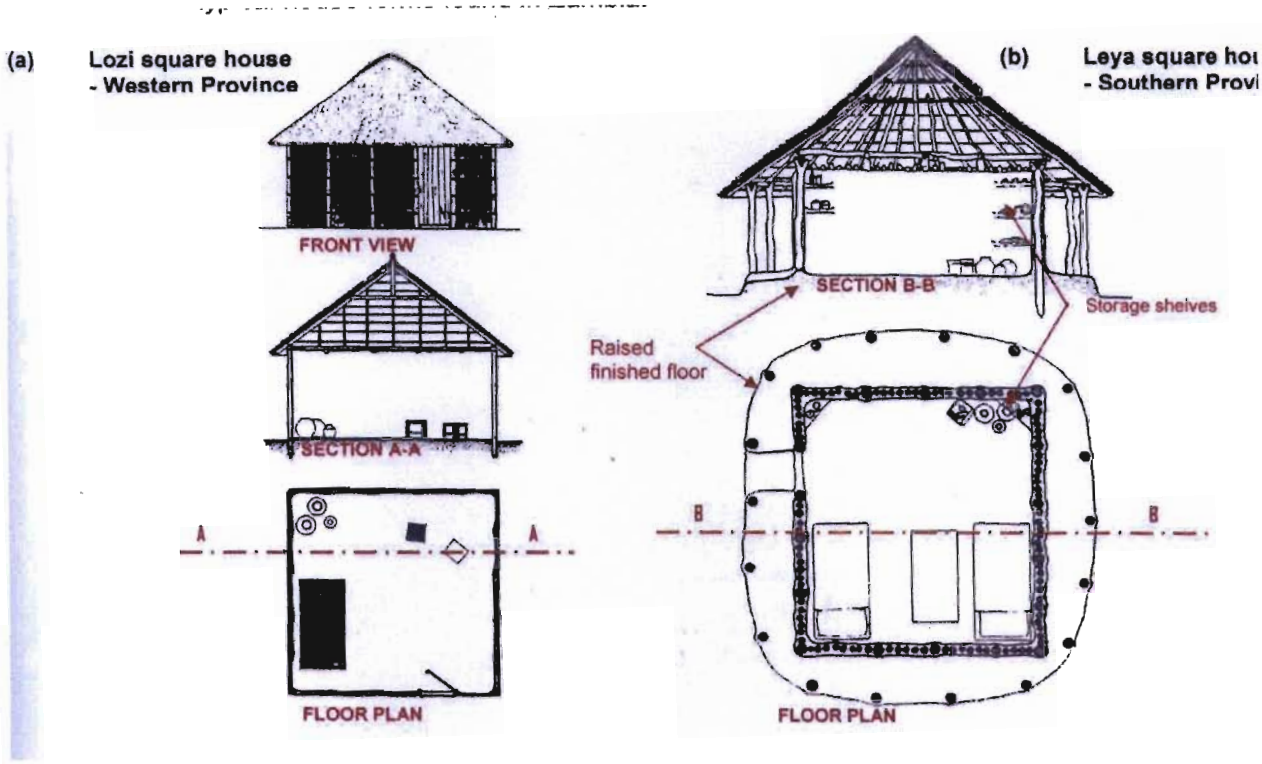


Figure 2.7a & b: Square house forms from Western and Southern Provinces, Zambia (source: Schmetzer 1995)

d. The Rectangular Plan

The rectangular plan is mostly found in the Luapula Province in northern Zambia. Although pole and dagga is still used to build walls, sun-dried clay blocks locally called "Kimberley bricks" are now used in about eighty percent (80%) of all rural dwellings in this part of Zambia. Figure 2.8 illustrates a typical clay block structure. Clay blocks were introduced to Luapula Province by missionaries in the early 1900s (Topham 1996), an indication that local people are able to learn and adapt to new technology which promotes their need. The block characteristics are summarised in Table 2.2.

Table 2.2: Characteristics of traditional clay blocks (source: www.zambiaarchitecture.com)

Size	Varies according to the mould used but the average size is 30cm x 15cm x 15cm
Strength	Depends on the soil content and the length of time they take in the kiln
Longevity	So many factors are involved including quality of clay; a structure made of blocks can last up to almost a 100 years
Colour	Depends on soil type (colour of the clay) Colours range from shades of red, orange, brown and grey.

Lunda clay-block house – Luapula Province

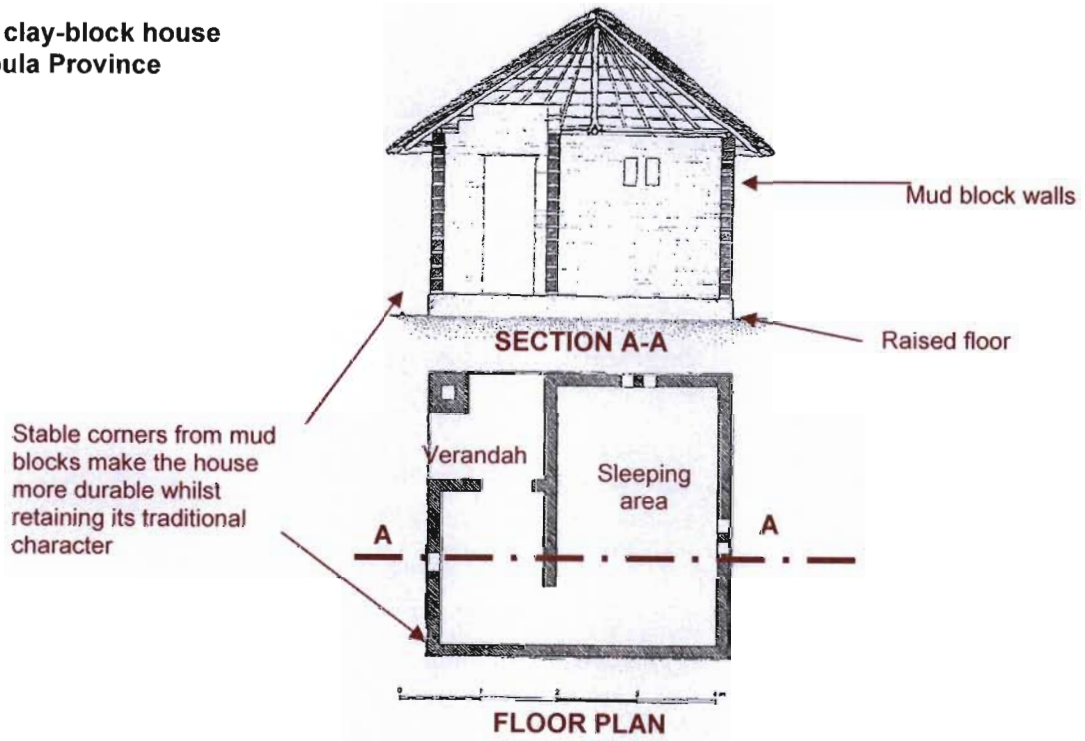


Figure 2.8: The rectangular house form built with traditional mud blocks in Luapula province, Zambia (source: Schmetzer 1995)

e. The Double Storey House

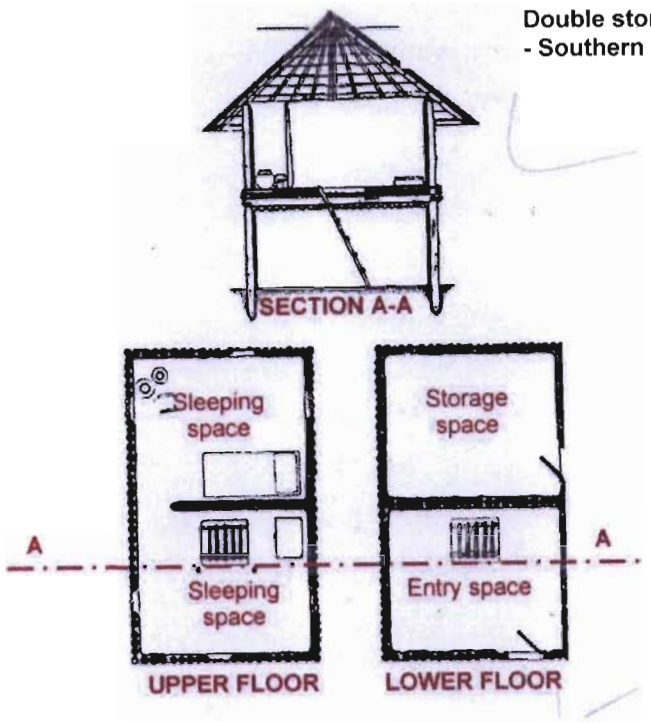


Figure 2.9: The Tonga double storey house, Zambia (source: Schmetzer 1995)

This house type is not commonly found among traditional settlements around the country. It has only been recorded as a pole and dagga house among the Tongas and as mud block house in Luapula Province topped with a thatch roof.

In all the settlements discussed above, basic sanitation and water is also catered for by means of pit-latrines and wells. The pits are constructed by digging 2 metre deep holes in the ground and covering them with big logs and mud. Small mono-pitched clay block, or pole and dagga structures are then built on top of the pits. The pits are said to last for two to three years before the family may need to dig a new one (www.zambiaarchitecture.com).

However, higher standards are usually adopted for Paramount Chiefs and Senior Chiefs who usually have tap water drawn from boreholes and septic tank systems installed and maintained by the relevant local authority. Solar powered units usually

supply power to Traditional Palaces that are too far to be connected to the national grid. The authority of Paramount Chiefs and Senior Chiefs is officially recognised by the Central Government, which gives them monthly grants through all Local Governments. Their authority includes the administration of all customary land in the country on behalf of the State President who exercises his power through the Surveyor General.

2.4 SUMMARY

This chapter has highlighted some of the main issues influencing the development of housing standards in traditional housing and settlements in some parts of Africa in general, and Zambia in particular. It has been shown that these standards are generated by people themselves based on the available materials, techniques, climate, economy, and socio-cultural influences.

According to Silavwe (1998), this same phenomenon also occurs in informal settlements, where new migrants from rural Zambia usually find housing or land to build housing. They often combine this knowledge of traditional building techniques with their new urban experiences to create housing and human settlements that are a hybrid blend of traditional and conventional housing standards. These houses and settlements are mostly known for their poor physical standards, which make them vulnerable to a lot of environmental diseases and problems. However, since the 1960's, experts in the international housing sector, led by Abrams (1955) and Turner (1976), have tried to highlight the positives attributes of informal housing delivery, which in the case of Zambia, Silavwe (1998) says, is more adapted and suitable to the African lifestyle.

The next Chapter endeavours to discuss some on the main policy issues addressing informal housing globally, and in Zambia. It also highlights some of the standards prevailing in informal settlements that have been influenced by both traditional housing standards discussed in this chapter and formal methods. It then draws some positive aspects of informal housing delivery and precedents in reforming housing standards to suit local needs from international and Zambian cases.

3.0 INFORMAL HOUSING DELIVERY AND HOUSING STANDARDS

3.1 INTRODUCTION

Rapid urban population growth, urbanization and increased rural-urban migration have led to uncontrolled urban growth and the proliferation of illegal settlements in most developing countries. These countries have also experienced economic decline since the oil crisis of the 1970s. As such, high urban unemployment and poverty levels, and other social and health problems, including the HIV/AIDS pandemic, are now becoming engrained among the urban poor (Muchima 2004).

According to the 2003 Global Report on Human Settlement, most informal settlements in developing countries owe their origin to the neglect of providing low-cost public housing and short-sighted urban management and housing policies, both during colonial and post-independence times. In the absence of sufficient public low-cost housing and enabling building standards, the growth of unauthorised and unregulated settlements in the urban areas flourished (UNCHS 2003).

This chapter discusses informal housing delivery and housing standards prevailing in these settlements. It highlights some of the key policy issues regarding informal housing in Africa in general, and specifically in Zambia. Positive attributes of informal housing, and international best practices that could be utilised in formulating pro-poor housing standards are also discussed.

3.2 INTERNATIONAL PERSPECTIVES ON INFORMAL SETTLEMENTS

According to Berry (1973), most of the urban growth in developing countries is concentrated in the peripheral areas of major cities in the form of informal settlements. Perceptions of such settlements are that they are physically decrepit areas, lacking in basic amenities, chaotic and disorganised. This attitude persists in much of the third world urban planning communities, who tend to interpret such settlements as obstacles to good civic design (Berry 1973).

The response of the state and public sector to informal settlements was generally that this was a problem that could be solved easily. The settlements would be

cleared and the residents resettled in permanent public housing often far removed from their original informal settlements. In reality, the state failed to recognize that residents preferred to live in these informal settlements because the costs of building new houses using informal standards was comparatively low and they were located close to opportunities for work. When informal settlement residents were resettled, many were moved to housing areas situated a long way from their original settlements, so they were a long way from work, social and business contacts. In addition, they also had to pay a significant proportion of their income in rent or service charges, whereas it cost them much less to squat.

In view of the above, many informal dwellers, especially in South America, began to organize themselves and resist attempts to resettle them. This coincided with general economic recession in many developing countries, which affected public housing programmes (Ruskulis 2003). It was realised that, even with minimum standards, subsidised housing programmes were too expensive to adequately house all the people, especially in major urban centres. The minimum standards adopted in mass public housing programmes such as the removal of roof, wall and floor tiles, ceilings and built-in closets in low-income houses, were generally still too high for the majority of the urban poor to afford. A few exceptions of successful low-cost housing projects are in Hong Kong and Singapore (Laquian 1983). Housing practitioners like Turner and Abrams, therefore, called for the recognition of informal settlements as viable and sustainable (Ruskulis 2003).

Proponents of informal settlements began to argue that these areas have, in fact, significantly added to the supply of shelter for the poor (Rodwin 1987). Today, most third world governments have abandoned policies of eradicating informal settlements and replacing them with mass public housing estates, and have instead resorted to settlement upgrading and site and service schemes as a way of averting crisis such as diseases in informal settlements (Rodwin 1987).

According to Rakodi and Withers (1993: 1), the term self-help housing "has been applied to a variety of forms of participation by low-income households in the production their own housing". It differs from self-built housing in that it is sanctioned

by government support. In most countries, self-help housing often starts as upgrading schemes, which require the construction of roads and other communal facilities. The construction of such infrastructure leads to the displacement of some households and calls for the provision of serviced sites in overspill areas often close to the upgraded areas to cater for displaced households.

According to Rodell and Skinner (1983: 12), contemporary self-help housing came to "refer to a form of social decision-making model about housing construction". These decisions centred on the common basic key features of self-help programmes namely: gradual or incremental construction, subsidy levels and housing standards (Rakodi & Withers 1993). The issue of decision-making was the main subject of Turner's '*Housing Autonomy Thesis*' whose central theme was "*Who decides what for whom....*". Turner (1976) proposed that given the autonomy to design, build or manage, households are able to arrange accommodation by supplementing their monetary means with personal and local non-monetary resources such as imagination, initiative, capacity to use irregular sites, locally available materials and tools, and ability to organise.

The *Kabele*[1] 41 case in Ethiopia augments Turner's faith in community-based organisations' (CBOs) ability and capacity to mobilise material and human resources in settlement development projects. The *Kabele* 41 upgrading project was a collaboration between the local CBO, an international non-governmental organisation (NGO) and the Addis Ababa Municipality. The project employed a community- based, integrated approach consisting of physical upgrading employing suitable housing standards. Success in this project was attributed largely to community involvement, which included interactive participation in problem identification, decision-making and overall planning through existing community structures. Decisions on the level of standards to be adopted were arrived at through participatory community workshops. NGO and Municipal involvement was limited to funding, training through capacity building workshops, and technical assistance (Tekle & Debas 1988). The full contribution of all stakeholders was maximised.

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[1] Local name for informal dweller's organisations

The enabling approach is thus seen as the key to achieving affordable housing standards for the lowest income people in society. People can house themselves if they are given "access to essential resources and when they are free to use their own capabilities in locally appropriate ways" (Turner 1988: 14). According to Wegelin *et al.* (1983), "...an enabling housing policy inherently banks on the ability of the poor to help themselves. This often conflicts with the predominant perception of policy-makers in bureaucracy, who, by virtue of their professional background, and administrative experience, underestimate the poor's contribution to formulating enabling housing standards". Successful self-help programmes rely on the economic use of available resources and the right kind of community involvement, as local people are endowed with rich personal and local knowledge. People need to be encouraged to participate in more ways than merely providing sweat equity. They need to be freed up to use what they know and to do what they can.

The *Mkoba* Village 12 Aided-Self Help (ASH) programme in Gweru, Zimbabwe provides another excellent example of how enabling approaches unlocks the potential of the poor to house themselves. The *Mkoba* Village 12 ASH project proved to be comparatively more successful than similar programmes in other parts of Zimbabwe because the Gweru City Council (GCC) provided serviced sites as well as the option to buy building materials at cost price to project beneficiaries. The local building society also provided loans to beneficiaries after valuing the people's own plans as opposed to imposed plans from the GCC or building society. Further, the GCC did not prescribe the rate at which beneficiaries needed to construct their houses. However, within four years of site possession, development stood at an average of 4.6 rooms per house, which was significantly higher than in similar programmes in Harare where the construction rate was prescribed by the City Council, which stood at 3.9 rooms on average over a same duration (Rakodi & Withers 1993). The model adopted in Gweru where all stakeholders' contributions were maximised could be used in formulating enabling housing standards for Kitwe

Because of the self-regulating nature of informal settlements, many international organisations now stress the importance of changing attitudes and emphasis from the current models of dealing with the growth of informal settlements in urban areas

to models that are more inclusive of informal sector participation in decision-making processes. In many cases, informal settlements constitute valuable actual or potential additions to the urban housing stock and fixed capital investments at city and national levels (Turner 1976, Silavwe 1998).

At the 1976 UN Vancouver Conference on Human Settlements, 136 nations present, approved 64 recommendations for national action. These included (UNCHS 1976):

a. The need for each nation to establish a comprehensive national settlements policy linked to socio-economic development policy.
b. Increasing support for the construction sector (including the informal sector).
c. Creating new institutions at national, ministerial, and other appropriate levels of government to formulate and implement a national settlements policy with public participation as an indispensable element.

The conference also emphasised the revision of housing standards to encourage better quality construction as one of many areas where government could have real effect in encouraging the production of affordable housing.

McCray-Goldsmith and Abraham (1996) provide an excellent example of how this was done in Jamaica where starter house standards were developed by the Association for Settlement and Commercial Enterprise for National Development (ASCEND), a local group of NGOs involved with low-cost housing projects. The main assumption behind the development of the standards was that people built their houses to the highest standard they could afford. It was further assumed that if a standard set was achievable by householders, they would be more likely to try and achieve that standard. Standards were, therefore, developed to cover land-use and physical planning including construction, infrastructure and subdivisions. The standards for starter houses were developed from elements of existing standards, which were considered not to be restrictive, from local experiences in low-cost developments and international precedent where there was no local precedent. Some principles on which the development of starter house standards were based on included (McCray-Goldsmith and Abraham 1996):

a. Making affordability a performance criterion for land development.
b. Minimising social disruption and environmental damage.
c. Adopting the standards nationally or as a generally accepted development approach rather than for one-off or small pilot projects.
d. Conservation of natural resources in housing developments.
e. Utilisation of local resources and skills, especially in resident communities in housing developments.
f. Not compromising health and safety of residents in housing developments.
g. Prioritising enabling upgrading principles in housing developments.

3.3 ZAMBIAN PERSPECTIVE ON INFORMAL SETTLEMENTS

Like most developing countries, the problem of informal settlements in Zambia stems from an inability of public institutions to cope with housing the growing urban population. The rate at which the poor are building their houses informally and creating new homes for themselves in Zambian cities today is unprecedented. The result is that existing institutional structures, and conventional approaches are rapidly being proven to be inadequate in dealing with the situation. This demands a new and fresh approach to the current housing crisis (Silavwe 1998).

Institutional housing policies, which tied urban housing to employment, had dire consequences for urban housing in Zambia (Hansungule 1998). It was a continuation of the ill-conceived colonial policy, which failed to recognise that cities typically develop through the cumulative efforts of their residents, who progressively improve their welfare, including housing (Silavwe 1998). This process of city development and improvement usually only needs proper regulation to enable existing resources and the full potential of all stakeholders to be fully utilised (Turner 1976).

Zambia can no longer afford to ignore the plight of its informally housed citizens, who now number about 2.6 million representing 26% of the national population, living in about 260 informal communities of various sizes around the major urban centres. This picture is getting worse every year. The average growth rate of urban areas has been approximately 8% over the last few decades while informal settlements have been growing at about 14% annually (CSO 2000).

Both the central and local governments in Zambia acknowledge the need to recognize and regularize such settlements. In addition, there appears to be sufficient policy and legislative framework regarding the legalization of informal settlements (Mulenga 2003). Informal settlements are recognized by local authorities and declared as 'Improvement Areas' by the Department of Physical Planning and Housing in the Ministry of Local Government and Housing (MLGH) through the Housing (Statutory and Improvement Areas) Act Cap 441 of 1974. Settlers can then obtain renewable 30-year occupational licenses. However, in order to be declared an Improvement Area, informal settlements must meet the following criterion (Mulenga 2003):

a. 60 percent or more of the land on which they are located is publicly owned,
b. The area must have been in existence since 1974,
c. Development for which the land is zoned on the local development plan is not imminent, and
d. 50 percent or more of the dwelling structures in the settlement should be constructed of conventional materials.

However, despite the existing policy and legislative framework, there does not appear to be a clear implementation strategy on how to deal with informal settlements or harness their contribution to establishing enabling housing standards. Much of the existing legislation needs to be modified and streamlined to ensure that it is relevant and enabling. For example, the National Housing Authority Act, Cap 426, gives the National Housing Authority sole responsibility for managing Zambia's housing portfolio. This approach should be reviewed with a view to incorporate informal sector participation in the supply of goods and services as well as housing construction that utilizes affordable standards. Similarly, the 1974 Housing (Statutory and Improvement Areas) Act, Cap 441, has major weaknesses with regard to its restrictions on informal sector participation in housing schemes (Mulenga 2003). This includes the strict adherence to prescribed building materials and high housing standards established by the National Housing Authority (NHA).

More recent legislative and policy developments include a National Housing Policy (NHP) unveiled by the MLGH in 1996, which sets forth an ambitious set of objectives, including: streamlining building standards, regulations and other controls to meet the needs and capabilities of various segments of the population; encouraging the production and use of local and affordable building materials (GRZ 1996, Mulenga 2003, Hughes & Masimba 2004)

However, at present, a myriad of agencies are responsible for providing, operating, and maintaining infrastructure and services in Zambia's urban areas. These agencies are also responsible for formulating standards for infrastructure and services that affect all housing in Zambia. Standards are set by central government agencies to be implemented and enforced by all 72 local governments across. For instance, the MLGH, through its Department of Physical Planning and Housing, is responsible for identifying *Statutory and Improvement Areas* in accordance with the 1974 Housing (Statutory and Improvement Areas) Act. The Department of Infrastructure Support Services in the MLGH, on the other hand, is responsible for setting standards and managing all donor projects regarding the development, improvement and rehabilitation of infrastructure in all housing areas (Mulenga 2003, Hughes & Masimba 2004)).

Before the privatization of all public housing in 1997, local authorities were responsible for the management and construction of council-owned housing for rental to public service employees. Today, their roles are restricted to local planning, development control, provision of local roads, drainage and solid waste management plus other environmental health functions using standards set by central government agencies. Water and sewerage reticulation services have since been privatized to private commercial utilities (Hughes & Masimba 2004). Informal housing and settlements, which previously fell under the Housing Department in local authorities, are now controlled by Squatter Control Departments (SCD) under the respective Community and Social Services Department.

Donors and NGOs, together with local administrations, are attempting to address some of the problems related to informal settlement upgrading in Zambia, and are

implementing a number of well-intentioned initiatives, in Lusaka and community pilot projects on the Copperbelt Province. These pilots are not, however, framed within an overall national policy for low-income, informal settlements and are still employing high and strict housing standards without the full participation of the intended beneficiaries. It is likely that greater efficiencies and more consistency would come from pilots that are being guided by an overall policy, and by a clear strategy for implementing that utilizes the communities full potential and participation in all issues including formulating appropriate housing standards for the poor (Mulenga 2003).

3.4 HOUSING STANDARDS IN INFORMAL SETTLEMENTS

Informal settlements vary widely from city to city and country to country and therefore, there are different approaches of dealing with them. However, they tend to have three characteristics in common with most successful urban environments, namely they area medium to high density, low to medium rise and mixed land-use. Growth is modest at first, due to limited funds. Dwellers later extend and improve their houses as resources increase, provided they feel secure from eviction (Turner 1976). Multiple use of the house, like subletting and other home-based enterprises, all help them to use housing as a means of social and economic development. Land is treated as a scarce resource and is also used intensively (Payne 2001, Majale 2002).

A crucial difference between formal and informal planning norms relates to plot size. Official standards on plot size are often based on assumptions regarding individual family needs, rather than the costs or impact of density involved. In view of the commercialisation of urban land markets, the cost of a plot conforming to minimum official standards may be several times higher than low, or even middle, income households can afford. At the same time, the low densities resulting from large plots increases the unit costs of providing basic services to the point that even piped water supply cannot be provided without heavy subsidies (Payne 2001). Public transport is also unable to provide links from such developments to places of employment. Informal settlements overcome these problems by either allocating smaller plots for individual household occupation or enabling larger plots to be subdivided or

developed for multi-occupation and multi-function (Turner 1976, Mwamba 1996, Silavwe 1998, Majale 2002). Informal settlements are also located in close proximity to areas of potential employment

The provision of infrastructure to low-income settlements is perhaps the most basic of needs, which acts as a major stimulus to health and livelihood prospects. Lack of clean water or effective sanitation leads to poor health and vulnerability to environmental risks, and can discourage investment in urban areas. By the mid-1990s, 280 million urban dwellers in developing countries lacked access to safe drinking water, and at least a third had no hygienic means of disposing of excreta (UNCHS 1996). Public sewer systems in a number of developing countries only serve formally laid out areas. The provision of public utility networks through local authority agencies has failed to keep up with increased demand, rendering ever-increasing numbers of urban poor without basic services (Silavwe 1998).

When planning new developments efficiently, Payne (2001) argues that it is better to maximise the use of all available land. This means that as much land as possible should be allocated to private use, as this minimises the unit costs and also decreases the capital and maintenance costs for areas remaining in the public domain. To achieve this, Payne (2001) suggests laying out new settlements whereby 65 percent of the developable land available is allocated to private use, 15 percent to communal uses like schools, clinics and places of worship, and the remaining 20 percent for roads, footpaths and public open spaces. He contends that if less than 60 percent of developable land is allocated to private use, the unit costs of land and housing rise appreciably because residents carry the costs of acquiring and maintaining any unproductive public areas. The development of informal settlements inadvertently follows these principles and it happens without official regulation or guidance (Silavwe 1998). In contrast, officially planned developments regularly assign low proportions of land for private use and an excessive proportion of public land-uses in order to meet desired standards through strict adherence to development guidelines. This results in inefficient, expensive, and often sterile built environments, often devoid of a sense of community or local economic activity (Turner 1976, Silavwe 1998, Payne 2001).

The most effective way of achieving a high proportion of land in private use and reducing the capital cost of land acquisition, and maintenance is to design road reserves to minimise the area of land required. Reserves for local roads should not exceed six metres in areas where car ownership and use is low. Similarly, public open spaces need to be designed to provide easy access, especially for children and the physically infirm. Small open spaces, such as at street junctions or small squares where multiple activities can occur at the same time, are more likely to be intensively used and maintained by the people themselves (Payne 2001).

3.5 POSITIVE ATTRIBUTES OF INFORMAL HOUSING DELIVERY

Informal housing delivery is now being widely acknowledged as having "*more positive than negative impacts to the problem of low income housing*" (GRZ 1996: 12). Martin (1976b) documented four positive aspects of informal housing delivery where ordinary people used a combination of traditional knowledge, observations from formal settlements and intuition. These four aspects; fitness for purpose, economy, flexibility and identity are summed up in the discussion below.

3.5.1 Fitness for purpose

Maslow's hierarchy of needs (figure 3.1) reveals that basic human needs are global. These include: *body needs* such as air, warmth, food and sleep; *security needs* such as living in a safe area away from threats; and *social needs* such as the love of family and friends. Other needs include: *ego needs* like healthy pride that focus on our need for self-respect and respect from others; *self actualization needs* such as purpose, personal growth and realization of ones potentials; and ultimately, *spiritual needs* such as love, direction, ending, destiny, fate (Maslow 1970).

It also indicates that the poorer people are, the greater their propensity to spend more on food. The urban poor usually spend up to 90 per cent of their daily income on food and other essential needs. Poor people, therefore, tend to limit their housing expenses.

Figure 3.1: Maslow hierarchy of needs (source: Maslow 1970)

Hence anything poor people construct has to be practical and useful to fit the purpose it is supposed to serve. For instance, by limiting the width of the bedrooms to the length of a bed (figure 3.2), bedrooms are 30 per cent smaller than the officially permitted minimum of $9m^2$. These rooms are often poorly ventilated which, increases the household's susceptibility to air-borne diseases due to slow air exchange between the interior and exterior. Martin (1976b) also notes that spatial planning takes place in three dimensions. The ground is commonly used as a depository for utensils, bed mats and other furnishings while the upper level is used as a wardrobe for hanging clothes and pots on a rope strung across the room. The roof is used for storing larger objects like maize and bicycles. This characteristic is rooted in the spatial planning of traditional of housing and housing settlements as shown in figure 2.7.

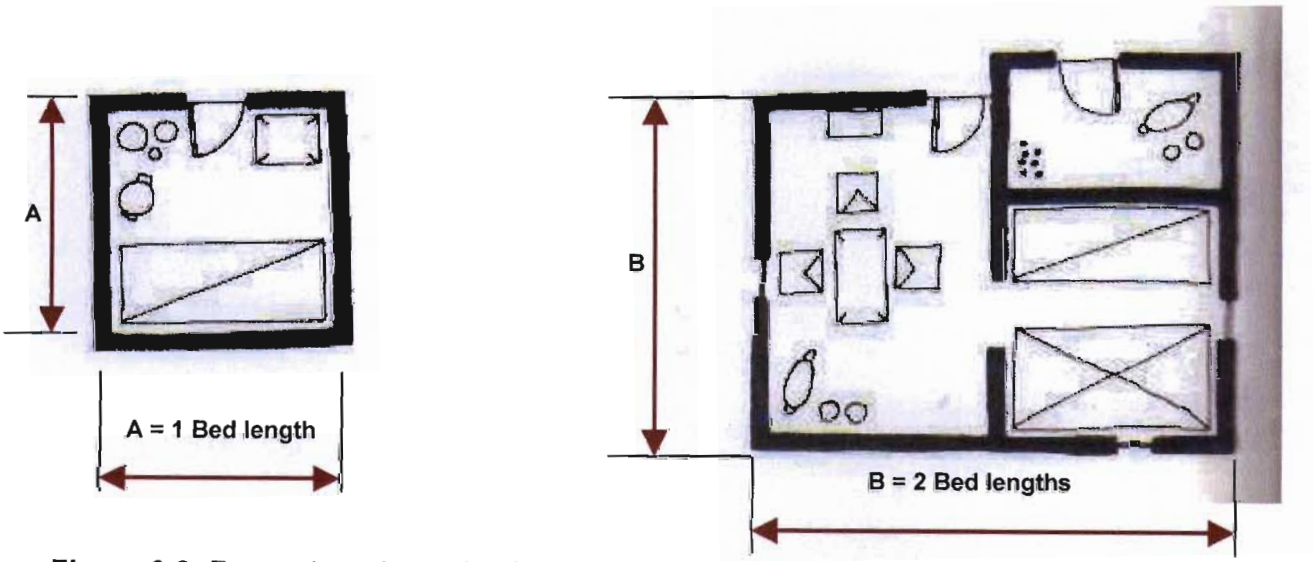

Figure 3.2: Room sizes determined by size of fittings (source: Martin 1976b)

3.5.2 Economy

In terms of economy, Martin (1976b) shows that despite their limited resources, poor people make significantly more space for their money than conventional solutions. The cost of constructing ten houses covered under the study revealed that their combined cost was equivalent to the cost of one unserviced, three-roomed house built to the standard room sizes laid down by the Public Health Act and the construction standards laid down by the NHA for Very Low Cost Housing (VLCH). It must be noted, however, that the environmental and aesthetic standards were lower than in conventional solutions.

People in informal settlements often make a number of diversions from the conventional norms in order to minimise the cost of building. Nothing is over done and so instead of a 100mm floor slab, a fairly strong base of stone and rubble is usually laid out and finished with a 15mm cement-sand screed or compacted mud. Door openings are approximately 650 x 1700 -1850mm, which is 25 percent smaller than prescribed NHA standards. Wooden shutters are used on window openings, which are about 4 percent of the floor area compared to a minimum 10 percent recommended in current bye-laws. Wherever possible, free materials like mud blocks made from earth derived from termite mounds are utilised (Martin 1976b).

These characteristics are also entrenched in traditional practices prevalent in rural areas as shown in the previous chapter. However, the roofs of traditional dwellings have high pitches and thatch allows the roof to 'breath' a little thus ensuring adequate air circulation and air exchanges to take place in contrast to informal housing solutions in urban areas. This adds to the chronic problem of air-borne diseases brought about by the small room sizes.

3.5.3 Flexibility

The socio-economic circumstances and family sizes of the urban poor in informal settlements generally tend to change slightly faster than middle and high-income people (CSO 2002). The informal nature of their household survival strategies means that the home has to constantly adapt to new challenges and opportunities,

and often takes on a multi-functional nature. Apart from serving as a home for the household, the dwelling often serves as the base for home-based enterprises (HBEs) and may also be home to one or more other families living as tenants.

This characteristic is also reflected in their housing. In one instance, a house with two rooms, A and C (figure 3.3), built in 1968 and occupied by a single man, had been sold to another family with two adults and two children who had added two new rooms, B and D, by 1972. Thereafter, modifications were made to the plan by blocking off the doorway linking rooms A and C to create a smaller room for letting by 1975. Room B was also linked to D via a new opening and the external doorway blocked off to create a new window. A new access door was opened up through room C and the access doorway to room D blocked off (Martin 1976b). This fast rate of change is facilitated by the ease at which changes can be made, a quality not normally associated with conventional solutions which are characterised by high costs and administrative delays. A clear relation to traditional practices can also be seen in this aspect.

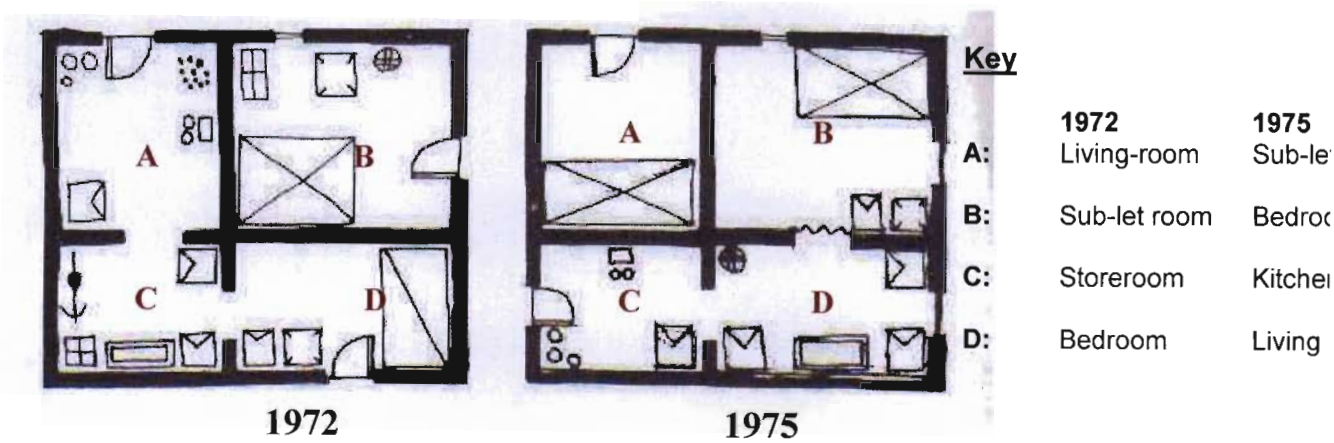

Figure 3.3: Alterations made between 1972 and 1975 to an informal dwelling (source: Martin 1976b)

3.5.4 Identity

The fourth attribute Martin (1976b) considered in the study was the human desire to create identity or uniqueness in housing. This aspect is also seen among higher income households who usually engage the services of professional architects and

contractors to facilitate this. Identity is not an end in itself but rather a product of variations inherent in all organic matter. In conventional housing, identity is regulated by external factors like standardised products and building regulations. In informal settlements, where these factors do not apply, the nature of the materials used and there easy availability make the achievement of variation and uniqueness in housing much easier. In addition, since the occupants themselves develop solutions appropriate to the individual occupants and because their needs vary from those of other households, each house easily assumes its own unique identity. This is also attributed to the fact that households have different means of meeting their needs and ideas of how to do it (Martin 1976b). The urban poor are not a homogeneous group. There are substantial differences in available assets and survival strategies, depending on whether people are more or less vulnerable, male or female, old or young or whether they are producers or consumers of housing (Schilderman & Lowe 2002). This heterogeneous character is reflected in the myriad of different housing units found in informal settlements.

3.6 INTERNATIONAL PRECEDENTS IN REFORMING HOUSING STANDARDS

There are a number of instances where changes to the standards and regulations governing housing settlements have benefited the urban poor. Most of them are, however, not a relaxation of standards but a revision brought about by the assimilation of already existing informal or traditional practices (Payne 2001). The rationale for changing regulations has been to streamline standards so that they accord with the aspirations of all income groups. This section highlights some successful attempts at assimilating local or informal building methods internationally that could possibly be replicated in Zambia.

Turkey applies a more relaxed attitude to the enforcement of standards. Local authorities tend to focus on issues that have an impact on public safety and health. This results in most rural-urban migrants, and the urban poor obtaining land, shelter and services on terms and conditions that they find acceptable. Many households have even gone on to become affluent because real estate developers bought their plots and redeveloped them into apartment buildings for middle income households

and allocated a number of apartments to the original residents as payment (Payne 2001).

Anyone carrying out development considered inappropriate by neighbouring residents could be reported to the respective Turkish local municipality. An inspector would then visit and consider the complaints in light of official regulations. The inspector had the authority to enforce or relax the regulations according to his perception of how justified the complaints were. Such flexibility placed the community in the driving seat as far as regulatory guidelines were concerned and reduced pressure on the municipalities to a level that they could sustain. Furthermore, the role of the public administration became one of conflict resolution and arbitration, rather than the enforcer of what may be considered arbitrary and unwarranted interference. It is perhaps no coincidence that the unauthorised settlements of Ankara produced environments that reflected the needs and aspirations of their low-income residents more accurately than many formal developments applying strict housing standards (Payne 2001).

However, whilst such *laissez-faire* planning has benefited the poor, it has also had some catastrophic costs. The 1999 earthquake near Izmir and Istanbul, which killed about 30, 000 people and left nearly 600, 000 homeless, would have been less disastrous if the enforcement of structural specifications had been more rigorous by public officials. This raises the important question of what aspects of urban development and housing should be enforced and what aspects should be determined by users (*ibid.*). Such relaxed planning systems are also prone to corruption if enforcement or relaxations of standards is left solely to local authority officials to visit informal settlements only if a complaint is received.

In another example, planners involved in the upgrading of a Palestinian refugee settlement in Amman, Jordan, worked with the local community to regularise the existing circulation network, so that services could be installed without removing existing houses or residents. In fact, by readjusting plot boundaries slightly, it was possible to insert a number of additional plots, which were sold to help reduce the unit costs of providing services. The rights of way and access routes were narrow,

and in some cases less than two metres. This echoed the traditional Middle Eastern urban environment in which the minimum width of a road was defined as one in which a fully laden camel could pass. Of more practical relevance, however, was the fact that the narrow roads provided maximum areas for their plots and protection from weather elements. On a deeper psychological level, the environment reflected traditional cultural values towards the built environment, and was only possible because the planners worked *with* (enabled), rather than *for* (imposed), the community (*ibid.*).

Musanda-Nyamayaro (1993) also provides a good approach employed in Zimbabwe that could be replicated in Zambia. The Budirio phase 2 and 3 housing scheme, built between 1989 and 1991 near Harare, used experimental housing standards, set below the official standards. Relaxation of standards was in various forms including:

a. The layout and specification of a one or two-bedroom shell house, to be completed by the householders.
b. Reduced plot sizes to make them more affordable.
c. Allowing some types of materials, such as stabilized soil blocks, and lower cost components not included in the existing standards.
d. Reduced width of roads and drainage and a preference for labour-intensive rather than mechanized road construction, and use of earth or gravel rather than asphalt for more lightly trafficked roads.
e. Giving lower priority to immediate electricity connection, and
f. Strengthening municipal capacity for public works, rather than having to rely on expensive private contractors.

Cost reduction and increasing affordability was the primary aim for relaxing the standards. The relaxed housing standards were, nevertheless, still quite high, and excluded some of the poorest households (Musanda-Nyamayaro 1993).

In Kenya, Yahya *et al.* (1999) state that the process of arriving at revised housing standards contained in Code 95 was lengthy and complex, dating back to the early 1980s and approved in the early 1990s. Nevertheless, the main lessons that could be derived from the Kenyan process of reviewing housing standards include:

a. The change process needs to be backed by research findings and ongoing monitoring.
b. Review is an ongoing process, or at least a long process lasting many years with several stages of review and dissemination of findings.
c. Review has to be a collaborative process involving several steering and working groups, consultations and dissemination workshops involving a range of different stakeholders.
d. A core group of committed and knowledgeable enthusiasts are needed to overcome obstacles in the reform process.
e. Donors need to commit more than just money. To support the process fully, they need to work with a reform-based agenda and provide particular inputs to the process.
f. NGOs have a significant role to play in advocacy, information dissemination and demonstration projects.
g. Politicians who advocate improving living conditions and poverty reduction can become powerful allies for the reform process on housing standards.
h. It is important to actively involve planning and building professionals and public officials in the reform process to avoid them considering that their standing is being challenged or that they are being sidelined.

These experiences provide valuable evidence of the social, economic and environmental costs and benefits of more flexible housing standards and pro-poor participatory approaches, which can possibly influence the process of formulating new housing standards for the urban poor.

3.7 SUMMARY

It has been shown that when revising standards, the role played by communities in deciding what standards to adopt is very crucial. However, it has been argued, perhaps with good reason, that in the interest of public health and safety, some standards are too crucial to be left to individual households to decide upon (Rakodi & Whithers 1993). Zulficar (1990), on the other hand, states that majority of housing in developing countries is built by the people themselves who do it according to

standards better suited to their needs, and as shown by Martins (1976b) study. It can therefore be argued that given that poor people build considerably more housing than most third world governments, they can significantly reduce current housing shortages in most developing countries if they are guided properly within a framework of enabling housing standards (Turner 1988, Zulficar 1990).

The crucial issue of decision-making in community-led housing projects thus calls for more devolution of some of the nominal powers that housing agents currently enjoy under current legislation, and reducing the influence that political interest groups have (Rakodi & Whithers 1993). Further, the role played by professionals needs to change from the traditional top-down approaches to a bottom-up approaches that understand and work in support of community-led projects (Sudra 1980).

4.0 ENABLEMENT AND HOUSING STANDARDS

4.1 BACKGROUND TO ENABLING APPROACHES IN HOUSING POLICIES

Enabling approaches in national policies were enunciated in *Global Strategy for Shelter to the Year 2000* (GSS) in 1988 (UNCHS 1988). The GSS acknowledged the increasing number of the urban poor who were living in informal settlements especially in developing countries, and recommended that governments withdraw from direct intervention in housing provision and focus on creating an enabling environment for other actors in the housing market to fully utilise their potentials in shelter production (*ibid*). Governments, as such, take on a different, but not a lesser role of providing essential enabling regulations and institutional structures. Following this, the United Nations Development Programme (UNDP) 1990 *Human Development Report* stressed that:

> "*the limited financial and human resources of municipalities and central governments make it particularly important to use the energies of all actors on the urban scene. The best way to release these energies is for governments to shift from directly providing services to enabling others to provide them – be they formal or informal producers, community-based and non-governmental organisations or the urban residents themselves. Enabling strategies can yield the highest returns in the provision of shelter and urban infrastructure*" (UNDP 1990: 92).

Enabling strategies were espoused by the World Bank's paper entitled *Urban Policy and Economic Development: An Agenda for the 1990s*. The paper was inclined towards market enablement through an efficient market system that allowed the private sector to be the main agent of development (World Bank 1991).

Enabling strategies thus called for governments to formulate appropriate legal, regulatory and financial frameworks and institutional arrangements, which would harness the full potential of all key stakeholders in the housing market. Enabling strategies also directly tackle the underlying causes of market failures in housing the urban poor such as unequal competition between various parties in the housing market and institutional exclusion of the urban poor and informal activities from the

formal market (Helmsing 2001). The UNDP in the *Cities, People and Poverty: Urban Development Co-operation for the 1990s* paper further recommended that aid to developing countries had to be enabling by responding to development priorities of poor countries rather than the agendas of donor agencies (UNDP 1991).

Enabling strategies have since taken root in shelter policies of many developing countries like Zambia, which adopted most of the recommendations of the GSS in the 1996 NHP Document. However, as Devas and Rakodi (1993) pointed out, adopting "*enabling policies is clearly an attractive concept, but there seems to be little consensus about its precise meaning, let alone about how exactly it is to be achieved*". The Zambian Housing Policy has outlined as one of its objectives "*the preparation of a national housing implementation strategy*" (GRZ 1996:15). To date, the strategy for implementing the pronouncements of the first ever attempt at formulating a comprehensive housing policy is yet to be published.

4.2 THE ZAMBIAN NATIONAL HOUSING POLICY

At independence in 1964, Zambia faced a number of housing challenges arising from colonial housing policies. From that time, housing was regarded as a social right, and the management of housing was largely the responsibility of local governments and parastatal organisations. The government not only sought to adopt better designs of houses for people but increase the housing stock and offer higher standards like electricity, water and all weather roads. Integration of previously segregated housing between European and African locations was also a priority.

In addressing the various challenges in the country, including housing, the Zambian government developed National Development Plans (NDPs) which outlined targets to be achieved and strategies and actions to be taken by the government over a 5 year period. Table 4.1 outlines the various NDPs and their main objectives.

Table 4.1: Post independence National Development Plans, approaches and objectives (source: GRZ 1965, GRZ 1967, GRZ 1971, GRZ 1979, Tipple 1981, GRZ 1989, UNCHS 1996, Makasa 1997, Mabo 2002, Mususa & Wood *undated*)

NDP	Period	Main Approach	Main objective(s)
Transitional NDP	1965 to 1966	Modernization and urban growth	Physical planning and production of shelter by public agencies through central planning
First NDP	1966 to 1972	Redistribution with growth	Promoted self-help efforts on a project-by-project basis using state support
Second NDP	1972 to 1976	Basic needs	Recognition of the informal sector, promotion of squatter upgrading, site-and-service schemes and state subsidies to land and housing
Third and Fourth NDPs	1979 to 1983 and 1989 to 1993	Shift from socialist to capitalist approaches	Attaining minimum shelter standards

Zambia is still grappling with the problem of housing its citizens. From the time of its independence, there was no comprehensive and coherent NHP until 1996. As a result, there was no framework for a consistent approach to housing delivery. Investment in housing subsequently dropped from about 30 percent of the GDP in 1969 to less than 0.5 percent by 1992 (Mushota 2000), well below the internationally recognised and recommended minimum of 5 percent. The problem has been compounded by the inability of the majority of people to pay economic rents for a conventional low cost house and the escalating building costs, which are beyond the effective demand levels of the market forces (Makasa 1997, Tipple 1975).

The Zambian NHP was intended to change the pattern of housing development in Zambia and restore growth of the housing sector. By providing the framework for sustainable housing development, the policy also aimed at providing a mechanism for ensuring that limited resources are put to their optimum use and thus also addressing poverty alleviation. The NHP emphasises the process of housing delivery by understanding the magnitude of the housing need and the priority that should be given to shelter in overall socio-economic development. The Policy also defines the technical, financial and administrative framework needed to carry out housing programmes. Finally, the policy identified the agents in the public and private sectors

and outlined their roles in housing delivery (Mbati–Mwengwe 1998). The main strategies outlined in the policy are summarized in table 4.2 below.

Table 4.2: Strategies of the 1996 National Housing Policy (source: GRZ 1996)

ELEMENT	STRATEGIES
Housing Finance	• Mobilising funds for housing development by working together with private companies who would channel their social security funds to building societies who would then administer them using their specialised skills in housing finance. • Providing incentives to private individuals and institutions to invest directly into housing by removing unnecessary rigid regulations that hinder participation in housing development.
Land Delivery	• Providing adequately serviced land with secure tenure to all income groups • Providing subdivisions for the development of housing estates for sale or rent by private developers. • Preparing more functional and economical township layout plans.
Building Standards and By-laws	• Revising building standards so that they become functional and performance based rather than prescriptive. Their flexibility should reflect the affordable principle by all income groups. • Reinforcing building inspectorates in all local authorities through training.
Development of Local Building Materials	• Actively promoting the development of local building materials through research by improving the quality of local materials presently in use so as to extend the projected lifespan of the housing structures. • Funding demonstration programmes aimed at the use of these local building materials.
Development of Infrastructure	• Providing infrastructure such as water, roads, street lighting and sanitation so as to stimulate housing production by the public and private sectors. • Ensuring that all land within townships is provided with basic services prior to allocation.
Impact on Building Industry	• Ensuring a steady stream of work to the private and popular sector including small contractors by awarding public sector construction contracts.
Home Ownership	• Encouraging home ownership as a means of providing security, stability and economic power to the family unit and as a basis for the development of economically strong and motivated communities. • This is to be done through the removal of rent control, withdrawal of employment-tied housing, site and service and squatter and settlement upgrading.

Despite the pronouncements contained in the NHP document, there are still no programmes in place that are addressing the shortage of adequate and affordable housing today. As stated earlier, only the Presidential Housing Initiative (PHI) attempted to implement some of the policy's recommendations. The few experimental projects being carried out by local universities and NGOs on local building materials are yet to produce the desired outcomes that would see their wide scale implementation. Erguden's (2001) conclusions succinctly summarise the problems besetting the delivery of housing in Zambia today:

a. the lack of effective implementation strategies,
b. the lack of secure tenure,
c. poorly administered community participation and self-help policies,
d. the lack of housing finance mechanisms,
e. inadequate supply of affordable land,
f. inadequate infrastructure and services,
g. underutilization of local building materials and services,
h. the lack of support for small-scale construction activities,
i. highly rigid and prescriptive standards for building and land subdivision, and
j. the lack of support for experimental pilot projects.

Addressing all the abovementioned issues will require the revision of housing standards, institutional and legal reforms, and more crucially, political will. The National Housing Authority Act, Cap 426, still gives the National Housing Authority (NHA) sole responsibility for managing the country's housing portfolio, including the formulation of national building regulations and minimum housing standards (GRZ 1974, World Bank 2002). However, housing produced to the NHAs Very Low Cost Housing (VLCH) standards is still unaffordable by the urban poor and an increasing number of the Zambian middle class. Plates 4.1 and 4.2 show two 65.5m^2 NHA low-cost houses, whose details, including floors plans, floor areas and application procedures are contained in appendices II and III. Suffice to mention that they were selling at K76 million (approximately US$16 000 or ZAR104 000) (NHA 2004). Table 4.3 gives an indication of the average net monthly salaries for five categories of employees at the time these houses were on the market in August 2004 (JCTR 2004).

Table 4.3: Average net monthly salaries for selected categories of employees in Zambia as at August 31, 2004 (source: JCTR 2004)

	TEACHER	SECRETARY	NURSE	POLICE OFFICER	SECURITY GUARD
SALARY/MONTH	K407, 000 to K913, 000	K390, 000 to K791, 000	K461, 000 to K1, 489, 000	K120, 000 to K300, 000	K40, 000 to K180, 000

Plates 4.1 and 4.2: Two NHA low cost houses in Lusaka (source: NHA 2004)

The years of socialist-style policies and central planning created a culture of dependence on the state. The top-down provision of services resulted in citizens expecting free services from the state, which was supposed to provide services to people. However, enabling approaches call for the decentralization of decision-making powers to the grassroots on issues affecting the type and level of services communities need. The enactment of the 1991 Local Government Act devolved some authority to the country's 4 City and 18 Municipal Councils with 51 District Councils being controlled by Central and Provincial Government Agencies. Under this Act, Local Authorities are responsible for the following functions (World Bank 2002):

a. creating capacity to provide the necessary services,
b. setting local housing delivery goals,
c. identifying and allocating land for housing purposes,
d. providing and maintaining infrastructure and services to open up land for housing development,
e. enforcing building standards,
f. regulating land-use and controlling development,
g. establishing and managing upgrading and site and service schemes, and
h. providing community and recreational facilities in residential areas,

However, the Act does not provide concomitant resources, hence the continuing decline of urban infrastructure and services hence the Kitwe City Council has been unable to fulfil most of the above responsibilities.

Furthermore, as a consequence of SAPs, poverty caused by widespread redundancies from privatised enterprises has led to an increase in the number of people living below the poverty datum line (CSO 2002). The lack of a sustainable housing policy has subsequently led to poor people settling in informal settlements. The ever-increasing poverty levels means that, even if the poor are willing to, many do not have the ability to pay for the level of housing standards offered. Maslow's (1970) hierarchy of needs states that the poorer people are, the more income they will spend on food. And since authorities have few resources with which to provide, maintain or improve infrastructure and services, the housing, health and environmental conditions in the growing informal settlements of Zambia's cities are increasingly deteriorating (World Bank 2002).

In order to reverse this trend, the government needs to develop enabling strategies for the market, local government and communities (Burgess *et al.* 1994). Local governments must further devise implementable enabling strategies to suit the local market and local communities. Market enablement, within neo-liberal policy frameworks, calls for the facilitation and promotion of formal and informal markets to provide solutions for production, distribution and exchange of urban goods and services, including housing. Community enablement or participation as some prefer to call it, is defined as "*a strategy developed by central and local government to co-ordinate and facilitate the efforts of community and neighbourhood-based organisations to initiate, plan and implement their own projects according to the principles of self-determination, self-organisation and self-management*" (*ibid.*: 57).

Market enablement has been widely implemented in Zambia but as has been shown, the benefits have not trickled down to the provision of housing for the poor as the housing standards that formal housing delivery still uses are unaffordable. The privatisation of most of the state and local authority housing which was aimed at benefiting the low-income groups largely ignored informal settlement residents who constitute the majority of the urban poor. Community enablement, which is a more effective route to deliver affordable housing standards to the urban poor, has been far less promoted but has been developing informally over the last two decades as most local authorities are unable to effectively monitor development in their areas of

jurisdiction (Burgess *et al.* 1994). Helmsing (2002b) suggests that governments should formally recognise the role of communities and derive actions for policy and regulatory reforms from community initiatives at grassroots level. Local governments should, therefore, *"facilitate local communities to organise into CBOs, manage community-level affairs and undertake collective community action"* (Helmsing 2002b: 323).

In Zambia, RDCs have emerged as effective CBOs through which community enablement can be operationalised. They are recognised as community-based partners through which local governments and NGOs can channel their development projects aimed at alleviating the plight of poor urban communities. However, more can still be done by local government to strengthen the role of RDCs. According to Smith (2000), there are four different types of community enablement practices:

a. *Community Planning* - refers to measures to strengthen the capacity of local councillors to plan strategically for the overall welfare of their areas through 'community government'.
b. *Community leadership* – refers to the leadership role that the local government plays in trying to meet community needs by influencing regulations that affect cooperation with outside public and private agencies.
c. *Pluralist collectivism* – refers to local government actions to stimulate and encourage the growth of local community organisations representing local interests and provide local services as alternatives to conventional local government and
d. *Participation* – refers to local government efforts to facilitate the participation of citizens as policy makers and managers at local level rather than just as consumers. Citizens are enabled to decide what and how needs should be met and be empowered by the local government with 'equity, justice and citizenship'.

4.3 EFFECTIVE PARTICIPATION IN DEVELOPMENT PROGRAMMES

An essential element of enabling strategies is stakeholder participation (UNCHS 1996). *'Few observers doubt the potential value of community or public action in development'* (Gilbert & Ward 1984: 769). Experience suggests that developmental

projects that are not supported by the recipients are less likely to succeed (*ibid.*). Apart from increasing prospects for success, other benefits of participation include: facilitated co-operation between disadvantaged groups or sectors of the community, improved decision-making, sustainable development, matching development products with community needs, and improved effectiveness in project planning and implementation (BESG *undated*, Jaarsveld 2001). All these benefits will aid the formulation of enabling housing standards that emerge from a consultative process involving all stakeholders including the poor.

The International Association for Public Participation (IAP2) identifies five types of public participation and the level of community involvement as indicated in table 4.4 (Jaarsveld 2001: 5):

Table 4.4: Types of public participation and community involvement as identified by the IAP2 (source: Jaarsveld 2001)

Type	Level of community involvement
Inform	The objective is to provide the public with balanced and objective information to enable people understand the problem, alternatives and/or solutions.
Consult	The objective is to obtain public feedback on analysis, alternatives and/or decisions. It involves acknowledging concerns and providing feedback on how public input has influenced the decision.
Involve	The objective is to work directly with the public throughout the process to ensure that public issues and concerns are understood and considered at every stage.
Collaborate	The objective is to work as a partner with the public on each aspect of the decision, including the development of alternatives and the identification of the preferred solution.
Empower	The objective is to place final decision-making in the hands of the public.

The World Bank on the other hand acknowledges three types of community involvement as shown in table 4.5 (Jaarsveld 2001: 5):

Table 4.5: Types of public participation and community involvement as identified by the World Bank (source: Jaarsveld 2001)

Type	Level of community involvement
Passive	This level involves only the dissemination of information to stakeholders, such as dissemination of information during an awareness campaign.
Consultative	Stakeholders are consulted before the organisation makes a decision but they do not share decision-making responsibility. An example would be considering stakeholder issues expressed during a workshop.
Interactive	Stakeholders are involved in collaborative analysis and decision-making. Learning methodologies are used to seek multiple perspectives. A typical example might be that of a negotiated water licence.

From the foregoing, it can be seen that different levels or intensities of public participation may best be described as points along a continuum, with the level of stakeholder influence on decision-making increasing from merely informing communities to empowering them according to the IAP2 model or from passive to interactive participation in the World Bank's model (Jaarsveld 2001: 5, citing Creighton 1998). In formulating standards for housing that are aimed at benefiting all citizens including the urban poor, the consultative process should ideally be an interactive of empowering one if the adopted standards are to be accepted and implemented.

An example of interactive or empowering participation that worked well in Zambia is the approach used by the Human Settlement of Zambia (HUZA) in the first informal upgrading projects under the 1974 Housing (Statutory and Improvement Areas) Act. HUZA worked with experienced experts from the Lusaka City Council's Housing Project Unit (HPU) to implement official plans drawn up with community involvement. They held several public meetings using oral, visual and other means of communication in the evenings and during weekends for about five months to ensure that everyone in the community received first-hand information so thatthey could make informed decisions on matters that affected them. This helped reduce community opposition during the four year implementation phase and the relocation of 4 000 households displaced to make way for roads and other communal facilities like clinics, markets and schools (Muyoba *et al.*1988).

HUZA also worked with existing political party structures within the communities, which were designed to ensure bottom-up participation of key stakeholders including women and youths. The lowest party organ was the Section, comprising 25 households represented by 4 men, 4 women and 4 youths. Ten Sections formed a branch represented by 4 men, 4 women and 4 youths. Branches formed Wards with an elected Chairman to preside over Ward committees comprising 8 men, 8 women and 8 youths. Ward Chairmen also served as District Councillors. The success of HUZA was largely due to their decision to operate within existing representative structures at community level, which offered an appropriate platform for consultative discussions between the community, the local authority and donors (*ibid.*).

In view of the above, Multi-Stakeholder Partnerships (MSPs), a broader concept than Public-Private Partnerships (PPPs), could offer level platforms for effective participation. They have emerged as an alternative framework through which the aspirations and needs of all key stakeholders, including the poor, can be addressed. MSPs allow for the inclusion of community, civil society organisations and NGOs in both policy formulation and implementation, and can provide an appropriate forum through which local housing standards can be assessed (Payne 2001). They offer a medium for building trust through an open and transparent process, which ensures that all stakeholders at all levels and in all sectors are given an equal opportunity to participate. Effective MSP processes thus enable the different groups to truly play their role in decision-making (UNIS 2002).

4.4 HOUSING STANDARDS IN FORMAL SETTLEMENTS

Housing standards should be concerned with creating regulatory guidelines that ensure public health and safety among others things. Schilderman and Lowe (2002) argue that setting standards too high may not prevent disasters. They contend that designing and constructing buildings using conventional standards and materials may achieve public health and safety requirements, but this would also be too costly for many of the urban poor. Housing standards should, therefore, aim to prevent man-made disasters and, in the event of natural disasters, they should limit the number of casualties while accepting that some damage will occur to the houses. This means trying to prevent casualties through collapse in cases of natural disasters and accepting that some damage would occur. As such, it is important to build on good technology that is practiced and already available in specific environments, and which generally stands out in the face of such disasters (*ibid*). any standards beyond the basic health and safety requirements should be considered optional, especially given the limited technical and human resources available to most urban development and management agencies in developing countries. The present tendency is for local authorities to try and control all aspects of housing development, but in practice they control very little. By concentrating on providing basic infrastructure, such as water and sewerage services and public safety requirements, the public sector's influence over new developments, and the improvement of

existing urban areas would be easier to achieve on a sustainable basis particularly in developing countries such as Zambia (Payne 2001).

Housing standards and regulations interact closely with regulatory guidelines for the design and construction of buildings, provision of infrastructure and access to formal credit. In each case, it could be said that guidelines are created by, and reflect the interests of the urban middle and upper class. This is expressed in the language in which they are couched, the preoccupations they reflect, and the institutional structures and arrangements created to implement them. Taken together, this regulatory environment does not facilitate access by the poor majority to legal shelter, or promote the development of towns and cities in which they can actively contribute to, or share in, the fruits of social and economic development (Payne 2001).

Despite this evidence, many governments still define their shelter policies in quantitative terms rather than in terms of the role shelter plays in household socio-economic strategies. Statistics on housing backlogs, which indicate a notional number of dwellings required in a country or city, are consistently based upon definitions which reflect middle and upper class perceptions of housing rather than those of the poor for whom they are intended (Payne 2001). For instance, most of the 897 000 houses that official Zambian statistics recognises as informal and below 'standards' are constructed with burnt clay blocks, which Chifunda (2003) states are the main building materials in rural and peri-urban Zambia today. Only housing built to conform to western oriented standards and formally approved by local authorities is recognised as adequate. As such, it is not surprising that low-income housing projects provide solutions with standards, which are unaffordable and, therefore, depend upon the availability of subsidies (Rakodi & Withers 1993, Payne 2001).

The main objective of housing standards was to increase control over land in settlements that were predominantly small and occupied by European settlers. The preferred method was, and often still is, master plans (Payne 2001). However, Lufadeju (1989) and Wekwete (1989) both show that such plans were used to dispossess traditional owners in favour of emerging elites. And as a result of these plans, Lufadeju (1989) claims that '*the informal sector and squatter residents have*

encountered periodic demolitions ..... and that the garden city concept does not wholly welcome the urban poor'. In Zambia, colonial master plans for emerging urban centres on the Copperbelt and Lusaka Provinces were based on British standards which zone and confined urban African settlements to the periphery of cities (Mwimba 2002). Informal settlements were only allowed to be established at least twelve kilometres (12km) away from the nearest European settlement. The informal settlements acted as labour reserves for the growing mining and industrial towns (Makasa 1997).

Zoning regulations are the most widely used regulatory instruments regarding land-use management. They are intended to prevent incompatible land-uses from arising on adjacent plots, such as polluting activities within residential areas. However, the rigid application of such regulations may seriously impede poverty reduction measures, since a major means by which the poor are able to climb out of poverty is by using their homes as the base for economic activity. In essence, zoning regulations hinder the informal development of more compact and economically diverse settlements and cities which offer viable alternatives to the provision and consumption of social services by promoting compatible mixed-land uses (Todes 2003). It is common to find up to half of all economically active people working within their settlements, in established urban informal settlements (Payne 2001).

Rules which prevent mixed-use developments are well intentioned, but they result in three major problems. Firstly, they reduce the income of the poor households who are forced to conform to regulations that prohibit activities such as subletting and home-based enterprises (HBEs); secondly, they expose non-conforming households to the threat of extortion and bribery by petty officials, which also reduces their income; and thirdly, they reduce the potential for local informal investments, which can strengthen the whole urban economy and maximise existing linkages between the informal and formal sectors of the economy. As Solomon (1999) has noted, land-use policy impinges significantly on livelihood opportunities for low-income households. Planning methods that separate residential, commercial and industrial areas reduce livelihood prospects that the interaction of different land-uses can stimulate. Research in Bangalore and Delhi, has demonstrated that the concentration

of mixed land-uses can stimulate dramatic increases in both formal and informal economic activity. In some cases, even high technology manufacturing, such as fibre-optic cables, are being produced in small informal workshops within low-income areas. And through such activities, a critical mass of local entrepreneurs have established close relationships with formal sector industrial enterprises. The research concludes that government action is relatively ineffective in creating such conditions and can inhibit informal economic growth through inappropriate or restrictive housing standards (Solomon 1999).

Undoubtedly, a major source of resistance to change in housing standards is bureaucratic inertia and conservatism, combined with vested interests in the status quo. Among the former can be counted professionals, who are educated to consider themselves as the guardians of 'decent' standards for the development of healthy, attractive and 'planned' urban areas. Some consider unauthorised settlements as a threat to their perceptions of what cities should be like. A national assessment of the shelter sector in India during the late 1980s found that the institutional culture among public sector professionals was extremely conservative and resistant to change (Payne 2001). This was partly due to a bureaucratic environment, which discouraged initiative or risk taking and reinforced the view that the professionals 'knew best'. Furthermore, although the public service attracted many capable staff, their lack of exposure to the rigours of the market and the need for resources to be used efficiently, meant that they were not well placed to initiate change (*ibid.*).

4.5 RATIONALE FOR SETTING HOUSING STANDARDS

Housing standards have been defined as measures of the acceptability of housing at a given *time* and *place* and in a given *cultural, technological* and *economic* setting (UN 1977). Housing standards were introduced in developed countries in the late nineteenth century to protect weaker members of society against overcrowding and ill-health (Agarwal 1981, Mitchell & Bevan 1992). Concepts such as occupancy rates were introduced around this time and prescribed the number of persons allowed in a habitable room measured in terms of persons per room or square metres per person (Chowdhury 1985, Mafico 1989).

In developing countries and colonies, housing standards were introduced in order to protect colonial officials and settlers. Standards more relevant to developed countries have since been replicated in most independent developing countries with minimal or no adjustments relevant to local needs (Agarwal 1981, Mitchell & Bevan 1992). As a result, the need for shelter is now often translated into stringent rules about roofs, walls and windows, and the need for health into rules about sanitation, water supply and air regulating devices (Dewar and Ellis 1979 cited in Rakodi & Whiters 1993).

Mafico (1989) contends that most developing countries have adopted the 'desirable quality' targets as standards and not tested them against the local context. This has tended to hinder the development of acceptable and affordable housing (Zulficar 1990). Housing standards should be based on the context and the available human, financial and material resources. Blitzer *et al.* (1981 cited in Mafico 1989) suggest that standards should strike a balance between what is desirable in terms of health and safety, what is attainable and what is affordable by households and the nation. In this light, Chowdhury (1985) suggests that the formulation of, for instance, local space standards should consider the social definition of space, living patterns, privacy and other socio-cultural traits. Mafico (1989) goes further and suggests several criteria that housing standards need to meet in order to be acceptable and enforceable. These are: cultural compatibility, social responsiveness, economic feasibility, technological suitability, physical and biological harmony, as well as temporal relevance.

The nature of human needs in a particular country thus needs to be understood when formulating housing and space standards. Chowdhury (1985) suggests that as the relative material wealth in a country rises so do standards, therefore, they will vary from country to country according to their level of economic development. Mabogunje *et al.* (1978) argue that the rationale for setting standards has three dimensions. First is the *scientific* dimension, which should be based on available scientific knowledge in a particular society; second is the *cultural* dimension, which should measure the extent to which standards are culturally feasible; and third is the *social* dimension, which should measure the extent to which standards improve the quality of life of the under privileged. In practice, good housing standards should be a

balanced cognition of the scientific, cultural and social variables and should be appropriate to the place, time, culture, economy and technological resources of the country concerned (*ibid.*).

5.0 CASE STUDY OF KAMATIPA SETTLEMENT

5.1 BACKGROUND OF THE STUDY AREA

Kitwe District is the second largest city in Zambia and is situated in the Copperbelt Province. According to the Kitwe Poverty Assessment Paper (PAP) (KCC 2002a), the Kitwe District population stands at 388 646 with an estimated annual growth rate of 1.1 percent. The city covers a total area of 777 square kilometres stretching from the south, where it is bordered by Ndola and Luanshya, to the north, where it is bordered by Mufulira and Kalulushi Districts. The District is situated within a 65 kilometre radius from other major towns in the province at the core of the country's main copper extracting and processing industries, hence its nickname "*the Hub of the Copperbelt*" (*ibid.*).

The first mining shaft in Kitwe was sunk at Nkana in 1928. Smelting operations started in 1932 and the growth of the mining industries gave rise to the first townships in 1935. Due to the development of the mining sector, companies providing linkages between the manufacturing and service sectors emerged. Consequently, the population grew rapidly due to the migration of people from rural areas, who came in search of employment and perceived better living conditions (KCC 2002b).

The trend of population growth put pressure on the Kitwe City Council (KCC) and the mining companies to provide social infrastructure, including housing. In addition, as time progressed, the perceived employment opportunities shrank and many people started engaging in informal employment. Nevertheless, those in rural areas continued migrating to Kitwe for a perceived better life, which in turn put pressure on the limited social infrastructure. As the population increased, the provision of basic human services deteriorated. And since housing provision was employment-tied at the time, inevitably, shortages in accommodation emerged (KCC 2002a). This contributed to the rise in poverty levels and the growth of informal settlements.

Kitwe, like the rest of the country, is facing a major housing crisis. As stated earlier, insufficient formal housing coupled with continued in-migration to the city has triggered the development of squatter settlements. The District Situation Analysis (DSA) Report indicates that the KCC had a total of 13, 253 housing units in 1991. 9, 262 housing units have since been sold to sitting tenants as part of the government's housing privatisation programme rooted in its enabling shelter strategy (ESS) (KCC 2002b). Most of the people who benefited from the home ownership policy have either sold their houses or put them on rent and moved into informal settlements due to increasing poverty in the city (KCC 2002a). This has contributed to the expansion of informal settlements and an increasing number of illegal housing structures (KCC 2002b).

Informal settlements in Kitwe are mainly located on three categories of land namely: state land, mining land and forest reserves. Settlements on state land are mostly on the peripheral areas of the city. Settlements on mining land are occupied mostly by ex-miners who were allocated land temporarily for farming, but end up building permanent structures. And settlements in forest reserves are occupied mostly by squatting farmers and charcoal burners (KCC 2002b). There are 18 informal settlements in Kitwe. The total population in these settlements is about 135, 831 which is about 35 percent of the population of the city. It is evident, therefore, that informal housing is providing an alternative to the problem of inadequate housing in Kitwe (*ibid.*).

Table 5.1 shows the informal settlements, size, number of dwelling units and population sizes in the city of Kitwe.

Table 5.1: Informal settlements in Kitwe District (source: KCC, Squatter Control Department 2002)

NAME OF SETTLEMENT	AREA (ha)	NUMBER OF DWELLING UNITS	ESTIMATED POPULATION
Robert	3.25	184	1,750
Chipata	26.32	600	3,400
Mwaiseni	13.05	542	3,000
Mufuchani	4.86	381	2,100
Kamfinsa 1	7.06	152	1,206
Kamfinsa 2	13.00	35	2,300
Maposa	1.84	255	1,600
Kamakonde	18.04	1,900	8,000
Magazine	6.10	11	66
Bulimi	2.10	150	1,200
Kandabwe	4.85	216	1,500
St. Anthony	4.20	200	1,200
Ipusukilo	151.70	4,100	32,800
Racecourse	64.55	2,289	18,112
Kamatipa	**131.50**	**2,500**	**24,000**
Itimpi	79.04	1,750	10,900
Luangwa Stage 2	26.57	670	4,697
Mulenga		3,000	18,000
TOTAL	**558.03**	**18,935**	**135,831**

There are several reasons that have been advanced to justify the growth of informal settlements in Kitwe. With just over 6.5 percent of the nation's total population, Kitwe is the second largest urban centre. It also has one of the highest annual population growth rates in the country, at 10 percent. This effectively increases the pressure on the city council to accommodate its new residents. Before the council privatised its housing stock, which stood at 13, 253 in 1997, there were 29, 000 people on the housing waiting list at the time. To satisfy that demand alone required the council to double its housing stock. In view of this, it is perhaps correct to suggest that informal settlements are not only a present necessity but also a need. They have become a form of social safety net in the urban housing crisis in the country today (Mwamba 1996, Silavwe 1998).

Kamatipa was first settled in 1968 and was formally recognized as an Improvement Area in 1975 after the enactment of the Housing (Statutory and Improvement Areas)

Act of 1974 (Shinondo *pers. comm.* 2005). Like all informal settlements in the country, Kamatipa is administered by a Residents Development Committee (RDC), an elected community-based organisation (CBO) set up by the Kitwe City Council (KCC) to plan, manage and oversee all development projects in the area on behalf of the Kitwe District Development Committee (KDDC). The RDC oversees 38 smaller Zone Development Committees (ZDCs) in the area. Members of the RDC are elected from the various ZDCs in their respective settlements and therefore represent a cross section of their residents.

5.2 METHODS OF EMPIRICAL DATA COLLECTION

The following procedure was used to collate primary data for the empirical study:

5.2.1 Preliminary study

This constituted the following steps:

Observations of the physical environment were done in order to acquaint the researcher with the study area. This involved walking through the main pedestrian routes in the study area, and observing activities around houses and trading areas. This was done in the company of an official from the Kitwe City Council (KCC) Squatter Control Department who oversees development activities in informal settlements north of Kitwe where Kamatipa is located.

Informal conversations with local leaders were then held with the local RDC in order to acquaint community leaders with the research purpose. They were also be used to identify other key informants like community builders and suppliers of local building materials, and introduce them to the researcher. Informal conversations were also used to identify the oldest residents of the settlement, who proved to be an invaluable source of information regarding the settlement's origins and subsequent development. The official from the KCC Squatter Control Department facilitated this process of community entry.

This was the followed by the collection of background data on Kamatipa. This was to be in the form of maps, statistics and reports from the KCC, Central Statistics Office

(CSO) and the Copperbelt University (CBU). However, no documented records in terms of maps, aerial photographs and reports were available, except records of a head count conducted by the City Council and CARE Zambia. The maps were to be used to identify clusters of houses comprising at least eight households centred around at least one woman-headed household for possible investigation. This was aimed at ensuring that the selected samples were representing both female and male-headed households thus ensuring that any phenomenon peculiar to each household type was captured in the study. To overcome the unavailability of maps, the researcher obtained a zoning schedule from the RDC showing the thirty-eight zones found in the settlement. The researcher then held a two-day workshop with fifty-five fifth year students of architecture, planning, quantity surveying and land economy in the School of Built Environment (SBE) at the CBU. The workshop centred on developing skills in questionnaire administration, taking care to obtain informed and signed consents from each household. The researcher also undertook detailed photographic documentation and sketches of each housing unit as well as quick sketches of each zone. Community builders and suppliers of local building materials were also identified with the assistance of community leaders and dates for focus group discussions were set up at this stage.

The decision on the number of households that the survey covered was arrived at using the equation below (Mendenhall *et al.* 1979). The exact number of community builders and suppliers of local building materials could not be ascertained so the researcher relied on the RDC to mobilise as many participants to the focus group discussion as possible. In view of this the researcher and the RDC worked together for a week notifying possible participants.

$$N = \frac{nPq}{(n-1)\frac{B^2}{4} + Pq}$$

Where;

	N	=	sample size,
	n	=	population size,
	P	=	0.5,
	B	=	0.15,
	q	=	1-P

Box 5.1: Sample estimator (source: Mendenhall W *et al.* 1979).

In this case:

$$N = \frac{2500(0.5)(1-0.5)}{(2500-1)\frac{(0.15)^2}{4}+(0.5)(0.5)}$$

$$= 43.69 \text{ households (minimum)}$$

5.2.2 Main study

The main study constituted the following steps:

Conducting interviews with community leaders was the first step at this stage. Semi-structured interviews with community leaders in the RDC were conducted and tape-recorded with their permission. The purpose was to establish the historical development of the settlement and the various trends and development efforts in the area. Land allocation procedures and criteria as well as the enforcement of regulations were also discussed. The respondents were purposefully selected on the basis of their status as members of the RDC with the help of the KCC Squatter Control Department. Members of the RDC are elected from the Zone Development Committees (ZDC)[2], therefore, form a good representative sample of the Kamatipa population. The Kamatipa RDC was the only RDC out 21 that had not been dissolved by the KCC in July 2005 when 20 RDCs were blighted with mismanagement of community funds.

A focus group meeting was then held with community house builders and building material suppliers. Information solicited included: the rationale used and methods of space allocation during housing construction, building construction techniques used, materials used, sources of materials and skills acquisition methods. The focus group meeting was convened with the help of the RDC and all participants were purposefully selected on the basis of their knowledge and experience in informal building methods and trade in local building materials.

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[2] ZDCs are composed of community members elected from within a zone in informal settlements. Each zones is made up of between 50 to 75 households.

Interviews with heads of households then followed in which questionnaires were used to gather information about each household's composition, tenure, methods of acquiring land and housing. This process was carried out with the aid of students from the SBE at the CBU. Detailed internal and external measurements and photographic documentation of each house, including an inventory of materials used was taken by the researcher. An inventory of outdoor arrangements and land-uses around each house and within the vicinity of each cluster was also taken.

A combination of cluster and random sampling procedures was used to select all respondents. Five zones were randomly selected from among the thirty-eight in Kamatipa after which the selected zones were sketched out, as there were no maps or plans available from the KCC as stated earlier. With the aid of sketches and the RDC, a woman-headed household was purposefully selected from each zone and thereafter, nine other households randomly selected from each zone.

Although fifty households represents only 2 percent of the total number of households in Kamatipa, it is the researchers view that 50 randomly selected households represent an adequate number of respondents in a qualitative study to make inferences as to the collective experiences across the entire population (Mendenhall *et al.* 1979). This also allowed the researcher to study each household in more depth, which it was hoped would yield more detailed data over the short study period available for this short dissertation. The researcher also hoped that 5 women-headed households representing 10 percent of the households surveyed would provide enough data to make inferences on any phenomenon on housing standards that may be peculiar to them. The complete coding sheets and sample of some of the households covered in the survey are attached as appendix XII and XIII.

Observations and mapping of land-uses in the study area was the next stage in the data collection process. Maps and aerial photographs were supposed to be used to observe, and map the use of the main open spaces, the movement of pedestrian and vehicular traffic within and around the settlement and existing commercial, social services, churches, workshops and other infrastructure in the area. However, in the

absence of maps and aerial photographs, this task was limited to the selected zones by walking through and observing the activities.

Finally, interviews outside study area were conducted with key stakeholders including the KCC, the NHA and the Ministry of Local Government and Housing (MLGH). Semi-structured interviews were used in all cases. However, the NHA and MLGH officials declined to have their interviews tape-recorded and also sought anonymity. However, the official from the KCC Squatter Control Department agreed to have the interview recorded on tape. All respondents outside Kamatipa were purposefully selected on the basis of the positions they occupied in the various public institutions they represent, which are also stakeholders in the housing sector.

5.3 SUMMARY

In order to highlight the positive aspects of informal housing delivery that can be integrated into conventional low-income housing standards, the following indicators were identified through the review of literature: fitness for purpose and use of space, flexibility and identity, cultural compatibility, social responsiveness, economic feasibility, technical suitability, physical and biological harmony and temporal relevance. Based on these indicators, chapter six outlines the positive aspects revealed in the study of Kamatipa informal settlement and analyses how these are constrained by current housing standards.

6.0 RESEARCH FINDINGS, ANALYSIS AND DISCUSSION

6.1 INTRODUCTION

The study set out to determine the potential contribution of informal housing delivery in the formulation of enabling low cost housing standards. It also set out to find out the building regulations that currently inhibit the assimilation of the positive attributes of informal housing standards into mainstream statutory building practices. Based on the review of literature on both informal and formal housing standards, the study established a set of indicators that could be used to assess and analyse informal housing standards and determine which areas of current building standards are substantially in conflict with them.

These indicators of enabling housing standards are (Martin 1976b, Mabogunje *et al.* 1978):

a. *fitness for purpose* - measures the practicality of standards to fit the purpose they are intended to serve.
b. *flexibility* – measures the ability of standards to permit people to make quick and efficient adaptations and alterations to their houses as the need arises.
c. *identity* – measures the extent to which standards allow people to exercise their human desires to create identity or uniqueness in housing.
d. *cultural compatibility* – measures the extent to which standards are compatible to local cultural practices.
e. *social responsiveness* - measures the extent to which standards improve the quality of life of the under privileged.
f. *economic feasibility* – measure the ability of standards to allow people to make innovative choices that allow the poor to save more rather than spend more on housing.
g. *technological suitability* - measures the extent to which standards are based on available scientific knowledge in a particular society.
h. *physical and biological harmony* – measures the ability of standards to enhance rather than distort the balance between man, the built environment and the natural environment.

i. *temporal relevance* – is the measurement of the quality in standards that allows for changes to be made with passage of time to suit needs of a particular time.

This chapter highlights the positive aspects of informal housing delivery based on the empirical study carried out in Kamatipa and the indicators identified in the review of literature. The chapter also discusses various regulations and standards contained in statutory building codes governing low income housing production that conflict with the assimilation of good informal building practices and materials.

6.2 FINDINGS AND ANALYSIS

6.2.1 Fitness for purpose and use of space

Martin (1976b) and Turner (1976) argue that informal housing tends to serve the needs of the poor better than formal housing solutions. The depraved economic situation of the urban poor does not allow them to spend more than is necessary to survive. This means that housing solutions for the poor have to be practical, with each component and space serving a specific purpose at a particular time in their lives. Only components or spaces that are needed are built and in many instances, these tend to be multi-purpose (*ibid.*).

At community level, this aspect was seen in the allocation of space for roads and open spaces in the Kamatipa settlement. Access roads are generally only wide enough for pedestrians and cyclists, which are the main modes of transportation. Figure 6.1 shows the road pattern around Zone 17, which is one of the clusters surveyed in the study. Only a few of roads are wide enough to take two passing vehicles at a time. The narrow roads allow for more space to be allocated to housing and open ground, which increases the net density of dwelling units per hectare. This contrasts sharply with standard gridiron systems (figure 6.1), which tend to produce lower net densities of detached housing units. This also tends to increase the average cost of the housing units as each one of them carries the cost of constructing and maintaining the road and services like trunk water and sewerage lines it fronts. It was also observed that open spaces tend to be used for a variety of purposes like trading, playing and social gatherings.

Closer inspection of the clusters revealed that not all houses had direct access to the access roads. Remarkably, however, they were all within walking distance (approximately 20 metres) of access roads, which is adequate to carry anybody to a waiting ambulance or for emergency vehicles like fire engines to reach. Cluster A & B in figure 6.1 illustrate this point more clearly. The arrangement of these clusters also bears remarkable resemblance to traditional settlements discussed in chapter 3.

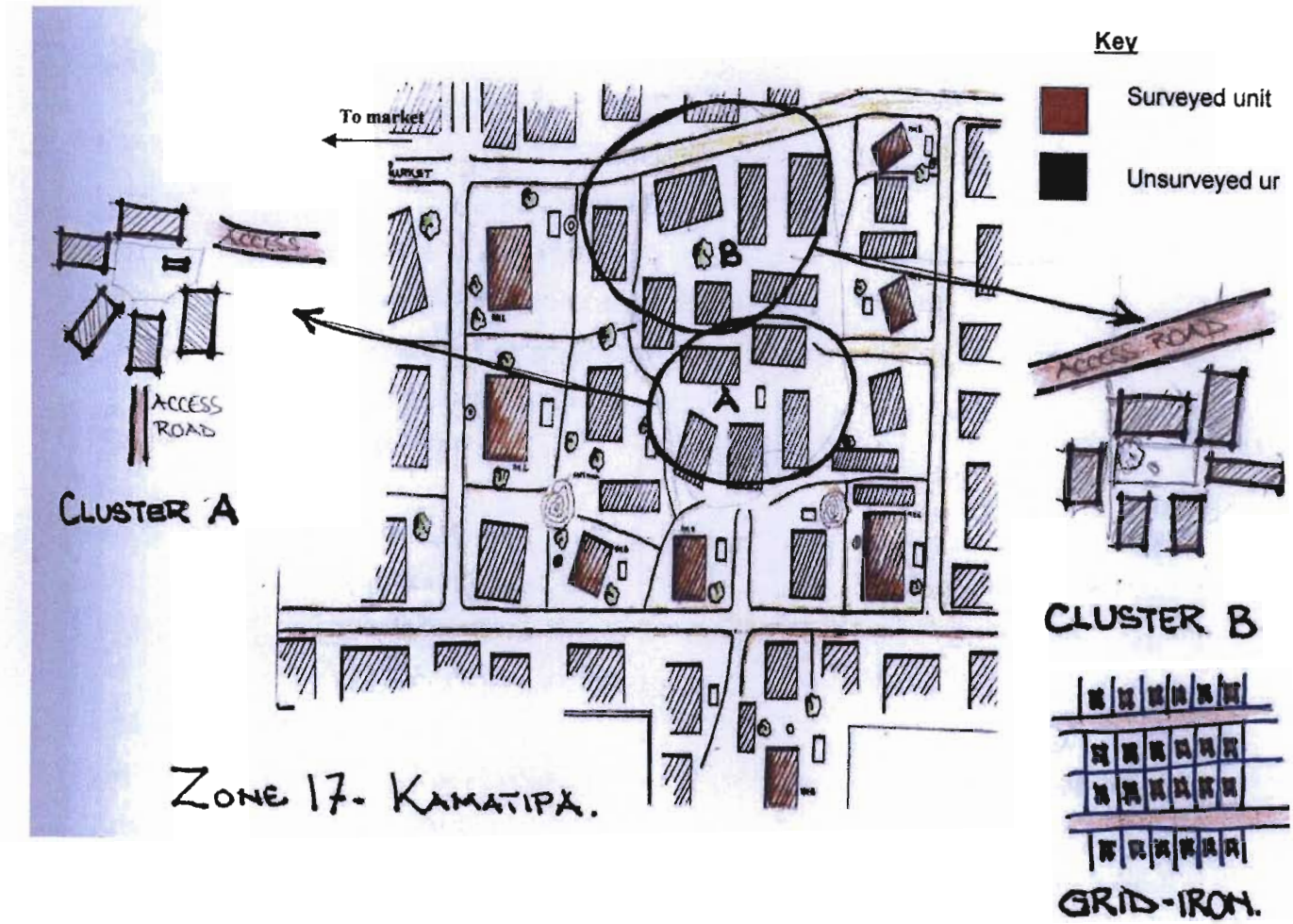


Figure 6.1: Sketch of road pattern in Zone 17 of Kamatipa Settlement, which was one of five clusters surveyed during the study (source: author 2005)

At household level, covered verandas are often used for cooking, daytime sleeping, simple entertainment and recreation. Income generating activities like hair braiding and knitting are also commonly done in front of houses, under the cover of shaded trees as seen in plate 6.1. Spaces within the houses were also documented as

serving more than one purpose. Living rooms, for instance, are frequently used as sleep spaces for young children at night.

Plate 6.1: Hair braiding and cooking under a tree (source: author 2005)

Martin (1976b) documented that room sizes in informal settlements are often limited to the size of the furniture. This is closely related to the traditional methods of space allocation as discussed in chapter 3 where more space is allocated to outside communal spaces where multiple activities take place. Interior spaces, which are mostly used for night time sleeping, are usually only large enough for sleeping in both traditional and informal housing. As such, the width of a bedroom, as an example, is usually determined by the length of the bed. Findings in Kamatipa confirmed this and further revealed that the sizes of door openings are related to human proportions of their occupants. Any extra space in terms of width or height is considered unnecessary as it does not serve any purpose (Builders FGD 2005, Household Survey 2005). As such, the average door opening was found to be approximately 725 x 1 850mm. Official standards require that all door openings leading to the outside be 900 x 2 000mm minimum, those leading to other spaces except the pantries, storage rooms and bathrooms be 800 x 2 000mm minimum, while those leading bathrooms and storage spaces be 700 x 2 000mm minimum. It follows, therefore, that if the average human being can access a room such as a bathroom through a 700mm wide opening, the people of Kamatipa, who do not normally have large pieces of furniture, have a point for making all their openings 725mm.

Housing solutions in Kamatipa were found to be practical in a number of ways. Houses were often developed gradually, usually starting with a two-roomed, mono-pitch roofed house built with compacted clay blocks (RDC meeting 2005, Builders FGD 2005). The houses tend to be small initially but offer households their first practical solution to their shelter needs compared to wet-core units often provided by public agencies in site and service housing schemes. The immediate purpose of the house is to provide a roof over the household, with the very basic water and sanitation (figure 6.2). With time, these houses are often rebuilt and extended with burnt clay blocks, which, if plastered, last for over 20 years. The individual wells and pit-latrines on each site are also improved over time for better sanitation. This contrasts with conventional solutions, as shown in figure 6.3, which assume homogeneity in household priorities, sizes and livelihood strategies.

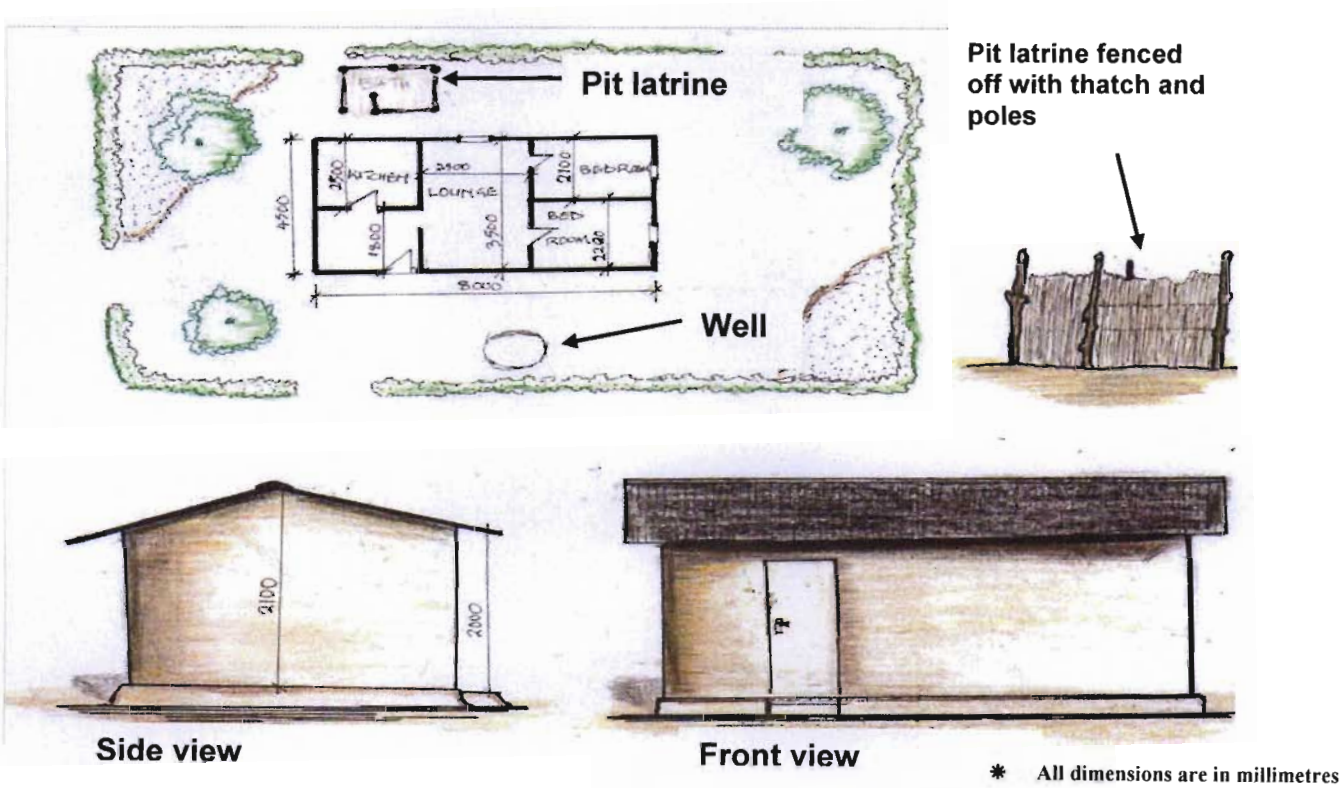


Figure 6.2: An informal house with basic sanitation and water serving the immediate needs of a family of six (source: author 2005)

KEY

1	Sitting room
2	Kitchen
3	Veranda
4	Main bedroom
5	Bedroom
6	Passage
7	Bathroom
8	Toilet

Site area: 350m^2

Figure 6.3: NHA floor plan with mono-purpose rooms (source: NHA 2004)

6.2.2 Flexibility and identity in enabling housing standards

Flexibility in enabling housing standards allows quick and efficient adaptations and alterations to be made to houses as the need arises. For instance, changes can be made to houses to suit changing socio-economic situations. 39 percent of households in Kamatipa stated that their extensions and alterations were made according to prevailing needs, such as subletting as a source of income or an increase in the size of the household.

Another area where flexibility was seen in Kamatipa was in the transfer of housing. The survey revealed that 43 percent of the respondents who built their own houses constructed them on land previously occupied by another house. The respondents stated that they preferred to buy land that was as close to the centre of the settlement as possible for security and convenience. However, it is not always possible to find vacant land at the centre of the settlement, so people often look for willing sellers of built up land. Once the land and houses are sold to the new owners, the sellers usually only take roofing sheets off the house. The new owners are then able to make extensions and/or alterations to the remaining structure. However, most of them demolish the old structures and rebuild new ones to suit their immediate requirements (plates 6.2 and 6.3). The RDC often witness the final transactions and offer some kind of security or guarantee to both parties of the agreement. Land buyers only approach the RDC for land to be allocated to them on the fringes of the

settlement when they are unable to find a willing seller in the interior of the settlement (RDC meeting 2005, Builders FGD 2005).

Informal materials and simple techniques employed in acquiring land and construction make informal housing delivery in Kamatipa very flexible and quick. The whole process usually takes a month (RDC meeting 2005, Builders FGD 2005), which contrasts with formal procedures. The lengthy, inflexible and bureaucratic procedures stipulated in Sections 5 and 6 of the Public Health Act (PHA) Cap 295 of 1995 and part V of the Town and Country Planning Act of 1995 usually results in land transfers and building permit approvals taking as long as six and three months respectively (Zimba *pers. comm.* 2005).

Plates 6.2 and 6.3: A house under construction on a site of a recently demolished compressed clay house (source: author 2005)

Duncan (1981 citing Rappoport 1981: 10) defines identity as "*the unchanging nature of something under varying aspects or conditions and the condition of being one thing and not the other*". Identity can be attached to a wide range of social units but the basic units are individual, household, community and national. Identity can be further extended to regional and continental levels. In all these units, certain traditions or customs and characteristics identify the members as belonging to a particular social unit. These characteristics are physically expressed in various ways including housing.

Housing can usually be identified with different social groups at different socio-economic levels as has been shown in chapter two. Mitchell and Bevan (1992) showed that the materials, spatial organisation, environmental conditions and social organisation differ from region to region. This results in a particular housing typology that is unique to a specific group of people identified within a particular region. Schmetzer (1995) went further to show that even in the same region or country, housing can take a different identity between different cultural groups. At village or community level, housing identity is seen in the differences in the size of the house or rooms, rendering or simple additions or variations from the norm. At this level, the main building materials, techniques and cultural practices may be the same but the family structure or size and thus spatial needs, will differ and this will manifest as a different house which assumes a different identity from other houses in the village or community. Personal preferences in terms of painting or rendering, as shown in plates 6.4 and 6.5, were one of the ways in which identity in houses found in Kamatipa was achieved. Identity is easier to attain in the higher income housing market but low-income public housing projects implemented on a massive scale, often replicating one or two standard designs as shown in plate 6.6, tend to produce stale human settlements with the same materials, finishes and internal spatial allocation.

Plates 6.4 & 6.5: A combination of lime wash, black paint and grey clay blocks; and red paint and red clay blocks creates different identities in two mono-pitched houses (source: author 2005)

Enabling housing standards should recognise that households are heterogeneous and not homogenous in nature. Households differ in sizes, economic situations

(income generation) and structures (male or female headed, nuclear or extended) and, therefore, they have different requirements and resources with which to acquire housing. Informal housing solutions tailored to meet the desires and abilities of individual households, naturally attain unique and individual identities. This is not to say that most houses are decent or aesthetically pleasing but that they are not identical to each other in terms of their space allocation, sizes, uses and building material combination, in contrast to conventional mass low income housing solutions. Plates 6.6 & 6.7 show differences between a NHA low-income housing project modelled on a homogenous family and informal houses in Kamatipa, which may not be appealing to look at, but have more variations to suit the requirements of heterogeneous households.

Plates 6.6 & 6.7: Showing a monotonous standard formal housing project and flexibility and variety in informal houses in Kamatipa (source: NHA 2004, author 2005)

Other findings in Kamatipa showed that differences in cultural backgrounds (fig 6.8), household economic activities (table 6.1) and incomes, family structures (extended or nuclear, polygamous or monogamous) and family sizes (table 6.2), and the arrival of different people with diverse backgrounds at various times (table 6.3) led to the gradual and unregulated growth of the area, which today manifests as an irregular settlement as seen in plate 6.7. An analysis of the spatial organisation of each individual unit revealed that no two floor layouts in the 51 households covered in the survey were the same. Each house was specifically built to suit the needs of the household. Variations in housing were also seen in terms of the aesthetic quality, floor layouts, room sizes and the size and use of spaces around each unit as shown in figures 6.4and 6.5.

Table 6.1: Main economic activities of households surveyed in Kamatipa (source: author 2005)

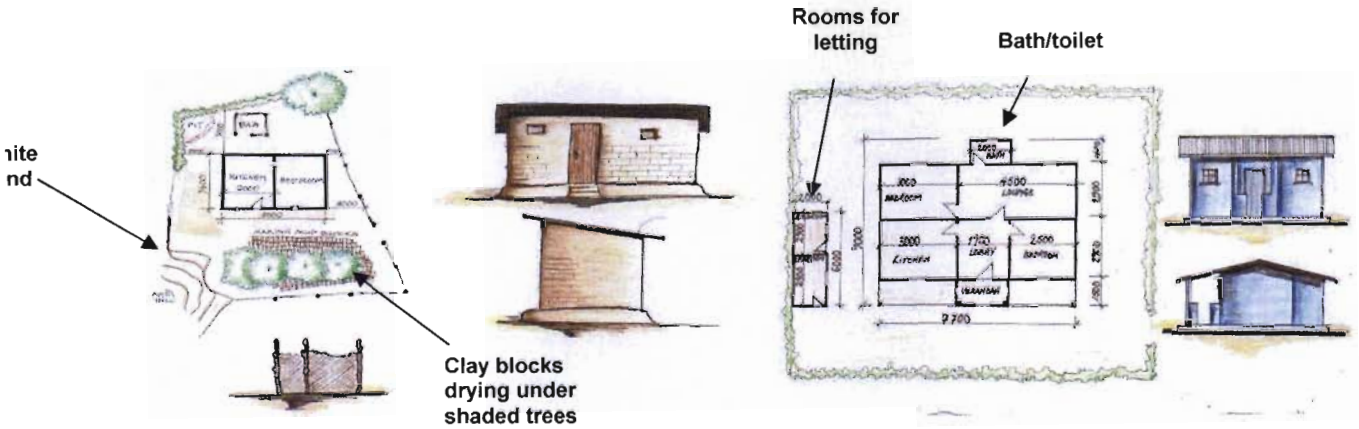
Source of Income/Economic activities	Number of households
Bricklayer	2
Carpenter	2
Casual labourer	5
Charcoal trader	3
Driver	2
Factory worker	1
Farm worker	2
Farmer	6
Battery charging	1
General trader	5
Grinding mill attendant	1
Landlord	6
Bus conductor	1
Marketeer	6
Photographer	2
Pot maker	1
Security guard	2
Traditional beer	3
Total	**51**

Table 6.2: Average number of occupants in surveyed households (source: author 2005)

Number of occupants	Households
1 to 2	4
3 to 5	22
6 to 10	24
10+	1
Total	51

Table 6.3: Duration of stay in Kamatipa settlement of surveyed households (source: author 2005)

Duration of stay in area	Households
1 to 5	10
6 to 10	7
11 to 15	7
16 to 20	6
20 to 25	7
26 to 30	7
31 and over	7
Total	**51**



Figures 6.4 & 6.5: Sketches showing the differences in housing design and internal and external uses of space (source: author 2005)

The household in figure 6.6 earns extra income from making and selling clay blocks using clay harvested from the termite mound next to the house. On the other hand, the household in figure 6.7 utilised the extra space around the house to build two more rooms for subletting. Although the household earned extra income from the two outbuildings, the tenants increased the sanitation pressure on the only bathroom found on the site. The house owner, however, indicated that he would build a separate bathroom for his tenants as soon as funds became available. Appendix 12 and 13 give full details around each housing unit covered under the survey. Table 6.1 shows the variety of activities that the households engaged in for their livelihoods. Figure 6.10 shows that 68 percent of these activities took place within Kamatipa.

Flexibility and identity in formal low-income housing solutions in the form of mass public housing or site and service schemes is constrained by the lack of variation in housing design and settlement layouts. This is also compounded by the strict regulations given to beneficiaries of public low cost housing scheme that prescribe what they are permitted to do on site and within the settlement which discourage home-based enterprises (HBEs). Although these regulations are formulated to give order and guidance to the growth of human settlements, they tend to inhibit innovation and variation, thus concealing identity in housing design.

Current zoning regulations in the city of Kitwe only allow prescribed commercial activities to take place within specially designated zones within residential areas and prohibit HBEs. This regulation should be revised to allow the establishment of non-

hazardous HBEs at household level such as carpentry, brick making and small-scale trading in groceries and clothes. Front building set backs should also be revised from the current minimum 6 metres to allow from maximum use of the building frontage by building on property lines to as to maximise the exposure of HBEs to passers-by in low-income areas where vehicle usage is often very low.

6.2.3 Cultural compatibility

Mabogunje *et al.* (1978) posit that enabling standards should be culturally feasible to the context to which they are being applied. Informal standards discussed by Maurice and Bevan (1992) and Schmetzer (1995) have evolved over centuries of trial and error with different materials and techniques and through different environmental conditions. These standards, which Mabogunje *et al.* (1978) refer to as cultural standards, differ from formal standards in that they are not enforced through a series of prescribed regulations that guide people on what they are allowed to do. Often, informal standards attempt to make the most of the natural environment, local techniques and materials available locally to produce housing that allows the cultural status quo to be maintained (Mitchell & Bevan 1992). These standards are established by the people to suit their culture and practices. Enabling standards should, therefore, undertake to integrate the viable cultural practices to make housing standards more acceptable to the people and to ensure that they are easier to enforce and regulate.

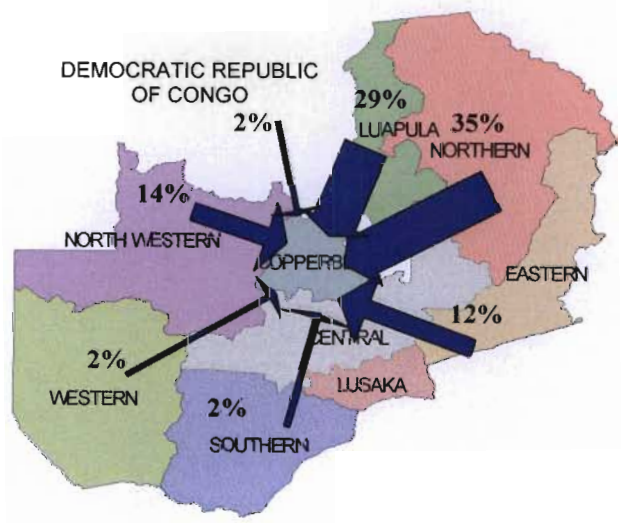


Figure 6.6: Origin of respondents in Kamatipa, Kitwe by provinces (source: author 2005)

Findings in Kamatipa, as shown in figure 6.6, revealed that 64 percent of the respondents originally came from the Ngoni, Lunda, Bemba and Kaonde tribal groups from the Northern, Luapula, North-western and Eastern Provinces, where clay blocks are predominantly used to construct traditional houses. However, only 34 percent of the respondents directly linked their choice of building materials and construction techniques to their cultural backgrounds. 22 and 11 percent attributed their choices to widespread practices in the settlement and family methods respectively, which could also linked to traditional practices of using earth-based building materials such as clay and specific local trees found in the Zambian countryside. Table 6.4 further shows building materials rooted in the same traditional building methods are still widely used in Kamatipa. This link can further be explained by the findings which indicate that approximately one third of the household heads surveyed are descendants of the early Kamatipa settlers, who originated from the Northern, Luapula and North-Western Provinces where clay blocks are the most common building material (Topham 1996).

Topham (1996) reveals that the Lunda's in Luapula Province build earth kilns in which they burn clay blocks as the main traditional building material. This practice was also evident in Kamatipa, where a number of earth kilns were seen dotted around termite mounds as shown in plates 6.8 and 6.9. The kilns, however, have now taken on a commercial characteristic, as a source of income rather than the communal role seen in traditional settlements while the mounds have remained communal.

Plates 6.8 & 6.9: A heap of grey clay blocks next to a termite mound and an informal kiln next to a red clay pit site (source: author 2005)

Table 6.4: Building materials used by households surveyed (source: author 2005)

BUILDING COMPONENT	NUMBER OF HOUSEHOLDS
Foundation material	
• Burnt clay blocks	49
• Burnt clay bricks	2
Total	**51**
Slab material	
• Gravel & clay	21
• Compacted clay	17
• Gravel	9
• Concrete	4
Total	**51**
Floor finishes	
• clay/cement mix	20
• sand/cement mix	11
• clay	18
• PVC tiles on sand/cement screed	1
• None	1
Total	**51**
Wall materials	
• Sun-dried clay blocks	11
• Burnt clay blocks	36
• Concrete blocks	1
• Kiln fired bricks	2
• Concrete/clay blocks	1
Total	**51**
Wall Finishes	
• Clay	31
• Clay & limewash	6
• S/c plaster	5
• Rough cast	1
• Rough cast & s/c plaster	1
• Limewash	1
• S/c plaster & paint	1
• None	5
Total	**51**
Roofing Materials	
• Galvanised iron & asbestos cement (combined)	29
• Asbestos cement	8
• Flattened drums	1
• Galvanised iron	8
• Galvanised iron & flattened drums	5
Total	**51**

The KCC currently prohibits the use of clay-based building materials due to the specifications in Section 30 of the PHA of 1995. This prevents the assimilation of local modes of housing production that are more widely used, acceptable and affordable to the poor (RDC meeting 2005, Builders FGD 2005). Findings from the review of conventional standards showed that approved building materials are much more costly than the prohibited clay-based building materials. Poor people are, therefore, forced to use that clay-based, in which case all respondents in Kamatipa were in contravention of the aforementioned regulations. Other major hindrances are the rigid regulations of the Housing (Statutory and Improvement Areas) Act (Cap 30 of 1974) and Sections 5 and 6 of the PHA of 1995, which oblige households to submit detailed plans based on approved building materials for Local Authority approval before any new building or extension is carried. Findings showed that the process of approval is too costly and too long as it may take three months or more whereas the actual building of an informal house takes only five to twelve days depending on the size (RDC meeting 2005, Builders FGD 2005). This process needs to be streamlined in view of the prevailing situation on the ground so as offer advice and guidance to the poor and have more control over the growth of informal settlements. Further, the planning requirement to submit plans based on 'approved building materials' effectively bars the poor from submitting their plans to the KCC as most of the materials used by the poor as shown in table 6.2 are currently prohibited (RDC meeting 2005, Builders FGD 2005, Zimba interview *pers comm.*). Standardising some of the non-harzardous materials like clay blocks would help to assimilate informal builders in to the mainstream building construction industry.

6.2.4 Social responsiveness

The extent to which standards improve the quality of life of the under privileged and how they adjust to changing social conditions is another key component of enabling housing standards. Mabogunje *et al.* (1978) argue that standards should support the social aims of society and households, especially the poor, and allow them to participate equitably in the planning and development of sustainable human settlements. Enabling housing standards should recognise that societies and households change with time. As such, housing standards ought to be responsive

and flexible enough to allow change to occur so as to facilitate social growth and progress in a particular society.

As discussed in chapter three, the 1996 Zambian National Housing Policy abolished employer-tied housing. Employers were no longer obliged to provide housing for their employees. This policy shift further slowed down the production of new housing as employers now prefer to give housing allowances to their employees rather than engage directly in housing construction (Makasa 1997). However, there has been no substantial addition to the housing stock in formal townships, as very few people can afford to build houses that meet official housing standards. This has resulted in an increasing number of people resorting to renting rooms or building new houses in informal settlements using informal housing standards. Massive retrenchment of employees from privatised state-owned companies has also contributed to the change of the urban social structure in Zambia which now has 65 to 81 percent of the population belonging to the low-income group and a shrinking middle-class (CSO 2003) and led to an influx of new settlers and tenants in informal settlements (Shinondo *pers. comm.* 2005). The survey showed that 20 percent of the respondents rented the houses they occupied and a further 24 percent of house owners sublet part of their house (figure 6.7). This response to the new social order in informal settlements allows households to earn extra income from subletting rooms or whole houses and better their socio-economic status. This could become a major source of income for households if it were properly regulated as shown in the case of one household that is solely dependant on income from subletting their extra rooms to retrenched people and their families.

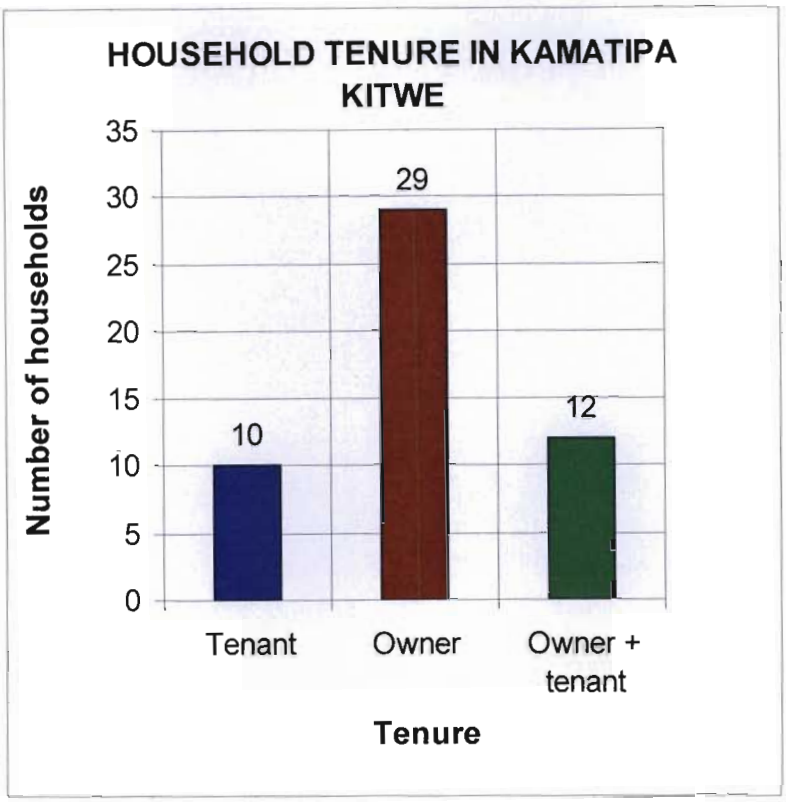


Figure 6.7: Ratio of tenure types of surveyed population (source: author 2005)

Other social changes occurring at household level were associated with the expansion of families due to increases in natural births or the arrival of relatives from other areas and maturity of children to adolescent ages. 48 percent of the households indicated that an increase in the number of children necessitated the extension their houses, while 14 percent of the extensions were as a result of the families' growing in size following the arrival of extended family members from their provinces of origin. The remaining households revealed that they needed more space either for growing children, subletting or storage of materials for home-based enterprises like pot-making and carpentry.

Informal housing standards, therefore, allow for housing to be adapted to new social structures at community and households level by allowing the creation of extra space for use by new or growing family members or income generation through subletting to new settlers.

Specifications that prescribe the acceptable densities in terms of persons per room, households or hectarage ignore local social structures. Planning standards for low-income housing areas in Kitwe require a maximum density in the form of persons per hectare that are far less than those obtaining in informal areas. These are regulated through building codes contained in Section 21 of the PHA of 1995, which specifies the building lines or set backs applicable to such areas. In Kitwe, building set backs on a standard 12 x 27m site are 6m front, 3m sides and 1.5m rear. This combined with standard open spaces of at least 0.1ha per 1000 people, ensures that the prescribed density of between 10 to 14 dwelling units per hectare (du/ha) is achieved. In Kamatipa, where such set backs are not enforced, a density of approximately 183 persons/ha was achieved because the few open spaces found in the settlement were much smaller and more intensely utilised. However, the large spaces between individual units ensure that there is no overcrowding and problems like fire outbreaks are confined to individual units (plate 6.10). This compares favourably with layout standards in conventional low cost housing projects (plate 6.6).

Plate 6.10: The spaces between individual housing units provide adequate fire breaks and confine fires to single houses (source: author 2005)

Regulations that prohibit multiple activities at household and settlement levels are also not cognisant of the fact that most of the socio-economic activities of the poor take place within their settlements and homes as shown in figure 6.8.

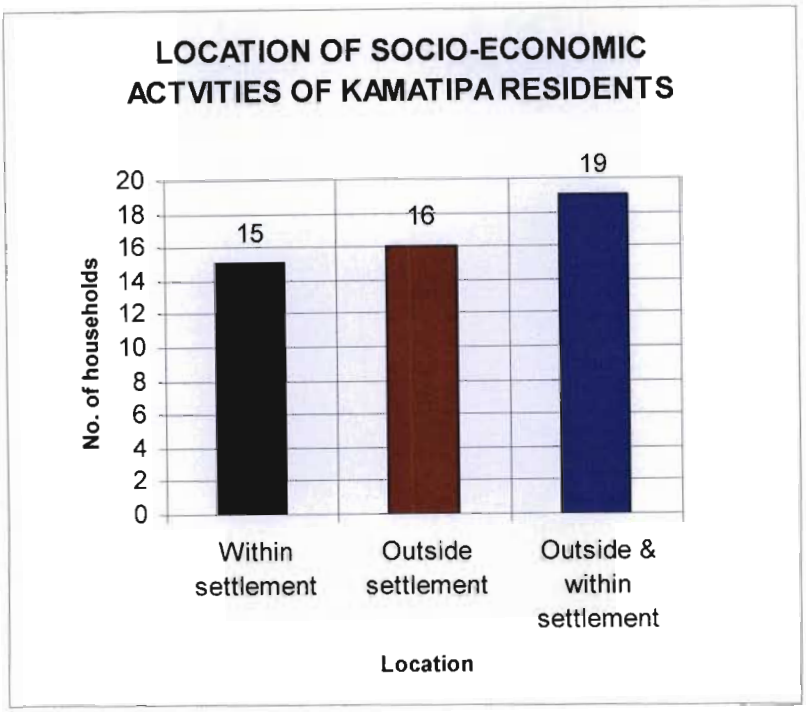


Figure 6.8: Location of the main socio-economic activities of surveyed population (source: author 2005)

6.2.5 Economic feasibility

Enabling housing standards allow people to make innovative choices that enable them to save rather than spend more on housing development (Turner 1976, Mabogunje *et al.* 1978). Housing represents one of the main investment decisions that most households will undertake. Housing standards should reflect the capacity of the people to meet their housing needs without seriously affecting their ability to meet their other daily needs. This is particularly crucial in countries like Zambia, where 65 to 81 percent of the population live below the poverty datum line (CSO 2003). The continued use of housing should also enhance their economic status through an appropriate regulatory environment that allows for households to generate some income from their housing and housing settlements.

Figure 6.8 shows that over two thirds of the households surveyed, engaged in income-generating activities within Kamatipa. 30 percent of the respondents solely earned a living through informal activities like carpentry, brewing traditional beer

(plates 6.11 and 6.12), bricklaying and trading from within the settlement. A third of these respondents indicated that they also earned an income from renting out part of their houses. The absence of zoning regulations (or their contravention as authorities saw it) allows a variety of small-scale activities and home-based enterprises to take place at household level and within the general settlement, thus enhancing the economic position of most households. Most of the respondents claimed to have a combined household income of at least four hundred thousand kwacha per month (K400 000.00 ≈ US$90.00), which compares with the net monthly salary of some of the lowest paid civil servants shown in table 4.2.

Plates 6.11 & 6.12: A carpentry workshop at home can be better supported and regulated than the brewing of beer, which is more dangerous in terms of public health (source: author 2005)

A number of these income-generating activities nonetheless, contravene several regulations stipulated in the Town and Country Planning Act of 1995. Zoning regulations prohibit commercial activities at household level in residential areas, except in specially designated areas such as neighbourhood markets or shopping centres or with special permission from the Town Planning, Fire, Environmental and Public Health Departments of the respective Local Authority. The process of acquiring a permit is lengthy and bureaucratic, and the statutory fees required to get the necessary consents are too high for the urban poor, including Kamatipa residents (RDC meeting & Builders FGD).

Another positive aspect revealed by the study was the low initial costs incurred by the new settlers to acquire housing. As figure 6.9 shows, a slight majority of homeowners

built the houses they occupied while the remaining 46 percent preferred to buy completed units. The survey revealed that over half of the respondents, who had initially preferred to buy their houses, had subsequently demolished and rebuilt new ones. An analysis of the costs of construction highlighted that locally produced materials were cheaper and more affordable for the respondents (table 6.1). A typical four-roomed house built with burnt clay blocks, a galvanised roof, cement-sand plaster and screed floors costs an average of six hundred thousand kwacha (K600 000.00 ≈US$134.00) to build. The most expensive unit covered by the survey was built by a bricklayer, a second generation settler, at a cost of eight million kwacha (K8m ≈US$1 778.00) using conventional building materials.

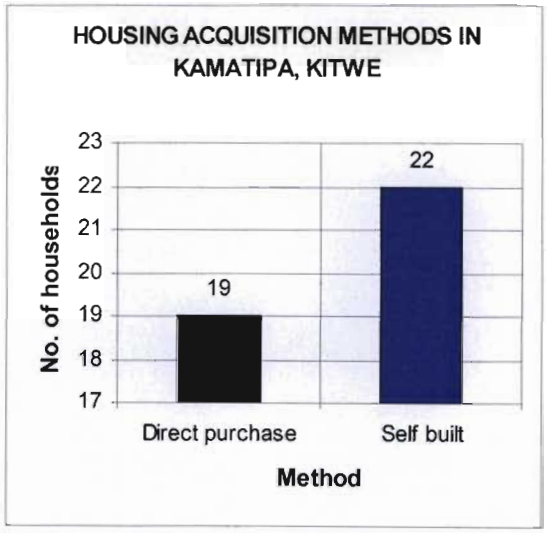


Figure 6.9: Chart showing methods used by homeowners to acquire housing (source: author 2005)

Table 6.5: Cost of various informal and conventional building materials (source: author 2005, Builders FGD 2005)

Material	Compressed clay blocks (per block)	Burnt clay blocks (per block)	Hollow concrete blocks (per block)	Kiln fired red brick (per brick)
Price	K300.00	K700.00	K3 500.00	K7 000.00

Section 8 of the PHA of 1995, which requires that a person building a new house indicates the name of the architect engaged in designing and supervision of the building construction process as quality control measure, is largely ignored by Kamatipa residents because of the additional financial burden. Similarly, Sections 21,

25, 43, 45, 46 and 47 of the same Act which prescribe, among other things, the location of the house in terms of specified building lines, the construction of foundations and the minimum sizes of openings. These clauses also only permit water-borne sanitation in urban residential areas, which impose costs on the urban poor and the KCC. Although this clause is necessary in the interest of public health, a more relaxed standard, that does not require the poor to immediately connect to the city's water and sewerage reticulation system but rather allow a more incremental approach through upgrading. Moreover, Kamatipa is not serviced by any public water and sewerage reticulation system and since the privatisation of such utilities, it is doubtful the new public utility company, driven by profit, would want to invest heavily in such poor areas.

An alternative approach would be the replicating the standards that were used in areas like Buchi, Kwacha and Kamitondo built soon after independence in the mid-1960s by the KCC for rental by its employees, and other low-ranking government workers. In these areas, basic 30 to 42m^2 units were built on 180 m^2 sites with standard Ventilated and Improved Pit-latrines (VIPs) and individual water standpipes (figure 6.12). The housing units were still set on front set backs of 6 metres which still left a lot of room in the back yard to relocate the VIPs as required. This standard ensured that cross contamination between the VIPs and drinking water sources was avoided and allowed the prefabricated framework of the VIPs to be moved much easier and quicker.

Greater flexibility of building lines would aid the development of HBEs by allowing poor households to build their houses on the boundaries along the main pedestrian routes rather than the prescribed 6 metre front set back. It would allow them to use the front part of the homes for HBEs leaving the rear for private use by the family (figure 6.13). These specifications are particularly detrimental to the economic survival of women-headed households as women often engage in reproductive, productive and community-management work. As primary income earners in women-headed households, women engage more in income-earning activities at home so that they can balance this with their child rearing work (Moser and McIlwaine 2001).

Four of the six women-headed households covered by the survey were largely dependent on HBEs as the source of income as shown in table 6.3.

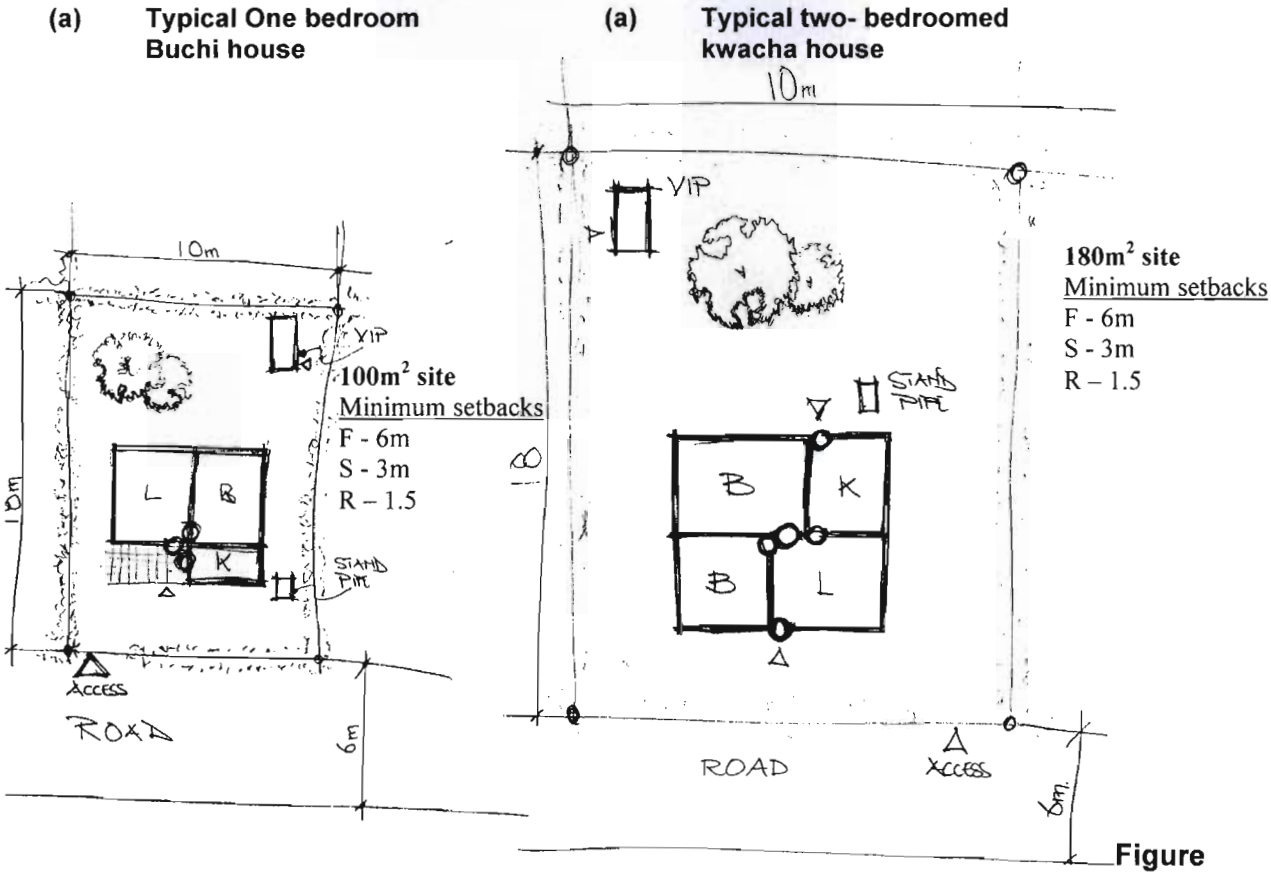


Figure 6.10a & b: Typical level of services and setbacks in Buchi and Kwacha Townships, Kitwe (source: author 2005).

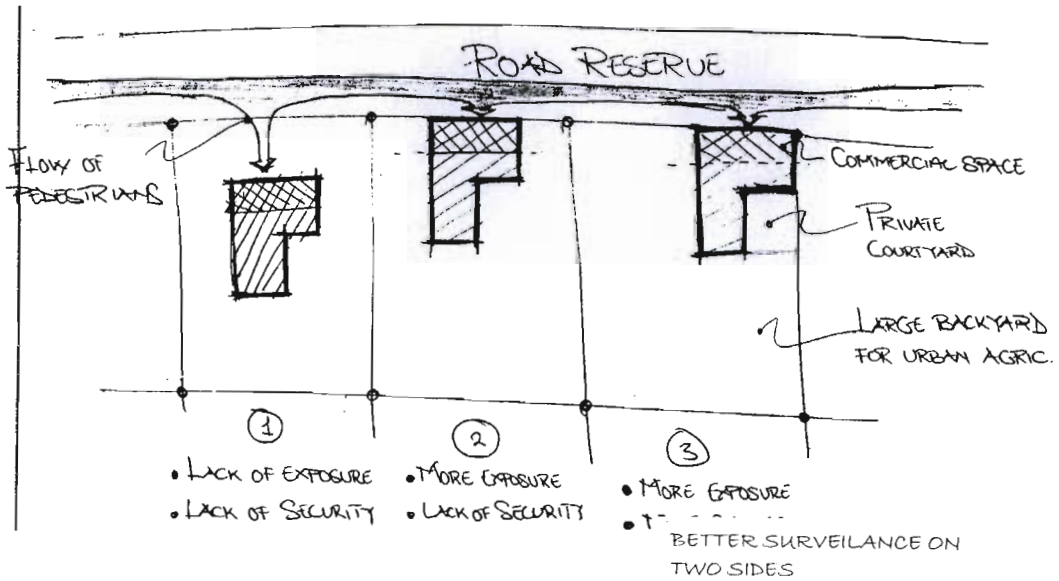


Figure 6.11: Comparison of various setbacks in low income areas (source: author 2005)

Table 6.6: Livelihood strategies and tenure status of women-headed households (source: author 2005)

WOMEN-HEADED HOUSEHOLDS	LIVELIHOOD STRATEGY	TENURE STATUS
Household – 1	Home trade	Home owner
Household – 2	Marketeer/Home trade	Home owner
Household – 3	Marketeer/Home trade	Home owner
Household – 4	Marketeer/Home trade	Tenant
Household – 5	Urban agriculture on periphery of Kamatipa	Home owner
Household – 6	Undisclosed	Tenant

In terms of maintenance and extensions, Kamatipa housing showed remarkable economy. Although 35 percent of the households surveyed stated that they carried out repairs to their houses at least once a year, these were cosmetic repairs to replace the mud plaster washed off exterior walls after the rainy season. These repairs were generally done by the occupants themselves using locally available clay at no direct cost to the household. 23 percent stated that they only carried out maintenance to their houses every two or three years, while 19 percent indicated that they had never done any major repairs to their houses. 51 percent of the households had extended their houses mostly to provide more space for the growing family and for sub-letting at very low cost to the household.

The Housing (Statutory and Improvement Areas) Act (No. 30 of 1974) states that *every building erected and every improvement effected on any land to which this Act applies shall be in accordance with specifications approved by the National Housing Authority or by the council in whose jurisdiction such land is situated* (part IX, section 40). This stipulation applies to informal settlements like Kamatipa, which have been declared Improvement Areas. The specifications referred are inclined to produce housing of very high quality and standards (plate 6.13). Unfortunately, housing produced to these specifications is beyond the reach of the poor. Plate 6.14 shows an informal house under construction in Kamatipa applying conventional methods but using burnt clay blocks and is ten times cheaper than the house in plate 6.13 built to

NHA specifications. See table 6.4 for more detailed comparison between the two units.

Plate 6.13: A typical low cost house built to NHA Low-income Housing Standards (source: NHA 2004)

Plate 6.14: Utilisation of local clay blocks produces affordable housing for the poor (source: author 2005)

Table 6.7: Comparison between formal and informal housing standards (source: NHA 2004, Author 2005, Builders FGD 2005, Zimba *pers comm.* 2005)

	Formal	**Informal**
Foundation and slab	200mm solid core block foundation wall with 2M gauge wall force every 400mm, on 600mm wide x 200mm thick mass concrete footings in a 600mm deep foundation trench. Slab to be 100mm thick mass concrete slab reinforced with conforce 86 on 500 gauge polythene damp proof membrane laid on 50mm thick sand blinding laid on a 150mm thick well compacted laterite hardcore base	150mm burnt clay block wall in 150mm deep foundation trench. 50mm thick concrete slab on 100mm compacted clay on 50mm thick crushed stones
Super structure	200mm (external)/100mm (internal) hollow concrete block walls with 2m/1m wall force every 600mm, plastered with 19mm thick sand/cement plaster externally and 13mm thick sand/cement plaster internally. Painting to be 1 coat external quality PVA as finishing coat on 1 coat primer and 1 coat undercoat respectively outside and 1 coat internal quality PVA paint as finishing coat on 1 coat primer and 1 coat undercoat respectively inside.	150mm external and internal walls plastered with 9mm thick sand/cement plaster. Lime washed externally.
Openings	All window openings to be at least 10% of the room floor area. External door openings: 900 x 2000mm Internal door openings: 800 x 2000mm-bedrooms and living rooms, 700 x 2000mm-bathrooms and closets and storerooms	100x 300mm openings covered with wooden shutters as windows. All door openings: 725 x 1850mm
Roof	150 x 75mm soft wood purlins and 100 x 50mm wall plates	100mm diameter gum poles as purlins and wall plates
Services	Water-borne sewerage Mains reticulation Electricity Refuse collection	Pit latrine Well water Charcoal and kerosene No refuse collection
Site	12x27m, Set backs: 6m (front), 3m (sides), 1.5m (rear)	12x27 (determined in consultation with neighbours and RDC)
Cost	K60 000 000.00	K6 000 000.00
Construction time	3 month (average)	3 weeks (average)
Durability	Over 60 years	Up to 40 years (claimed)

Among the differences in the costs between the two standards are the materials used, methods of construction and upfront costs of installing services to formal housing. However, in the interest of public health and safety, issues regarding refuse collection and sanitation in informal systems need to be addressed from the outset. It can bee seen that a system incorporating workable and enabling aspects of each system would provide a more acceptable standard to both the poor and Kitwe City Council authorities.

6.2.6 Technological suitability

Technical specifications in enabling housing standards ensure that standards are based on available local scientific knowledge and building techniques, thus having widespread utilisation in a particular society. The cost of compliance to officially prescribed standards based on foreign technology tends to be too high and unaffordable for the poor, exacerbating the housing problems. Mabogunje *et al.* (1978: 81) contend that standards informed by local techniques are more likely to encourage more people to participate in housing programmes "*since they use locally available building materials and not high-cost scarce technology*".

The survey carried out in Kamatipa revealed that 67 percent of the respondents attributed their preference for informal methods of construction to family traditions, their familiarity with the traditional methods or to the standard methods used in the settlement. 33 percent stated informal methods were quicker, cheaper or were simply their personal choice (figure 6.10).

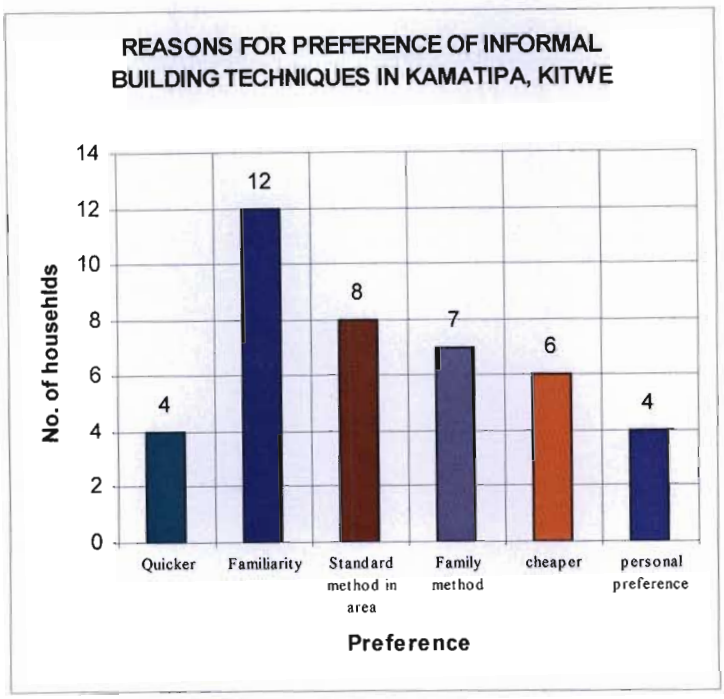


Figure 6.12: Chart showing the reasons given for using informal techniques in housing construction (source: author 2005)

Plate 6.15: Similar design and construction methods using different building materials; clay and concrete blocks on the left and right respectively (source: author 2005)

An interesting observation was that although bigger buildings were constructed using conventional methods, they were nevertheless built using informal burnt clay blocks as shown in plates 6.15, 6.16 and 6.17. Several households are now using informal materials to build fairly big houses in the Kamatipa using conventional building

methods (plate 6.15). This allows them to reduce the cost of construction whilst building stronger and more durable houses (Builders FGD 2005, RDC meeting 2005)

Plates 6.16 & 6.17: A local shop and church at slab and wall plate levels respectively, built with formal methods using burnt clay blocks (source: author 2005)

Section 30 of the PHA of 1995 states that '*every wall shall be of sufficient strength and shall be constructed in such a manner and of such material as the Local Authority may approve*'. At present the Kitwe City Council only approves kiln fired brick and solid or hollow core concrete blocks. There was no indication that the Council or National Housing Authority are investigating the viability of burnt clay blocks that are already being widely used in informal settlements across the city (Zimba *pers comm.* 2005, NHA Official *pers. Comm.* 2005).

One community builder claimed that his house, built with burnt clay blocks and rendered with sand-cement plaster, had never undergone any major structural repairs for 40 years (Builders FGD 2005). This claim compares favourably with the findings of Chifunda's (2003) study on earth construction in Zambia, which showed that clay-block houses built in the 1940s (in a similar way to current informal houses) for the first miners allowed to permanently live in urban areas still exist south of the city. A large proportion of respondents stated that they based their house plans on what they saw in other areas, which could further validate this claim (Household survey & Builders FGD 2005). The first houses in European mining settlements, like Nkana West, were also built using clay blocks and still exist today, over 50 years later.

Part IX, section 40 of the Housing (Statutory and Improvement Areas) Act (No. 30 of 1974) further prevents planning authorities from giving legal recognition to informal building materials like burnt clay blocks.

6.2.7 Physical and biological harmony

A good housing regulatory framework should enhance rather than distort the balance between man, the built and natural environment. According to Mitchell and Bevan (1992), traditional housing is generally constructed from materials found in the vicinity of human settlements using techniques developed over many generations. Schmetzer (1995) further shows that traditional builders use specific building materials based on their inherent properties. By using only specific trees, grasses and clays, traditional builders are able to maintain a balance between the built and natural environment by avoiding wide-scale, indiscriminate cutting of trees and digging of trenches to harvest clay. Bayes (1994) argues that every new building deprives the earth of the natural healing forces of the sun, wind, rain and animal life which new buildings should try to compensate for with their own qualities. Housing standards should therefore try to foster built environments that utilise the right building materials and techniques.

Builders in Kamatipa disclosed that they only used specific types of clays, as not all clays are easy to work with or strong enough to withstand weather elements and the weight of the roof. They had, over the years, devised simple but effective techniques of testing the suitability of the clay. When a potential source of clay is identified, a few test samples are moulded and then let to dry for a few hours in the direct sun. A few semi-dry blocks are then lifted up to about knee height and dropped to the ground in order to ascertain the plasticity of the clay. The remaining blocks are left to dry out completely to see how they react to the direct sun. Good clays should withstand these simple tests without cracking appreciably. Only clay that passes these trials is used for making sun-dried or burnt clay blocks (plate 6.18)

As mentioned earlier, in cases where a house is sold to a household that is mainly interested in the site, the original owner usually only takes the roofing sheets off the old house. The new occupiers can then re-use the remaining clay as mortar or raw

materials for new blocks or the floor slab. This ability to recycle the clay ensures that fewer pits will be dug up for new materials. Buchanan (2000) called these qualities replenishable, recyclable and total life-cycle costing. Replenishable refers to the use of inexhaustible materials like clay, mud and sand to avoid overtaxing the earth's resources. Recyclable refers to the re-use of an entire building or building components. Total life-cycle costing involves making conscious decisions on the useful life-span of new buildings. Houses made of sturdy, appealing materials will often find new uses when their new occupants move in. Even cases where this does not happen, the house's recyclable materials retain their value even if new occupants decide to bring down the entire structure (*ibid.*). Remarkably, findings show that Kamatipa houses possessed these qualities. Residents usually recycle the clay used to make building blocks by breaking them down and re-casting and re-firing them in informal kilns such as the one shown in plate 6.18.

Plate 6.18: Material from clay blocks can be recycled (source: author 2005)

6.2.8 Temporal relevance

Temporal relevance allows for changes to be made to existing standards with passage of time to suit needs of a particular time. It recognises that standards must reflect the needs, desires and the socio-economic situation of the particular era or period. All the indicators discussed above vary with time, therefore, standards must be dynamic and change accordingly. As economies improve and technologies

advance, people seek new housing to reflect these changes and they also seek new identities to reflect their changing socio-economic status. This is often expressed in their new housing preferences. Standards should, therefore, allow the construction of houses that last for about 20 years, as the need for permanent housing that lasts for 50 years and beyond is no longer relevant (Mabogunje *et al.* 1978.).

Temporal relevance was evident by the number of households that gradually consolidated their housing as average income increased. In all cases, changes were made to the type of wall and floor finishes, doors and windows used. It was also observed that a growing number were using better and more permanent pit latrines and wells. New pit latrines with concrete bases, introduced in Kamatipa by CARE Zambia, have been widely accepted by the general population and more of them are now constructing their new pit latrines with the help of the Sanitation Committee of the RDC (RDC meeting 2005) (plates 6.19 to 6.22). CARE Zambia has also introduced more hygienic wells that have steel covers encased in concrete bases (plates 6.23 and 6.24). The community has been slowly implementing the new, simple technologies as they consolidate their household incomes to allow them to pay for the infrastructure in three instalments as required by the RDC.

Plates 6.19 & 6.20: Rudimentary and unhygienic pit latrines (source: author 2005)


Plates 6.21 & 6.22: More stable and hygienic pit latrines built on concrete bases (source: author 2005)


Plates 6.23 & 6.24: Rudimentary wells are slowly being replaced with more hygienic alternatives in Kamatipa (source: author 2005)

6.3 SUMMARY

This chapter has shown a number of legal and administrative bottlenecks that have inhibited the assimilation of the positive attributes of informal methods of delivering housing in Kamatipa. These range from the prescribed specifications contained in the PHA Cap 295 and the NHA standards for low cost housing to the bureaucratic procedures outlined in the Town and Country Planning Act of 1995. This chapter only highlighted the positive attributes of informal housing, but the researcher recognises that there are a number of negative consequences of non-compliance to existing regulations, including a myriad of environmental problems like flooding, landslides, poor air quality, and poor solid waste disposal (Payne 2001). Poor

sanitation, solid waste disposal and poor indoor air quality particularly stood out among the problems present in Kamatipa.

The findings have also shown that the integration of informal and formal methods of housing delivery has been taking place over the years in Kamatipa. A lot of conventional methods have been assimilated into the informal construction of larger houses using local building materials.

7.0 SYNOPSIS

7.1 INTRODUCTION

Informal and other forms of unregulated urban settlements in Zambia are not social aberrations but a natural, and very often, adequate response to the current housing crisis. Most of these informal solutions are rooted in traditional housing culture (Hansungule 1998). Many of these settlements are progressively developing and self-improving. The tragedy is not that these areas exist, but that many are so much worse than they ought to be. If authorities extend even minimal assistance, most of them would evolve into much better and healthier settlements (Silavwe 1998).

To most inhabitants, living in informal settlements is a step towards a solution to their housing problem. These settlements arise from a discrepancy between the demand for appropriate and adequate low-income housing and the housing supplied by public and private institutions. Some of the values and priorities of the informal dwellers are at a tangent to those imposed on them by public agencies in upgrading and site and service programmes. More often than not, official policy objectives are geared towards achieving a level of housing standards that are neither achievable nor desirable by the urban poor, thus rendering them economically, technically and culturally unacceptable (Turner 1976).

This chapter highlights the conclusions drawn from the research carried out in Kamatipa Settlement in Kitwe. It then makes recommendations for establishing guidelines for formulating enabling low-income housing standards in the city, which could be replicated in and by other local authorities.

7.2 CONCLUSIONS

The study has shown that the urban poor are a highly heterogeneous group. There are numerous differences in their asset portfolios, livelihood and survival strategies, their vulnerability as male or female, young or old, or whether or not they are producers or consumers of housing. Standards affect them in various ways that impact their livelihoods and housing options.

Currently, all housing developments in Kamatipa take place outside official building standards and formal planning and approval systems. This is despite the Improvement Area status of the settlement, which demands that all construction activities be done to approved NHA standards. The Kitwe City Council has generally turned a blind eye to these informal developments, as their resources are too limited to monitor and take action. People construct and extend their properties by adopting designs and construction methods from within the settlement and surrounding townships, rather than being guided by a particular standard or system. Although this suits their immediate needs, it can, however, create public safety and health problems, hence some level of regulation is required. To be acceptable, these regulations need to consider residents' preferences and how they currently use their housing.

Zoning in land-use planning presents obstacles to incorporating certain home-based enterprises within planning and building regulations. The study showed that women are particularly affected by zoning regulations that prohibit mixed land-use. It revealed that all the women-headed households surveyed earned a livelihood from some form of home-based enterprise.

The study also revealed that some regulations and accompanying administrative procedures that determine housing standards can worsen the plight of the urban poor by prohibiting the use of local building materials and practices in the production of housing and human settlements. High standards often force the poor to settle in vulnerable locations in their quest to find cheap or free land located close to areas of potential employment. There have been suggestions that various vested interests within the public and private sectors inhibit the recognition of local building practices and materials. Some of these are issues that require the reform of the housing market as major private sector builders, developers, traders and artisans are motivated more by profit-making than providing affordable housing to the poor.

The formation of the RDC to represent the interests of informal residents has brought a number of benefits to both residents in Kamatipa and development agencies outside the area. The partnership between CARE Zambia and the community

through the RDC has shown that interactive participation, which seeks to empower local communities, can have enormous benefits for the urban poor. CARE Zambia's approach involved building the capacity of local leaders in areas of water and sanitation management. However, the decision on how the rest of the community would pay for new pit latrines and wells was left with the RDC as they have a better understanding of the community's ability to pay. It is, therefore, important to consider informal housing delivery and related livelihoods so that we gain a better understanding of how people use their homes. This would be useful in guiding the process of reforming standards.

7.3 RECOMMENDATIONS

In view of the above, the study recommends a number of actions be taken as a way of including the contributions of the informal sector in the reform of inappropriate housing standards and regulations. Action is needed on a wide range of areas to address both the legal and administrative bottlenecks that hinder the integration of local practices and materials into mainstream practice and standards:

Firstly, Kamatipa residents have shown that the poor themselves are able to determine the location, planning, design and use of their houses. They build human settlements which have good access to markets and other major employment areas, mixed land-uses, medium to high densities and layouts which maximise opportunities for home-based economic activities. To compliment these abilities, several options should be made available by local authorities for a given cost level as a way of providing households with more control over their livelihood and housing options. Housing developments that include a range of options with different cost levels such as different plot sizes and levels of initial infrastructure for a given cost must be provided to allow the urban poor to select options that most suit their needs. RDC's can help local authorities to monitor the 'take-up' of each option so that they have a quick and cost effective basis for modifying subsequent developments. Quick surveys or focus group meetings at ZDC level can then be used to assess the reasons for change and identify new options for subsequent projects.

Secondly, the process of reforming regulatory guidelines involves a number of stakeholders as housing and human settlement standards involve a wide range of elements. Multi-stakeholder participatory (MSP) frameworks, which place communities at the centre of development, provide a platform for communities to be more effective in determining the pace and type of development in their areas. It calls for a shift from current neo-liberal types of enablement, which primarily promote public-private partnerships (PPPs), to the citizens' approach to enablement which recognise the rights of all people to participate as equal citizens in local and national development through their democratically elected representative structures. If properly guided, ZDCs and RDCs can be effective local institutions through which the urban poors' needs can be expressed.

Thirdly, to achieve the above, calls for reforms that will effectively reduce the number of actors at central government level involved in setting regulations outlined in chapter 3 that affect housing standards. Presently, the following ministries and government agencies are involved in the formulation of standards that regulate the housing sector in Zambia:

- Ministry of Local Government and Housing (MLGH) - policy formulation and supervision of housing sector at national level.
- The Ministry of Energy and Water Development - water resource management.
- Ministry of Community Development and Social Services - support to community-driven development.
- Ministry of Agriculture and Cooperatives - partnership with non-governmental organizations on peri-urban agriculture projects.
- Ministry of Health - sets environmental, public health and safety standards in residential areas.
- NHA – translates various regulations into building codes and specifications to be enforced at local government.
- Local authorities - Planning and regulation of actual construction at city level.
- Private water and sewerage companies - actual water supply and sanitation.

With so many bureaucratic and often conflicting interests involved at central government level, reform of housing standards becomes complex and lengthy. In order to simplify and hasten the process, government should decentralise much of the decision-making responsibilities to local governments so that the number of issues decided upon at central government level are reduced. This will effectively strengthen and increase the roles and responsibilities of local governments and communities.

Existing local government and development structures, such as the District Development Committee's (DDCs) can then formulate standards and regulations appropriate to local resources, aspirations and development needs. This is especially advantageous in a large country like Zambia where differences in local building materials, practices, cultures and resources vary from one province to another and manifest in diverse traditional houses and human settlements across the country.

Fourthly, in line with the foregoing recommendation, local DDC's therefore need to standardize some of the positive attributes of informal housing delivery. In the case of Kamatipa, local educational and research institutions like the Copperbelt University (CBU) could become useful partners in standardizing and improving the quality of informal building materials like burnt-clay blocks. They can also help popularize these materials as they are often seen as poor and inferior compared to modern, industrialized and usually expensive and imported alternatives. Constructing demonstration-housing units based on new standards and local building materials would help dispel this perception. It would also help overcome some of the problems experienced by the illiterate urban poor who do not understand or comprehend existing regulations. Standards incorporating local knowledge and practices will therefore be more widely understood and acceptable, and will perhaps be easier to enforce.

Fifthly, regulations and controls that do not seriously impact on public health and safety should be devolved to local community level and monitored by the RDCs. This would simplify some procedures regarding issues like obtaining permits for mixed land-uses, issuance of occupation licenses and transfer certificates. It would

essentially require constant training and support to the RDC leadership from local and central government officials for them to attain the requisite skills and capacities to effectively discharge their duties and serve their communities. The present system where an official from the KCC Squatter Control Unit is attached to the RDC, which reports to the DDC, would help prevent corruption and ensure that the agreed standards are being upheld within Kamatipa. It would also ensure that a certain level of technical and legal competency is maintained within the RDC.

Zambia is a highly indebted poor country and is ranked 50th on the list of the worlds least developed countries (LDCs) with an approximate Gross Domestic Product (GDP) of US$800 (http://www.un.org/special-rep/ohrlls/ldc/list.htm). An estimated 65 to 81% of it population is classified as poor and live on less that US$1 per day (CSO 2003). This scenario calls for an honest evaluation of the standards that are currently being employed in the provision of housing for the poor. Lowering the standards has been suggested in many circles but this has not benefited the poor either as they are still essentially based on non-local building materials and techniques. The solution lies in objectively assessing the standards in terms of the indicators suggested in this study and formulating new standards based on the available building materials and existing technological skills. The study of informal housing delivery in Kamatipa has shown that if this assessment is done within an all-inclusive participatory framework like MSPs that recognise and respect the needs, abilities and aspirations of all citizens, it could go a long way towards informing the formulation of enabling low-income housing standards in Kitwe. This would yield tangible and measurable benefits to all stakeholders including poor households.

Lowe and Schilderman (2001:29) summarized these potential positive benefits of enabling low-income housing standards of poor urban households in cities like Kitwe in terms of five livelihood outcomes. Firstly, there would be a rise in income levels of poor households as enabling standards would enhance economic activity and investment in housing and permit income generation from rentals and HBEs. Secondly, enabling housing standards would enhanced poor households' well-being due to increased mental and physical health resulting from qualitatively improved, incrementally-built housing applying technical standards which reflect basic needs,

local livelihood priorities and culture. Thirdly, households and communities would have enhanced social capital through increased interaction with a range of local public sector organizations providing information on adequate and affordable housing and basic services. Fourthly, enabling housing standards would improve household equity in terms of the status and livelihood options available to women and a reduction in the amount of discrimination they endure. Fifthly, enabling housing standards would reduce household vulnerability from economic and physical hazards through appropriate mitigation measures from the most significant shocks and trends.

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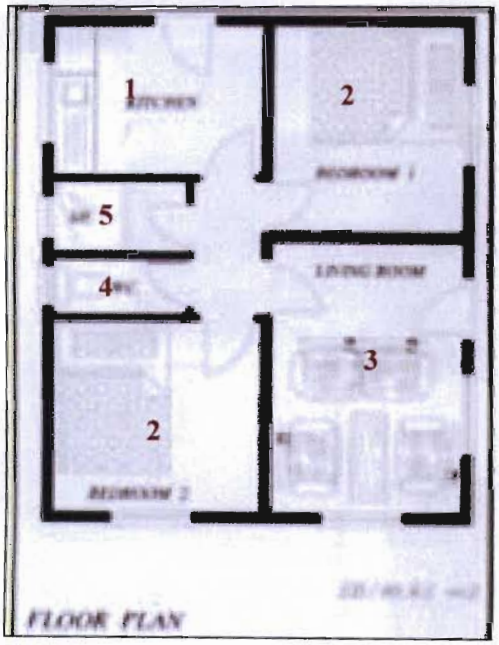
Appendix I: NHA Low cost house type 25 specifications



FLOOR PLAN

Room legend

1: Kitchen
2: Bedrooms
3: Living Room
4: Toilet: separate
5: Shower: separate

Total floor Area: 46.62 sq.m

Price: K59,000.00 (Us$ 12,000.00)

Appendix II: NHA Low cost house type 2b specifications

FLOOR PLAN

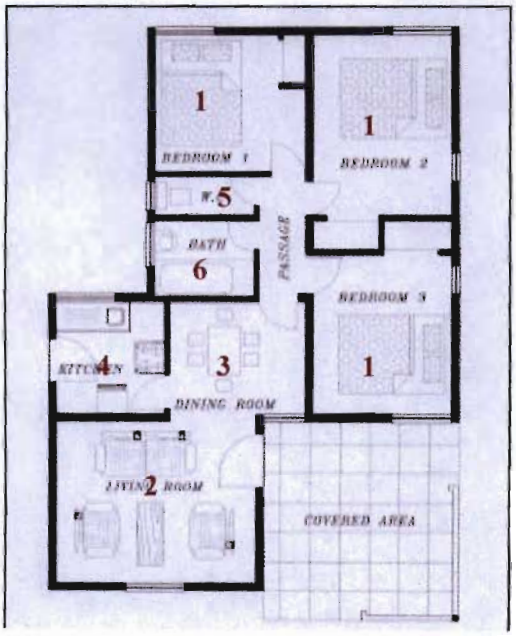
Room legend

1: Bedrooms
2: Living Room
3: Kitchen
4: Toilet: separate
5: Shower: separate
6: Verandah

Floor Area: 65.56 sq.m

Price: K76 000 000.00 (US$ 16,000.00)

Appendix III: NHA Low cost house type 19 specifications



FLOOR PLAN

Room legend

1: Bedrooms
2: Living Room
3: Dining Room
4: Kitchen
5: Toilet: separate
6: Bathroom: separate
7: Verandah

Floor Area: 65.65 sq.m

PRICE: K80,000,000.00 (US$ 17,000.00)

Appendix IV: NHA Low cost house type 3b specifications

FLOOR PLAN

Room legend

1: Bedrooms
2: Living Room
3: Kitchen
4: Toilet: separate
5: Shower: separate
6: Verandah

Floor Area: 83.20 sq.m

Price: K94 000 000.00 (US$ 19 200.000)

Appendix V: National Housing Authority housing application form

NAME:_____ FILE No._____

NHA

APPLICATION FORM
FOR THE PURCHASE OF A HOUSE

SECTION A

(PLEASE FILL IN YOUR DETAILS IN BLOCK CAPITALS)

Surname

.....

Forenames

.....

Sex

.....

Identity Number

.....

Nationality

.....

Employer

.....

Occupation

.....

Contact Address

.....

Residential Address

.....

Bankers

.....

PLEASE COMPLETE SECTIONS B, C & D

SECTION B

FINANCIAL INFORMATION

Monthly Gross Income
.....

Other Income
.....

Outstanding Loans With:

	Amount	**Monthly Instalment**
Employer		
Commercial Bank.....		
Building Society		

Insurance Polices Premium .....
.....

What price range of accommodation will you be able to pay for:

(K55–100m) ☐ (K100-150m) ☐ (K150–250m) ☐

Any special house type?.....

Cost of house you have chosen
.....

How do you intend paying for the house ☐ Cash. ☐ Terms

If by terms, indicate your proposed period of payment
.....

☐ Deposit (at least 50% as down payment)

☐ Amount of Monthly Instalment

☐ Other Arrangements-elaborate and provide relevant documentation
.....
.....

Applicant's Signature ..... Date
.....

SECTION C

(ATTACHMENTS)

Please attach the following to your application form;

1. Photocopy of your Identity Card.
2. Last Payslip.
3. Latest Bank Statement.
4. Letter of Confirmation from work place.
5. Commitment by employer to give loan to employee upon being given the offer
6. Copy of offer of Mortgage by a Building if this is the arranged mode of financing the purchase of the house.
7. Any other Relevant Information.

SECTION D

FINANCIAL APPRAISAL

Monthly Salary

.....

Tax Allowances

.....

Living Expenses

.....

Other Deductions

.....

Disposable Income

.....

Monthly Instalments

.....

Percentage of instalment / repayment as percentage of salary:

.....

CONFIDENTIAL

FOR OFFICE USE ONLY

....
.....

APPLICATION

Approved ☐ Disapproved ☐ Reason (s) for Rejection:

.....
.....

House Type Allowed
.....

Stand No.
.....

Mode of payment .....

Reference No. of Allocation slip.....

(Record of payments / by Date and Receipt No.)

Date	Receipt No.	Amount	Date	Receipt No.	Amount

Date of Title Deed transfer .....

Authorised by Date **Checked By Date** **Checked**
By Date
(& Designation) **(& Designation)** **(&**
Designation)

....
.....

ALL CORRESPONDENCE TO BE ADDRESSED TO:

The Chairman
National Housing Authority Annex
Chiluya Mulenga Road, longacres
P.O. Box 50074
Lusaka, Tel: 251531, Fax: 251508

Appendix VI: Interview and questionnaire consent form

CONSENT FORM

1. Research purpose

The purpose of this questionnaire is to collect information for the fulfillement of the requirements for a Masters degree in Housing at the University of Kwazulu-Natal, SouthAfrica titled: *Informal Housing Delivery: assessing its potential contribution of towards establishing enabling low-income housing standards: A case study of Kamatipa Settlement, Kitwe, Zambia.*

2. Interview/questionnaire administration conditions

Information gathered in this exercise shall be use solely for academic purposes and shall be kept confidential. Please remember that, as you are freely volunteering to take part in this exercise, you are free to decline to answer any questions you are not comfortable with. You are also free to withdraw your participation at any time during this exercise. Any recordings take during this exercise will be erased upon transcribing and all questionnaires used will be decoded and shredded.

3. Respondent terms

Do you understand these conditions and the purpose of this exercise as outlined above?	yes	no
Do you agree to let me use your name or official title in the final dissertation?	yes	no
Do you agree with the use of tape recorders during this exercise?	yes	no

4. Respondents consent.

I have understood the conditions and purpose of this exercise as indicated above and hereby agree to proceed under the terms indicated in part (3)

Respondents signature..... **Date**

5. Researchers commitment

I hereby declare that I will adhere to the conditions and purpose of this exercise and to respect and adhere to the respondents wishes as indicated above and agree to proceed with this exercise under the stated terms.

Researchers signature..... **Date**

Appendix VII: Household survey questionnaire

HOUSEHOLD SURVEY

Section A – Demographic and background information

1. How long have you lived in Kamatipa?
2. Why did you settle in Kamatipa?
3. What is your ethnic origin?
4. How many people live in the house?
5. How do you earn a living?
6. Do you rent or own the house?
7. If you rent:
    a. How much do you pay?
    b. Where does the owner of the house live?
8. If you own the house:
    a. Did you buy or build the house?

    (If you **bought** the house please answer **section B**. If you **built** the house yourself please answer **section C**.)

Section B – Direct buyers of houses

9. How much did you pay for the house?
10. How did you raise the money to buy the house?
11. Why did you choose to buy and not to build?
12. What procedure(s) did you follow when buying the house?
13. Were you given any form of title to the land when you bought the house?
14. If not, what kind of security do you have over ownership?

(Go to **section F**)

Section C – House builders

15. How did you acquire the land on which you built your house?
16. Do you have any form of title to the land?
17. How much did you pay for the land?
18. Who did you buy the land from?
19. Do you pay any land rates?
20. Where did you buy the materials you used to build the house from?

21. Did you build the house yourself or did you hire some else?

    (If you **built** the house yourself, go to **section D**. If you **hired** someone else, go to **section E**.)

Section D – Self built houses

22. How much did it cost to build the house?
23. How did you raise the money to build the house?
24. Did you use any house plans/designs in building the house?
25. If so, who made the designs for you and were they approved by the City Council?
26. If not, why did you not use any plans/designs?
27. What building materials did you use?
28. Why did you use these materials?
29. How did you construct and determine the sizes of:
    a. foundations
    b. slabs
    c. walls
    d. roofs
30. Why did you construct these parts of the house the way you did?
31. How were the sizes of windows, doors and rooms determined when drawing up the plans and/or during construction?
32. Why did you use these sizes?
33. Did you follow any of the City Council's bye-laws concerning:
    - how you should build;
    - the sizes of rooms, doors and windows; and
    - the materials you should use?

Section E – Hired labour

34. How much did it cost to hire a builder?
35. How did you raise the money to build the house?
36. Did you sign any contract with the builder for the construction of the house?
37. Did the builder use any plans when constructing the house?
38. If so, who drew up the plans for you and were they approved by the City Council?
39. If not, why did the builder not use any plans?
40. What was your input in the planning and construction of the house?

41. Did you ask the builder to follow any of the City Council's bye-laws concerning the construction and sizes of:
    a. foundations
    b. slabs
    c. walls
    d. roofs
42. If not, why do you think the builder constructed these parts of the house in such a manner?
43. How were the sizes of windows, doors and rooms determined when drawing up the plans and/or during construction?
44. Why did the builder use these sizes?
45. Did the builder follow any of the City Council's bye-laws concerning:
    e. how they should build;
    f. the sizes of rooms, doors and windows; and
    g. the materials they should use?

Section F – durability.

46. How often do you carry out repairs or general maintenance work to your house?
47. Have you made any alterations or extensions to your house since it was built or bought?
48. If so, what were they and what necessitated them?
49. How much did the alterations and/or extensions cost?

Appendix VIII: Focus group discussion schedule

FOCUS GROUP DISCUSSION – RDC, COMMUNITY BUILDERS AND SUPPLIERS OF BUILDING MATERIALS

This focus group discussion was held between the author, Alexander Mwango (AM) (author) and 27 builders and suppliers of building materials from the community (COMM) mobilised with the aid of the RDC. It has transcribed with the permission of all participants present and the RDC.

AM: Let me start by getting to know to know who is here. Does everybody here live in Kamatipa?

COMM: Yes all of us live in Kamatipa but our work is not limited to this settlement as sometime we are asked to do some building in nearby settlements like Racecourse or sometimes people from other areas come to but blocks from us.

AM: How did you start supplying building materials?

COMM: We observed what is used in the formal sector in terms of what they use during construction. For instance, we noticed the stones they use and started going out in the bush to look for the same rocks crush them and sell them to people within and outside Kamatipa. In the case of the mud blocks, our parents had been using them since we can remember and we learnt from them where to find the right clay and make them. These are sold only n informal settlements either as compressed or burnt blocks.

AM: How long have you been supplying building materials in this area?

We've been doing this for a very long time.

AM: What materials do you usually supply for:

- roofs? Salvaged drums cut and flattened galvanised iron and asbestos sheets. We normally use raw wooded poles to make the structure. Processed timber is costly but a few people use it. Mono pitched roofs are common. The council has told us not to use thatch for roofing but allow us to use polythene sheets if we don't have iron or asbestos sheets. We use the polythene sheets during the dry season because they don't survive the rainy season.

- walls? Compressed of burnt mud blocks. Where people afford, concrete blocks and bricks are used.
- floors? Compacted mud mostly but concrete floors are also used when people have money to spare. It just depends on how prepared one is. Most people start with a compacted mud floors which they raise above the surrounding floor level to avoid rain water flooding into them. With time they add a layer of cement/sand screed to make the floor smoother and more comfortable to sleep on.
- windows? We normally use *insolokoto* (small openings measuring about 100-150 x 300mm) for windows as we do not have to use frames. Sometimes we put mesh on the openings to keep insects and dust out. A few people manage to put steel framed windows with glass panes but that's not common. Insolokoto's are cheaper as we do not worry about lintols and window seals and they are safer since no one can come in through the window.
- doors? For doors most of us use timber frames. The openings themselves are not as wide as in other areas like Chimwemwe (a nearby low income township built by the KCC in 1968). Our doors are about 700 to 750mm wide and 2000mm high.

AM: Where do you get these materials from?

COMM: We make the blocks from red clay harvested from termite mounds only as it is easier to mould and work with. It also does not crack when the blocks are heated. We usually add a little oil to the clay and water mixture so as to make the blocks more water repellent. We then sell them at K700[3] for the burnt blocks and K400 for the compressed blocks. We buy the drums and sheets fro roofing from the Chisokone Market (the main market in the CBD) since they are cheaper than hardware stores. We also buy polythene sheets and other things like nails from the market.

For the people who can afford to use cement, we can get them the necessary sand for their building by harvesting it from the river bank. We used to get the sand from a quarry nearby but the council has now banned us from getting it from there because the land had now been sub-divided into plots for private small holdings. River sand is sold to people who are building using bricks or

[3] K600 is equivalent to R1

concrete blocks. Otherwise most people collect ordinary sand from within the settlement wash it themselves and use it for construction.

We also make the doors ourselves and sell them to people in Kamatipa. Some of us even sell our doors at the market in Chimwemwe. Lately people are buying their own materials and then ask us to make and fit the doors for them which is also fine because we don't have to go and look for the materials ourselves but we still make a bit of money from the labour we supply.

AM: How do you know that the materials you supply like drums and blocks do not pose any safety health risks to your clients?

COMM: We use the same materials for our houses and they are strong enough to last along time if you build correctly. The best thing to do is to use the burnt bricks and plaster them with cement if you can afford but mud plaster is also helpful although you have to re-plaster almost every year after the rains. It doesn't cost anything since the mud is free but it takes up a full day or two to do it. Red clay from termite mounds does not have anything growing in it so it strong and easy to work with. We test the first few blocks by leaving in the direct sun to see whether or not they crack. We also test them by dropping the semi-dry blocks from a standing height to see how they respond. You must know that even home-made hollow concrete block crack when dropped from the same height if the aggregates are mixed wrongly.

Another thing is that we usually use a bit of cement to the mud we use as mortar when building with burnt blocks because the houses crack a lot when we only use clay for mortar. Clay is usually used to build with compressed blocks only although some people use it when they use burnt blocks as well. The clay tends to wash away first when used with burnt blocks which causes some houses to fall if they are not plastered.

AM: What about the drums? Don't you worry about the chemicals that were in them when you use them? Some of them could be harmful.

COMM: We don't buy drums that smell bad or that have strong smells and use them for our roofs and the iron and asbestos sheets we use are the same as the ones used by people everywhere. It's just cheaper to buy it from Chisokone.

AM: Don't the blocks wash away during the rainy season?

COMM: They do if they are left unplastered. It takes about three or four rain storms to bring down an unplastered mud house. The ones that are plastered with clay last a few rainy seasons before they need to be re-plastered. Almost all the

houses plastered with cement need attention after building. Some of the houses built by the early settlers who retired from the mines are still standing today. However, there are instances when some people choose the wrong clay and try, make the blocks and build the houses themselves. These are the cases when houses collapse and wash away even after a short rain spell. They think they will save by not buying from us or asking us to build for them but then almost always come back to us. Some eventually get it right by watching us work.

AM: Doesn't it get uncomfortable inside the house during the hot season if they are covered by polythene or even iron sheets?

COMM: Of course if does but what can people do if they can't afford a ceiling or raise their roof higher and make bigger windows? That is why people spend most of the day outside working, sleeping or cooking under trees or a covered verandah if they can afford one. The houses cool down at night.

AM: Where did you learn to test the strength of your blocks like that? Did you attend any formal institution to learn how to do that without mechanical methods?

COMM: We've always done it like this. That's the way it's done in villages and other settlements here in town where mud houses are built. We can't tell you exactly why block that cracks under the sun are not strong but from experience we know that the houses that fall during the rainy season are those made from clay which cracks under the sun. If the blocks crack, we leave that hill and try the next one. People don't want to spend a lot of time on repairs because it's costly and time consuming.

AM: Why do they think people in this area choose to buy these materials from you?

COMM: It could be a number of reasons but it may be mostly because they are readily available and affordable. We understand what they need because we live with them and struggle in the same ways for money as they do. Others may buy from us because we are often asked to even build for them especially if they are old or women. We are also willing to negotiate both the price for materials and labour and how the can pay us. It's not always that we are paid using money. We sometimes agree to get things like charcoal, clothes or even food items like chickens from those who trade in such things when we make blocks for them.

AM: Who usually chooses the materials to use in house building between you and the client?

COMM: It depends on the type of materials and money the client has. Some times they buy blocks from somewhere else and ask us to build for them but mostly they ask for blocks and we give them because we know that eventually they will need us to help in maintenance, extensions or even rebuilding with other materials like bricks of concrete blocks.

AM: Do you think you offer them a wide choice of materials to choose from?

COMM: Not really. We give them what is commonly used in this area. Most people use mud block so that is what we make and sell to them. Some people make doors which are strong enough and cheaper than at Chisokone or other places so people come to us and ask us to make doors for them. We also make the doors and frames to fit the size of the opening. Other things like roofing sheets are not available in the settlement but people often go and buy themselves.

AM: Where else do people get their materials from?

COMM: Most people buy from us and the market. A few manage to get some from their work places

AM: What types of materials do they source from elsewhere?

COMM: Mostly roofing materials and concrete blocks and bricks for hose who ca afford

AM: How often do people go back to you to buy more materials for extensions alteration or repairs?

COMM: It depends on what type of extension or repairs he need. If it is repairs after the rainy season most people get the mud themselves and do the repairs themselves as this is usually just re-plaster work. The houses last up to ten years without experiencing any major repair works or structural faults. It's just like in villages where once in a while cosmetic repairs are needed to keep the structure sound. Extensions depend on the availability of money and need. Some people ask for extensions because their children are getting older and they need more privacy for the boys and girls while others do it because they want to sublet the rooms to make a little more money for the family.

AM: Do you think about any of City Council requirements regarding building materials they allow?

COMM: We only draw up plans and take them to the Council if we are doing other buildings like shops in the area and follow the regulations. Otherwise we don't do that for housing. Housing just depends on the requirement of the pole and we measure out the plot accordingly and build. Some people draw some plans or get them from somewhere or copy simple designs like the ones in Chimwemwe or Buchi (former council housing areas now privatised) but they never take them to the council for approval because the council demands a scrutiny fee before they can approve or reject your plan. It also takes a long time for the approvals to be done. However, the main reason people don't take their plans there is because they know that they council will not accept the materials they use.

Most of the time we copy from one another. For instance, if we see that our neighbour has built a very strong and good looking house at very low cost, we often ask them how they did it so we can also do the same.

AM: Let's shift our focus a bit to the actual building process. How do you construct and determine the sizes of:

- foundations: We don't dig very deep trenches. Usually a one block deep trench is enough we usually select the strongest looking block preferably burnt even if the owner is using compressed blocks for the rest of the house to make the base very strong. Sometimes people prefer a raise platform of compacted mud much like a raft foundation where we can now erect our walls for the house. The outer edges of the raft often protrude a little from the outer wall.
- slabs: Typical slabs involve adding another course of blocks to the foundation course and then adding a some stones to the base then top it with clay. A little water is then added to the clay before it is compacted to the level of the single block course above the ground.
- walls:
- roofs:

AM: Why do you construct these parts of the house the way you do? (if different from conventional methods)

COMM:

AM: Do you use any plans when building houses? If so, who designs or draws them?

COMM: We do sometimes if a client has one but like we said at the beginning, usually they will have an idea they saw from someone else either within Kamatipa or outside and may have sketched it out. Sometimes they just explain to us how they want us to build their houses and we do it.

AM: How do you determine the sizes of windows, doors and rooms when drawing up plans and/or during construction?

COMM: It depends on how prepared the client is financially but the biggest consideration is cost. The smaller the rooms and openings, the cheaper it is for them. So we are always mindful of things like how we are going to roof the house and how many sheets we are going to use or how high the walls are going to be because all these affect the cost.

AM: Do you think about what the City Council guidelines concerning how you should build, the sizes of rooms, doors and windows and the materials you should use?

COMM: Of course we do but we don't follow them because it makes the cost of building too expensive, so we ignored them and do what people can afford.

AM: How many new houses do you build in a month?

COMM: It depends on how skilled and quick a brick layer is and also how many rooms a client wants. For instance, we normally finish four roomed houses in about two weeks but for the smaller houses say two rooms only, we take about four to five days. As for how many we build on average per month, again it depends on how big the houses we area building are, although three seems to be a reasonable number per month. We could actually build more if we built more quickly but that is not a good practice because when you are building using earth, you want to avoid erecting the walls very quickly because they tend to bend under their own weight. So we let them set first before more courses are added. Remember also that the roof also has weight, so it too could damage the walls if we put it on too soon. Clients would probably not realise that their house in buckling and will only be too happy to move into a hastily built house but we know that if we don't allow the walls to dry out especially the ones built with compressed earth, the walls will sage under their own weight. This is made worse if you add the roof too soon as well.

AM: How do you know that the walls are sagging and bent? Is there any technique or special equipment that you use?

COMM: Nothing special. We use ordinary builder's spirit levels and strings to build in straight courses and check levels and corners.

AM: How much do you charge for your labour to build a typical mud house in Kamatipa?

COMM: Again it depends on how many rooms someone wants. We charge according to the number of rooms we are building. For instance, for a standard two roomed house, we charge about K50,000 so you could say we charge about K25,000 per room today. When it come to the rooms, people tell us how big they want their rooms to be and we measure them out on the ground using a measuring tape before we start building. It is common for people to ask us to start with a two roomed house with a 2.5 x 2.5m bedroom and a 2.5 x 3.5m sitting room which they also use as a sleeping room at night. People avoid making their rooms wider than 2.5 metres because the smallest and cheapest iron sheets are 3 metres long.

AM: How exactly do you build a typical two roomed house in Kamatipa? Can anyone take me through the whole process from foundation to the roof and plastering of the walls? Anyone can chip in if any detail is omitted.

COMM: We normally start by clearing the selected site of any grass or shrubs. We then dig shallow trenches about a block height in depth and lay one course deep foundations. The walls are built up 4 to 5 courses at a time and let to dry out before another 4 to 5 courses are added until we reach 13 to 14 courses on the rear and 16 courses in front so as to create a slope for the roof. While the walls are drying out, we them pour in the clay water mixture inside and compact it to form a hard flat finish which should be at least a block course above the surrounding ground to avoid run-off flowing in. If a client has a bit of cement, we add a 3inch layer of concrete but this is normally added later after the owner saves up for cement. When the walls dry out, we fix 3 pieces of timber, usually gum-poles, across the length of the house by tying them down to the wall in front the middle and the rear. We can then fix the roofing material to the timber. If a client managed to buy iron sheets, it is a lot easier because we don't have to worry about overlaps and how to prevent leakage. If a client is using flattened drums, then we have to put polythene on the overlap to help prevent leaks in the rainy season. Finally we plaster the walls with clay

or cement and then add a thick mud apron around the house to protect the walls from weakening at the bottom in case of heavy rains. If the blocks at the bottom become weak, the house is more likely to collapse with time.

AM: Is there anything about the current building regulations that you'd like to see changed and why?

COMM: Almost everything because as you know most of us are poor and can't afford to buy or build houses that comply with those regulations. We are poor but we also desire to live in a decent house just like everyone else. So any changes that can make it easier for us to achieve that are very welcome.

Appendix IX: Kitwe City Council interview schedule

KITWE CITY COUNCIL

This interview was conducted with Mr Daniel Zimba (DZ), the Kitwe City Council official overseeing all informal settlements north of the city by Alexander Mwango (AM) (author) on 2nd september 2005 in the Kitwe City Council Squatter Control Unit offices and has been transcribed with the interviewees permission.

AM: How did Kamatipa settlement start?

DZ: I'm not really sure how but I supposed it a few people who started it back in the 70s if not 60s. Most of these areas initially started as small settlements outside the city boundaries which is the reason why they were ignored until the city boundaries were expanded. It would be good if you talked to Mr Shinondo. I believe he is one of the original settlers in Kamatipa. He is the father of Mr Shinondo the RDC Committee member who you've already met. I'm sure he can arrange a meeting for you so that you get a more detailed answer to your question

AM: That is very welcome, thank you very much. Would you, however, know how long Kamatipa has been in existence?

DZ: Again, I think Mr Shinondo would give a better answer but my guess is since the late 60s. The household head count we did with CARE Zambia would suggest that because some people claim to have been there since 1967-68 which would mean Kamatipa has been there for almost 40 years

AM: Has Kamatipa been declared a Statutory Improvement area according to the Housing Act of 1974?

DZ: Yes it has though very little has changed on the ground since then. It was done in the same year the Act was enacted or early 1975 together with nine other settlements like Racecource and Ipusukilo in the north, and Luangwa and Mulenga in the south.

AM: Have there been any official upgrading programmes implemented in the area?

DZ: Yes there have but not with government funding. Its mostly NGOs like CARE and OXFAM and the World Bank which have been doing a lot of pilot programmes in these area though most projects take place in Lusaka. They have mostly done programmes like grading of roads, provision of water kiosks and building community schools.

AM: What upgrading projects have been done in Kamatipa especially regarding housing?

DZ: Nothing directly to do with the actually houses the people live in but CARE has been deeply involved in Sanitation Projects especially on how to build better pit latrines using concrete bases which the taught the RDC to make. They supply the RDC with Cement and stones which they use to make the bases and sell them to people. They actually do the installation themselves and allow people to pay in three instalments. Recently some local farmers have started to help the people construct better wells which are properly cover and located far away from the pit latrines. The community is now beginning to understand the importance of not making their wells as deep as their pit latrines and not locating them on the lower side of their plots.

AM: What role did the community play in the selection of projects and their implementation?

DZ: World Bank Projects are usually decided and planned by the Council and implemented at community level with the aid of the RDC and the community at large. These are usually as a result of some larger funding coming from the World Bank which was already agreed with the Government. NGOs like CARE and OXFAM also have their own agendas but they usually involve the RDC in deciding a lot of things on how to implement some programmes.

AM: What sort of things?

DZ: Well, for instance, the issue of how much people could pay for the bases for their latrines and how they should pay was decided by the RDC. What was important was that they RDC makes a bit of money from the sale of the bases but on terms people could afford. At least the people from CARE knew that RDC members were better placed to make such decisions.

AM: When it comes to improving housing, who was responsible for funding, coordination, monitoring and implementation?

DZ: As a Council, we make the recommendation to the Housing Minister for an area to be upgraded if it meets the requirements. If the Minister approves, they are supposed to provide the necessary funds for us to start upgrading the area but this rarely happens, That were the NGOs and donor agencies come in. The various departments concerned at council level like town planning, public health and community services are now supposed work out detailed plans so that the projects could take off. The community is often used in implementing the various projects that arise.

AM: How successful have been the project done in Kamatipa so far?

DZ: Well, they have been very good especially that they seem to have a very good RDC in place. It's the only one the council has allowed to continue working at the moment. The others are undergoing elections as we speak. The sanitation projects started by CARE are really taking root and the community school being constructed by OXFAM Is almost finished. The roads were also recent regarded and widened a little.

AM: Who is responsible for land subdivision and allocation in Kamatipa?

DZ: We've allowed the RDC to do that for us but they register everyone getting new land in the area. We've shown them that the plots are supposed to be about 12 x 27 metres just like any other low income area so that it can be easier to put in services in future. We update our records at the council as soon as we have approved the demarcation because the RDC always comes to us to inform us of every thing.

AM: What form of title is there in land transfers?

DZ: At the moment, the only title available in areas like Kamatipa are the 30 year occupation licences which they are free to pass on to anybody who buys their plots so long as they inform the RDC who then inform us so that we can update our records. New settlers are also registered with us. The idea is that the Ministry of Local Government and Housing is supposed to issue Ocupation Licences to these people after we've passed on the names but they don't. I suppose registering with the council is security enough for the people.

AM: Who regulates the erection of buildings in the settlement?

DZ: The council is supposed to but we are under staffed. So it's a bit chaotic at the moment especially that a lot more people are now going there.

AM: Why do you suppose that is so?

I suspect it's because we sold all the council houses and there seems to be not enough cheap housing being built in formal areas at the moment. Also the council tries to control building activities in formal area than it does in informal areas.

AM: Are there any rules or regulations controlling the growth of the settlement including land allocations and erection of building?

DZ: Typically we are supposed to do the allocation and in a way you can say that we do except that we do it through the RDCs who are more in the ground that us. The usual standards applicable to low income areas are supposed to apply to upgraded areas which we call Improvement Areas.

AM: How are they enforced?

DZ: The usual town planning process of approving new subdivisions, new plans and inspecting the building process itself.

AM: Have there been any attempts to relax or revise current building regulations? If so, which ones and why?

DZ: No that I know of although we allowed the Trans Africa Theological College to build some of their structures using interlocking clay blocks. Other than that I can't think of any other instance

AM: Have there been any attempts to encourage the use of local building materials?

DZ: There has been talk about that since the new housing policy came about but we haven't as a council deliberately gone out and encouraged people to use any other materials apart from the approved ones.

AM: Have they been any attempts to formalise/control land allocation and building construction in the area?

DZ: Not yet. We are still under staffed so we still rely on the RDCs to work closely with the designated official from this office (Squatter Control Unit) which falls under the Department of Community and Social Services.

AM: Have there been any development or settlement improvement projects that the community or local institutions like local Churches initiated in the area before?

DZ: The RDC worked with the people trading at the market and agree the Council help them with water supply for the toilets and other uses at the market last year.

AM: How successful have they been?

DZ: It was a great success except that thieves dug up and stole the water pipes so the market has no water supply at the moment. It really helped the cement the relationship between us the RDC and the community but unfortunately we couldn't secure the pipes. We are hoping to revive it soon after we sort out the security problem. The RDc has tried to set up a neighbourhood watch group but it comprises only of older people who can only do day patrols. The basically act as human alarms because at night the boys who steal can just beat them up and no one will come out at night to protect them so they go to sleep as well

AM: Where there any external partners like NGO's or donor agencies involved in implement the project?

DZ: Not in this one. Like I said, most NGOs come with their own agendas to fulfil. They at least involve the RDC in most of their ground planning and implementation.

AM: Who were the main roles players and what were their responsibilities?

DZ: The RDC was quite instrumental throughout. Of course we played our part too but they mobilised all the labour and some of the materials like stones for the project.

AM: What standards do you think can be employed in informal settlements that will help the poor acquire decent affordable housing?

DZ: I think the idea of revising our current standards as contained in the housing policy is good because poor people really can't manage to build at that level. We should try and see what happens in villages but modify it a bit to suit city lifestyles. I think that what people in informal settlements try to do except the have no guidance.

AM: What procedure do you think should be followed in revising currents building standards so that they accord with people's needs and aspirations?

DZ: It would be a very long process involving the poor themselves and other stakeholders like us in consultative workshops. These should ideally discuss matter arising from in-dept research and analysis of the current standards and what the poor say about them especially affordability. It would be good to really look at alternative building materials like clay- based blocks and roof tiles like some of the research done by the Copperbelt University.

AM: Thank so much for you time Mr Zimba. I need to follow up on Mr Shinondo for some background information.

DZ: You do that and let me know how it goes. I need to learn more myself. I have always wanted to see the old man myself but I haven't been able to make time. Good luck.

Appendix X: National Housing Authority/Ministry of Local Government and Housing interview schedule

NATIONAL HOUSING AUTHORITY/MINISTRY OF LOCAL GOVERNMENT AND HOUSING

Officials interviewed from these two institutions agreed to be interviewed on condition that the interviews were recorded and transcribed and their names or offices kept confidential. Nevertheless, they provided valuable input in terms of the answers they gave as well as the various documents they provided.

1. Who is responsible for declaring informal areas Statutory Improvement Areas according to the Housing Act of 1974?
2. Who is responsible for enforcing any rules or regulations controlling the growth of the settlement including land allocations and erection of building?
3. How are they supposed to be enforced?
4. What planning and building standards are enforced in such areas?
5. Have there been any attempts to relax or revise current building regulations? If so, which ones and why?
6. What rationale does the NHA use to formulate housing standards for very low cost housing?
7. Did any local practices, socio-cultural factors and peoples lifestyles, needs, capabilities and aspirations and indigenous techniques influence the formulation of current building regulations?
8. What attempts have been made to encourage the use of local building materials?
9. What attempts have been made to encourage the use of local building practices?
10. What attempts have been made to formalise land allocation and building construction in informal settlements?
11. Have there been any programmes or research projects initiated to try and make housing construction more affordable for the poor?
12. Have there been any programmes or research projects initiated to try and encourage the use of indigenous building materials and construction methods?
13. Have there been any programmes implemented to evaluate the performance of the current National Housing Policy?
14. What have been the main constraints to achieving the goal of providing adequate and affordable housing to all income groups as envisaged in the current National Housing Policy?

15. What is the NHA's official policy regarding informal settlements?
16. What are the main challenges to improving human settlement conditions in Zambia's informal settlements?
17. To what extent have current standards helped or impeded the improvement of informal settlements?
18. What standards do you think can be employed in informal settlements that will help the poor acquire decent affordable housing?
19. What procedure do you think should be followed in revising currents building standards so that they accord with people's needs and aspirations?

Appendix XI: Kitwe City Council Planning Permissions Application form

KITWE CITY COUNCIL
PUBLIC HEALTH (BUILDING) REGULATION
APPLICATION TO ERECT A BUILDING

FOR OFFICIAL USE ONLY

PLANS SUBMITTED:.....
REGISTERED PLAN NO:.....
DATE OF REGISTRATION:.....

TO: THE LOCAL AUTHORITY
KITWE

I beg to submit herewith plans, sections and elevations for a .....(state if new building alteration, addition or sanitary reconstruction) to be used as .....(state whether a domestic or for what purpose this building will be used) to be executed by me on plot no .....such plot having frontage to .....

I also submit the following proposed means of construction and other particulars:

External walls to be built of .....
Internal walls to be built of .....
Mortar in walls to be composed of .....
Damp proof course to be of .....
Foundation to be .....
Mortar in foundation to be composed of .....
Roof to be constructed of .....
Water supply from .....
Drainage to sewer line/permeable case pit/impermeable case pit/septic tank (erase words which do not apply).
In case of septic tank, state how the affluent will be disposed off .....
.....
Materials of drain pipes .....
Water closet accommodation (state type) .....
Indoor ..... Outdoor .....
Name of architect or draughtsman: .....
Address of above: .....
Name of builder (if known): .....
Signature of owner or agent: .....
Address of above: .....
Telephone: .....

NOTE: Extra particulars required by the Local Authority are to be furnished in regard to public buildings, high buildings, fireproof structures and buildings in which machinery is used.

...../2

1. Estimated cost of the building(s): .....

2. State area to be covered by building (s) in square metres: .....

3. In multi-storey buildings state also:
   a. Area of each floor: .....
   b. Total floor area: .....
   c. State area to be covered by out buildings in square metres: .....

4. State materials to be used in all floors.
   a. Main buildings: .....
   b. Out buildings: .....

5. Height of underside of floor above highest ground level adjacent to foundations: .....
   .....

6. What is the roof to be constructed of? .....

7. What form of ant guard to be used? .....

8. Name of supervisor of the buildings: .....
   Telephone No.: .....

9. Name of supervisor of the buildings (Government notice No. 110 of 1934): .....
   .....

10. Name and address of owner: .....
    .....
    Telephone No.: .....

In submitting these plans, I hereby undertake, in terms of the Public Health (Building) Regulations, that if approved by the Council, the building operations, will be supervised by .....so, as to ensure that the building(s) when erected comply with the approved plans.

.....
SIGNATURE OF OWNER OR AGENT
DATE:

I, ...do hereby state that if approved by the Council, as supervisor of the building(s) indicated on the attached drawings, I will personally supervise such work to ensure that the building(s) when completed, will comply with the approved plans.

.....
SIGNATURE
DATE:

Appendix XII: Sample sketches and photographs of surveyed households

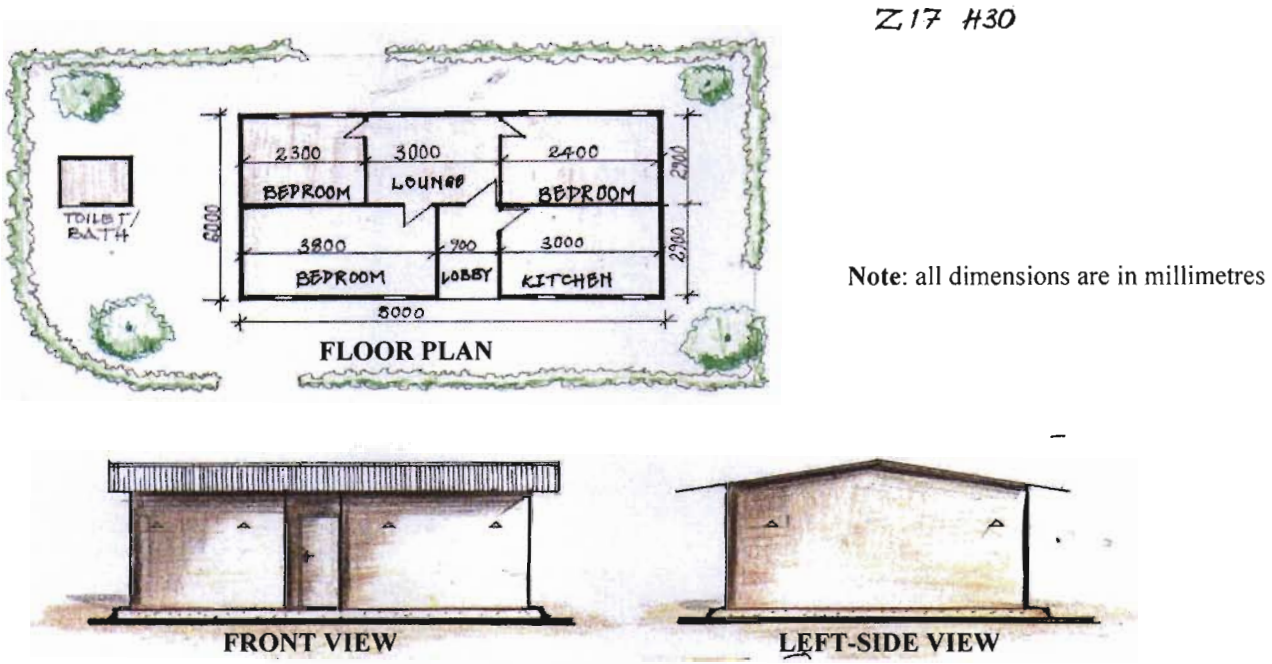


Figure 9.1: Sketch plan, front and left-side views of House No. Z17-30, Kamatipa, Kitwe (source: author 2005)

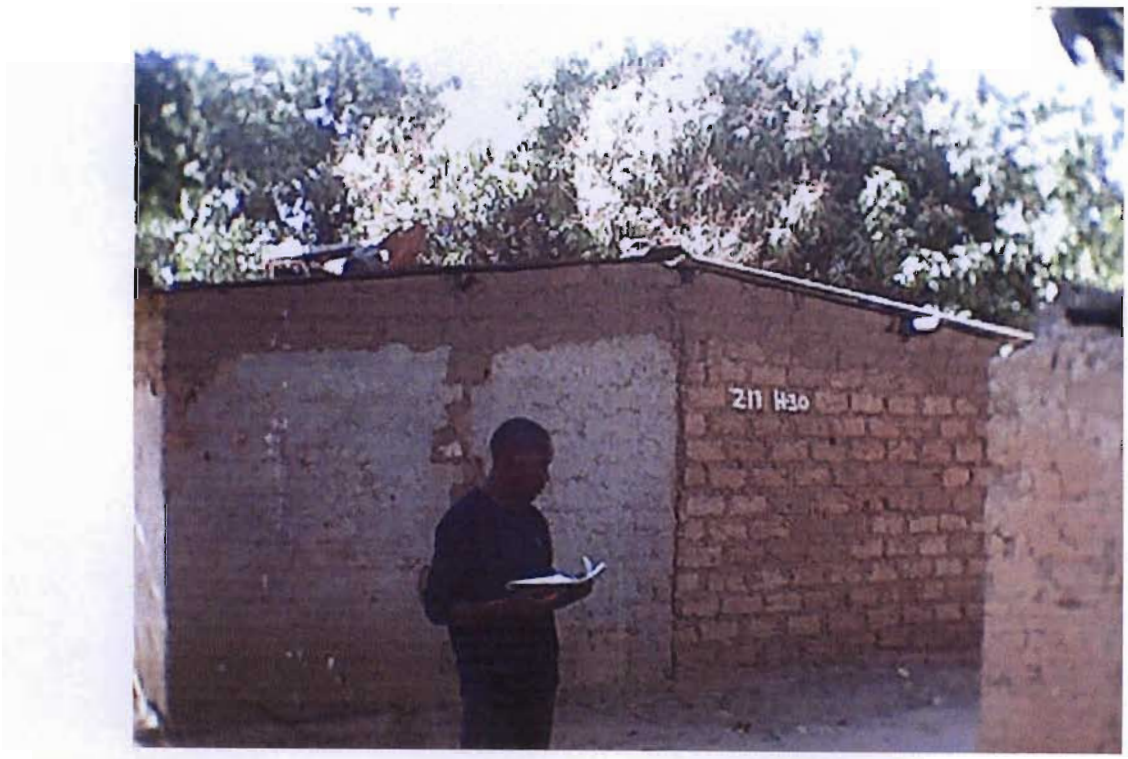


Plate 9.1: Photograph showing left side view of House No. Z17-30, Kamatipa, Kitwe (source: author 2005).

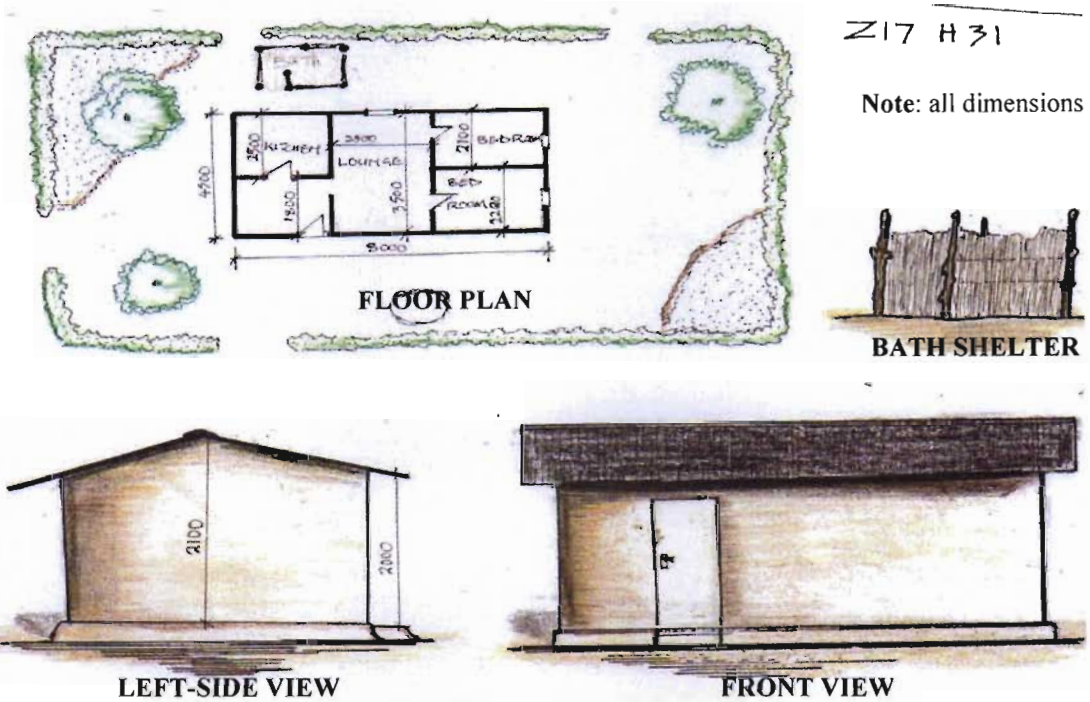
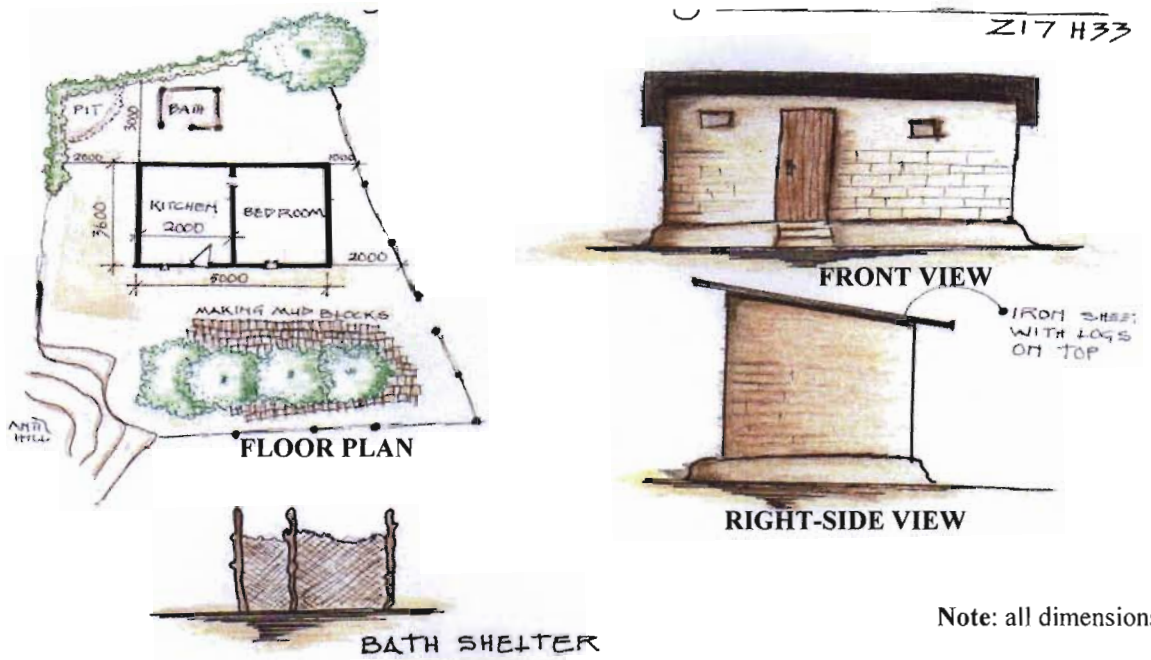


Figure 9.2: Sketch plan, left side, front views and bath shelter of House No. Z17-31, Kamatipa, Kitwe (source: author 2005).

Plate 9.2: Photograph of House No. Z17-31, Kamatipa, Kitwe (source: author 2005).



Note: all dimensions are in millim

Figure 9.3: Sketch plan, Front and right-side views and bath shelter of House No. Z17-33, Kamatipa, Kitwe (source: author 2005).

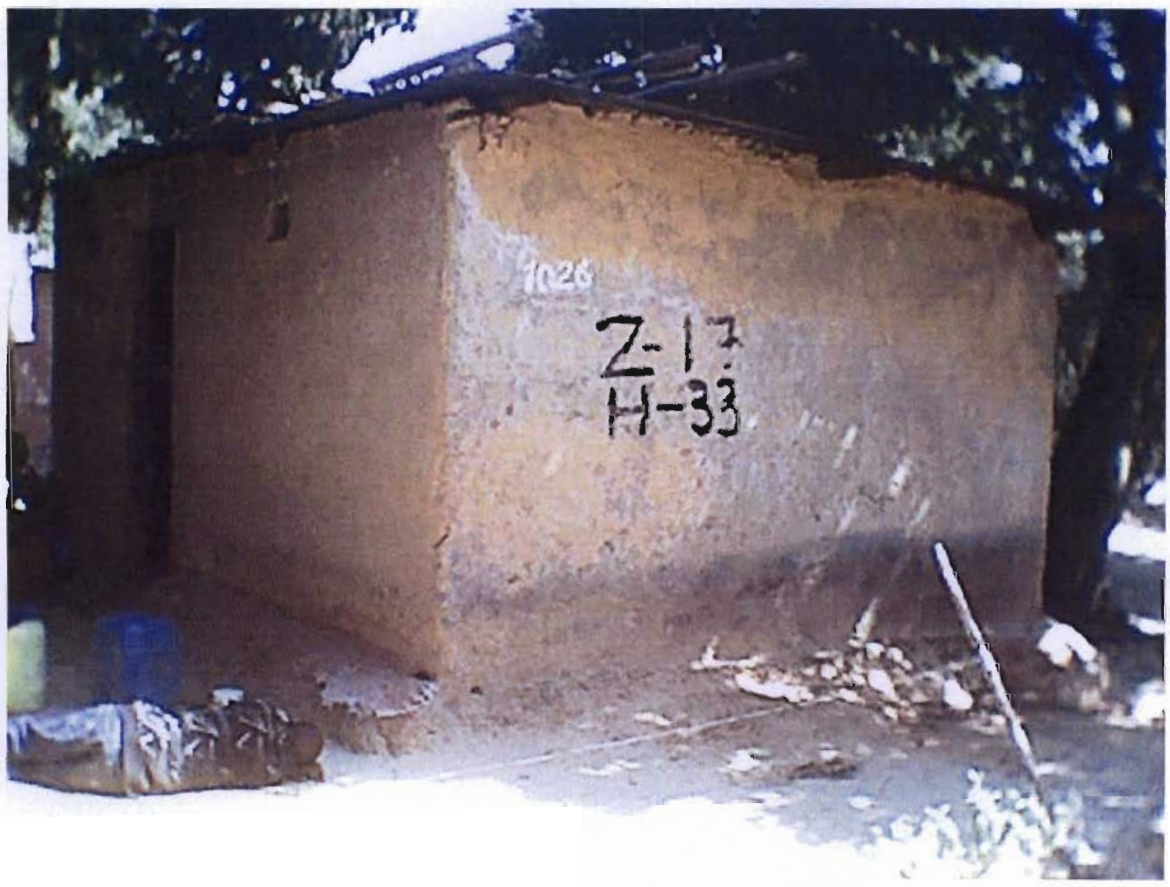
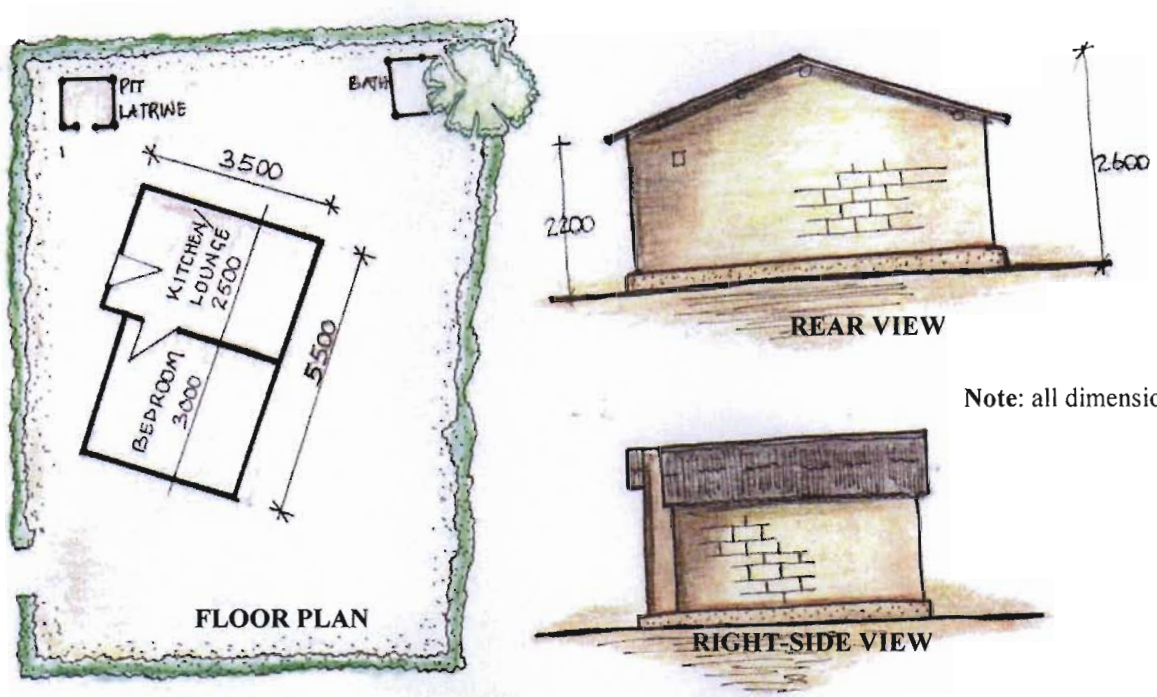


Plate 9.3: Photograph of House No. Z17-33, Kamatipa, Kitwe (source: author 2005).

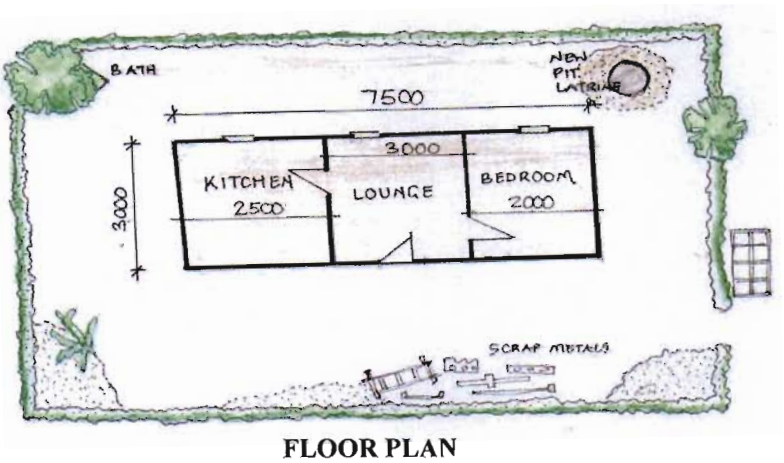


Note: all dimensions are in mill

Figure 9.4: Sketch plans rear and right-side views of House No. Z17-53, Kamatipa, Kitwe (source: author 2005).

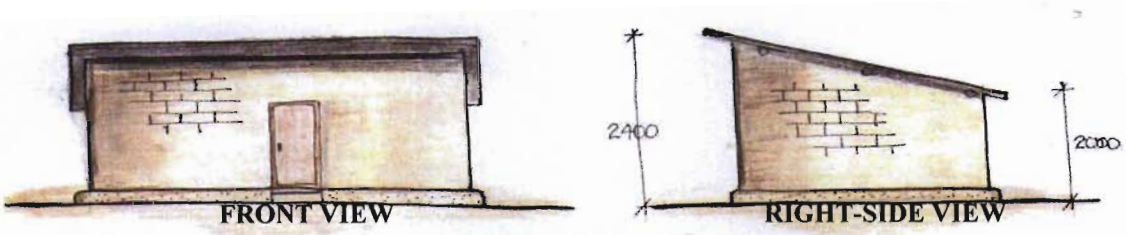
Plate 9.4: Photograph of House No. Z17-53 Kamatipa, Kitwe (source: author 2005).

Z17 H42.



FLOOR PLAN

Note: all dimensions are in millimetre



FRONT VIEW RIGHT-SIDE VIEW

Figure 9.5: Sketch plan, front and right-side views of House No. Z17-42 Kamatipa, Kitwe (source: author 2005).

Plate 9.5: Photograph of House No. Z17-42 Kamatipa, Kitwe (source: author 2005).

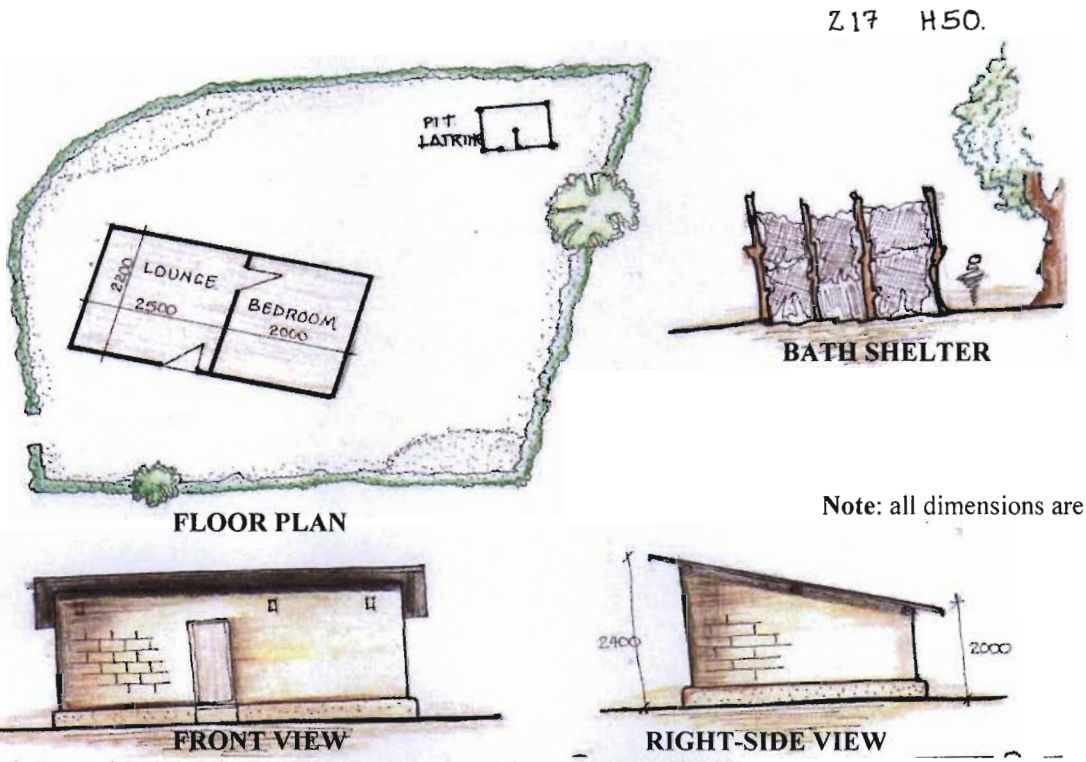


Figure 9.6: Sketch plans, front and right-side views and bath shelter of House No. Z17-50 Kamatipa, Kitwe (source: author 2005)

Plate 9.6: Photograph of House No. Z17-50 Kamatipa, Kitwe (source: author 2005).

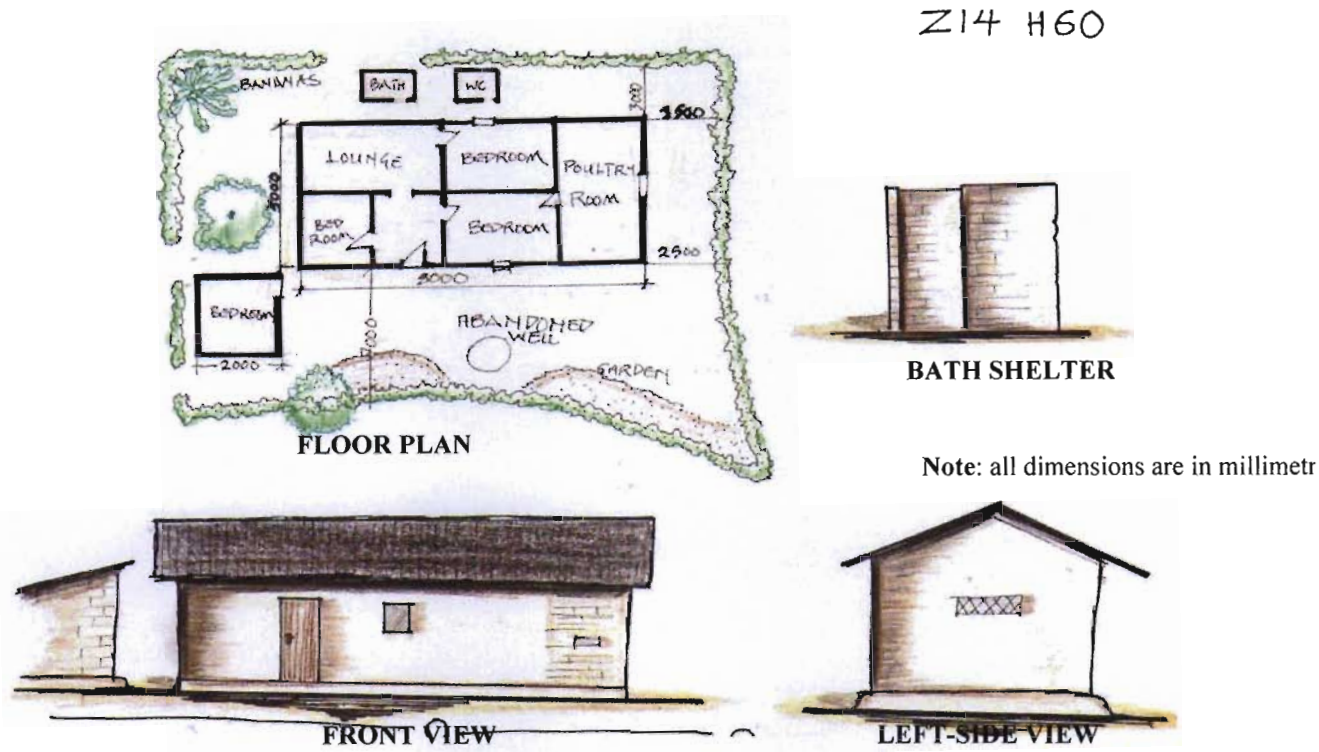


Figure 9.7: Sketch plans, front and left-side views of House No. Z14-60 Kamatipa, Kitwe (source: author 2005).

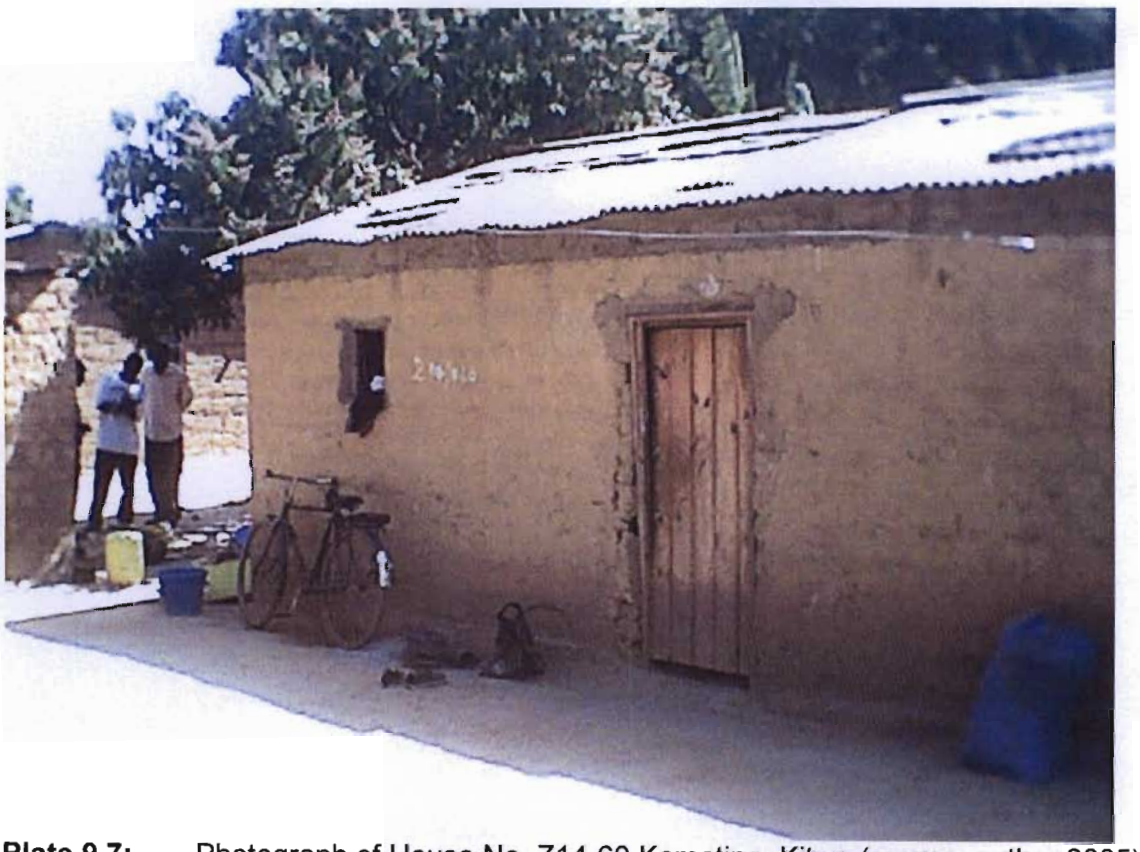
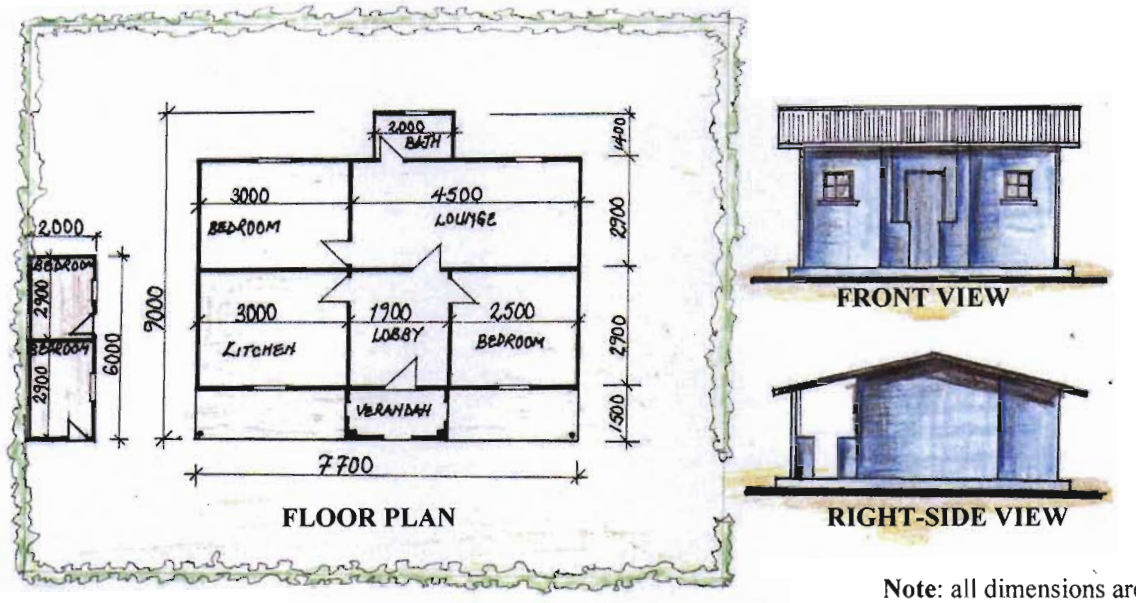


Plate 9.7: Photograph of House No. Z14-60 Kamatipa, Kitwe (source: author 2005).

Z17 H56



Note: all dimensions are in millimetr

Figure 9.8: Sketch plans, front and right-side views of House No. Z17-56 Kamatipa, Kitwe (source: author 2005).

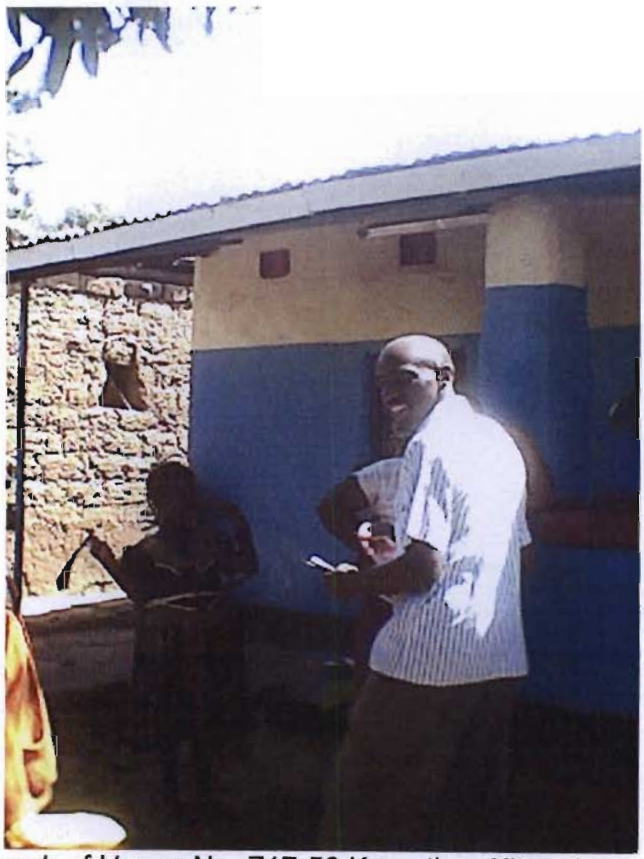


Plate 9.8: Photograph of House No. Z17-56 Kamatipa, Kitwe (source: Author 2005).

Appendix XII

KAMATIPA HOUSEHOLD SURVEY CODING SHEET							
	SECTION A: Demographic and background information						
	QUESTIONS	1	2	3	4	5	6
	Owner	DURATION OF	ETHNIC	WHY	No. OF	WORK	TENURE
HOUSEHOLDS	gender	STAY (YEARS)	BACKGROUND	KAMATIPA	OCCUPANTS	DONE	TYPE
1	Male	8	Northern Prov	Followed relatives	3	Vending	Tenant
2	Male	5	Luapula Prov	Found & bought cheap land	6	Marketeer	Owner
3	Male	6	Northern Prov	Born there	4	Charcoal trader	Tenant
4	Male	27	Luapula Prov	No other place to settle	3	Marketeer	Owner
5	Male	10	Luapula Prov	Cheaper	3	Security guard	Owner
6	Male	30	Eastern Prov	Needed bigger house	4	Unemployed	Owner
7	Male	6	Northern Prov	High rentals in formal areas	5	Driver	Owner
8	Female	11	Northern Prov	No other place to settle	5	Trading	Owner
9	Male	4	Luapula Prov	Followed relatives	5	Farm worker	Tenant
10	Male	40	Luapula Prov	No other place to settle	7	Farm worker	Owner
11	Male	11	Copperbelt Prov	Cheap housing	5	Mechanical worker	Owner
12	Female	2	North-western Prov	Followed relatives	1	Marketeer/trader	Owner
13	Male	26	Luapula Prov	Cheap housing	9	Farming/landlord	Owner
14	Male	10	Luapula Prov	Followed relatives	6	Casual labour	Owner
15	Male	28	Eastern Prov	Needed bigger house	4	Conductor/cameraman	Owner
16	Female	18	Luapula Prov	Cheap housing & lifestyle	6	Marketeer/trader	Owner
17	Male	26	Northern Prov	Followed relatives	5	Clothes vendor	Tenant
18	Female	2	Luapula Prov	Born there	7	Marketeer/trader	Tenant
19	Female	11	North-western Prov	Born there	6	Farming/trader	Owner
20	Male	26	North-western Prov	Business	7	Driver	Owner
21	Male	6	Northern Prov	Cheap housing	3	Grinding mill attendant	Owner
22	Male	25	Northern Prov	Greener pastures	11	Security guard	Owner
23	Male	25	Northern Prov	Pressure in formal areas	4	Casual labour	Owner
24	Male	3	Northern Prov	Followed relatives	6	Casual labour/traditional beer	Owner
25	Male	1	Eastern Prov	Followed relatives	3	Traditional beer	Owner
26	Male	23	Northern Prov	Easy to find housing	9	Small-scale farmer	Owner
27	Male	19	Luapula Prov	Cheap housing	8	Small-scale farmer/landlord	Owner
28	Male	23	Eastern Prov	Greener pastures	10	Landlord	Owner
29	Male	33	Western Prov	Employment	8	Carpentry	Owner
30	Male	3	Copperbelt Prov	Livelihood	2	Marketeer	Owner
31	Male	33	North-western Prov	Affordable housing	5	Boiler attendant	Tenant
32	Male	18	Luapula Prov	Affordable housing	8	Landlord/trading	Owner
33	Male	24	North-western Prov	Born there	8	Brick layer	Owner
34	Male	26	Northern Prov	Affordable housing	8	Unemployed/Landlord	Owner
35	Male	15	Northern Prov	Employment	4	Charcoal trader	Owner
36	Male	15	Northern Prov	Easy to find housing	7	Small-scale farmer/ trad. beer	Owner
37	Female	4	Southern Prov	Broken home	7	Unknown	Tenant
38	Male	18	Northern Prov	Affordable housing	8	Trading	Owner
39	Male	33	Northern Prov	Employment	8	Trading/traditional beer	Owner
40	Male	6	Northern Prov	Employment	9	Trading/subletting	Tenant
41	Male	25	North-western Prov	Born there	8	Brick layer	Owner
42	Male	34	Northern Prov	Personal choice	5	Traditional beer	Owner
43	Male	17	North-western Prov	Employment	5	Boiler attendant	Tenant
44	Male	37	Northern Prov	Affordable housing	4	Small-scale farming/charcoal trading	Owner
45	Male	21	Luapula Prov	Available housing	8	General trading	Owner
46	Male	14	Luapula Prov	Affordable housing	5	Pot maker/trader	Owner
47	Male	13	Eastern Prov	Employment	6	Piece work	Owner
48	Male	2	Luapula Prov	Affordable housing	2	Traders	Tenant
49	Male	1	Northern Prov	Affordable housing	3	Camera man/battery charging	Owner
50	Male	18	Eastern Prov	Personal choice	5	General trading	Owner
51	Male	5	DRC	Personal choice	2	Carpentry	Owner

Appendix XII

			SECTION B: Ownership through buyers		
7	8	9	10	11	12
RENT/ MONTH	LANDLORD RESIDENCE	SELF BUILT OR BOUGHT	PURCHASE PRICE	SOURCE OF FUNDS	REASONS FOR BUYING
60,000.00	Lusaka, Lusaka Prov	n/a	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
25,000.00	Kitwe, Copperbelt Prov	n/a	n/a	n/a	n/a
n/a	n/a	Bought	Inherited	n/a	Cheaper & quicker
n/a	n/a	Bought/built	250,000.00	Personal savings	Cheaper
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
15,000.00	Kitwe	n/a	n/a	n/a	n/a
n/a	n/a	Bought	1.50	Personal savings	Cheaper
n/a	n/a	Bought	500,000.00	Personal savings	Time & cost considerations
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Bought	1,500,000.00	Personal savings	Time & cost considerations
n/a	n/a	Bought	300,000.00	Personal savings & borrowed from bro	Cheaper
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
40,000.00	Kapiri Mposhi, Central Prov	n/a	n/a	n/a	n/a
20,000.00	Within settlement	n/a	n/a	n/a	n/a
n/a	n/a	Bought	150,000.00	Personal savings	Time & cost considerations
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Bought	500,000.00	Personal savings	Easier
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Bought	250.00	Personal savings	Give away price
n/a	n/a	Bought	600,000.00	Personal savings	Cheaper
20,000.00	Within settlement	n/a	n/a	n/a	n/a
n/a	n/a	Bought	20,000.00	Personal savings	Easier
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Bought	2.00	Terminal benefits	Easier
n/a	n/a	Bought	800,000.00	Company loan	Cheaper
n/a	n/a	Self built	n/a	n/a	n/a
20,000.00	Within settlement	n/a	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Bought/built	1.00	Personal savings	Cheaper
10,000.00	Within settlement	n/a	n/a	n/a	n/a
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Bought	20.00	Personal savings	No plots available
20,000.00	Within settlement	n/a	n/a	n/a	n/a
n/a	n/a	Bought	100.00	Terminal benefits	Urgency
n/a	n/a	Self built	n/a	n/a	n/a
n/a	n/a	Bought	600,000.00	Personal savings	Cheaper
n/a	n/a	Bought	550,000.00	Personal savings	Time
12,000.00	Within settlement	n/a	n/a	n/a	n/a
n/a	n/a	Bought	200,000.00	Personal savings	Cheaper
n/a	n/a	Bought	200.00	Personal savings	Cheaper
n/a	n/a	Bought	250,000.00	Sold first house	Cheaper

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		SECTION C: Ownership through building (self-build or hired labour)					
13	14	15	16	17	18	19	2(
PROCEDURE FOLLOWED	LEGAL TITLE HELD	SECURITY HELD	LAND ACQ. PROC	TITLE HELD	LAND COST	LAND SELLER	LAN RAT
n/a	None	None	n/a	None	n/a	n/a	nc
n/a	None	None	Direct negotiation	Sales aggrmnt doc	160,000.00	Individual	nc
n/a	None	None	Illegal occupation	None	n/a	n/a	nc
Direct negotiation with owner	None	Sales agreement doc	Illegal occupation	None	n/a	n/a	nc
Direct negotiation with owner	None	Change of ownership doc	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Direct negotiation	None	40,000.00	Individual	nc
n/a	None	None	From KCC thru RDC	Occupation licence	30,000.00	KCC	nc
n/a	None	None	Illegal occupation	None	n/a	n/a	nc
Direct negotiation with owner	None	Change of ownership doc	Illegal occupation	None	n/a	n/a	nc
Sales agreement through RDC	Occup lic	Change of ownership doc	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Bought from individual	Occupation licence	150,000.00	Individual	nc
Direct negotiation with owner	Occup lic	Registered with RDC	Illegal occupation	None	n/a	n/a	nc
Direct negotiation with owner	None	Registered with RDC	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Bought from individual	Registered with RDC	250.00	Individual	nc
n/a	None	None	Bought from individual	Occupation licence	50,000.00	Individual	nc
n/a	None	None	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Illegal occupation	None	n/a	n/a	nc
Direct negotiation with owner	Occup lic	Registered with RDC	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Council thru party Chair	Occupation licence	10.00	KCC	nc
n/a	None	None	KCC thru RDC	None	100,000.00	KCC	nc
n/a	None	None	KCC thru Chairman	None	2.00	KCC	nc
n/a	None	None	KCC thru Chairman	Occupation licence	2.00	KCC	nc
Sales agreement through RDC	Occup lic	None	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Individual thru RDC	Waiting for occup lic	80,000.00	Individual	nc
n/a	None	None	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Illegal occupation	None	n/a	n/a	nc
n/a	None	None	Illegal occupation	None	n/a	n/a	nc
Direct negotiation with owner	None	Registered with RDC	Illegal occupation	None	n/a	n/a	nc
Direct negotiation with owner	Occup lic	Registered with RDC	Illegal occupation	None	n/a	n/a	no
n/a	None	None	Illegal occupation	None	n/a	n/a	no
Direct negotiation with owner	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
n/a	None	None	Bought from individual	Registered with RDC	380,000.00	Individual	no
Direct negotiation with owner	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
Sales agreement through RDC	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
n/a	None	None	KCC thru Chairman	Registered with RDC	30,000.00	KCC	no
n/a	None	None	Illegal occupation	None	n/a	n/a	no
n/a	None	None	KCC thru Chairman	Occupation licence	30,000.00	KCC	no
Direct negotiation with owner	None	Registered with RDC	Bought from individual	Registered with RDC		Individual	no
n/a	None	None	Illegal occupation	None	n/a	n/a	no
n/a	None	None	Bought from individual	Registered with RDC	380,000.00	Individual	no
Direct negotiation with owner	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
n/a	None	None	Illegal occupation	None	n/a	n/a	no
Direct negotiation with owner	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
n/a	None	None	Bought from individual	Registered with RDC	100.00	Individual	no
Direct negotiation with owner	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
Direct negotiation with owner	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
n/a	None	None	Illegal occupation	None	n/a	n/a	no
*Sales agreement through RDC	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
ales agreement through Councillo	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no
Sales agreement thru RDC	None	Registered with RDC	Illegal occupation	None	n/a	n/a	no

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			SECTION D: Self-built houses					
21	22a	22b	23	24	25			
SOURCE OF BLDG MATE	SELF BUILT	HIRE LABOUR	CONST COST	SOURCE OF FUNDS	SOURCE OF PLANS	FOUNDATION	SLAB	FLOOR FINISH
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix
City/settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay
City/settlement	n/a	n/a	n/a	n/a	None	Burnt clay blocks	Compacted clay	Clay
City/settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay cement mix
Former eployer/settlement	Yes	No	7.00	Personal savings	Own plans	Burnt clay blocks	Compacted clay	Clay cement mix
Settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay
City/settlement	No	Yes	n/a	Personal savings	Own plans	Clay bricks	Concrete	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay cement mix
Local vendors/builders	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay
Within the settlement	Yes	No	300,000.00	Personal savings & family	None	Burnt clay blocks	Compacted clay	Clay
Within the settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel	Clay
n/a	n/a	n/a	n/a	n/a	n/a	Clay bricks	Concrete	Sand Cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix
Within the settlement	Yes	No	300.00	Personal savings	None	Burnt clay blocks	Compacted clay	Clay cement mix
Within the settlement	Yes	No	700,000.00	Personal savings	None	Burnt clay blocks	Compacted clay	Clay
Within the settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay
Within the settlement	Yes	No	30.00	Personal savings	Own plans	Burnt clay blocks	Concrete	Sand Cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix
City/settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel	Clay cement mix
City/settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix
City/settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix
Within the settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Concrete	Sand Cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Sand Cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay cement mix
City/settlement	Yes	No	8,000,000.00	Personal savings	None	Burnt clay blocks	Gravel and clay	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Sand Cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Sand Cement mix
Within the settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Sand Cement mix
Builder/contractor	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Sand Cement mix
City/settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Sand Cement mix
City/settlement	No	Yes	n/a	n/a	n/a	Burnt clay blocks	Gravel	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel	Sand Cement screed
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Sand Cement screed
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	No Screed
lf made mud blocks/city	Yes	No	Cannot remember	Personal savings	Gradual const	Burnt clay blocks	Gravel	PVC tiles on S/C screed
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Compacted clay	Clay
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel	Clay cement mix
n/a	n/a	n/a	n/a	n/a	n/a	Burnt clay blocks	Gravel and clay	Clay cement mix

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26			27	28		
BUILDING MATERIALS			REASON FOR	CONSTRUCTION METHOD		
WALLS	ROOF	RENDERING	MATERIAL CHOICE	FOUNDATION	SLAB	WALL
Sun-dried clay blocks	GI and AC	Clay internally & externaly	Cost & time	n/a	n/a	n/a
Sun-dried clay blocks	GI and AC	Clay internally & externaly	Cost & time	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Clay internally & externaly	Cost & time	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Clay & limewash int & ext	Cheaper	Trial & error	Trial & error	Trial & error
Burnt clay blocks	GI and AC	Clay internally & externaly	Cost & time	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI and AC	Clay internally & externaly	Availability & cost	Informal methods	Informal methods	Informal methods
Sun-dried clay blocks	AC	Clay internally & externaly	Availability	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI and AC	Clay internally & externaly	Availability & cost	Informal methods	Informal methods	Informal methods
Sun-dried clay blocks	AC	Clay internally & externaly	Availability	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Clay internally & externaly	Availability & cost	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Clay internally & externaly	Availability & cost	n/a	n/a	n/a
Sun-dried clay blocks	AC	Clay internally & externaly	Cost & time	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI and AC	Clay internally & externaly	Cost & time	n/a	n/a	n/a
Burnt clay blocks	Flattened drums	Clay internally & externaly	Cost & time	n/a	n/a	n/a
Burnt clay blocks	GI	Clay internally & externaly	No cost	Informal methods	Informal methods	Informal methods
Sun-dried clay blocks	GI & flat drums	Clay internally & externaly	Availability & cost	Informal methods	Informal methods	Informal methods
Conc. Blocks	GI	C/S plaster	Availability & cost	n/a	n/a	n/a
Sun-dried clay blocks	GI & flat drums	Clay internally & externaly	Availability & cost	n/a	n/a	n/a
Sun-dried clay blocks	AC	Clay internally & externaly	Availability & cost	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Mud plaster	Cost & time	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI & flat drums	No plaster	Availability	Informal methods	Informal methods	Informal methods
Burnt clay blocks	AC	Clay internally & externaly	Availability & cost	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI	C/S plaster	Financial const	Informal methods	Informal methods	Informal methods
Burnt clay blocks	AC	No plaster	Availability & cost	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Clay & limewash int & ext	Common practice	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI and AC	Clay & limewash int & ext	Common practice	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI and AC	Clay internally & externaly	Common practice	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI and AC	Clay internally & externaly	Common practice	Informal methods	Informal methods	Informal methods
Burnt bricks	AC	C/S plaster	Availability	n/a	n/a	n/a
Sun-dried clay blocks	GI and AC	Clay internally & externaly	Availability	n/a	n/a	n/a
Burnt clay & conc blocks	GI and AC	Clay internally & externaly	Availability	n/a	n/a	n/a
Burnt bricks	GI	Clay & limewash int & ext	Availability	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Conc rough cast	Availability	Informal methods	Informal methods	Informal methods
Burnt clay blocks	AC	Conc rough cast & C/S plaster	Availability & cost	n/a	n/a	n/a
Burnt clay blocks	GI	Clay internally & externaly	Availability & cost	n/a	n/a	n/a
Sun-dried clay blocks	GI	No plaster	Availability & cost	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI	Sand cement plaster int & ext	Availability & cost	n/a	n/a	n/a
Burnt mud blocks	GI & flat drums	C/S plaster	Common practice	Informal methods	Informal methods	Informal methods
Sun-dried clay blocks	GI	Clay internally & externaly	Financial const	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI and AC	Clay internally & externaly	Financial const	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Limewash int & ext	Financial const	Informal methods	Informal methods	Informal methods
Burnt clay blocks	GI and AC	Clay internally & externaly	Financial const	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Sand cement plaster int & ext	Financial const	n/a	n/a	n/a
Burnt clay blocks	GI and AC	No plaster	Financial const	n/a	n/a	n/a
Burnt clay blocks	GI and AC	C/S plaster painted int & ext	Financial const	400mm deep	Estimated thickness	14 courses mud bloc
Burnt clay blocks	GI and AC	Clay & limewash int & ext	Availability & cost	n/a	n/a	n/a
Burnt clay blocks	GI and AC	No plaster	Availability & cost	n/a	n/a	n/a
Sun-dried clay blocks	GI & flat drums	Clay internally & externaly	Cost & time	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Clay internally & externaly	Cost & time	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Clay internally & externaly	Cost & time	n/a	n/a	n/a
Burnt clay blocks	GI and AC	Clay internally & externaly	Financial const	n/a	n/a	n/a

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	29	31	32	33	34	35
	RATIONALE	DESIGNER	KCC	CRITERIA FOR	REASON	CONSIDERATION
ROOF			APPROVAL	OPENING SIZE	FOR 33	OF KCC REGS
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Trial & error	Quicker to use human proportions	None/costly	No	Human proportion	Easier	No
Informal methods	Standard method in settlement	None/costly	No	Security/cost	Security	No
Informal methods	Durability	Owner	No	Human proportions	Easier	No
Informal methods	Standard method in settlement	Builder/owner	No	Human proportions	Easier	No
Informal methods	Standard method in settlement	Owner/builder	No	Human proportions	Easier	No
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	Cheaper	Owner	No	Human proportions	Security	No
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	Cheaper	Not necessary	No	Available frames	No variety	No
Informal methods	Cheaper	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	Personal preference	Owner	No	Human proportions	Easier	No
Informal methods	Cheaper	Not necessary	No	Human proportions	Security	No
Informal methods	Cheaper	Owner	No	Human proportions	Easier	No
Informal methods	Familarity with traditional methods	Not necessary	No	Human proportions	Easier	No
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	Cheaper	Owner	No	Human proportions	Easier	No
Informal methods	Cheaper	Owner	No	Human proportions	Easier	No
Informal methods	Personal preference	Owner	No	Human proportions	Easier	No
Informal methods	Cheaper	Owner	No	Human proportions	Easier	No
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	Cheaper	Costly and time consuming	No	Conventional frame sizes	Convinience	No
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	Cheaper	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
Informal methods	Cheaper	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
GI on gum poles	Family method	n/a	Expensive	Air & light considerations	Security	No
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a

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SECTION E: Hired builders								
36	37	38	39	40	41	42	43	44
CONST COST	SOURCE OF FUNDS	CONST AGRMNT	OWNER INPUT	KCC REGS	CONST RATIONALE	USE OF PLANS	KCC APPR OF PLANS	DETERMINATION OF OPENING SIZE
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
270,000.00	Personal savings	Verbal contract	Design and location	No	Informal knowledge	D & B	No	Human proportions
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	Personal savings	Verbal contract	Design	No	Learnt from neighbours	D & B	No	Human proportions
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
150,000.00	Personal savings	Signed contract	Design	No	Owner discretion	D & B	No	Owner discretion
150,000.00	Personal savings	Verbal contract	Design	No	Available materials	D then B	No	Human proportions
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
500,000.00	Personal savings	Verbal contract	Design	No	Available materials	D & B	No	Personal preference
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	Available materials	D & B	No	n/a
Free	n/a	n/a	Design brief	no	Available materials	D & B	No	Builders preference
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
25.00	Personal savings	None	Design	No	Informal knowledge	D & B	No	Human proportions
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
300,000.00	Personal savings	Asked relative	Planning and design	No	Builders discretion	D then B	No	Human proportions
150,000.00	Personal savings	Verbal contract	Planning	No	Informal knowledge	D & B	No	Human proportions
20.00	Personal savings	Verbal contract	Design	No	Informal knowledge	D then B	No	Human proportions
25.00	Personal savings	None	Planning & design	No	Informal knowledge	D then B	No	Human proportions
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
90,000.00	Terminal benefits	Verbal contract	Design	No	Cost considerations	D & B	No	Human proportions
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
[illegible]0,000.00/room	Personal savings	None	Design	No	Owner discretion	D & B	No	Human proportions
600,000.00	Personal savings	None	Brief	No	Informal knowledge	D then B	No	Owner preference
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
8,000,000.00	Personal savings	Verbal contract	Planning, design & part building	No	Work experience	D then B	No	Work experience
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

Appendix XII

		SECTION F			
45	46	47	48	49	50
REASON FOR OPENING SIZE	CONSIDERATION OF KCC REGS	MAINTENANCE FREQUENCY	ALTERATIONS/ EXTENSIONS	REASON FOR ALT/EXT	COST OF ALT/EXT
n/a	n/a	Once a year	Extensions	More space	300,000.00
Security & cost	No.	Not often	No	n/a	n/a
n/a	n/a	Not often	No	n/a	n/a
n/a	n/a	Once a year	No	n/a	n/a
Security & cost	No.	Not often	Extensions	Family grew	not sure
n/a	n/a	Once a year	2 Extensions	Family grew	2,000,000.00
Cost	No.	Not often	Extensions	Family grew	15,000.00
Common practice	No.	None	Extensions	Family grew	not sure
n/a	n/a	Once a year	No	n/a	n/a
n/a	n/a	Once a year	No	n/a	n/a
n/a	n/a	Not often	Extensions	Family grew	590,000.00
Common practice	No	None	No	n/a	n/a
n/a	n/a	Once a year	Extensions	Family grew	50,000.00
n/a	n/a	Once a year	No	n/a	n/a
n/a	n/a	Once a year	Alteration	More space	15,000.00
Common practice	No	Once a year	Extensions	Family grew	20,000.00
n/a	n/a	None	No	n/a	n/a
n/a	n/a	Once a year	No	n/a	n/a
n/a	n/a	Once a year	Extensions	Family grew	20,000.00
n/a	n/a	None	Extensions	Family grew	40,000.00
n/a	n/a	Not often	No	n/a	n/a
Common practice	No	None	Alterations	Privacy	not sure
n/a	n/a	Once a year	No	n/a	n/a
n/a	n/a	None	No	n/a	n/a
Security	No	None	No	n/a	n/a
Quick amd easy	No	Once a year	Extensions	Family grew	150,000.00
Cheaper	No	Once a year	No	n/a	n/a
Family size	No	Not often	Extensions	Family grew	55,000.00
n/a	n/a	Rare	Extensions	Family grew	1,000.00
n/a	n/a	As need arises	Rebuilt	Collapsed	440,000.00
n/a	n/a	As need arises	No	n/a	n/a
n/a	n/a	Not often	Extensions	Family grew	not sure
n/a	n/a	None	Rebuilt		not sure
n/a	n/a	Once a year	Extensions/alterations	Letting/family grew	
n/a	n/a	As need arises	No	n/a	not sure
Easier	No	Not often	No	n/a	n/a
n/a	n/a	Not often	No	n/a	n/a
Cheaper	No	Once a year	Extensions	Family grew	30,000.00
Security	No	As need arises	Rebuilt	Family grew	not sure
n/a	n/a	As need arises	Extensions/alterations	Subletting/family grew	
Security	No	None	No	n/a	not sure
n/a	n/a	Not often	No	n/a	n/a
n/a	n/a	None	No	n/a	n/a
n/a	n/a	Every three years	Extensions	Family grew	not sure
n/a	n/a	Funds permitting	Extensions	Family grew	not sure
n/a	n/a	Once a year	No	n/a	n/a
n/a	n/a	As need arises	Alterations	Collapsing roof	50,000.00
n/a	n/a	Not often	No	n/a	n/a
n/a	n/a	None	Alterations	Old for new door	20,000.00
n/a	n/a	Every five years	Extensions	Family grew	not sure
n/a	n/a	As need arises	No	n/a	n/a