

An Analysis of Public Sector Urban Low Income Housing In
Zimbabwe-Towards An Appropriate Housing Policy.

By

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A Research Abstract

Zimbabwe faces the large and challenging task of providing adequate housing for her rapidly expanding population. This study aims to analyse and identify urban low income housing policy failures and to provide a foundation for an effective and viable policy based on local experience.

The housing and planning standards applied to solve the low income housing problem are questionable. The symptoms of the housing problem have surfaced as unaffordable housing, growing housing deficits inter alia, and the increasing inability to meet the needs of the urban poor. Consequently it is imperative that solutions are found and applied.

The study begins by tracing the historical background of the urban low income housing problem before proceeding to examining the traditional built environment. The latter is described in the hope that relevant lessons may be copied from the traditional response to housing provision.

Methods and problems of compiling housing need/housing shortage figures are also analysed with respect to their suitability for application in Zimbabwe.

The present housing policies are subsequently analysed with a view to identifying policy failures and the relevance of solutions based on indigenous local experience. In that respect, the housing and planning standards currently used in low income housing policy as well as the existing

institutions for low income housing finance are examined.

In the final chapter, a summary and conclusions, followed by the section on proposals are laid out. Several broad aspects of housing policy are advanced before actual suggestions in an alternative urban development strategy are put forward.

The Bertaud Model is employed in the analysis and derivation of suggested house, plot and layout designs. The Plan Evaluation Matrix assists in effecting a systematic choice between generated options.

In addition, the final chapter also touches on the relevance of rural development in finding a solution to the urban low income housing problem.

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Introduction

Zimbabwe faces the large and challenging task of providing adequate housing for its population. The economic disruptions of the recent war of independence and the investment requirements for other development make the task especially difficult. The influence of the international recession has also made itself felt in the ability of the country to provide housing for its citizens.

Yet within these constraints, there are opportunities to make great progress towards providing adequate shelter for all households. Few developing countries in the world are better placed than Zimbabwe to handle their housing problems. The high level of infrastructure in the urban areas, the relative sophistication of the economy, and the well developed financial institutions place Zimbabwe in a better position than most other countries with similar levels of income. Neighbouring countries provide harsh examples of what can happen to Zimbabwe if it fails to cope with this challenge. Therefore Zimbabwe cannot afford to fail.

Low income housing is one of the priority research areas as listed by the Government of Zimbabwe. This study cannot have come at a more relevant time than now when the issue of low income housing is in a state of flux. In addition, the ability to make correct analyses and decisions depends on the presence of a valid housing theory. Such a base is largely non-existent in the Zimbabwean experience.

Hypothesis

"Current public sector urban low income housing policy is not socio-economically and culturally appropriate to the housing needs of the urban poor and must be reappraised"

Aims

The aims of the study are as follows :

- (i) To analyse public sector urban low income housing policy and identify the shortcomings of that policy;
- (ii) To provide a basis for deriving low income housing and planning policies which are socio-economically and culturally relevant to the Zimbabwean experience.

Objectives

To achieve the above aims, several objectives have been identified. These are listed below :

- (i) To trace the origins of the urban low income housing problem in the early urbanisation periods;
- (ii) To describe and analyse the traditional built environment in order to identify important and relevant aspects for application to the contemporary low income housing policy;
- (iii) To identify the concept of housing, examine the methods and problems of assessing the housing backlog and determine the method best suited for Zimbabwean needs;

- (iv) To analyse public sector urban low income housing policy and identify policy failures;
- (v) To examine the planning and housing standards and their relevance to the urban poor;
- (vi) To reach certain conclusions and recommendations in answer to the original aims of the study.

Structure of the report

Chapter 1 concerns itself with the methodology used in the research, problems of data collection, a section on data analysis and a literature review.

Chapter 2 traces the beginning of the low income housing problem from the early urbanisation pressures. The starting point is from the decline of African agriculture and the resultant rural-urban migration, which was also triggered by taxation, through to a discussion of the "influx-control" legislation. Understanding the origins of Zimbabwe's urban low income housing problem is essential to the comprehension of some of the aspects of the problem.

In chapter 3, definitions of housing, as a concept, are discussed and hence a theoretical framework established. Chapter 3 is essentially descriptive and is primarily concerned with the description of the Shona and Ndebele built environments. The chapter tries to bring out the underlying cultural, social, political and economic implications in housing provision inherent in the traditional built environment. The aim is to discover what lessons if, any,

the traditional built environment has for the planner concerned with low income housing.

To appreciate the magnitude of the housing problem, Chapter 4 discusses, first, the effects of population growth and rural-urban migration on the low income housing problem. Then it examines the use of methods and problems of assessing the housing backlog. To do this, analytical models and techniques used in some of the developed countries are examined with a view to assessing their suitability for use in the Zimbabwean scenario. This is an attempt to clear some of the confusion caused by conflicting estimates of the housing deficit.

Chapter 5 analyses the low income housing situation in Zimbabwe, and the government policies which have influenced it. It is concerned both with the target or "planned" population and their socio-economic characteristics and the policy making and implementing role of the public sector. The various strategies adopted to deal with the housing situation are also analysed.

Inevitably, the issue of planning and housing standards has to be given careful consideration in a study of this nature. Standards are therefore the main subject of discussion in Chapter 6, which looks at both planning and housing standards. In this respect, the level and standard of provision of supporting services such as roads and other infrastructure are discussed. The important aspects of the traditional built environment are examined in terms of

layout designs, etc.

Resources for low income housing from both the public and private sectors and the supporting financial institutions are analysed in Chapter 7. This chapter tackles the issue of the ability to generate and allocate funds by the financial institutions and also the resources available to the low income population. Critical gaps in the housing finance system are identified.

In the last chapter, a summary of the other chapters is carried out before the final conclusion of the study is reached. Subsequently, several proposals are advanced and these include a short discussion on rural development and its relationship to the housing situation. Proposals for the formulation of an appropriate housing policy in Zimbabwe are put forward.

Chapter 1 which follows outlines the methodology of the research, methods of data analysis used and also a literature review.

Chapter I : Methodology, Data Analysis and a Review of the Literature

This chapter outlines the methodology, planning and execution of the study and contains a brief discussion on the method of data analysis. Some of the problems encountered during the course of the research are outlined. In addition, a literature review is carried out.

1.1 Methodology

1.1.i The traditional built environment

For information on the traditional built environment, the Goromonzi-Kubatana District was selected as a study area, for two reasons. These are:

- (a) the presence of a wide range of traditional structures, and
- (b) proximity to Harare where the bulk of the research was being carried out.

It was recognised that it is difficult, if at all possible, to get typical indigenous built environments not influenced by Western technology in any way. Extensive use was made of photographs, because they have spatial and environmental implications from the start. The pictorial material included is not simply as "illustration" of phenomena discussed although it does, of course, serve this purpose. It is included as research data itself, as indicative of certain basic cultural values of the people so served.

Information on the traditional built environment sought to

reveal the following:

- (a) a complete and adequate description of the total spatial environment, who built it and how;
- (b) knowledge of how various elements are used, that is, a description of space organisation in terms of activities;
- (c) the concept of housing and living space and the ideas underlying the built environment; and finally
- (d) a description of how the spatial organisation relates to social variables.

There is a lack of substantial data in the field. However a few written accounts were consulted. Such accounts are scarce and difficult to get. In this respect, extensive use of the National Archives was made. Of special importance and usefulness to this research are the writings of Frederick P. du Toit who devoted a great deal of effort to writing clear and concise accounts of the traditional environment.

In addition, the author of this report is in the fortunate position of having spent his early childhood in such an environment and can therefore describe it more convincingly.

The analysis attempts to identify any lessons or aspects of the traditional environment which can be of use to low-income housing policy makers in the contemporary planning arena.

1.1.ii Informant Interviews

The information sought in this section covered in general, all aspects of low-income housing, and in particular, the housing provision and its problems, housing and planning standards, the housing backlog, housing affordability and knowledge of the target population, finance for low-income housing and finally appreciation of the low-income housing problem. The interviews were directed at officials in organisations which had some connection with low-income housing provision.

A questionnaire of sixteen questions was compiled, (see appendix 1.1). This was to act as a rough guideline around which discussions would be conducted because of the need to accommodate diverse organisations and their different responsibilities. A standard questionnaire would have been too rigid and therefore not convenient. The first step before the interviews were conducted was to draft a list of relevant organisations and where possible, to identify the officials to be consulted in each of these bodies. The organisations were visited and appointments made with the officials in question. On average, each interview lasted about one hour although some went well over two hours. A total of 40 interviews were conducted.

Several difficulties were encountered in the carrying out of the exercise. "Red tape" was a major problem especially with government officials. Conducting a single interview sometimes

proved to be a lengthy process, taking up a whole morning, with one door leading to another as one was directed from office to office trying to get the official responsible for authorisation to allow interviewing of public officials. In a few instances, possible interviews had to be abandoned after a few hours of walking in government corridors. Another problem was that of appointments which were summarily cancelled or forgotten by the interviewees. This resulted in a waste of time and hence a great deal of frustration.

1.1.iii Questionnaire Household Surveys

Information on the target population is based on 3 household surveys conducted in 1982, 1983 and 1984 respectively:

- (a) A household survey conducted by Marja Hoek-Smit for the Government of Zimbabwe and United States Agency for International Development;
- (b) Epworth Squatter Settlement survey conducted by the Department of Physical Planning, in which the writer was formerly employed;
- (c) Glen Norah, Glen View and Warren Park survey conducted by the writer, (see appendix 1.2).

For the most part, the research relies on data from the first two surveys for the following reasons:

- (i) the data obtained is sufficiently recent and in spite of the intervening time period, the situation portrayed by the data is considered

still valid by the Zimbabwe Government which uses the findings.

- (ii) the methods used in the surveys were adequately scientific and objective as to justify using the data. The adoption of such data made it the legitimate business of this research to become acquainted with the precise methods used, from the sampling procedure, sample size, survey designs, the questionnaire right up to the actual interviewing;
- (iii) the objectives of the surveys were sufficiently general and therefore not likely to conflict with the aims of this research. The surveys had a broad range of objectives and were essentially diagnostic and were to be used as a data base for policy making;
- (iv) the surveys covered between them, well over 2000 respondents. The large size of the surveys is far more than could possibly be carried out within the time and resource constraints of this research;
- (v) the resultant survey data by the Government of Zimbabwe and U.S.A.I.D. was subsequently used in the formulation of low-income housing policies within the Ministry of Construction and National Housing (hereafter known as MCNH);
- (vi) wherever possible, data from the first survey has

been verified. It was seen fit to conduct a questionnaire survey in Glen Norah, Glen View and Warren Park to test the validity of certain aspects. A few selected households were interviewed and this was not intended to be a statistically valid random sample survey. Since this was not a fully fledged household survey but was carried out purely as a check on available data, the results of the exercise are therefore treated as background information and do not appear in the thesis.

Interviewing took place on week days. The fact that women would be, in the main, the respondents was not of much importance to the verification of the resultant data.

1.2 Data Analysis

Many researchers raised in the quantitative tradition have generally been overzealous in their use of quantitative methods, and according to Bruce Headey (1978), much like the child who when first given a hammer discovers that everything needs hammering. However, quantitative methods are not always best suited to all research purposes. The

requirements of this study are not well disposed to the extensive use of quantitative techniques, as is usually the case with policy analysis. Therefore one of the challenges of the research has been to fit the research method to the evaluation problem. Of all kinds of analysis, policy analysis deals with situations that are difficult to quantify, let alone define. The objectives are usually poorly perceived and any number of alternatives can offer partial remedies. In other words, the framework of policy analysis has to be cross disciplinary, drawing upon many sources such as political, economic, social theory, etc. Thus an attempt has been made to escape the parochialism which has beset many academic enquiries of lack of discrimination in the application of techniques ill-suited to the research aims. To derive meaning from the collected data, descriptive analysis has been employed as an analytical technique. The analysis proceeds from the descriptive mode in regard to the traditional built environment and the past and present housing strategies, to the quantitative mode where statistical data is cross tabulated and interpreted to establish relationships and differences. Data dredging from information collected by government agencies for general purposes is also carried out.

The use of non-numerical data such as verbatim statements from the informant interviews make the task of policy analysis different from the usual research practice. The

use of non-quantitative methods such as the anthropological study dealing with the traditional built environment, the historical description of previous attempts to tackle the housing problem and the analysis of housing regulations preclude a purely quantitative systematic approach.

Generally many researchers have written about policy making as if the business of devising programmes were the only interesting and problematic part of the whole process. Such a standpoint assumes that once a programme is adopted, then it will automatically be successful in meeting the needs of the policymakers. Clearly this is an untenable and unacceptable assumption. A worthwhile analysis of housing policy must focus on both policy formulation and implementation. To ignore the latter is to ignore the real world. The analysis in this study has therefore paid due attention to policy implementation as well in order to understand the problems faced by the policy makers.

In chapter 8, the proposals section has employed the Bertaud Model to assist in the evaluation and the generation of suggested housing and layout strategies. The Plan Evaluation Matrix has also been used to achieve systematic choice between the suggested options.

Although descriptive analysis has been ^{used} in some of the analysis, it does have its setbacks. One potential pitfall in the use of descriptive analysis, especially where the traditional environment is concerned, is the unstated

inference in interpreting space usage patterns. However, in this case this pitfall is overcome by asking the residents for help and also the advantage of the author in having lived in such an environment. The method is best suited for the broad aims and objectives of this study.

1.3 Literature Review

1.3.i The traditional built environment

A dismally small number of studies addressing themselves to the traditional built environment in Africa and other developing countries have been carried out. The potential which the traditional built environment has for alleviating some of the housing problems in Third World cities has been ignored. Consequently, a heavy reliance has, until recently, been placed on the writings of western explorers, missionaries, travellers and other adventurers who for diverse reasons found themselves in contact with African societies. Such reliance has sometimes not been without its perils.

In many instances, the writings were influenced by individual personalities in their descriptions of the traditional built environment. Attitudes ranged from curiosity, condescension and to even outright contempt. The writings of Richard Burton (1869), for example, viewed with some contempt "the normal African form, the circular hut.....its circularity is the result of a barbarous deficiency in inventiveness" (in

Oliver, 1976,pp 121-122). When Burton wrote of the Wak'hutu, he commented "their dirty slovenly villages" were "an index to the character of the people".

Which, however, does not mean that all the writings of these early researchers had such shortcomings. Writers such as Equiano (1789) wrote on the villages of the Ika district of the Niger river with an almost professional detachment. Rene Caillie (1830) and Henry Barth (1857) are other researchers whose work provides a valuable source of information. More recently are the works of Charles Dundas (1924) which are also beneficial reading. Lucy Mair (1934), Schapera (1971), P. Oliver (1969, 1971), Amos Rapoport (1969, 1977, 1980), Anthony King (1976, 1980), Christopher Alexander (1964), Doshi (1974), Franco Frescura (1981), Graham Hardie (1981), Schwerdtfeger (1982) and Agnew et al (1984) to mention only a few, are some of the works which had something or other to contribute to the background reading of this research. It is, however, correct to state that some of the more recent works have done little more than produce mere photo albums. Examples of such works are Susan Denyer (1977), Anderson (1977) and Rene Gardi (1974). What is needed in research of this nature is much more than a sentimental look to the past. On a more practical level is the work of Hassan Fathy (1973), the Egyptian architect, who studied and designed a whole village based on traditional construction methods as well as layout patterns.

Some studies which are more specific to the Zimbabwean experience have been carried out. Child (1968) writing on the Ndebele housing, George Kay (1973) and his "Rural house types and settlements in Central Africa", Michael Gelfand (1971), "Diet and tradition in African culture", Andrew Mlalazi (1980) and Frederick du Toit (1977, 1981) are some of the few works available dealing specifically with Zimbabwe.

Whatever the reasons for the dearth of research on the African built environment, and in particular the Zimbabwean environment, lack of interest certainly appears to be one of them. For example, Schapera in his 450 page study of the Khosian peoples, devotes just 4 pages to their dwellings, while Lucy Mair (1934) gives a sketchy description of the Baganda built environment. As Susan Denyer (1977) has commented, generally African buildings were neither considered as architecture nor were they recognised as such by explorers, travellers and others. Another possible reason for the dearth of research on so vital an aspect has been advanced by Moughtin (1968) who believes that most Third World planners and architects, trained in western countries, have been busy with imported and untried models to try and solve problems with a different contextual background from those models.

1.3.ii Literature on Zimbabwe's urban low income housing

Dealing with the contemporary low-income housing problem in Zimbabwe, very little research has been carried out either, except for specific government projects. One of the earliest works is that of Percy Ibbotson (1946) who was concerned by the plight of African workers caused by urbanisation.

Atkinson (1950) and Noble (1951) are also some of the early researchers. Peter van Hoffen (1975, 1978) wrote a commentary on "The city of Salisbury report...." and "Rhodesia: Housing and post-war recovery", while The Ministry of Finance (1979) with "Urban Development in the Main Centres" and Moller (1978) are other contributors.

Since 1980 there has been the emergence of several studies on low-income housing. Some of the studies are those by Graham Atkins (1983), who deals with principles of layout design for low-income housing, Nigel Horrell (1981) who came up with policy guidelines, Diana Patel and Rob Adams (1981) whose work on Chirambahuyo squatter camp attempted to solve the urban refugee problem created by the insurgency war, Garaba (1981), Harris (1983), de Kruffyff (1981) and the Whitsun Foundation (1980,1981). Naison Mutizwa-Mangiza (1985) carried out a brief study which is one of the latest academic work^S available. Research has been carried out by several engineering consultancies such as John Burrows and Partnership (1981) and Brian Colquhoun, Hugh O'Donnell and Partners (1985) while Manson and Katsura (1985) and Coleman

et al (1985) also did some work on various specific government projects. The majority of such work is project oriented. Although some of the work is of some importance to this study, there is a lack of sufficient research into broader basic issues of the Zimbabwean low-income housing problem.

On an international level, United Nations publications have been especially helpful because of their ability to give an international perspective. Some of the useful works in this respect are "Housing in Africa", (U.N. 1978), which is a comparative analysis of 29 African countries on diverse aspects of low-income housing such as densities, planning standards etc. "Housing policy guidelines for developing countries", (U.N. 1976), in which a wide range of questions are raised. An example of the issues raised ranges from preferable structural house types to the effects of rent control on a housing market. It is not possible to list all the publications consulted but "Methods of estimating housing needs", (U.N. 1967), "Methods for establishing targets and standards for housing and environmental development", (U.N. 1968), "Housing policy guidelines for developing countries", (U.N. 1976), and "Social aspects of housing and urban development", (U.N. 1977), have been particularly useful as background reading material in order to better comprehend the Zimbabwean problem.

1.3.iii Fundamental issues of housing policy

Dealing with fundamental issues of housing policy, that is, the philosophy of low income housing policy, is Oscar Lewis with his "culture of poverty". He initiated an ongoing debate on self help housing policy. Lewis carried out studies of households and individuals in Mexico, Puerto Rico and New York.

According to Lewis, the poor were fatalistic, helpless dependent and inferior and even need psychiatric treatment in order to incorporate them into the middle classes. This theory of "culture of poverty" was countered by John Turner who in his numerous works, (1967, 1968, 1971, 1976, 1982a and 1982b), is a chief promotor of prescriptive rather than proscriptive standards, that is what people may do as opposed to what they may not do. While Lewis viewed plastic tented shanties as evidence of social malaise, Turner viewed the shack in completely different light, as a rational step towards self-improvement. Turner introduced the concept of rationality in poverty through his self-help idea where the poor are always looking for opportunities to improve themselves.

Turner advocated autonomy in the built environment where the dwellers control the major decisions. Surprisingly, the self-help concept was not a new idea in spite of the controversy it caused. In 1964, Charles Abrams had written on self-help : "...it is preferable for the government to

lay and provide plots and utilities and let each owner decide whether to use his own skill or hire others for all or part of the work", (p.174). The self-help concept as stated by Turner had a major impact and gave impetus to site and service schemes by the World Bank and many developing countries. The two gradualist approaches of site and service and self-help sparked off a debate on the self-help concept.

Marxist scholars saw self-help as an attempt to reduce government expenditure and an excuse to do nothing about housing the poor. Chief among the critics is Rod Burgess (1978) who strives to demonstrate that Turner's proposals boil down to an "economic and ideological means necessary for the maintenance of the status quo, and the general conditions for capitalist development", (p.1107). (See also Peter Nientied and Jan van der Linden, 1985). Other authors who have taken up the debate are Michael Berry (1979), Peter Ward (1982), the latter with his critique of self-help, Geoffrey Payne (1984), Michael Goldsmith (1980) and Lisa Peattie (1979).

In an attempt to summarize the debate, David Drakakis-Smith (1979) has commented that the criticisms seem to have had little effect on government policies as aided self-help schemes of various types have increased dramatically throughout the Third World since 1970. Other authors, who provided beneficial reading particularly for researchers

with public policy in mind, are Stewart Lansley (1979), (who considers the role of government intervention in the housing market in chapter 1 and the operation of the housing market in chapter 2), Mary Smith (1977), Grimes (1976), Murie, Watson and Niner (1976), Lionel Needleman (1964) and David Drakakis-Smith (1979, 1981). The latter established a typology for public policy on housing

1.3.iv Other housing issues

On specific issues such as housing standards, the research by Mabogunje et al (1978), J.C. Turner (1967), Tao Ho (1975), John F. Turner (1972), Amos Rapoport (1969) and Michelson (1970), cannot be ignored. Michelson gets involved with the design criteria of the urban environment while Landi (1978) advocates the performance criteria in determining the standard of building materials for housing in developing countries. Rapoport (1977), who shares a lot of common ground with Turner (1976) on the approach to housing, advocates what he calls "man-environmental" studies (MES), which, in a nutshell, stipulate the design of the built environment according to cultural and climatic criteria, among others. On a more practical level, Caminos and Goethert (1978) discuss standards for designing the urban environment and relate their recommendations on specific projects as examples.

On quantifying the housing backlog and /or housing need, such

works as Emisrch and Overton (1984) and their minimal household units, Harsman and Snickars (1983), Barnard (1981) who criticizes headship rate analysis, Bradshaw (1972 and his classifications of housing need and Couch (1981), are some of the material looked at.

It is obviously not possible to list all the background literature consulted. To attempt to do so would be boring to the reader. Therefore the literature review has been edited to give some appreciation of a sample of the literature read. Of particular importance in understanding the essential issues of housing policy is the literature on the fundamental issues of housing.

In chapter 2 which follows, the beginning of the urban low income housing problem is traced, progressing from early urbanisation pressures to the legacy of influx control legislation on the housing problem.

Chapter 2 : Urbanisation and the beginning of the low income housing problem

In order to fully understand the causes, effects and the legacy of African urbanization on urban low income housing, it is imperative to discuss from the outset African and European agriculture and the relationship between the two. It is in the agricultural sector that the impetus for black urbanization began. This section of the thesis traces the beginning of African urbanization and its causes, the role played by influx control legislation and the urban low income housing policy. The role played by the legislation in shaping the present housing problem is important. A complete section is therefore devoted to outlining the legislation before proceeding to the discussion on the housing policy.

2.1 The decline of African agriculture and pressures for urbanization

In 1911, the white population in the colony of Southern Rhodesia had risen to 23 000, (Luke Malaba, 1980). During the 1920s, owners of both landed property and capital were interested in the alienation of Africans from the land and consequently from their means of livelihood. One of the prime reasons for this was to force Africans into wage labour on farms, mines and homesteads. Development of the major investments was dependent on an adequate supply of labour. However, adequate supplies of labour were not

forthcoming. Both the Shona and the Ndebele were reluctant to take employment in the service of the Europeans, (G. Kay, 1970). They had neither the wish nor the need for such employment as their material necessities were not dependent on money. However, some of the African farmers did produce more than their requirements. This surplus was sold to the Europeans.

In the 1920s, the world depression hit the colony. The period was marked by European fears of African competition, starting in the agricultural sector. This fear reached hysterical proportions, especially as the depression drove many white farmers off the land. This threatened the political and economic hegemony of the white farmers, (Robin Palmer, 1977). There were a series of demands for total segregation and non-competition between black and white. Jack Woddis, (1960) has observed of European farmers of that time: "even with the best lands in their possession, they have had to be constantly subsidized and aided by governments". They were "protected" against African competition by the introduction of various restrictions or limitations on African agriculture as well as the introduction of various discriminatory measures in favour of the European farmers. Barber (1961) commented that "European agriculture has....been made a sheltered industry". The Report of the Committee of Enquiry into the Economic Position of the Agricultural Industry of Southern Rhodesia, (1934, p34), stated that unless the white

farmers were protected from such "unfair" competition, the country would "surely revert to a native state as is happening in Nyasaland". The evidence submitted to this committee demanded that "all native farming in European areas should be removed to the native areas at once, that no native produced article should be sold in the European areas and vice versa except under permit", (Report 27). At the same time, the European farming "methods of cultivation remained inefficient" (Gann, 1968). "Thousands of acres of the best soil in the colony have been robbed of their productivity and the owners cannot face the expenditure necessary to restore them", (D.O. 35/370, Rodwell to Thomas).

The Maize Control Act was passed in 1931 and its intention was to suppress African farming of maize. Perhaps the best example of how the white farmers sought to shield themselves from African competition is provided by the Maize Control Amendment Act of 1934. The Act "discriminated in favour of the small white as against both the larger white and the African grower" (Gann, 1968). The statistics of the Belingwe District reveal the effect which this legislation had on African agriculture. Whereas maize growers of the Belingwe District had previously managed to sell some 10 000 bags a year, after the Act they were able to sell none at all, (S1542/N2 : "A Report of the Belingwe Native Board Meeting of 13th May, 1937"). While African farmers in the Mazoe District had once sold maize locally at 6 shillings, to

7 shillings, per bag, after the Act they were obliged to carry it long distances and sell it at 2 shillings to 2 shillings and 6 pence per bag, (Report of the Native Production and Trade, 1944). Arrighi (1970) has produced even more revealing statistics. Whereas in 1903, some 70% of African earnings had come from the sale of agricultural produce, in 1932, the proportion had slumped to below 20%.

What was happening in the agricultural sector is of great importance to the beginning of black urbanization. The discrimination against African agriculture had the effect of reducing its viability. Among other things this forced Africans onto the labour market. While the state provided subsidised loans to the white settlers, no such facility was available to the black farmers. In addition, African peasants were removed from lands near the railway and roads. This effectively made transportation costs and profit ratios discouraging. Taxes such as the poll, dog, head and hut taxes were imposed. These had to be paid in cash and Africans had to either increase commodity production or seek wage employment. The Hut Tax of 1894, for example, was a tax of ten shillings per annum.

Meanwhile, the labour shortage was explained by the crudest form of racist ideology. The African was portrayed as "a simple stereotyped individual of easy persuasion, defective mental faculties and slothful indolence" (Clarke, 1974). The African must not be allowed "to remain indolent

and to live a happy-go-lucky life, no matter how pleasant it sounds, because ultimately it is fatal", (S. Rhodesia, Legislative Assembly Debates, L.A.D., 1948, col. 265). The Minister of Native Affairs, a man who was supposedly invested with knowledge of knowing the African, arguing for the Compulsory (Native) Labour Act in 1942 stated "the voluntary system is absolutely inadequate...one can well understand that that would be the case because the native is essentially slow to make up his mind", (S. Rhodesia L.A.D. 1942, col.1447). In this context, Africans therefore "needed guidance, supervision and above all, discipline" and forced labour was "in no way derogatory to that", S.Rhodesia, L.A.D., 1942, col. 1482). At about the same time, however, Huggins who was the prime minister, and C.L. Carbutt, the Chief Native Commissioner (1930-6) contemplated the possibility of packing all "advanced natives" off to Northern Rhodesia so that Southern Rhodesia " would be freed of the embarrassing necessity to consider native interests", (D.O. 35/390, Memo by Carbutt, 1934).

2.2 Urbanization

The comprehension of the ideology and attitudes towards the Africans will facilitate understanding the impact this had on urban low income housing policies or the lack of them. As early as October 1897, the first African urban area, some 486 hectares, was set aside about 4 kilometres from Harare to

cater for the first trickle into the urban areas.

The advent of the Second World War created an increased demand for labour. This period saw the passing of the Compulsory Native Labour Act in 1942. As many as 11 000 labourers were conscripted for 3 months to work on the farms, in order to meet the world shortage of agricultural produce. Some of the labour force was to build the air fields for the Royal Air Force Training Scheme (Pollak, 1973). There was increased movement into towns at a rate of 10% per annum during the second world war, (Pollak, 1973). The Compulsory Native Labour Act compelled all able bodied Africans to offer their labour on farms, mines, factories, etc. Increased African urbanization meant the creation of an urban housing crisis. African housing was not a lucrative investment and the building trade was virtually a white monopoly. The number of Africans working or seeking to work in towns had increased so much that the government had to adopt a policy of "stabilization". Legislation was passed authorising municipal authorities to build "locations" for African accommodation.

In October 1939, the Native Welfare Society had reported on "Housing, Wages and Living Conditions in Bulawayo" based on a sample of 6 000. Average wages were £1/11/1 per month. The minimum reasonable budget for a household of 4 was calculated at £2/16/6 which did not allow for the hut tax, recreation, school fees, tobacco, beer or any other essential or luxury

items, (RNA/SR/9/1/5/11). A report published by the Reverend Percy Ibbotson based on a sample of 27000 in 7 urban areas, found that 66% of the employed Africans received payment in the combined form of cash, accommodation and food, generally of insufficient quantity and inferior quality, ("Report on a survey of urban African conditions in S. Rhodesia, 1943). High density created atrocious and squalid conditions. There were many cases of 3 or more married couples sharing a single room, (Ibbotson, 1946). About 20% of the township population could be identified as permanent township dwellers. Ibbotson recommended a policy of labour stabilisation through the creation of a permanent African labour force. Satisfactory remuneration for the workers was also advocated, in addition to allowing Africans to build their own homes. Other recommendations were to amend the Land Apportionment Act to allow African freehold land tenure and also amending the Industrial Conciliation Act to include African interests. The Howman Committee was commissioned to investigate the economic, social and health conditions of urban Africans. The committee called for an urban minimum wage of 20/- per month with food and accommodation. It also recognised that a large group, (18-35 years old) lived in the urban areas and constituted a proletariat. One of its recommendations was for Africans to be allowed to build their own houses. The committee declared that some "employment conditions may be such as to morally justify going on strike (even during

wartime)". The recommendations were diluted and postponed to the post war era. What emerged was the Native (Urban Areas) Accommodation and Registration Act (1946).

The Africans were regarded essentially as visitors to the urban areas. With the eventual convergence of the Africans upon the towns, they soon constituted a majority though the residential areas set aside for them occupied only a small part of the total. Therefore the towns were places where severe overcrowding co-existed with spacious living. There were rigid divisions with little social interaction between the Africans and Europeans. Map 2.1 shows the location of the African housing areas in Harare. Overcrowding and the location low income housing areas far from the city centre is a feature of African housing which seems to have become indelible, as will be evident in the later stages of this study. There is little doubt that for a long time to come many aspects of low income housing will still be incomprehensible without reference to the circumstances in which they developed.

After the policy of "stabilization" came what Moller (1978) has called "quasi-stabilization". The term means a stay in town during the years of working and eventual retirement to the rural areas. The colonial government restricted the numbers of Africans migrating to the urban areas. This was designed to prevent the accumulation of a large body of the unemployed, many of whom were blamed for the General Strike

Spatial Pattern of Land Use in Harare

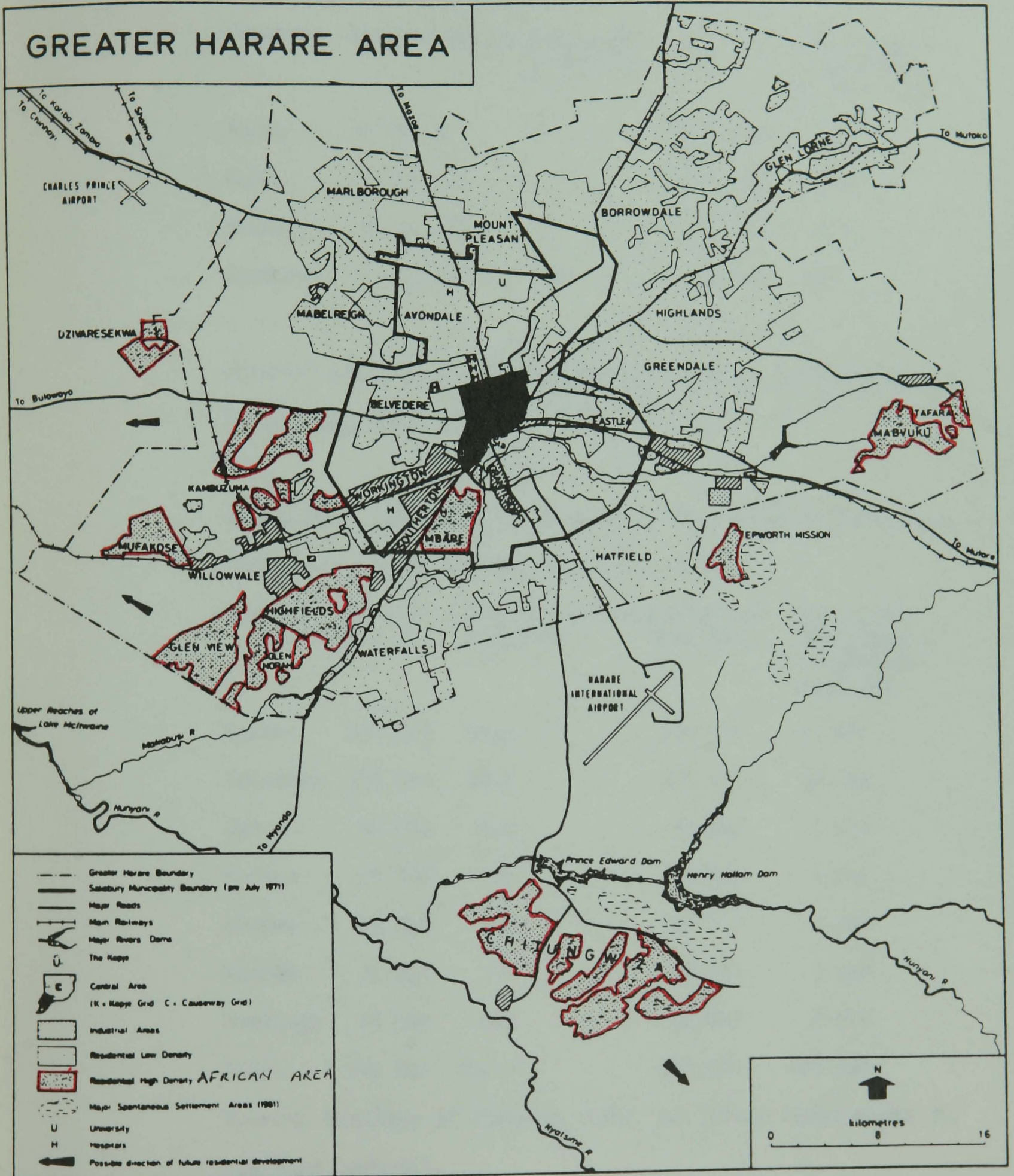


Table 2.1 : Urbanisation Statistics (1960-1970)

Country	Tot. population	Tot. pop. % increase P.A.	Urban pop.	% increase 1960-1970 Annual gr.
Kenya	10 061 000	3.1	1 000 000	5.1
Zaire	17 405 000	2.1	3 000 000	3.9
Zambia	4 326 000	3.1	1 137 000	6.4
Zimbabwe	5 130 000	3.28	880 000	2.5

Source: Adapted from Urbanisation : Sector Working Paper; World Bank, June 1972.

Table 2.2 : Estimated Destination of New Urban Residents and Consequent Demand of Dwelling Units, 1979.

Place	Tot. Pop 1977	% of New Urban residents	No. of new urban res.	No. of New Dwellings at 5 persons/dwelling.
Harare	564 000	52.0	334 360	66 872
Bulawayo	339 000	27.0	173 610	34 722
Gweru	66 000	6.0	38 580	7 716
Mutare	58 000	3.0	19 290	3 858
Kwekwe	69 000	7.0	45 010	9 002
Kadoma	32 000	3.0	19 290	3 858
Masvingo	21 000	2.0	12 860	2 572
Total	1 149 000	100.0	643 000	128 000

Source: Ministry of Finance, 1979, p.8 (Urban Development in the Main Centres).

(New residents - those who arrived since 1977)

of 1948. The solution was suggested as: "I feel that the government should at this time try to clear out some of the loafers from the towns. It would not only in a small measure alleviate the acute (labour) shortage in the outside districts, but it would help to avoid some of those unpleasant situations which develop from time to time", (S. Rhodesia L.A.D. 1948, col). Housing controls, pass laws, police surveillance and other measures were instituted to tackle the problem. This was the philosophy behind the influx control legislation which is explained in section 2.3. In spite of the influx control legislation, the population of the main urban centres, especially Harare, grew rapidly. In 1951, Harare had a black population of 75 000. Of these, 28000 were in municipal housing in the townships and over 17 000 were in domestic employment where accommodation was provided, (The African in Southern Rhodesia, undated, by Government printers). Forty percent of Harare's African population were women and children during that same year. At this time Bulawayo and Mutare had black populations of 70 000 and 11000 respectively. Table 2.1 shows the urbanisation statistics between 1960 and 1970. The 1969 population census gave Harare's African population as 280 000. In December 1978, it was 480 000, (Supplement to the Monthly Digest of Statistics, December, 1978). In January 1980, the black population in Harare had risen to 633 000, (Supplement to the Monthly Digest of Statistics, January, 1980).

From table 2.1 certain conclusions can be reached. Firstly, the rate of increase of the total population is as high as in Kenya, Zaire and Zambia. Secondly, Zimbabwe's rate of urbanization has been moderate for the period 1960 to 1970. It is apparent from the figures that it is not uncommon for the rate to be twice the overall rate of population increase. The reason for Zimbabwe's lag in urbanization is attributable to the strict enforcement of the influx control legislation. The period from 1970 to 1980 saw a rapid increase in the rate of urbanization due to the increased war of independence activities and the resultant displacement of the rural population. There was a refugee problem which was left mainly for the relief agencies to deal with.

The Department of Community Services estimated, in 1978, that Mutare probably had 30 000 war refugees living in the townships of Sakubva and Danganvura, (The Rhodesia Herald, August 5, 1978). The same paper reported in July 1978 that Harare had an average daily influx of 400 war refugees. The recorded number of squatters in the city in March, was 1 190 and by June that year the figure had gone up to 4000. Chimuku, an officer of the International Red Cross estimated in 1980, that Harare alone had between 25000 and 30 000 war refugees, a figure which excluded the satellite town of Chitungwiza. Although it was difficult to estimate the number of refugees who fled to neighbouring countries, Tichaona Jokonya (1980) put the figure of the war displaced people who

moved into the urban areas and also into the surrounding countries at no less than 333 000. Massive squatter camps sprang up at Hunyani, Chirambahuyo and Epworth. Table 2.2 gives a clear picture of the magnitude of the housing demand caused by the rapid urbanization from 1977 to 1979. The war therefore precipitated urbanization and exacerbated the housing problem.

2.3 Influx control legislation

While the government was interested in promoting permanent town dwellers among the African population, it also needed some way of controlling the numbers in the towns. Influx control legislation mentioned in section 2.2 was its solution. This added another dimension to the urban housing problem and the plight of displaced urban Africans. The legislation is explained below.

2.3.ii The Hut Tax

This was introduced in 1894, by the British South Africa Company. The tax was 10 shillings and together with the poll, head and dog taxes, it was designed to force Africans into the cash economy. Native Commissioners who had taken over most of the important functions formerly held by chiefs (such as land allocation etc.) were charged with the enforcement of these laws.

2.3.ii The Native Locations Ordinance Act (Number 4 of 1906)

The legislation paved the way for the control of Africans in the urban areas, (Diana H. Patel and Rob J. Adams, 1981). The law permitted the establishment of African townships in the urban areas. Although their place was still in the rural areas, special places had to be set aside for them in the urban areas. The urban townships were only for the duration of their temporary stay while they were employed.

2.3.iii The Land Apportionment Act (Number 30 of 1930)

The Land Apportionment Act was passed as a result of the recommendations of the Land Commission of 1925. The Act became the "cornerstone of the political economy of Rhodesia whose principal characteristics were largely determined by racial segregation in all walks of life", (Mutizwa-Mangiza, 1985). The Act had far reaching influence on the location of black townships in the urban areas, which were located on the urban fringes. As a result of that law, the country was divided into nine categories such as:

Native (African) Reserves	22.4%
Native Purchase Areas	7.5%
European Area	50.8%
Undetermined Area	0.1%
Forest Area	0.6%
Unassigned Area	18.6%

All urban areas were on European owned land. The Land

Apportionment Act was re-enacted in 1941, making provision for local authorities to house their African populations and also dropping the requirement for residents to be employed in the area. There was also provision for the government to provide urban housing for Africans and for the railways and other statutory commissions to establish and manage townships for their African workers. The spatial imprint of the Land Apportionment Act has persisted in both rural and urban areas, even to this day.

2.3.iv Industrial Conciliation Act

Passed in 1934, it was modelled on South African legislation and was to complement the Land Apportionment Act. The Industrial Conciliation Act skilfully imposed an industrial colour bar against Africans. Since the number of African workers, their families and other dependants in the urban areas, were a function of job availability the Act had some influence on the rate of urbanization.

2.3.v Native Registration Act

The Native Registration Act was introduced in 1936 and the Native Passes Act in 1937. Through these laws the black population was strictly monitored. The registration of those in the urban areas and the strict enforcement of the "pass" law enabled tight control of urban immigrants.

2.3.vi The Vagrancy, (1936), Chapter 92; The African Urban Areas) Accommodation and Registration Act, Chapter 242, Number 6 of 1946 and the Land Tenure Act, 1969

The Vagrancy Act, Chapter 92, of 1936 gave the police wide ranging powers whereby they could arrest persons suspected of being vagrants in the urban areas. It permitted the "repatriation" to "native reserves" of any blacks who failed to produce proof of any formal employment in urban areas. The onus was on the individual to prove gainful employment.

The African Urban Areas Accommodation and Registration Act of 1946 further tightened the legal exclusion of blacks from urban areas. It required all residents of urban "native locations" and domestic servants resident on employers' premises to register with the location or township authorities. Unregistered persons were barred from residing in such locations and were excluded from use of municipal social facilities, like schools for their children. It was on the basis of this act that night raids were frequently made by the police to flush out "illegal" residents and lodgers.

Up to 1946, the administration of what was then known as Native Affairs had been solely in the hands of Central Government. The local authorities were unwilling as well as unable to bear any responsibility in the provision of housing for the workers. The African (Urban Areas) Accommodation Act was the turning point. The Act obliged local authorities to finance and administer urban black townships. The local

authorities were also provided with the machinery to administer and granted the responsibility to operate "pass laws".

The Land Tenure Act was passed in 1969, after the abolition of the Land Apportionment Act. The law divided the country into two equal parts with 44.9 million acres allocated to each race, in spite of the fact that Africans outnumbered the whites by about 20:1. Table 2.3 shows the land apportionment between the African and European populations while Maps 2.2 and 2.3 show the concentration and distribution of the white and black populations in 1969. The white areas covered almost the entire high veld and that is where all the major urban centres, infrastructure and best agricultural land is. The actual division of land as defined by the Act was:

European Area	44 948 300 acres
African Area	44 949 100 acres
National Area	6 617 400 acres

The net effect was of much tighter restrictions upon Africans in European area.

2.4 Urban low income housing policy

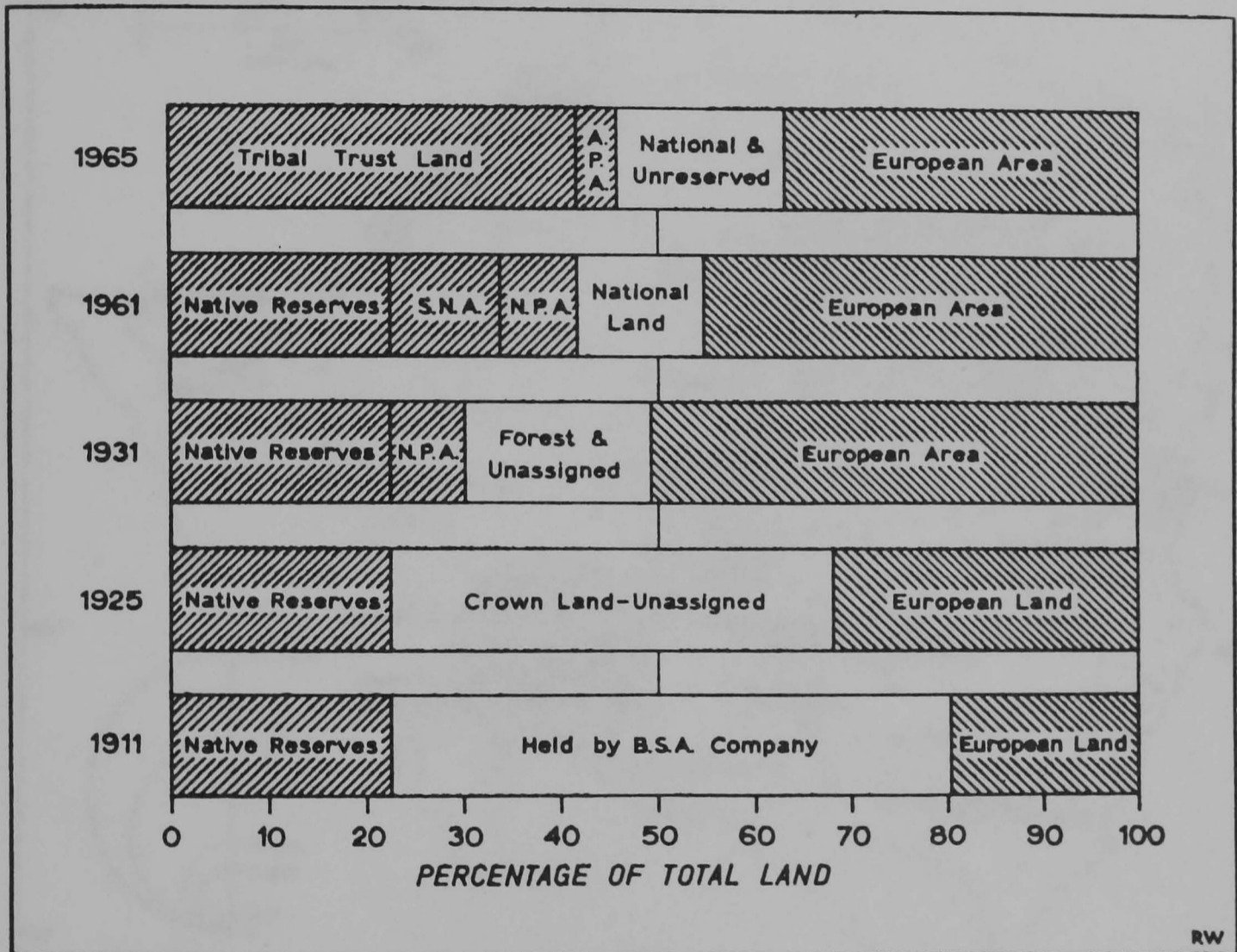
In the early days of African urbanization, African workers were accommodated on their employer's premises. Employers provided accommodation, food and where necessary, appropriate clothing, (Kay, 1970). The wages were a pittance and the accommodation, food etc. were part of the wage bill.

The first African township was Highfields. It was started in 1897 on Highfield Farm to build what the residents called "Ma-Tank". In 1954 the housing backlog was put at 18 670 for single accommodation, (G. Ellman-Brown, 1955). The single accommodation was in barrack-like hostels with every room to each hostel accommodating five to six workers. The provision of married accommodation always lagged behind that of single accommodation. The chief reason was that since employers had to provide workers accommodation, it was cheaper for them to provide single accommodation. Therefore wives were prevented from accompanying their husbands.

Four categories of African accommodation have been identified by Ashton (1969). These were :

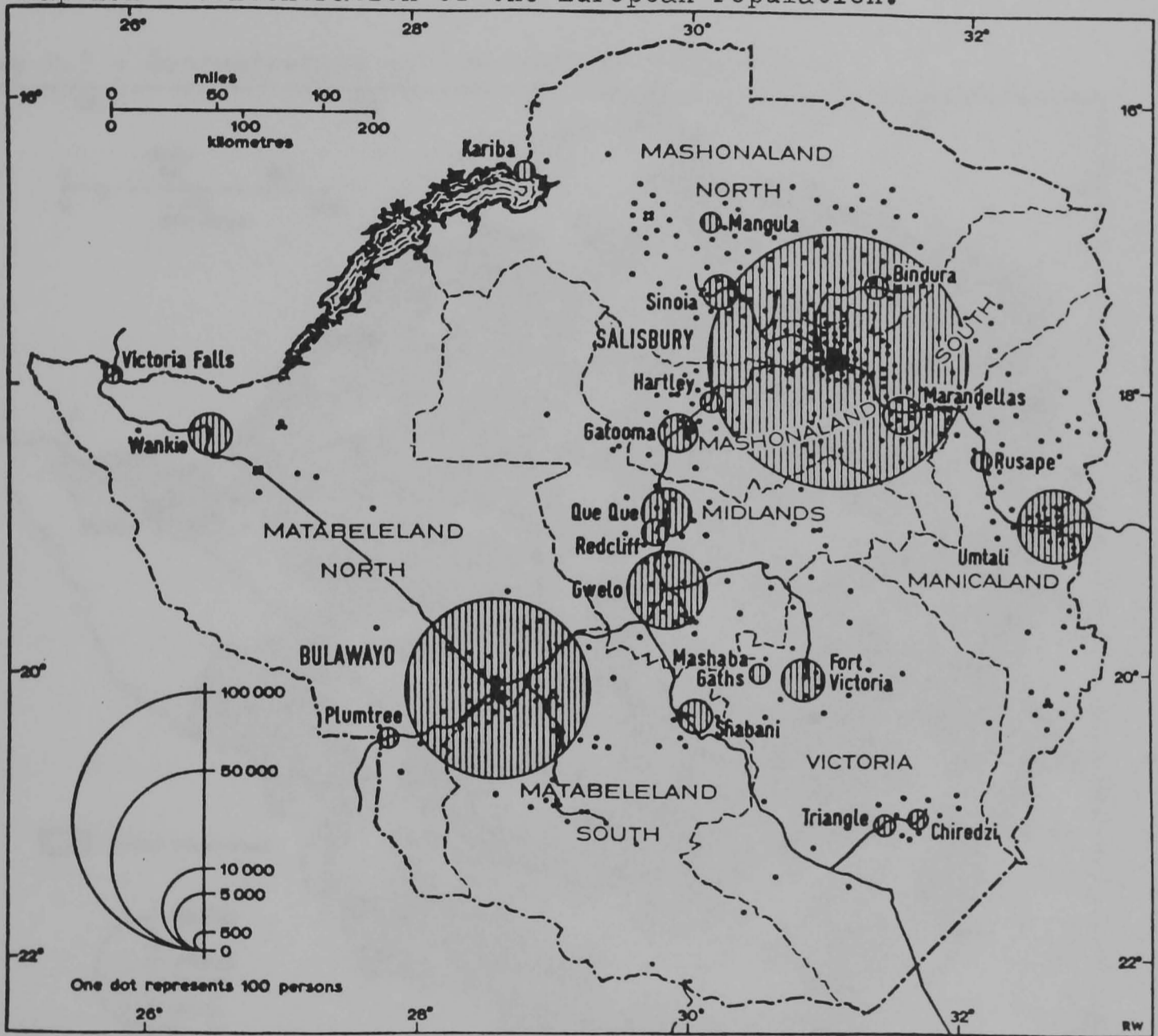
- (i) domestic employers who provided accommodation mostly in the form of domestic worker's quarters on their private property, for their own convenience and at their own expense;
- (ii) industrial employers who could either hire blocks of accommodation from the Local Housing Authorities; provide capital for the buildings by way of purchase of municipal stock or loans; or develop their own housing estates, (for example statutory commissions such as the Cold Storage Commission, the Electricity Supply Commission etc).
- (iii) public bodies - some municipalities built low cost

Table 2.3 - Land Apportionment



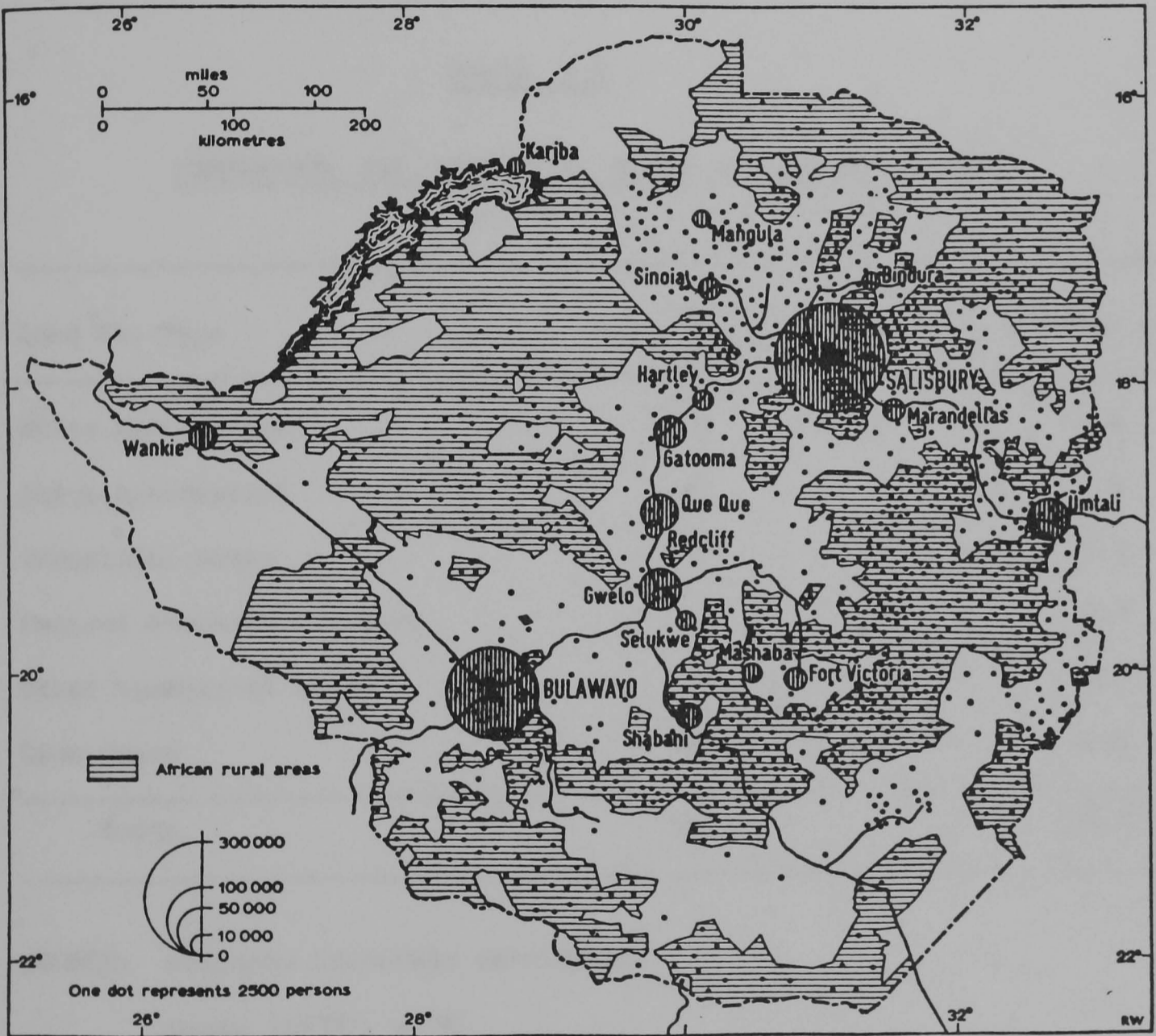
Source : G. Kay (1970)

Map 2.2 - Concentration of the European Population.



Source : G. Kay (1970)

Map 2.3 - Concentration of the African population.



Source : G. Kay (1970)

Table 2.4

COMPARISON OF LAND USE TYPES IN HARARE (1976)

Land Use Type	Area (Km ²)	% of Total City
White Residential	325	59.6
Black Residential	41	7.6
Industrial Areas	20	3.7
Central Business District	1	0.2
Other Commercial Areas	4	0.7
Open Space	152	28.4
TOTAL	543	100.0

SOURCE: Zimbabwe Corporate Development
Group (1977), p.76.

housing for those employed in industry and commerce. They concentrated on cheap so-called bachelor accommodation. The government entered the housing field to try and counter this. It established what were then known as model village settlements with larger plots and intended solely for families, with first priority given to Government employees.

- (iv) home ownership - under this scheme private individuals could build their own homes in such residential areas as Marimba Park certain other areas in Bulawayo. However, this scheme was far from being low cost housing by any stretch of imagination.

In response to the urban demographic boom caused by the post war era, the government had a fundamental re-assessment of housing policy, if there was a policy at all. African workers now had to be allowed to become more permanent town dwellers, together with their families. The motive was not in the least an altruistic one. A stable labour force was not only "more reliable" and therefore more beneficial to the expanding industries, but provided with security of tenure, the belief was that it would not constitute a potentially revolutionary body.

The government stipulated that all future housing development should be geared towards married accommodation. This ruling

saw the introduction of the "lodger system", a situation which in fact already existed, although officially illegal. The lodger was the only way accommodation could be made affordable (in terms of rent) to the workers without an increase in general wage levels.

The lodger system implied in effect that two families (initially) be allowed to share a house with one family as the landlords, the other as tenants. This situation where one family subsidised the other had been exacerbat^red by the Native (Urban Areas) Accommodation and registration Act. The legislation stipulated that the same rent be paid for both single and married accommodation. The result was that the proportion of married accommodation available was reduced. Families were either split or forced into a lodger situation. The ripple effects were of course enormous. Workers, irrespective of their marital status, were herded together in large hostels, a situation alien to their cultural and social habits. The lodger system was intended to: (i) alleviate overcrowding in the hostels and create a more stable labour force; and also (ii) it was argued that the rent paid by lodgers would make it more economically viable for married couples to purchase their own houses and thus the need to raise wages would be avoided. Lodging has since become a feature of the country's housing townscape, for example in Highfields and Kambuzuma.

The reassessment of the housing policy saw the establishment

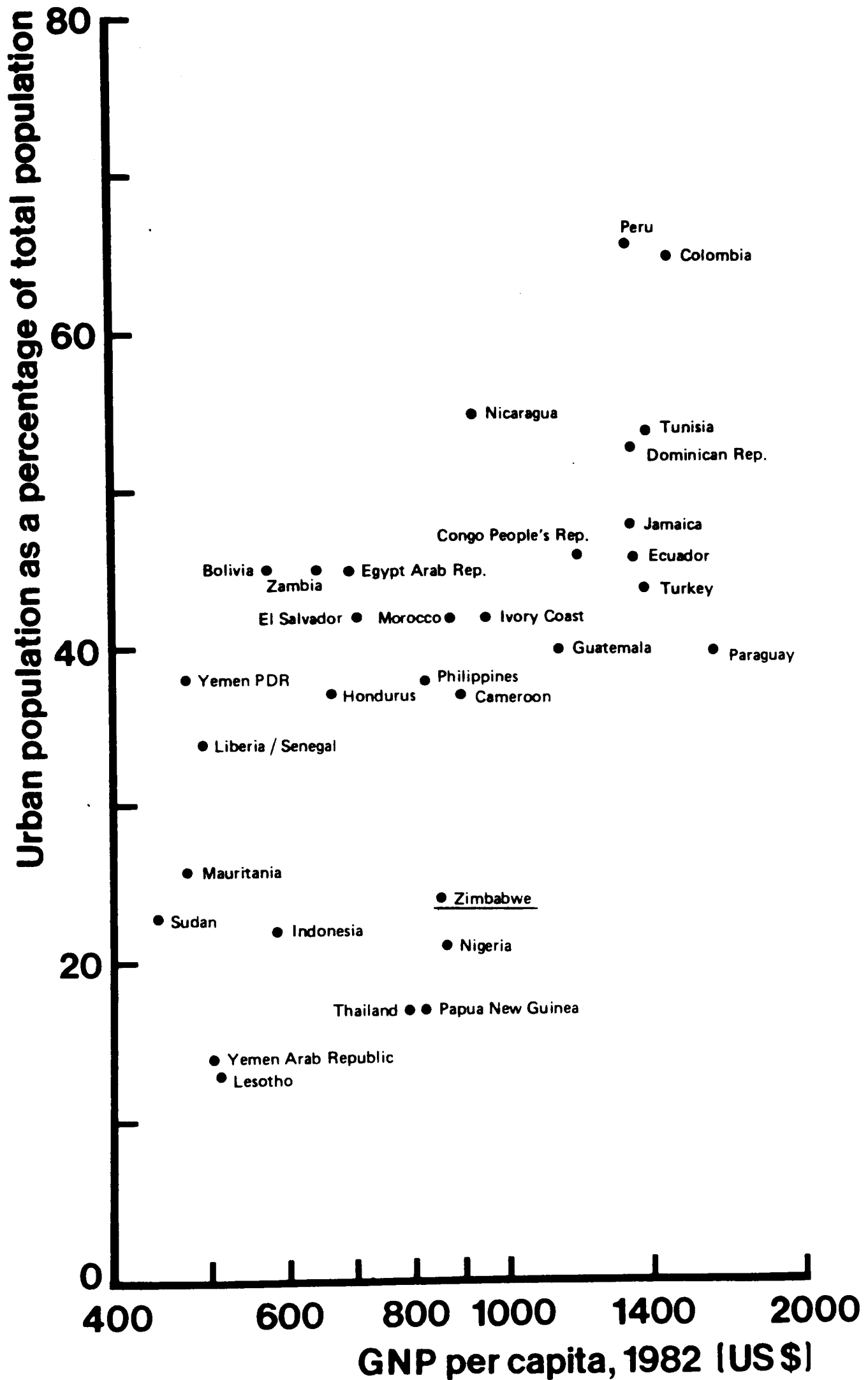
of African townships such as Tafara, Mabvuku, Dzivaresekwa, St. Mary's, Zengeza, Seke and Senga, among many others. These townships are all located on the urban periphery, thereby making the journey to work expensive for the people who could least afford the expense. Seke, Zengeza and St. Mary's are located some 20 kilometres from the city of Harare. As Anthony King (1976) has commented, the colonial cities "were deliberately planned to promote residential segregation", (p.23).

Frantz Fanon (1963) has described the colonial city and the way it mirrors relationships between the races. He wrote "the colonial world is a world divided into compartments...of native quarters and European quarters, of schools for natives and schools for Europeans, in the same way we need not recall apartheid in South Africa". The central fact about this divided world, for Fanon, is that of race. "The economic substructure is also a superstructure....you are rich because you are white, you are white because you are rich", (pp. 29-31). This was generally the state of affairs when Zimbabwe became independent in 1980.

2.5 Analysis

The segregationist policies concerning both urbanization and housing had several important effects such as:

(i) In comparison with other countries on the basis of Gross National Product per capita, Zimbabwe is relatively "under-

Relative Underurbanisation in Zimbabwe (1982)

Data Source: World Bank (1984), World Development Report 1984, Oxford University Press, New York, pp. 218 - 219 and 260 - 261

urbanised". Figure 2.1 illustrates this comparison. However, with the relaxation of rural to urban migration controls, following independence in 1980, there was a marked increase in the rate of urbanization;

(ii) the lack of a clearly defined housing policy meant that housing provision always lagged behind demand and overcrowding was a common feature. Until the 1970s, the urban low income housing needs of the African population were provided ^{for} on an ad hoc basis. With independence in 1980, the problems of housing backlogs and overcrowding have been inherited and are a feature of the urban housing situation.

(iii) unlike many developing countries where there are intractable squatter problems, shanty towns or informal housing sectors, which are a characteristic of cities in the developing world, (D.J. Dwyer, 1975), Zimbabwe does not have a squatter problem to speak of. In many Third World cities, sometimes as many as 60% of the urban population lives in informal housing. The reason for this anomaly where Zimbabwe is concerned, was the ability of the authorities to control rural-urban migration of job seekers through the enforcement of influx control legislation. The Vagrancy Act, although largely unenforced, seems to have survived independence and has been used on one occasion.

(iv) one of the most important legacies of the previous policies is that urban residential land use developed on strictly segregated lines. The spatial imprint has remained

and shows distinct patterns in the location of low income residential areas at the periphery of the city while the high income areas are comparatively near the city centre. Table 2.4 compares the land use types in Harare.

While in 1978 the black population of the low income areas constituted, 78% of Harare's population, low income areas constituted only 7.6% of the city's area; compared to 59.6% for the high income residential areas accommodating only 22% of the city's population, (Zimbabwe-Rhodesia Central Statistical Office, 1978; Zimbabwe Corporate Development Group, 1977).

(v) initially, housing provision was in the hands of the employers who found it cheaper to provide single accommodation. The housing for the low income urban dwellers was therefore "tied" housing, that housing whose availability was dependent on having a job with an employer. "Tied" housing was a feature of Zimbabwe's housing stock at independence.

(vi) a feature of the country's economic past is the pre-occupation with growth rather than lateral development and the neglect of policies designed to improve wealth and income distribution. For example, in 1977 of participants in formal sector employment 114 000 whites, Asians and coloureds (persons of mixed race) received Z\$6 156 per head. On the other hand 908 000 blacks received Z\$588 per head. Whites received about 11 times as much as blacks in wage employment,

excluding those in rural areas. In the rural areas, in 1976, 17 times as much land lay under cultivation as ecologists deemed desirable (Economist Intelligence Unit, Annual Supplement, 1979, p.9). The list of statistics describing such contrasts is endless. Urban housing was by no means the exception to this painful contrast based on racial lines, which has now largely been replaced by income segregation. With that background in mind it should now be possible to understand all the issues involved in tackling Zimbabwe's housing problem. As a result of the need to base any possible housing solutions on local experience, Chapter 3 which follows concentrates on the traditional built environment and attempts to derive useful lessons for contemporary low income housing policy.

Chapter 3: Traditional housing in Zimbabwe

3:1 What is housing?

What is housing? This is an inevitable question in this study. Housing is such a central issue to this research that it is important to understand the concept before proceeding any further. Although housing appears such a simple concept, it has no single and universally accepted definition, as will become evident.

Since this research is about public sector low income housing policy in Zimbabwe, it is logical that the way housing is perceived by the government of Zimbabwe should be the first definition to be discussed.

*
The MCNH in Zimbabwe understands housing as "a stock of shells for the provision of shelter for man against the weather, and alternatively as a process by which that stock is created". To the government, housing is much more than just the physical dwelling units or the process by which they are realized. Housing is considered as not only part of the broader physical environment within which the family develops, but it is also a process within the socio-economic fabric of society. The definition smacks of John F.C. Turner (1976), who advanced a definition along similar lines. Although it is a general and broad definition there is still no consensus on the meaning of housing.

The fact that housing is one of the most heterogenous products does not help in arriving at a comprehensive as well

*MCNH - Ministry of Construction and National Housing.

as precise definition. It is universally accepted that housing offers a range of services. However, it is this range of services which varies widely between nations and even within nations. Housing as shelter is the most basic and most pervasive function of a dwelling, on which there is universal agreement. This is true of a luxury apartment in New York or a thatched hut in Zimbabwe's rural areas. Burns and Grebler (1977) attempted to define housing by listing the variety of services it offers. Apart from shelter as the most pervasive, housing offers "other services such as indoor cooking, sanitary and storage facilities, or the assurance of privacy and rest, or the provision of space for recreation and children's education" which depend a great deal on income, climate and traditions, (Burns and Grebler, 1977, p16). Burns and Grebler (1977) are aware of the importance of the family as the predominant housing consumption unit. However, they also realise that the pattern of consumption is dependent on other variables such as income, climate and tradition. Hence the socio-economic and cultural factors are important in determining consumption patterns of housing, notwithstanding climate.

To Larry Bourne (1981), housing at its most basic is "shelter". However, he further states that housing is clearly much more than that. "It is both a physical entity, a social artifact, an economic good, a capital stock, a status symbol and at times a political "hot-potato"; (Bourne, 1981, p.13).

Bourne elaborates on his definition with a list of several qualities of housing such as:

(i) "as a physical entity, unit or structure, housing provides shelter to its occupants....,

(ii) as an economic good or commodity, a consumer durable good which is traded or exchanged in a market....,

(iii) as a social or collective good, as an element in the social fabric and in that society's set of social relations.....,

(iv) as a package or bundle of services.... involves the consumption of neighbourhood services (parks, schools)...., and

(v) as a sector of the economy, a compartment of fixed capital stock, a means of producing wealth and a tool of governments in regulating economic growth", (Bourne, 1981 p.14).

Clearly housing may be all these at the same time. It is precisely for this reason that it is difficult to define housing without actually listing what it has to offer. The diversity of housing attributes also make it difficult, if not impossible to confine the comprehensive study of housing to any one discipline.

Charles Correa (1976), describes the provision of housing as more than just building houses. To him the room, or "the cell" as he calls it, is only one element in a hierarchy of spaces needed by a person in order to live in a city.

Consequently Correa (1976) perceives housing "not as cells in isolation, but as a hierarchy of activities and spaces; secondly within each activity there is a trade-off between spaces which are covered and those open to the sky; and thirdly, the activities themselves are mutually inter-dependent and there can be spatial trade-offs between them". It is therefore essential to identify this hierarchy of spaces by understanding the trade-offs. Otherwise as Correa (1976) has stated, there is a grave danger of formulating the wrong questions. Most attempts at housing provision have been mere piling up as many dwellings as possible without any concern for the other spaces in the hierarchy. Correa's definition is largely a spatial one concerned with the inter-relation of activities in space. It implicitly recognises the importance of the social factor in the design and use of space, but the definition is not comprehensive enough. While it recognises one important factor in housing, it does not go far enough to take into account the physical, economic, cultural and even institutional aspects of housing.

Glen H. Beyer (1965, p3), defines housing as: "...a product...a highly complex product. First, it is a bulky, durable and permanent product. It has a fixed location, being used only in the place where it is built. Once built, it tends to remain in existence for many years...frequently long after it has outlived its usefulness. It becomes almost a part of the land....But housing is more than a complex

product. It is both an economic and a social process". From the definition, it is evident that Beyer believes housing to be built from masonry and hence its permanence. He emphasises the physical aspects of housing. It is almost as an after thought that he suddenly realises that housing is more than just a physical product. Clearly, the definition is deficient in many ways. This is especially obvious when the definition is applied to shelter which does not meet the stated physical qualities, but nevertheless provides housing for its occupants.

John F.C. Turner (1976, p60-61) defines housing as: "both the stock of dwelling units (a noun) and the process by which that stock is maintained. It is also entirely reasonable to speak about human and social values of housing action and housing processes". Turner elaborates on his definition when he states that the value of housing lies more in what it does than what it is. Consequently, in another article, Turner states that a housing backlog or deficit is a result of official misconception of what housing is. He understands housing as both a product and a process. In this respect, he has a clearer picture of the housing concept. His definition emphasizes the functional rather than the material side and is broad and not ethnocentric. The human element is well taken care of, while the physical aspect, although recognised as important, is underplayed.

The United Nations (1976), aware of the lack of consensus on

the meaning of housing, attempts a comprehensive definition. "To consider housing as shelter or the physical structure is evidently a very narrow view of housing. The concept of housing is more than a physical shell. Housing encompasses all the auxilliary services which are necessary to human well-being. Therefore community facilities, social amenities and services form an integral part of the housing concept," (quoted by Majzub, 1978). Majzub (1978) elaborates on the United Nations definition. He contends that housing should be considered as an "extension of the human frame. It should respond to the needs of its inhabitants as a garment does", (p 398). The human relationship between housing and its occupants cannot have been stated more clearly by Majzub. The human element, one of the most important but sadly least understood aspects of the housing problem, is very much a feature of the United Nations definition. Since the human element is so important, the selection of a housing type for a family should be influenced by that family's social, religious, cultural and educational needs, together with the obvious physical, climatic and economic factors, inter alia. This all-encompassing view of housing is what Barbara Ward (1976) goes to great lengths to bring out. Starting with the environment, she states that this is influenced by a wide range of factors, social, funtional and spatial. She highlights the social influences as the most immediate inescapable and profound. These are exercised in the first

instance in the home where the family derives its diverse needs. As a result of the central importance of the home in family life, Barbara Ward states that "the house is the core, the central place, the starting point of all life in human settlements, in short, human life itself".

The inseparability of housing from the environment is a theme which is brought out by Margaret Mead (1975). She contends that "you cannot (or should not) think of housing without thinking of water and roads, and land and energy and all of the social and cultural aspects of life". It is therefore difficult to think seriously about housing without taking into account the supporting factors, physical and non-physical, needed for housing to succeed. Housing has to be discussed in its context, that is, its environment, according to Margaret Mead.

In support of Mead is Cross (1978). His position is that housing must be considered as inter-related with other factors such as transportation methods, employment, recreation, shopping centers, sources of energy, culture, etcetera. In other words, a proper housing definition has to take account of the diverse factors that affect the quality of life.

A rather clinical definition in which various aspects pertinent to housing are separated is given by Santosh Ghosh (1978). To Ghosh, "housing is not mere shelter. Housing consists of: (a) planning aspects including socio-economic,

institutional, environmental and physical planning aspects; (b) architectural and engineering aspects including design and construction; and (c) management and maintenance aspects". Although the definition tries to cater for all the the relevant factors affecting housing, it is rather simplistic. The issues confronting a planner are seldom as clear cut as the above definition would have us believe. For instance, the socio-cultural and economic influences on housing can and are usually manifested in many different ways on the design and construction of housing and also on the housing options offered. There is also inter-mingling of physical and non-physical factors on the type of housing and the value of housing to its occupants.

In recognition of the complexity of housing, Amos Rapoport (1969, p.46) aptly describes the house as "an institution, not just a structure; created for a complex set of purposes. Because building a house is a cultural phenomenon, its form and organisation are greatly influenced by the cultural milieu to which it belongs". Rapoport's definition recognises the importance of a whole way of life on housing. The end product of such a diverse range of forces, social, cultural and physical, among others, is therefore more complex than a physical structure. It is an institution.

In spite of all these definitions, and the recognition that housing is not just a physical structure, narrow perceptions are often adopted in handling the housing problem. Research

and development projects in developing countries tend to approach the problem of pressing demands for shelter from the technological and economic perspectives. This is perhaps due to the bricks and mortar nature of the field, which tends to concern itself with only those aspects which are concrete and quantifiable. Perhaps another reason is due to the nature of the interest groups involved in house construction.

The case of Pruitt Igoe, an award winning housing project in St. Louis, Missouri in the United States should serve as a lasting reminder of this type of approach. After only 20 years, Pruitt Igoe was demolished because of its unpopularity and vandalization by the residents. This situation was a result of the complete disregard of the social and cultural needs of its inhabitants. The housing provided them with shelter which was inappropriate to their spatial concepts and needs, (Turner, 1971). It is these theoretical conceptions, understanding the vital role of housing and what it is, which should underlie the qualitative aspects of planning. Understanding housing and the cultural expressions in space, for instance, are conceptions which are far more difficult to cope with than technical issues. They are all too often superficially studied, and receive little more than casual attention and lip service.

With that background of housing definitions, the next section of this chapter deals with Zimbabwean traditional housing. It is mostly descriptive in character and Shona and Ndebele

housing is described in some detail. The essential purpose of this section is to make it possible to draw upon traditional experiences of the dwelling unit and the built environment for possible solutions to some of the contemporary low income housing problems. In that way, solutions which may evolve will be based on local experience. From the definitions given previously, it became clear that housing is not only complex and diverse. It is also intimately related to its environment. The description of the traditional environment below provides an example of such close and complex interrelation.

3.2 The Traditional Built Environment

It is now almost impossible to find Shona and Ndebele built environments completely untouched by Western influence. The description of these two environments has, as a result, had to rely a great deal on the few available written accounts. Du Toit (1977, 1981) has been especially useful with respect to the Shona dwellings. The field work also contributed valuable material.

In research of this nature it is essential to exercise caution and merely describe situations and their functions. To try and ascribe Western conventional terminology would make situations aberrant from the norm and they are very much the usual circumstances. For example, the Shona kitchen is used both as a kitchen and as a place to sleep in, at night.

It is therefore important to examine the traditional dwellings within their settings. Outside of their settings, they convey little meaning because the living pattern always extends beyond the house to a considerable extent.

3.3 The Shona House and Settlement

For full comprehension of the Shona house and its setting, a definition of the Shona word for house is important. Musha, the Shona word has an ambiguous meaning to the uninitiated. It has been translated as "house" by linguists. Stated in other words, the latter definition would mean one's familial address. Du Toit (1981) defines its architectural entity as "the home of a kinship group". The colloquial term of "kraal" would best describe the home of a kinship group, but it is also permissible to describe the home of a simple family by the word "musha". Such divergence in meanings creates serious pitfalls.

Shona settlements were initially transitory in nature. The reasons for this were inter-factional fighting, shifting cultivation and deteriorating resource conditions. The location of settlements was determined by several factors such as: (i) proximity to water,
(ii) proximity to arable land,
and (iii) nearness to the main centers of farmwork where villages were established in areas of intensive farming.

The consolidated settlement or village (nzanga) is fairly dispersed. Its plan form suggests nuclei separated by open ground or patches of cultivation. The nuclei are neighbourhoods (mamana, plural of mana), which may have one or more family homesteads. The musha and its surrounding area is usually almost entirely barren of vegetation at ground level. The occasional tree is found near the dwellings and winding footpaths link bare patches. At the same time, a thoroughfare exists and it by-passes each patch. The main inference is that while direct pedestrian routes are maintained among homesteads, they are secondary to a formal route. The formal route is the "official" progress into and through the village. Minor pathways radiate from the village, apparently going nowhere. However, they often lead to a waterpoint, a cultivation patch, a group of women gathering firewood or men at padare, a meeting place for men.

3.3.i The Courtyard ("chivanze")

The word courtyard has been chosen for lack of an appropriate descriptive term. Chivanze refers to the cleared area around the homestead buildings. The formal approach to the homestead is usually from the west. On entering the bare patch of ground surrounding the homestead, one is literally in the home. Therefore strangers have to announce themselves (tigumewo), although the main point of entrance is not always clearly marked.

The cleared area serves an important purpose. It affords safety to the inhabitants of the homestead from a potentially hostile environment. Its purpose is:

- (i) to act as a firebreak around the buildings. Bush fires are a threat during the winter months when the vegetation is dry.
- (ii) snakes and rodents can be seen well before they find shelter in a building and can either be chased off or killed;
- (iii) it affords the family identification of recent intrusion of animal predators or human prowlers by spooring; and
- (iv) small children are always within sight of their mothers and if household effects are dropped outside, they can easily be found.

Virtually all the day-time domestic activities are performed outdoors. The courtyard is very much part of the built environment and most social activities, whether by day or night are performed in those various areas of it. These areas are entirely specific in their uses. The sensitive observer will therefore be able to define those areas which are open to strangers and those for domestic functional use. This is possible simply by judging the placement of homestead buildings (dzimba-plural; imba-singular).

3.3.ii The Cooking Hut

It is an overstatement to say that there are "women's areas as distinct from men's areas. However, food preparation and household chores are regarded as women's activities. The placement of the cooking hut in relation to other homestead buildings illustrates sound planning principles. The first building one encounters in a formal approach to the homestead is the cooking hut. It is downwind of the rest of the buildings. Prevailing winds in Zimbabwe are generally easterly. Cooking fires and the resultant smoke and fire, a hazard to other buildings, are therefore avoided. Women can always be found around the cooking hut (imba yekubikira). A woodpile (bakwa) is often found near the hut. The cooking is not always in the hut, but just in front of it. However, in the higher and cooler parts of the country, it usually is in the building. A table-like structure made of sticks can often be found near the cooking hut. The structure is called dara or taya and it is used for drying household utensils. The cooking hut is free-standing and circular with a conical roof. The grass is spread over the roof structure, with the flower ends downwards, and tied down. Discolouration of the roof caused by the smoke identifies the hut. The interior of the hut is the most elaborate in layout, compared to the other buildings; (see figure 3.1). From the doorway, a wall seat (chigara makomucha), where male visitors can sit and eat is found. Chikwidzi, chitukuriro is the special seat for the

Figure 3.1 - The interior of the cooking hut.



Source : F.P. Du Toit (1977)

head of the family and no one may use it. Women and children sit on the floor.

A mud built bench, about 1.2metres or more wide, and about 0.5 metres high off the floor can also be found. Its shape follows the curve of the wall. Fine earthen-ware pots (hari, zvipfuko) are found on this platform (chikuva, rukuva), as plate 3.1 shows. Drinking water is also kept there in a container called musudze. The musudze is usually placed to the right of the platform or on a separate and lower platform attached to the right of the chikuva.

A depression in the centre of the hut marks the fireplace (choto). The fireplace, some 0.5 metres in diameter, is often ringed with a steel rim and three stones (mapfiwa) or a low metal stand support the cooking over the wood fire. A horizontal pole which spans the centre of the hut at wall height above the fireplace is also found. This contraption is for carrying raw meat which will be slightly smoked over the fire, thereby preserving it. The equipment is called mutariro.

For the sleeping function, behind the door to the left are some sleeping mats (bonde-singular). These are found leaning against the wall.



Plate 3.1 - Fine earthen-ware pots are found on the "chikuva".

Plate 3.1a - Storage of possessions in the cooking hut.



3.3.iii The Main Hut

The main hut is positioned directly opposite the cooking hut and facing its doorway at some six metres. It is the main sleeping hut of the homestead and its doorway faces the west. The head of the family and his marital partner sleep in the main hut. Very young children often sleep with them but when they grow older, they transfer to the cooking hut, and later to their own room.

The main hut, imba yekurara is used exclusively for the sleeping function. It is therefore usually unoccupied during the day. Windows are seldom a feature of this hut, which is circular in plan. Recently, the hut has become increasingly cluttered with furniture and is now often seen in a rectangular form. It is still free standing. When seen in rectangular form, it is usually divided into two compartments, one for sleeping in and the other with an interlocking door is used as a walk-in wardrobe or boxroom. Rectangular roofs pose serious technical problems for builders used to the conical pitched roof. A rectangular mono-pitched roof is therefore used with roofing sheets laid on simple purlins. Corrugated iron sheeting is preferred to asbestos-cement sheets because of a high re-use potential. The corrugated iron sheeting is often not nailed down but simply weighted down with rocks for preservation of re-use potential.

3.3.iv Ablutions

An unroofed enclosure, about 1.2 metres by 1.5 metres, with an overlapping sight screen at the entrance, is sited in a private area of the courtyard. This enclosure is the washing screen (imba yekugezera). It is usually situated slightly behind and to one side of the main hut. Sometimes it is completely hidden behind a banana palm. The regard for privacy is frequently observed more in the public area of the homestead. Less modesty is displayed to a viewer behind the home. This illustrates the influence of cultural mores or social values in village planning where, in this case, the trust in and the observance of good manners is a cardinal feature of rural lifestyles. No one is expected to be behind the wash shelter at all. The need for privacy is reflected in both the positioning and design of the wash shelter.

The bather stands on a large smooth stone (dombo rekugezera) while washing. This is found in the centre of the shelter, while lying around, is a small rough stone (zvishambo). The latter is used like a pumice stone. On the floor of the wash shelter are small loose stones and sometimes broken bricks.

The latrine (chimbuzi) is usually sited a distance of about 100 metres away from the homestead and downwind.

The well (tsime) is also some distance away from the homestead. It is dug in low wet ground or a sandy riverbed or a pool in a river (duhwinho). It is also used for laundry (chishambiro) or for washing. Women of the village use it as

a place for social gathering and men have no place there. If they have to go there, they must vocally announce their approach (haye).

3.3.v Food Storage

Grain is the main crop of the Shona and it is stored in the musha. Grains such as finger millet (rapoko, rukweza) are stored separately in mud-rendered containers ("dura"). These are situated in the less public area of the courtyard. Large rectangular granaries, subdivided to store different kinds of grain are also built. Such a granary can be recognised by its raised floor to protect the grain from termites and also to permit a free flow of air. The floor may be 2 metres by 2.4 metres, enclosed in pole and mud walls under a grass roof. The granary can also be used as sleeping quarters. Nowadays, hessian bags and steel drums are often used to store grains and maize in the cooking hut.

3.3.vi Livestock Housing

An enclosure, (danga, chibaya) is used to keep cattle some short distance away from the main hut. Where predators are a problem, a chicken coop is often found for keeping chickens. The birds are allowed to forage during the day, returning to the coop at night. Cattle are highly valued in Shona society. The old practice of keeping valuable livestock indoors at night, in a partitioned off part of the main hut, has lapsed.

3.3.vii Overview of the Shona House

Homestead accommodation is increased by building more free standing huts. Besides maintaining intra-family privacy, this mode of expansion also limits the ever present fire hazard.

Unmarried daughters sleep together in a dormitory hut (nhanga) sited close to the main hut. The boys have similar quarters (gota) sited on the other side of the main hut. The guest room (imba yevaeni), is a feature with-well-to do families. Where there is more than one wife, each wife has her own cooking hut in which she also sleeps.

The format of the musha has generally changed overtime. This is evident from the writings of Gelfand (1971). There has also been a specialisation of functions and the ordinary man no longer sleeps in the same hut where his meals are prepared. The "musha" has also grown bigger and the participation in consumerism has also resulted in significant changes. The acquisition of items such as clothing, bedding and other equipment means that these are investments which have to be cared for. They must therefore be protected from the smoke of the cooking fire as well as the fire risk. One major impact of such consumerism is the development of the rectangular hut, in order to accommodate beds.

The format of the musha has also changed in another aspect. It is no longer uncommon to find isolated homesteads (singular-chitora) inhabited by a man and his family. The need for communal defence is no longer present. Homesteads

can afford to be isolated. However, increasing dereliction of tribal codes of conduct and ethics has resulted in greater care in the protection of possessions and food reserves. Stealing a family's food reserves is traditionally a serious breach of the law. Thus the granary is now found close to the owner's sleeping hut. Before, it could be sited some distance away from the homestead.

Building materials have also changed a great deal in many cases. Not only are bricks in common use, but windows are becoming a common feature with many rural homesteads, (see plate 3.2). Timber which provides valuable building material for walling (as well as a source of fuel) has been denuded. While this factor can be sited as a reason for the change in building materials, the change can equally be attributed to some measure of affluence and changing aspirations. Sun dried bricks have a long though not extensive tradition.

3.4 The Ndebele House

There are three types of house forms on the Ndebele landscape. These will be examined separately, in the order in which they evolved in Ndebele building technology.

3.4.i The Bilobial Dwelling

No explanation has been found in the literature, as to the origins of the name. However, from the description of the dwelling, it seems logical to conclude that the name



Plate 3.2 - Windows are now a common feature of many rural homesteads.

Plate 3.2a - Rectangular modern buildings can be found in many rural locations.





Plate 3.3 - Pole and mud walls are sometimes used in the construction of buildings.

Plate 3.4 - An isolated homestead "chitora", with the granary in the foreground. Note the bare courtyard "chivanze".





Plate 3.5 - Construction in progress. Note the use of bricks.

Plate 3.6 - Ingenious use corrugated iron sheets in the roof structure of a rural dwelling. The proud owner nevertheless complained of excessive heat on hot days.

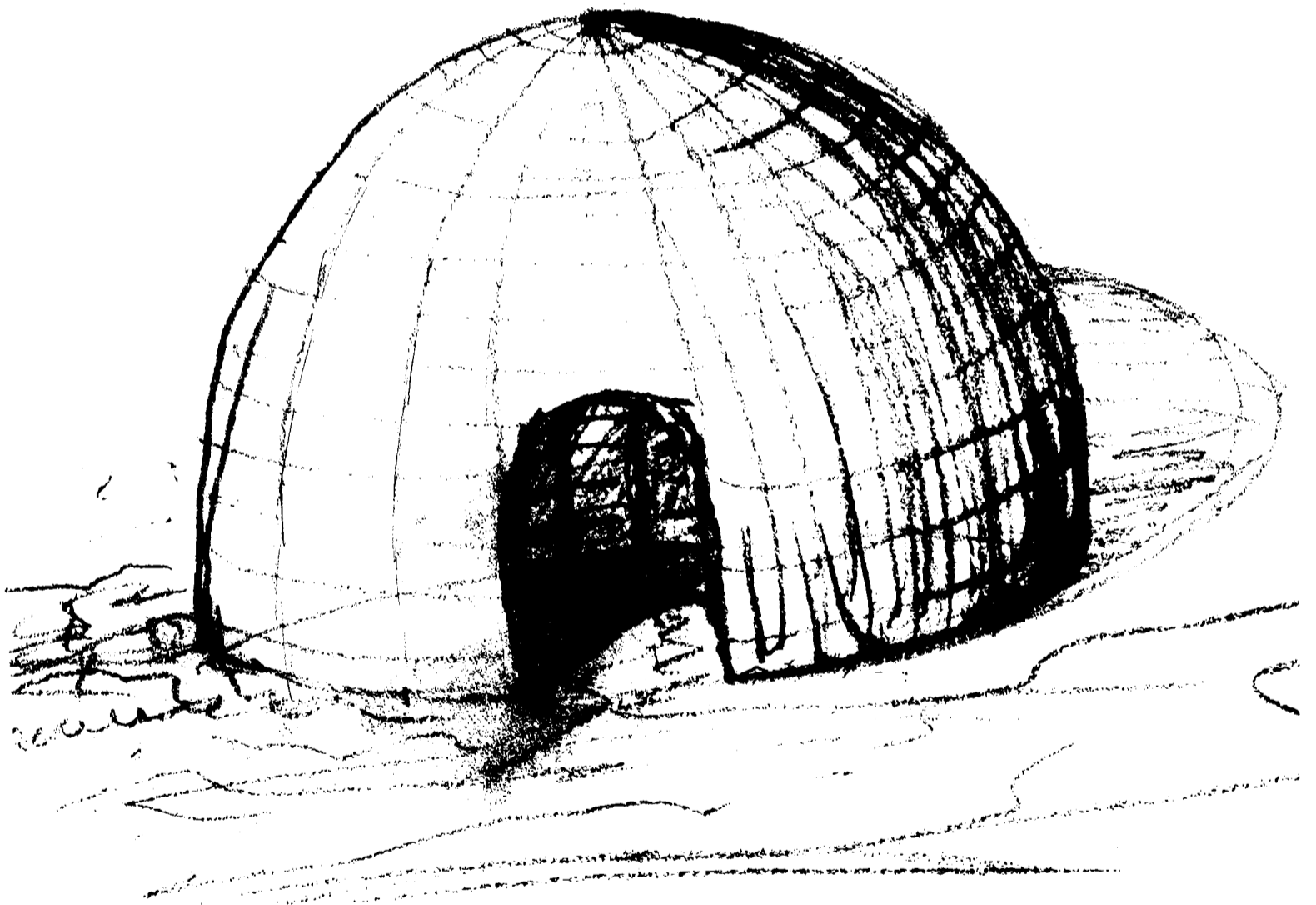


originates from the layout of the dwelling, which has two horn shaped enclosures. The bilobial dwelling is usually associated with the Tswana peoples but it seems to have reached its highest level of development among the Ndebele. It is a bee hive looking structure with no distinction between the wall and the roof. Figure 3.2 illustrates the dwelling.

The Ndebele, generally recognised as a Ngoni immigrant group, broke away from the Zulus and headed north. They settled in southern Zimbabwe. On their way north, they seem to have come into contact with the Tswana, from whom they adopted the bilobial dwelling.

The dwelling represents a highly refined household organisation. It takes into account the spatial relationships which exist between the family's semi-private and private areas and the settlement's common zones; (Franco Frescura, 1981). The layout was originally in the form of two horn shaped enclosures facing each other, with the hut located at the point of conjunction of the two. Access to the dwelling was through the fore lobe, usually defined by a low stone and mud kerb which supported a reed or grass screen. This was the semi-public, semi-private space. Although visibly accessible, it constituted a definite territorial statement. Entry was subject to social taboos or invitation. Beyond this point, a dwelling served as the enclosed family private space. The Ndebele refined the territorial statement a great

Figure 3.2 - The Bilobial Dwelling



Source : Child (1968)

deal. Up to seven different layers have been recorded by Franco Frescura (1981). The theme of the fore lobe as a territorial statement, was defined and re-defined.

When the visitor steps onto a lightly stepped shelf which does not enclose space, that is the first territorial statement. The mere fact of it being handcrafted heralds approach to the dwelling. A small set of gate posts is then passed. A low wall beyond is a wide seat sometimes used by women for conducting various domestic chores, socializing and supervising children. This statement is repeated once or twice more by passing through either an arched gatepost or a high wall framed by monolithic posts. The courtyard itself will be surrounded on three sides by walls and seating. The dwelling takes up the fourth side. To gain entry into the dwelling one has to pass through, firstly, a low verandah, via the main axis of the household, before the main dwelling chamber is reached. Access to the rear court is provided by a smaller gate. The courts usually feature buildings of their own, being either a kitchen or a dwelling for the oldest daughter or a grandparent.

It is obvious from the description that territorial statements are part of the dwelling. They play an important part in the way of life of the people.

3.4.ii The Second Ndebele Dwelling Form

The roof and wall structures are different in this second type. Impaxa, a ring of poles, possibly eight or ten, support the roof. The wall is made of straight poles with mud packed in the spaces created between these poles. Figure 3.3 illustrates this dwelling type, which represents an improvement on the bilobial dwelling. The improvement is in the relative sophistication of the whole structure. It can be explained by the growing scarcity of traditional building materials due to encroachment on grazing land by cultivated fields.

3.4.iii The Third Ndebele Dwelling Form

This represents yet another improvement on the second dwelling type. The discovery of new technology by the Ndebele, gave impetus to this third dwelling type. By mixing ant-hill soil with cow-dung, clay bricks could be made to form a wall so strong that it supported a roof on its own. The previous house form was now found to be wasteful of resources, particularly the solid poles which supported the roof.

3.4.iv The Dwelling and the Settlement

A number of factors govern the siting of a village. These are water availability for both humans and stock, drainage, fertile soil and suitable grazing.

The layout of the huts is not a haphazard affair. Huts are

Figure 3.3 - The Second Ndebele Dwelling Type



positioned according to some recognised plan, with each hut having its own name. Enclosing the huts of a village is a stout circular fence (utango) which can be closed with poles. Opposite the utango are one or two exits (intuba) for the private use of the inhabitants. The only entrance for the visitors is the isango which cannot be left open at night.

The huts near the isango are allocated to the young unmarried people. The sexes are, naturally, kept apart. The girls' hut usually has a reed fence surrounding it, while the younger children sleep with their mothers.

The indlu 'nkulu or great hut, that is, the hut of the principal wife in a polygamous union, is situated approximately at the centre of the iguma, or open space inside the fence. Behind it and to the left is the family head's private hut (ixhiba). The hut of the second wife, indlu yesibili is situated further to the left in a line with the indlu 'nkulu. For a third wife, if there is one, her hut indlu encinyane will be to the right of the great hut. The hut reserved for visitors, isihamba will be found to the right and behind the one set aside for the unmarried men. Grandparents may be allocated a special hut. At the back of indlu yesibili are the kitchens, imikulu. Each wife has her own. Like the Shona, the kitchens serve more than one purpose. In this case, they serve as both cooking places and as gathering places, especially in the wet weather.

A well documented account has been given by Harold Child

(1968). He describes how grain is stored in carefully constructed grain bins, izipula. These are placed inside the fence at the back of the village. As in the Shona tradition, they also stand on platforms for protection against mice, white ants and other vermin.

Livestock, which plays an important part in the economy of the rural people, is also provided for. Small enclosures for goats and sheep are to be found near the main entrance to the village. However, if there are pigs, the sty would be located some distance away from the homestead to avoid the unpleasant smell. The chicken coop may be placed in the main enclosure of the village towards the back. The cattle enclosure can sometimes be found detached and placed a short distance from the village. Some families place it and the calf kraal adjoining the homestead fence.

3.5 Evaluation of the Traditional Built Environment

3.5.i Housing Provision

The traditional system of housing is very much a process, intimately related to the users' needs and very much in the users' control (paraphrased from John Turner, 1976). Shona and Ndebele societies were basically egalitarian. Power was distributed among various social institutions (chiefs, kinship heads, etcetera) and restrained by traditional controls. Social institutions were intimately related to an extent that it is difficult, if not impossible, to isolate

that which is political, economic or familial.

In societies with such a high degree of consensus, house construction was therefore always a highly co-operative venture. Building was a major social occasion in which both men and women of a village or a small neighbourhood co-operated. The tasks were divided among the sexes. For example, among the Ndebele, women began by setting up the walls. The men then set up the roof structure in terms of supporting poles and rafters. While these stages progressed, host families freely entertained the participants with plentiful beer and other traditional food such as sweet potatoes. The building construction usually took about a week. It was the culmination of several weeks of assembling and preparation of the necessary building materials by the host family. The women completed the house construction by thatching the building. Just as building was a major social occasion, so was the cultivation of fields, for which community effort or nhimbe, among the Shona, was applied. The social organisation facilitated such co-operative tasks. An important feature of the building process is that everyone in the society knew the building types, and even how to build them. The difference among the people was just a question of the degree of mastering the skills. Amos Rapoport (1969, p.6) describing the traditional built environment wrote...."the construction is simple, clear and easy to grasp and since everyone knows the rules, the craftman is called

only because he has a more detailed knowledge of the rules". That statement is equally applicable to the Shona and Ndebele housing.

One of the important aspect to be learnt from the traditional housing provision is the community effort in house construction. How can such a high degree of consensus and mutual co-operation be harnessed in the provision of low income urban housing, in the contemporary situation? In the traditional society, there is small group decision making at local level, in contrast to the contemporary highly centralised political control of resources and decision making which may be fed downwards. Peter Gutkind (1974) states that in the traditional rural environment, each person is within the social range of everyone else and the community contact is not only frequent, it is almost face to face. The urban setting as it exists today is the complete opposite. It permits less contact with much less frequency. In addition, the individuals who rub shoulders with one another are usually strangers to each other.

The urban setting is a "gesellschaft" situation while the rural environment is "gemeinschaft". These terms were coined by the German sociologist, Ferdinand Tonnies (1957) and are the exact opposite of each other. Gemeinschaft refers to the association of people living together by virtue of "their close kinship, long term residence together and ties of deep sentiment". It also signifies a spirit of co-operation,

social goals and communal friendship. *Gesellschaft*, its antithesis, refers to secondary rather than primary contacts. The city is characterised by secondary contacts. These contacts are "impersonal, superficial, transitory and segmental", (Louis Wirth, 1964). The bonds of kinship, of neighbourliness and a shared folk tradition are likely to be absent or at best relatively weak.

In the city, therefore, the strong ties of kinship and group loyalty which ensure a high degree of consensus and co-operation in housing provision in the traditional society are absent. This is perhaps one of the keys to the success of the rural housing provision, which ought to be harnessed to solve some of the housing problems facing the urban areas. To ensure the same high degree of single-mindedness and common purpose for housing provision in the urban areas, some other claim to group loyalty has to be substituted for kinship ties. John Turner (1972) suggests that the ideal which physical planners should aim for is a model which conceives housing as an activity in which the users, in an economic, social and psychological sense, are the principal actors. This does not mean that every family should necessarily build their own house. They should participate, that is, they should be free to choose their own housing, perhaps to build it or to direct its construction and to use it and manage it as they choose. These are choices which, Turner argues, are still open to those with high incomes. These are also

choices, one might add, which were open to traditional society, regardless of resource levels. In a later chapter it will be possible to see to what extent the urban low income people participate in making these vital decisions concerning their own housing.

3.5.ii Privacy

Privacy has been defined as "the control of unwanted interaction with other people" by Anthony D. King (1980). This interaction involves information flows among the people. In most cultures or societies, the traditional attitudes towards age and sex affect the form which the dwelling takes. The separation of the sexes and hence privacy between male and female is one of the most important elements in the design of the dwelling. The sense of privacy in the traditional Shona and Ndebele societies is highly developed as was evident from the description of the built environments. Privacy in the traditional built environment is achieved through various simple mechanisms and symbols. These are reinforced by cultural mores or social values where the observance of good manners is a cardinal feature of the lifestyle.

Anthony King (1980) gives examples of how space is defined in Norway, through the use of similar mechanisms. In the older farmhouses of Norway a particular beam in the ceiling marks the point at which visitors must stop and be admitted.

Although actually in the room, up to that point, visitors are regarded as being outside. The spaces are semi-public rather than the private space of the dwelling itself. The use of subtle indications to define space helps serve social and cultural purposes. Privacy is attained in a similar fashion in the Bedouin tent.

Such refinement of space is something which is difficult to cater for in the design of low income housing especially with respect to the changing aspirations of the target population. The requirements of modern urban life, the shortage of space and the infrastructure costs severely limit the possibilities of planning in the urban context. However, there is room to take into account some of the underlying principles which should be recognised in the design of low income housing. In the urban areas, women can still be seen sitting outdoors plaiting hair or chatting with neighbours during the afternoons. The courtyard, an important design concept in the traditional built environment, has been completely ignored in existing low income housing options.

3.5.iii Home Ownership

A vital feature of the traditional lifestyle is home ownership. The ambition of every young man of marriageable age was to marry and have his own house. Traditionally, home ownership is both a system of social security and investment as well as of social status and stability. Everyone

sufficiently qualified to own a house owned one.

There was the opportunity for individuals to house themselves and own their houses. Similarly, public sector urban low income housing policy should provide the opportunity for the target population to house itself. Housing policy should provide the right environment and make it possible for everyone to house themselves, thereby incorporating an aspect of strong cultural significance. Present housing policy, as will become evident, does not create sufficient opportunities for the target population to help themselves by providing their own housing.

3.5.iv Building Materials

Mud, thatch and wood are the building materials which were used by the Shona and Ndebele. Mud was the most widely used material for walls and floors. Anthill soil which is low in silt but rich in sand and clay was used. This plastic material has been used to give a unique decorative character to houses and villages. The clay makes the soils sticky and gives them strength. The walls are plastered with cowdung to prevent water seeping into the mud through the cracks. The cowdung not only gives water proofing protection, but it is also good for repelling pests. Although mud floors may conjure images of something soft and unsanitary, this was far from the case. The floors could be almost as hard as cement and quite smooth. A good hard floor could be obtained by

beating the mud with a smooth wooden beater (chichayo) while it was setting. The mud was mixed with charcoal or with cowdung and then smeared with ashes (Bierman, 1971).

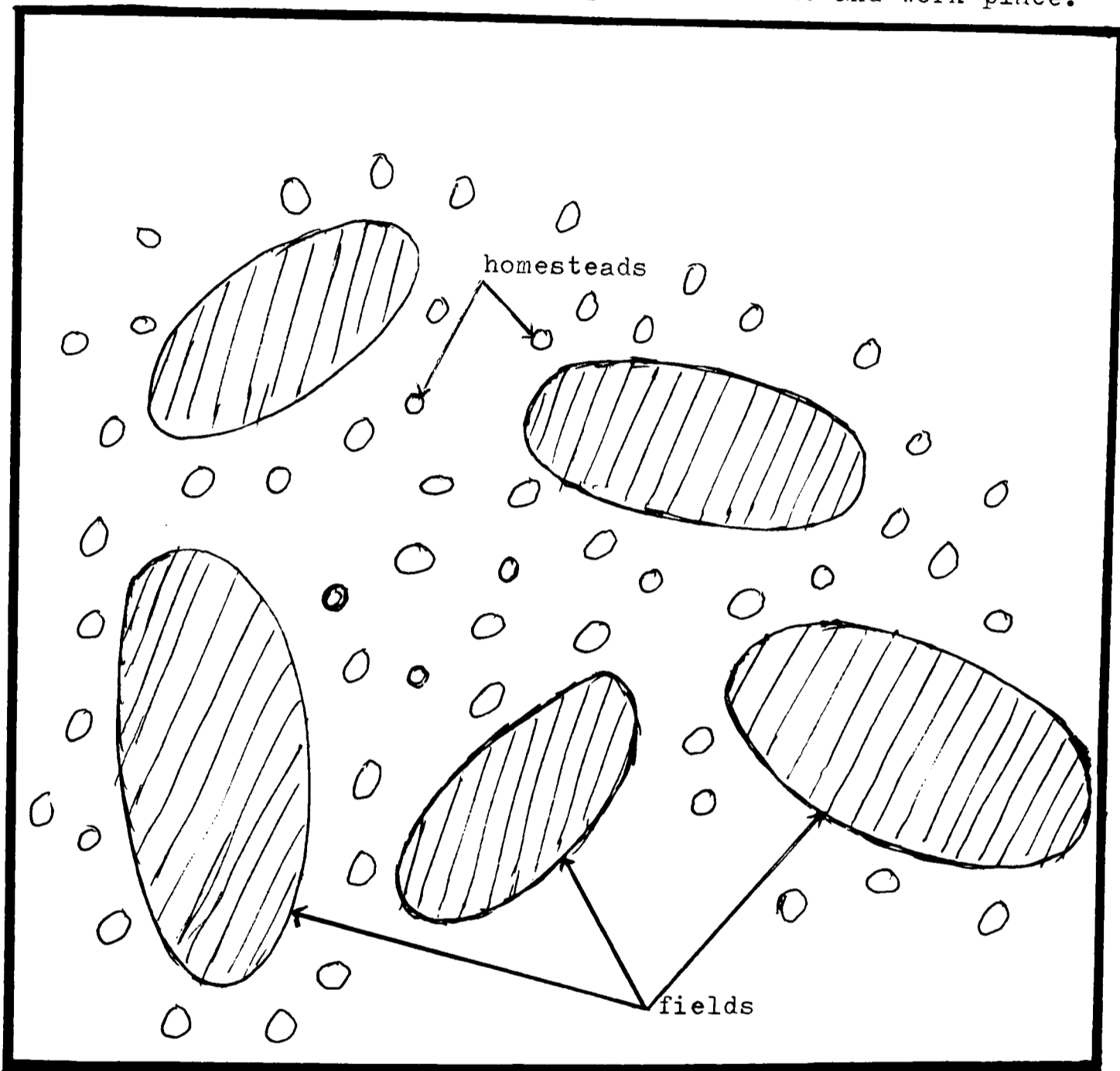
Wood in the form of logs and sticks was used for roofing as well as in the construction of pole and mud walls. Grass and reeds are other building materials with the former required for thatching.

The most notable and important aspect about these materials is their easy availability, ease of repair and good insulation value. They are cheap and do not require much processing before use. The building materials could be used by almost everyone in the society. At a time of growing low income housing deficits, and housing inaffordability, the underlying principles behind traditional building materials should be part of an effective low income housing policy. In addition, such a policy would do well to consider the skills attached to the use of any building materials decided upon in order to make it possible for ordinary persons to take part in housing themselves.

3.5.v Home and Work Place

At the village level the smallest unit was the kinship unit . Adjacent to each kinship unit were its cropping fields. Grazing land was jointly shared among the units, which appeared separate, but overlapped. Crisscrossing paths joined the kinship units to each other, connected with the fields,

Figure 3.4 - The close relationship between home and work place.



Source : A. Mlalazi (1980)

and the grazing lands, thereby creating a form of unity. Figure 3.4 indicates this phenomenon.

For the town planner, such an arrangement presents an important planning principle which should be part and parcel of low income housing policy. That principle is the proximity between the home and work place as well as the relationship which exists between the two areas to form a functional unit. This constitutes sound thinking which can help solve some of the low income housing problems in Zimbabwe if incorporated into policy. The journey to work is a factor which should be taken into account in planning and the continued location of low income housing on the outskirts of Harare is not going to improve housing affordability.

Although some of the elements identified may appear simple common sense, the chapters which follow will, to varying degrees, show how these elements have been neglected in housing policy. Chapter 4 which follows investigates methods of calculating the housing deficit in Zimbabwe.

Chapter 4: The Housing Shortage Methods and Problems of
Assessment

Chapter 3 defined the concept of housing. In addition, the description of traditional provision mechanisms revealed an effective housing provision process and no apparent housing backlog. To take matters a step further, it is not enough to talk about a current housing backlog in Zimbabwe's urban centres, without at least, attempting to quantify it. Given the shortage of suitable housing in Zimbabwe, the need to assemble information on housing need may seem superfluous to many. Adequate and reliable information on the national housing situation are nevertheless important to policy formulation. Without such information, it is difficult to devise correct strategies, establish priorities and set realistic targets appropriate to the prevailing social and economic conditions.

Various estimates of the housing backlog, produced by several organisations, including Government agencies, have been bandied around. There has been no consistency in these figures, though all are trying to measure the same thing. While it may be expedient to ignore the uncertainties of official data in the conduct of political and business affairs, expediency cannot be allowed to rule the use of such statistics in an academic enquiry.

Although the housing shortage in Zimbabwe appears such an obvious fact, trying to put a figure on the extent of the

shortage presents immense problems. There are problems of methodology, value judgements and standards.

"There is no unique and objective way of setting a total housing target. We can easily set a minimum figure which will meet our most pressing and urgent needs. But above that minimum, the target will depend on a set of personal and social judgements", (Crossland, 1971).

As a result of such problems any statements or estimates of the housing deficit should be viewed with extreme caution.

"As statistics, they represent arbitrary definitions as to what does and does not constitute a house", (G.K. Payne, 1977, p.65). The statistics are inherently value laden, by the very nature of what they attempt to describe. Following that argument "deficit" estimates therefore reflect more accurately the way in which "minimum" is defined than they do, the nature of the shelter as it actually exists. The problem of defining the housing shortage, difficult enough when considered on its own, is compounded when examined together with housing need and housing demand. Despite the enormous size of the statistical housing deficit "there are few families the world over who do not have some kind of shelter" (Burns and Grebler, 1977, p.241). However, much of the housing occupied by the majority of people violates official standards set by public agencies and lacks amenities, which are taken for granted in advanced countries. From this juncture, there will be a discussion on population

growth and housing in Zimbabwe, secondly, definitions as to what constitutes a housing shortage, and thirdly, analyses of methods of calculating housing demand and housing shortage as used in Britain, Sweden, Netherlands, France, Canada and the United States. The final and perhaps, the most important part of the chapter concerns itself with assessing the suitability of applying such methods to the Zimbabwean context.

Most of the methods of assessing the housing deficit rely on household formation as well as demographic changes. Surprisingly enough, household formation is a problem seldom touched upon in housing policy analysis, in spite of its importance in "theoretical and empirical investigations of urban and regional processes", (Snickars and Harsman, 1983).

4.1 Population growth and housing

The rate of population growth in Zimbabwe is very rapid in comparison with other countries in the world. It is among the highest for countries on the African continent. This rapid population growth creates immense demands for new housing construction. An analysis of housing needs requires a projection of the size of the population that will require housing at future points in time. While the 1982 census has not yet been fully analysed, some provisional tabulations have been made available, (C.S.O., 1984). These analyses show an annual rate of growth of 3.1% between 1969, (the year of

the previous census), and 1982. In the previous intercensal period, 1961 to 1969, the annual rate of growth was estimated at 4.05%. It is extremely unlikely that the rate of growth would have declined as sharply as the provisional measures of growth rates indicate. Since the intercensal period was a time of upheaval, with much of the country in a state of war, a significant undercount is generally suspected, (Manson and Katsura, 1985). It is however, impossible to assess the impact of this suspected undercount.

The United Nations projects that Zimbabwe's population will grow at an annual rate of 3.5%, based on middle range estimates of fertility and mortality levels (U.N. 1982). The United States Bureau of the Census also expects the population to grow very rapidly at between 3.0% and 3.5% per annum; (U.S. Bureau of the Census, 1983).

In addition, tabulations from the 1982 census of Zimbabwe show that rapid urbanisation occurred between 1969 and 1982, (C.S.O. 1984,p.9). In 1982, 25.7% of the population lived in urban areas, compared with 18.4% in 1969. Rapid urbanisation is also shown to have been heaviest in the largest urban centres, indicating a high rural-to-urban migration for the metropolitan areas. The U.N. has predicted continued rapid urbanisation such that by the year 2000, 38.2% of Zimbabwe's population will be expected to be living in the urban areas. This implies an average annual growth rate of 6.17% over a 20

year period, (Manson and Katsura, 1985). Manson and Katsura have come up with their own projection of 7.0% as the annual growth rate of metropolitan areas, for the period 1984 and 1989.

An analysis of housing needs also requires estimates of household size to translate population size into the number of households that will require shelter. Previous estimates of housing needs in Zimbabwe generally relied on an estimated household size of 6.00 persons, (USAID, 1981, and MCNH, 1984a). These studies were conducted prior to the release of the 1982 census figures. Calculations from provisional tabulations of the 1982 census indicate that there are 3.90 persons per household in metropolitan areas, (C.S.O.). These estimates are shown in table 4.1. Most of these estimates of household size, including those by the Central Statistical Office (CSO), tend to reflect the single family situation and not the "dwelling group" concept. As a result, these estimates do not necessarily represent reality. The "dwelling group" is more appropriate and can be defined as a group of people who cook and eat together.

Information about different household types in the urban areas is scanty. Data reliability is therefore one of the biggest obstacles in the quantification of housing need. There is not much one can do about it without a series of exhaustive census counts - an impractical proposition given the circumstances.

TABLE 4.1 - CSO STATISTICS (CURRENT)
POPULATION AND HOUSEHOLD FORMATION

	<u>1984</u>	<u>1989</u>	<u>1994</u>	<u>1999</u>	<u>2004</u>
Metropolitan Area					
Population (1000's)	1442.00	2022.00	2757.00	3655.00	4710.00
Annual Growth Rate %	0.00	6.99	6.40	5.80	5.20
Average Household Size	3.90	3.90	3.90	3.90	3.90
Total Households (1000's)	369.74	518.46	706.92	937.18	1207.69
New Households per Year	0.00	29.74	37.69	46.05	54.10
Other Urban Areas					
Population (1000's)	801.00	1022.00	1305.00	1665.00	2125.00
Annual Growth Rate %	0.00	4.99	5.01	4.99	5.00
Average Household Size	4.22	4.22	4.22	4.22	4.22
Total Households (1000's)	189.81	242.18	309.24	394.55	503.55
New Households per Year	0.00	10.47	13.41	17.06	21.80
Rural Areas					
Population (1000's)	5861.00	6585.00	7378.00	8275.00	9314.00
Annual Growth Rate %	0.00	2.36	2.30	2.32	2.40
Average Household Size	5.08	5.08	5.08	5.08	5.08
Total Households (1000's)	1153.74	1296.26	1452.36	1628.54	1833.46
New Households per Year	0.00	28.50	31.22	35.24	40.98
Country					
Population (1000's)	8104.00	9629.00	11440.00	13593.00	16149.00
Annual Growth Rate %	0.00	3.51	3.51	3.51	3.51
Average Household Size	4.73	4.68	4.63	4.59	4.56
Total Households (1000's)	1713.29	2056.90	2468.53	2960.27	3544.71
New Households per Year	0.00	68.72	82.33	98.35	116.89

SOURCE: Manson and Katsura (1985)

4. 2 Definitions of concepts

4.2.i Housing Need

The "housing need" approach to assessing the size of the housing problem takes account of population growth rates, quantity, size and general quality of available accommodation units and the need to replace sub-standard or slum accommodation, (Mtizwa-Mangiza, 1985). Housing need is an essentially prescriptive concept used to denote the inadequacy of existing housing provision and allocation when compared with a commonly accepted socially desirable normative such as equality of opportunity. The concept is concerned with both the supply of "desirable" housing as well as the "equity" objective which is the fair distribution of that housing among the population. It is therefore an essentially normative term.

"Housing need compares the number of desired separate households with the available number of existing dwellings of some minimum standard", (Stewart Lansley, 1979). Consequently, Lansley has called it the social approach. Needleman (1964, p.18) defines housing need as "...the extent to which the quantity and quality of existing accommodation falls short of that required to provide each household or person in the population, irrespective of ability to pay or of particular personal preferences, with accommodation of a specified minimum standard and above".

The key element in the definition is the idea of a "minimum

standard" which has to be satisfied. This idea is found in most definitions of housing need. The U.N (Housing policy guidelines, 1976) defines housing need as "a social measure of the difference between actual conditions and an accepted standard". Clearly this is where the concept of housing need runs into problems with value judgements, because there can be no universal agreement as to what is the "minimum standard". The situation becomes even more complicated when the term is applied in a comparative context.

"Need is therefore a subjective concept which will vary according to who determines the norm", (Shucksmith, 1981).

The Housing Services Advisory Group of the Department of the Environment (HSAG, U.K.) defined households in need as:

"only those who: (a) lack and require accommodation for their well being, and (b) live in accommodation which is not up to socially acceptable standards of ;

(i) fitness

(ii) availability of five basic amenities (fixed bath, or shower, wash basin, sink, hot and cold water to the foregoing, and a W.C.)

(iii) space", (HSAG, D.O.E. 1977).

A more complicated definition of housing need has been given by Bradshaw (1972). He classified need into four parts:

(i) "normative" need, which the civil servant, councillor or expert (on behalf of society) defines as need,

- (ii) "felt" need, which the individual himself defines as need;
- (iii) "expressed" need, which is "felt" need turned into action, either through the willingness and ability to pay which translates felt need into effective demand, or through joining a local authority's council housing waiting list. Its counterpart is hidden need.
- (iv) "comparative" need, where an individual fails to receive accommodation equivalent to that of similar individuals;
- (v) "demand", which might be unrelated to any "need" for accommodation, such as demand for second homes and holiday cottages", (see figure 4.1 for Bradshaw's classifications).

The housing need approach to assessing the magnitude of the housing problem has been largely discarded in many countries for the following reasons:

- (i) it is often difficult to define a minimum standard of housing provision with precision;
- (ii) the lack of consensus as to what that standard should be;
- (iii) most importantly if a standard is agreed upon, the concept of housing need reveals daunting housing deficiencies hopelessly out of proportion with available resources. The standard becomes so hard to achieve that it is meaningless and conveys no idea of

Figure 4.1 - Manifestations of housing need

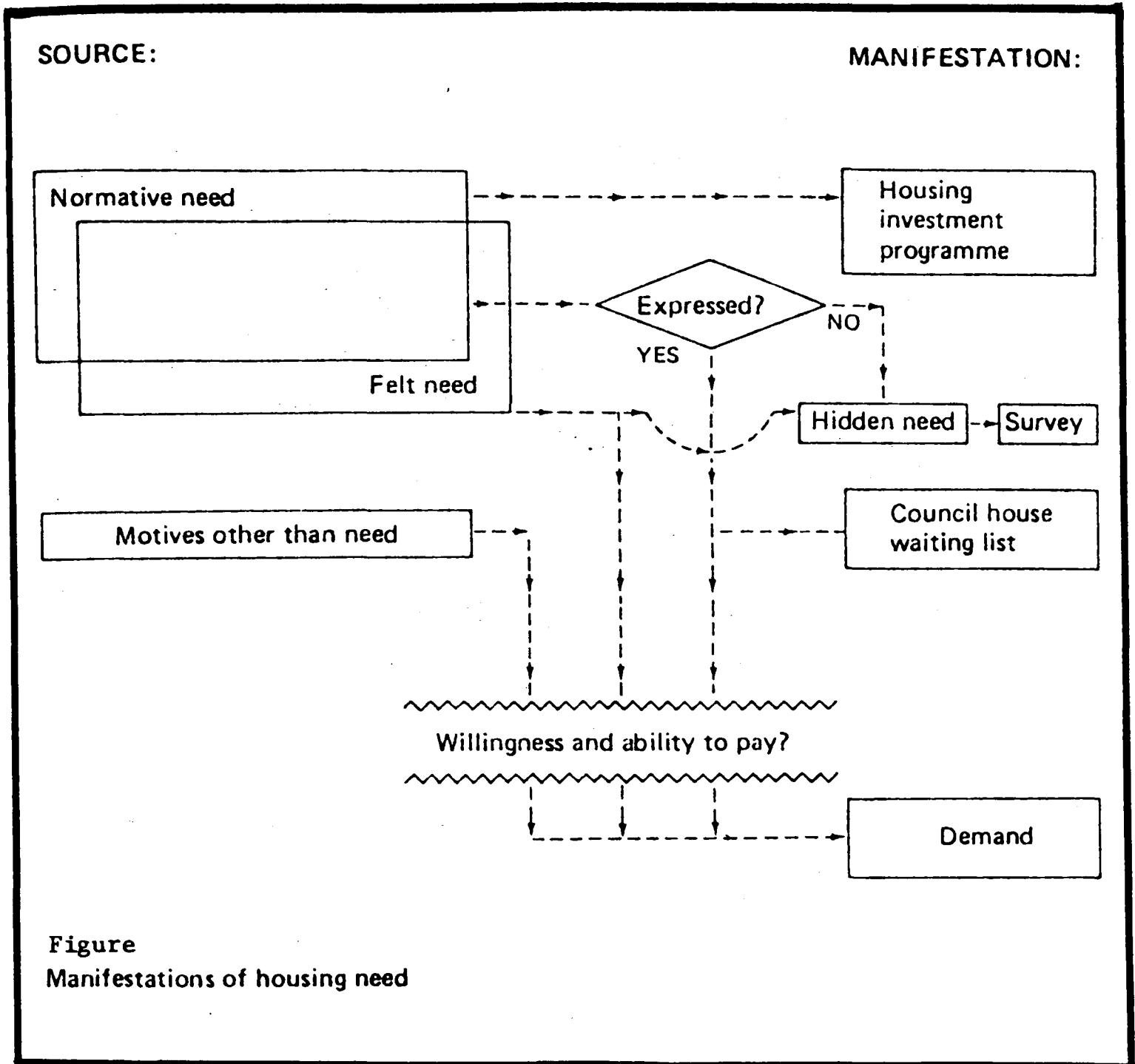


Figure Manifestations of housing need

Source : Bradshaw (1972)

priorities as a basis for policy.

There has thus been a general shift to the "effective demand" approach.

4.2.ii Housing Demand

Housing demand is essentially an economic concept which represents that portion of housing need which is backed by willingness and ability to pay, (see figure 4.1). A U.N. sponsored definition defines the concept as "an economic measure based on the ability of households to pay for acceptable accommodations as needed". Housing demand should not be confused with housing need. As a measure of housing shortage, housing demand takes into account household incomes, household expenditure patterns, house prices and rates of construction. A demand profile based on the ability to pay for diverse types of housing solutions is then made (Mtizwa-Mangiza, 1985). Unfortunately, as pointed out by Drakakis-Smith (1981, p.28), the major drawback of this concept is that "...effective demand isoften used as a justification for directing government housing towards the middle income groups in order to avoid rental deficits". Housing shortages based on effective demand only exist "when there are more persons willing to pay at the going price than there are houses available", (Lansley, 1979). Needleman (1964, p18) defines housing demand as "the accommodation for which people are able and willing to pay. It takes no account of social desiderata or personal aspirations that cannot be

fulfilled because of lack of money". Demand is presented as a descriptive term in that definition.

But as a measure of the total housing requirements in a country, housing demand or effective demand is a poor criteria for the following reasons:

(1) It may vary from country to country because of varying land value and construction costs etc.

(2) Housing demand is not a single fixed quantity but a variable which depends, inter alia, on the quantity and quality of housing supplied and on the price of that housing.

(3) It is also a dynamic concept which constantly changes according to changes in the economy at large, particularly changes in incomes, interest rates, credit and mortgage availability.

(4) Housing is not a homogeneous product. Its many attributes range from location, size, type, condition, age, facilities, etcetera. The price of housing is influenced by these attributes, and so is the housing demand. Housing is both a consumer good and a durable good and according to Currie (1983), "much confusion has resulted from identifying the demand for housing with the demand for new houses".

Yet there is consensus in the literature on the "willingness and ability to pay" as an essential ingredient in the definition of housing demand. The use of the housing demand concept in the assessment of housing requirements makes it

imperative to assess the ability to pay on the part of the target population for any housing strategies which result as a part of housing policy.

4.3 Assessment of Housing Requirements

Several methods and techniques will be examined in the next part of this chapter. These are:

- (i) the total stock/household method
- (ii) average household size model
- (iii) headship rate analysis
- (iv) minimum household unit method and
- (v) an international perspective will be given before discussing
- (vi) waiting lists,
- (vii) an overview of methods and their applicability to Zimbabwe will form the final section of this chapter.

4.3.i The total stock/household method

This technique was developed in the 1950s in the U.K. as a means of measuring the extent of "housing need", that is, of giving quantitative expression to what was the principal objective of housing policy at that time. The objective was, of course, to build as many houses as possible to ensure that all households were able to occupy self-contained accommodation that satisfied the standards of comfort and public health of that time. The method involves five stages:

- (a) estimating the private household population at the required date(s);
- (b) deriving from this an estimate of the total number of households deemed to be in need at the required date(s);
- (c) estimating the total dwelling stock at the required date(s);
- (d) deducting from this total an allowance for vacant dwellings, second homes, etc.;
- (e) comparing the results of (b) and (d) to provide an estimate of shortage (or surplus).

The private household population is defined as the population which is not usually resident in establishments such as hotels, hospitals, educational establishments and prisons etc; (D.O.E. 1980).

Section (d) of the method already excludes the Zimbabwean scenario where the concern is with providing adequate accommodation, let alone second homes. The method is a demographic technique according to which the number of extra dwellings required is simply the number required to overcome current deficiencies plus the number required to cater for the anticipated growth in the number of households. Richard Henderson (1979) criticizes the method on the grounds that "its validity as a means of measuring need is crucially dependent on the assumption that the number of households at a future date is a simple function of the size and structure of the population and not itself a function of the number of

dwellings available for occupation". The method is also not appropriate for Zimbabwean needs because of problems in the availability of data to make realistic estimates as would be required in (a).

4.3.ii Average household size

This method has been widely used as a convenient summary measure. It does not need disaggregation of the projected population by age, sex and marital status and therefore it is one of the simplest to use. Future household numbers can be calculated by simply multiplying a projected future estimate of average household size by the total future private household population. The formula is as follows:

$$\text{Future no. of households} = \frac{\text{total future pvt. hse/hold pop.}}{\text{future estimate of hse/hold size}}$$

In 1965, Eversley and Jackson (1965) used it and were able to show the importance of including socio-economic as well as demographic variables in the analysis of household formation. The deficiencies of the average household size as a dependent variable for the statistical analysis of household patterns have been shown to be:

(a) as it is a small number with a low variance, it is difficult to identify sufficiently the effects of the independent variables. However, such changes in its value are magnified to such an extent as to produce large differences in the resultant projected number of households;

(b) it combines, inextricably, the demographic

characteristics of the population with those social and economic characteristics which determine the propensity of individuals or families to form separate households, (Emirsch and Overton, 1984). This causes difficulties in model building and for theoretical analysis of household formation. The size of the household is dependent on multifarious decisions made by individuals and their families, their marriage and child bearing propensities etcetera. Such decisions are themselves dependent on several other factors. The net result is that with this method, it is difficult to disentangle the effects of underlying independent variables which will interact.

4.3.iii Headship rate analysis

A headship rate analysis was defined as the proportion of persons in any demographic group who head a household (Ermisch and Overton 1984). Using a population classified by age, sex and marital status, the model calculates for each of these groups the proportion who are household heads. These proportions, known as headship rates, are estimates of the probability that an individual in a given sex-age-marital status group will head a given household type.

The headship rate method was developed at the time of the British 1931 census. It was based on numbers of women by their marital status rather than men who in later models were designated heads of families, and by extension, households.

In the United Kingdom, in 1931, estimates of the number of families requiring a separate dwelling were carried out using a single type of "headship rate" or "family index" based on:

- (a) total married women of all ages,
- (b) total married women of all ages plus widowed of both sexes under the age of 65,
- (c) total married women of all ages, plus widowed women of age under 65 plus 10% of the single of both sexes between the ages of 10 and 45.

4.3.iv Deficiencies

Barnard (1981) criticised the headship rate projection models because they do little more than summarize recent trends in household composition and mechanically extrapolate these into the future with no accompanying explanation of the complex set of factors underlying these trends. Past trends in household formation are not necessarily the best indicators of present and future change.

Other criticisms have been put forward by Ermisch and Overton (1984) as follows:

- (a) the structure of the headship rate system is that analysis is usually carried out using the characteristics of the designated "heads of variables as independent variables". The exclusion of the characteristics of the other family members could introduce biases into the statistical tests.
- (b) the headship rate method is said to be especially

ineffective for the analysis of the "marginal" groups, (the non-married, both lone parents and childless adults), which are an ever-increasing proportion of the total population. Headship of a multi-adult household is really an arbitrary concept. It might be that all members of the household are sharing and yet one is labelled the "head". The use of the headship rate method in other types of complex households is questionable.

4.3.v Minimum household units, (MHU)

The minimum household unit approach was formulated by Ermisch and Overton (1984). An MHU is defined as "the smallest group of persons within a household that can constitute a geographically definable entity", (Ermisch and Overton 1984). The MHU is definable in demographic terms and this is illustrated by the way persons move from one MHU to another in their lifetime through demographic transition.

There is an optimum size to an MHU. Too large an MHU underestimates the level of household fission while to employ too small a unit would over-estimate it or confuse household fission with demographic change.

The following are simpler definitions of MHUs:

MHU 1_ childless, non-married adults;

MHU 2_ lone parent families;

MHU 3_ childless married couples;

MHU 4_ married couples with dependent children.

An MHU is therefore "the smallest group of persons with a household to be considered to constitute a geographically definable entity", (Ermisch and Overton, 1984). It is definable only in demographic terms in the sense that a person, over his/her lifetime, moves from one MHU type to another by means of a simple demographic transition or event, as shown in figure 4.2.

In order to illustrate this, an unmarried adult can move from an MHU 1 to:

- _ MHU 2 by bearing a child out of wedlock
- _ an MHU 3 by marrying another childless adult,
- _an MHU 4 by marrying a person who already has a dependent child of his/her own.

The lone parent in an MHU 2, can transfer into an MHU 1 if their dependent child were to die, or when the youngest of the dependent children moves out of the dependent age group, into an MHU 4 on marriage etc. The set of relationships between the MHUs are self explanatory in figure 4.2.

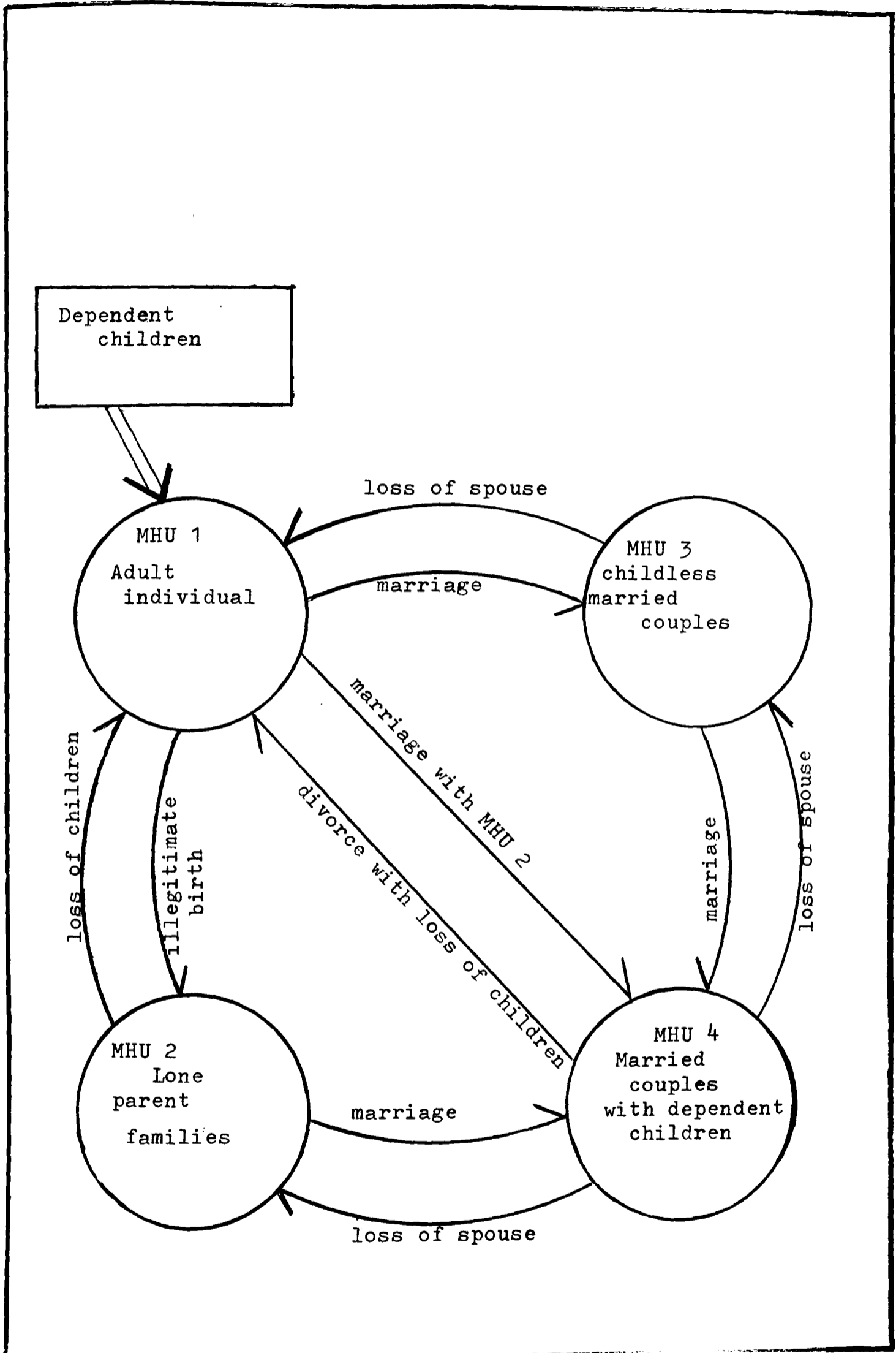
4.3.vi Advantages of the MHU system

Several advantages can be cited in favour of the MHU system.

The MHU system can boast of the following:

- (i) it focusses analysis directly on patterns of sharing,
- (ii) it separates the demographic from the social/economic levels of analysis,
- (iii) its categorisation of family units is well defined in

cycle.



Source : Ermisch and Overton (1984).

terms of demographic variables and this gives it wider application,

(iv) each component of the household is given equal status thereby making it easier for comparison of the characteristics of those formed households and also it can be used on "marginal" households,

(v) it is amenable to statistical analysis of the socio-economic and demographic influences on household formation,

(vi) because of the close parallel between an MHU and an economic decision making unit, it is more closely related to the processes of household formation as well as suitable for econometric analysis.

The MHU technique however has no relevance to the Zimbabwean situation because the MHU as a unit of analysis is misleading. This is so because of the complexity of factors affecting household formation in Zimbabwe. For a start, Zimbabwean households are generally much larger than the MHU technique apparently allows for. Another restriction of the MHU method is the cognisance it allows for lone parents and children born out of wedlock. This section of the population is a small minority to be taken into account in assessing realistic housing requirements. This however does not imply that there are no lone parents or children born out of wedlock in Zimbabwe.

The lack of an adequate statistical base needed in the application of the MHU approach is another serious setback in

its suitability for the Zimbabwean situation. As discussed previously in the section on population, to achieve some measure of data reliability entails exhaustive census counts which are not possible in the given circumstances.

4.4 An international perspective: Sweden

In a discussion of household forecasts, Bjorn Harsman and Folke Snickars (1983) have indicated two approaches used in Sweden. The most common approach is to begin from the actual population and forecast migration and natural population changes. This is a demographic approach which is used on a national and regional and municipal level. The "natural" population changes are forecast by projections of fertility and mortality ratios while migration is determined through labour demand analysis or housing market data. The second approach starts from a determination of the future supply of dwellings and of the development of dwelling sizes. This information, extracted from existing plans for dwelling construction, renewal and demolition, is combined with space standards to enable forecasting the future population level.

It is worth noting that these methods, unlike those discussed previously, have as the end product, household forecasts, or population levels which are assumed to reflect housing demand. The methods are relatively easy to comprehend but the statistical data used for them is difficult to assemble in the Zimbabwean situation. The methods have been criticized as

- being (i) too coarse and mechanical to be reliable,
- (ii) the impact of household formation on migration patterns and on dwelling size is not explicitly treated, and
- (iii) as well as lacking satisfactory precision, they harbour a considerable degree of subjectivity,
- (Bjorn Harsman and Folke Snickars, 1983).

Household formation is a difficult subject in itself because there is a large range of conceivable household categories. In addition, the dynamics of the household formation processes are complicated by elusive cultural forces and its effects on societal values. The household formation model does not take cognisance of these complex factors which make it impossible to reflect reality. The use of the household model cannot be transferred from one situation to another without taking into account these cultural matters.

The starting point of the household model is the headship rate methods. The household formation model is currently in use for household forecasting in the Stockholm region and it is also used as an integral part of the housing market model. The household formation or household transition model, as it is sometimes called, has led to the collection of a new type of data concerning household formation. In three consecutive Swedish censuses on population and housing, (1965, 1970 and 1975), the combined data on individuals has enabled information about the actual flows between household

categories to be gathered. Data gathering is already a big problem in Zimbabwe, without trying to incorporate the above models which are very data hungry and appear to be of no significant use in regard to the low income housing problem.

4.4.i The Netherlands

In the Netherlands, the Central Bureau of Statistics collects annually the relevant data on the population structure and the housing stock of each individual municipality. While the data on population is described with respect to sex and age composition, number of births, deaths and migration movements, that on housing stock comprises year of construction, type, size and sector, number of completions, removals and in as far as possible, vacancies. Data on household size is based on the findings of supplementary research in the form of a sample survey among 60 000 respondents which takes place every four years. The respondents are asked to answer questions concerning "the composition of their household, household characteristics such as income and age, characteristics of their present dwellings" and if applicable, previous dwelling, household preferences and the preferred location for the new home (Henk Scholten, 1984). The combination of statistical data makes it possible to calculate the percentage of heads of households among age groups of one year (the headship rates). Further computation by multiplying the figures for the total

population by the headship rates generates the number of households, and consequently the required number of dwellings.

The data exercise must also yield a construction programme for the future and cannot remain limited to the present population. In that case, a prognosis of the future population structure is also necessary. As a result, a cohort-survival model is used to calculate the necessary figures for the future and a development of headship rates is assumed. The magnitude of the housing demand for the future can then be predicted.

The process has to be repeated for each of the Netherland's fifty-one housing market areas in order to balance the supply and demand in the spatial context. In 1981, the quantitative shortage of housing amounted to 130 000 dwellings while the qualitative shortfall was 265 000, (Scholten, 1984).

Implementation of housing programmes, apart from financial restrictions, is also governed by the expected rate of increase in household numbers and the demolition rate of buildings from existing stock. The planning of housing construction programmes is not just limited to answering the question of how many dwellings to be built. The potentially conflicting goals of housing and spatial planning have to be dealt with. Spatial planning is concerned with housing construction in so far as it influences where the dwellings should be constructed. This is important because the country

is one of the most densely populated in the world. The PRIMOS model (PRojection, Information and Monitoring System) is used to simulate the attainment of both policy goals. An input-output model is used to gain an insight into the degree of residential mobility prompted by residential construction.

Obviously, the sophisticated models and calculations used in the Netherlands are a far cry from the resources available for Zimbabwean low income housing. It is doubtful whether the use of such methods would deliver the required satisfaction and besides it is not usually wise to import techniques suitable to one situation without taking into account the underlying assumptions of such techniques and the problems they are originally intended to solve.

4.4.ii Canada, France, Britain and the United States

Most western industrialized countries have undergone significant structural shifts in the composition of their housing demand as the non-family household, (once a small component of housing demand), has grown rapidly. It has become an engine of growth for the residential construction industry as Smith, Rosen, Markandya and Ullmo (1984) have shown. They indicate that during the 1960s and 1970s, non-family households, (defined as individuals living together), as a percentage of all households rose from 12% to 23.2% in Canada, from 19.6 to 24.0% in France and from 15.1% to 25.6% in the United States.

The authors were able to show that the household headship rate has increased considerably in many western industrialized countries. They attributed the growth of the non-family component to a variety of socio-economic influences. In all the four countries under discussion, the more direct cause was attributed to the increasing real affordability of housing. The non-family household headship rate was discovered to vary directly with real per capita disposable income and inversely with the real cost of housing services. The specification of age specific headship rates is a major uncertainty in forecasting future housing needs. On the other hand, changes in family types, as reflected in changing headship rates, also determine the size and type of the housing units demanded.

In the field of residential planning, the growth in the demand for the housing stock is often taken to equal the growth in the number of households. Consequently, variations in population and headship rates have a profound effect on the housing sector. This emphasises the need to understand such population changes and other demographic variables in order to understand housing need. Therefore in the Zimbabwean context the answer to quantifying the housing needs lies in the development of methods of calculation relevant to local experience. For instance, such methods must take cognisance of the extended family and to what extent this is still prevalent in Zimbabwean urban society. As was

apparent from the discussion of the western countries, the differences in demographic variables is very important in the formulation of housing policy. The exclusive reliance on the mechanical and purely academic application of formulae to ascertain housing need becomes an irrelevance in Zimbabwe without a deep understanding of cultural and other demographic aspects of household formation.

4.5 Waiting Lists

In the report "Council Housing Purposes, Procedures and Priorities" produced by the Harare City Council in 1969, the view was expressed "that even given regular review.... housing lists give a measure only of the articulated demand for council housing but they relate only to the demand which is expressed by way of an application to the Council and only to needs which are recognised as falling to their responsibility". From that statement alone, it is evident that housing waiting lists are prone to criticism from different angles. By their very nature, housing waiting lists are controversial because they involve prescriptive rules concerning a wide range of issues, for example rules governing eligibility for registration onto the waiting list.

The Harare City Council maintains a housing waiting list based on a massive card index system. This system contains not only records of applicants for housing but also those who

have obtained accommodation in Harare or Chitungwiza. During 1985, a number of changes were approved by the City Council. These changes involved:

(i) a system of annual renewals which were introduced;

(ii) the income ceiling of Z\$450 was lifted to permit those in the higher income groups to register their need for accommodation. The statutory minimum wage for industrial workers had gone up from Z\$100 to Z\$175 while for domestic workers it was fixed at Z\$50 per month. Government guidelines for the operation of local authority waiting lists were also received and a revised set of rules drawn up.

Prior to 1985, regulations governing registration on housing waiting lists had not changed for a long time. A special review of the Harare waiting list was carried out by Marja Hoek-Smit in 1982. The objective was to assess its validity as a reliable instrument for estimating housing demand and its usefulness as a tool for housing allocation. When the review was carried out, the Harare waiting list contained 23000 names. The requirements for admission to the waiting list were as follows:

(a) applicants must be subject to a maximum income of Z\$325 per month (at the time of the review, approval of an increase of the income limit to Z\$450 was under consideration),

(b) the applicant should be employed or otherwise economically productive in Harare (the application form

- is still required to be signed by the employer),
- (c) the applicant (male or female) should be married or have responsibilities as a parent,
 - (d) the applicant should not own or rent Council provided housing, or be in the process of purchasing city financed property.

Priorities for allocation of housing are given on the basis of length of employment in the city rather than on the time of registration on the waiting list. Absentee records should be no more than six months with the exception of time spent in the liberation struggle. In addition, households are selected to conform with the required affordability criteria (based on cost) of the housing to be allocated.

Two surveys carried out by Hoek-Smit revealed several interesting findings:

- (i) an analysis of all applicants for admission to the waiting list during 1981 showed that the majority of the new members had applied as a response to the Warren Park core housing scheme. The income requirements of this project were in the range of Z\$130 to Z\$150 per month. Most of the applicants were therefore in the range of Z\$100 to Z\$190 per month;
- (ii) a small random sample of 50 households registered in the card index of the housing waiting list was taken. The employer information or address of the applicant was checked out and efforts were made to

contact the applicant.

Of the initial 50 households in the sample, only 9 could still be traced. The 9 were interviewed, 3 of them being owners of houses in Glen View and 6 still lodgers or sub-tenants looking for housing. The results were as follows:

Waiting List sample (n=50)

- (a) place of residence not known by employer recorded on the index card.....82%,
- (b) owners of Glen View property.....6%,
- (c) lodgers and sub-tenants looking for housing.....12%.

The results of the survey, small though it was, are a clear indication of the unreliability of the waiting list as a tool for assessing housing shortage and for house allocation. The information on the registration forms was grossly out of date. The reliability of the waiting list can generally be questioned on several grounds such as:

- (i) some people are unaware of the need to register,
- (ii) others are discouraged from registering by the sheer size of the waiting list,
- (iii) those who are not employed or (legally) self-employed are not permitted to register,
- (iv) still others are living in employer owned accommodation and are on the waiting list as a safeguard against loss of employment or as a form of

security for their old age.

Another survey, this time conducted by the Department of Physical Planning in 1983, revealed that of Epworth's squatter population, only 6.8% were registered on Harare's waiting list. Another 5.1% did not bother to register because they thought the list was too long, while the rest of the survey population had other reasons for not registering. As a result of the unreliability of the waiting list, the Harare City Council, as early as February 1984, adopted annual updating of the list for family accommodation. The Herald, on the 3rd of February 1984, carried an article on the new regulation and warned that failure to renew an application would result in a person's name being removed from the active waiting list from which all housing allocations are made. In January, 1981, the family housing waiting list stood at 17 384 (The Herald 22/2/84), and by January 1984, this had more than doubled at 34 931 (The Herald, 22/2/84). On 29/5/85, the Director of Housing and Community Services urged the City Council of Harare to update its housing waiting list. Talk had already started about computerising the list.

With increasing concern for the validity of the waiting list, came new registration criteria which were issued by the MCNH. The significant changes was the shifting of the maximum income to Z\$600 per month from Z\$450. A standard priority and scoring system was also introduced to be used in the

allocation of housing to ensure fairness. (The new registration rules and priority systems can be found in appendix 4.1). The income ceiling of Z\$600 means that no person earning over that income can be allocated rented accommodation, where the rental, inclusive of rates, supplementary charges and tariff charges (not including electricity and water) is less than Z\$50 per month.

Harare's waiting list showed a considerable decline in 1985, from 36 457 to 22 781. This can be explained as largely due to the fact that 19 398 unrenewed applications were "frozen". The significant fact is that the waiting list showed a net increase (new applicants minus discharges) of 8 628 during 1984/85, despite the allocation of 3 822 houses. Clearly, the housing authorities are not keeping up with the housing demands as expressed through the waiting list, let alone reducing the accumulated backlog. Figure 4.3 shows a histogram of the income profile of Harare's housing waiting list.

Alan Murie (1976) is critical of housing waiting lists as a method of assessing the housing backlog. He states that "rules of eligibility and beliefs about such rules, expectations and definitions of housing needs will be reflected in waiting lists". This is one of the major weaknesses of the housing waiting list. Sometimes the rules are inappropriate for the target people for whom the housing is intended and therefore result in unnecessary hardships.

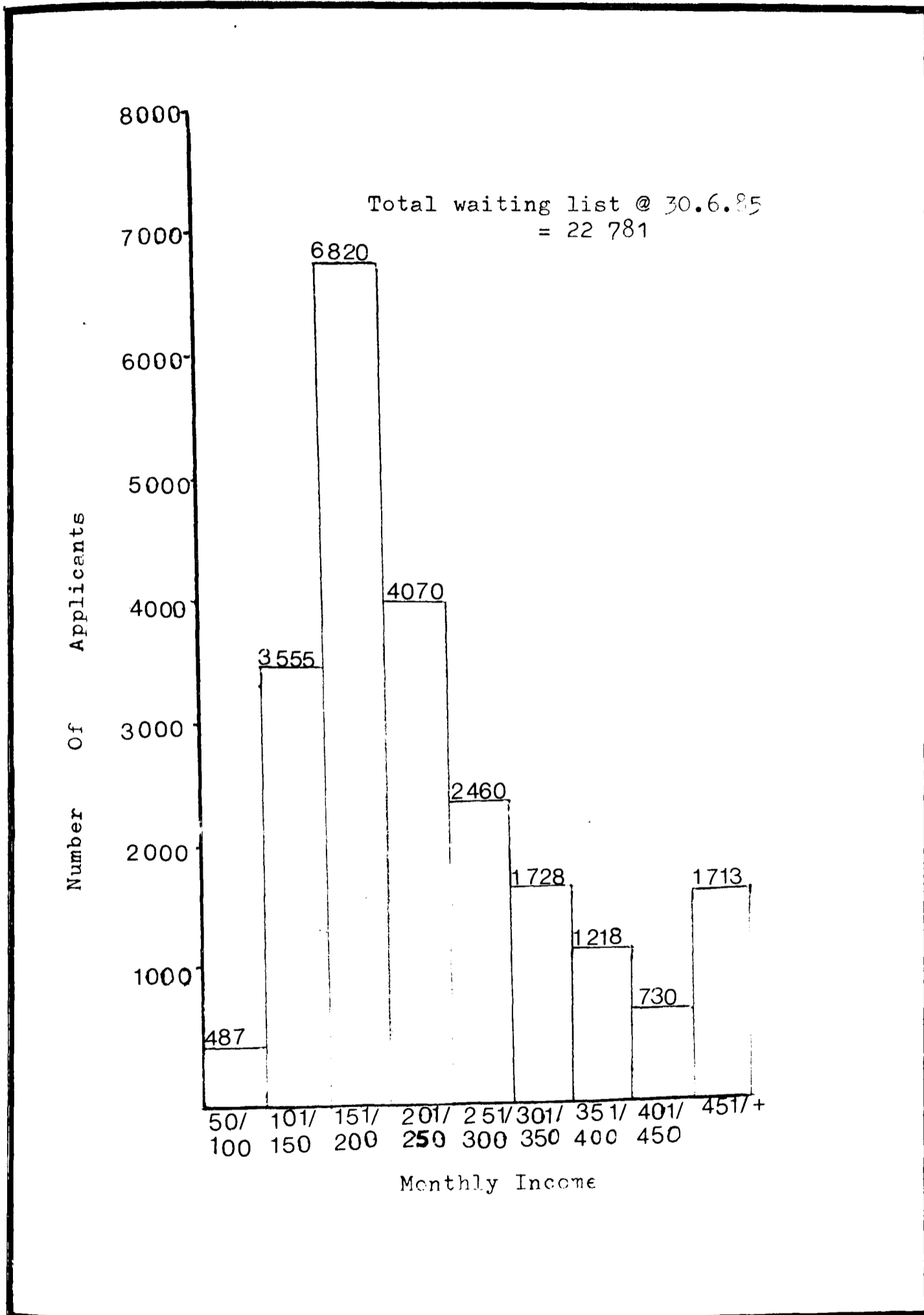
Harare's eligibility rules, for example, (before they were revised in 1985), did not recognise the existence of the extended family as part of the African way of life. Consequently, they specified accommodation for just the nuclear family. There is the problem of the values of the housing authorities filtering through and getting reflected in the eligibility rules.

Niner's (1978) work in Copeland Borough (U.K.) reveals how misleading waiting lists may be:

"Need may also be under-estimated by a waiting list where households in need do not register, either because they are unaware of council housing waiting list or because they think they have little chance of being rehoused. Only very rough estimates of the degree of undercounting can be made. For example, applying proportions found among the sample to all on the Copeland list, it can be calculated that in 1976, about 250 applicants lacked a fixed bath or shower. The 1971 census showed that about 2 300 households in the private sector lacked these amenities. Even taking account of likely improvements since 1971, the difference between the two sets of figures is striking. The waiting list must clearly be supplemented by other sources if the full extent of the need is to be assessed".

Housing waiting lists do provide some useful information, as

Figure 4.3 -Income Profile : Housing waiting list.



Source : Dept. Community Services, 1985.

long as their shortcomings are remembered. A typical justification for the use of housing waiting lists was given by the Eden District Council (1975) in the comment:

"Though they may not give us the whole story, they provide the only hard information we have".

4.6 An overview of the methods

Most of the methods discussed operate on the underlying assumption that whenever a new household is formed, new housing demand is created. When applied to certain societies, this is clearly a dangerous assumption because in other societies, new households stay with either the man's or woman's family and do not move away.

So many other factors of housing need are ignored by the methods discussed. Steve Godfree (1978), referring to the total stock/household method, contends that "housing provision is not simply a question of supply". Access to housing depends more on income, opportunity and desire for such housing than upon availability, as Godfree elaborates. The crucial question of whose needs the housing is to satisfy is sadly neglected in all the techniques. The means of access to different parts of the housing market and therefore the effects of changes in housing supply will also vary according to the nature of the housing programme. Accessibility to housing is important and the question of which needs and which demands will be met depends upon the housing policy. It

is precisely for this reason that any estimate of housing need or shortage must refer to some target population and some policy perspective. Murie is highly critical of the techniques discussed because of the abstract manner in which housing requirements are calculated without "some assessment of effective demand, of what needs will be met by the private sector and of how the building programme and public sector allocation policies will affect this".

Although some of these methods look impressive, they fail to deliver satisfaction because they do not take into account cultural and other socio-economic criteria in the assessment of housing need. Consequently, they remain little more than elaborate academic exercises. Quite clearly any determination of the low income housing need in Zimbabwe must also take into account the levels of effective demand, housing finance systems, saving patterns etc. Anything else remains a mere calculation of the number of households which are re-labelled housing shortage.

Most of the methods also assume that if, arithmetically, the housing stock figure is increased by the use of such computations, then the housing shortage ceases to exist. Obviously, this is a fatuous proposition because the lack of housing affordability among the low income people is enough to stop this happening, besides other factors. Accessibility to housing cannot be conveniently ignored without serious consequences for housing policy.

The need for massive data to make some of the methods functional in Zimbabwe is an impossible condition to meet.

The total stock/household method, the average household size model, headship rate analysis and minimum household unit method which have been reviewed are based on arithmetic calculations of housing shortages which neglect effective demand for housing. In addition, some of the techniques like the headship rate analysis and minimum household unit method are data hungry and so inappropriate for use in Zimbabwe. The method used in Netherlands takes into account most of the relevant issues of housing shortage and is therefore a more effective tool. However, it is also data hungry and therefore inappropriate for Zimbabwean conditions.

Such data is not easily available except in developed countries with decades of collecting such information. For some time to come, low income housing will continue to defy all attempts at consistent quantification. The waiting list, in spite of its shortcomings, will continue to be the only available instrument for evaluation. A method needs to be developed which is cognisant of all relevant variables, such as household formation as a product of demographic factors modified by tradition, attitudes etc. and therefore appropriate for the Zimbabwean experience.

Chapter 5, which follows, discusses housing policy in Zimbabwe and low income housing problems which confront housing authorities.

Chapter 5: Government Policy and Low Income Housing

If there is a big low income housing shortfall in the urban areas, how then is the "surplus" population accommodated?

There are various ways :

- (i) lodging (not connected with employment),
- (ii) the extended family system,
- (iii) squatting (there is a squatter settlement, Epworth, just outside Harare) and finally
- (iv) lodging in domestic accommodation, although the latter is officially acknowledged accommodation, (Gordon J. Merrington, 1980).

The diverse methods in which the unofficially housed have accommodated themselves have, in many ways, disguised the extent of the housing shortage. The exception is the urban squatters who represent an obvious manifestation of either housing inaffordability or simply the lack of adequate housing. Squatting has always been resisted by the authorities. Even in the post independence era, resistance to uncontrolled rural urban migration has been manifested by the retention of legislation such as the Vagrancy Act and the bulldozing of squatter settlements, wherever these appeared. As recently as October, 1985, Enos Chikowore, the Minister of Local Government, Rural and Urban Planning announced his intention to form what he called "squatter hunting units". This is an indication of the fierce opposition displayed towards squatting by the Zimbabwe Government.

How has the government handled the housing issue? This chapter is concerned with government housing policy and strategies as well as discussing the size and characteristics of the present housing stock and the target population and its socio-economic characteristics, that is, housing affordability.

5.1 Government Low Income Housing Policy

The Government of Zimbabwe recognises the provision of "adequate and decent" housing conditions as a basic need and an essential element in improving social welfare. This is the starting point adopted by the housing authorities. Housing is recognised as playing an important contribution to socio-economic development. As a tool for wealth distribution, housing is given an important place and its role in gross capital formation is also realised. Its usefulness in wealth distribution is given particular importance because home ownership among Africans was previously highly restricted. The importance of providing adequate housing for all is therefore appreciated. The housing portfolio within the government lies with the Ministry of Construction and National Housing (MCNH). Government housing policy has been enunciated in the Transitional National Development Plan. The Transitional National Development Plan Volume 1, (November 1982), has as its long term objective "to ensure that there is adequate housing and related services at

affordable prices for all, irrespective of geographical location or socio-economic group.

During the plan period, the objective is to arrest the deteriorating imbalance between adequate housing requirements and supply". The formulation and articulation of a consistent and comprehensive national housing policy is then a major planning requirement, if the objective stated above is to be achieved. The State commits itself to continue to coordinate, through the local authorities, the supply of housing and related services (such as roads, water etc.) "in response to self-help effort as well as clearly identified areas of need". The Plan also stipulates that all housing programmes would be financed on the basis of full cost recovery from the beneficiaries.

Policies and strategies in the housing sector, according to the Transitional National Development Plan, Volume 1, are to consider the following:

- (i) "the character of the housing market, with particular emphasis on qualitative and quantitative elements of demand and supply;
- (ii) the optimal supply structure given the socio-economic character of the economy and its population;
- (iii) the role of the public sector in the provision and financing of housing;
- (iv) aided self-help schemes with housing loan

- facilities and service infrastructure provision by government;
- (v) establishment of building brigades, materials production brigades and housing co-operatives;
 - (vi) the balance in development between urban and rural sectors and between new housing projects and improvement of existing ones;
 - (vii) the problems of land supply in urban areas;
 - (viii) elimination of slums and their replacement by serviced stands within the format of the aided self-help programme;
 - (ix) the cost of supplying adequate housing;
 - (x) the role of housing development in employment generation; and
 - (xi) construction of completed houses consisting of a maximum of two bedrooms".

Volume two of the Transitional National Development Plan spells out the objectives of the government as follows:

- (i) "reduce and eventually eliminate the housing backlog in municipal and rural council areas;
- (ii) improve the quality and number of houses in communal, resettlement, mining and commercial farming areas;
- (iii) reduce building materials and construction costs so as to bring adequate housing within the reach of ordinary urban and rural people".

The strategies would comprise the following:

- (i) "provision of serviced stands on an aided self-help basis;
- (ii) provision at an appropriate level and form of financial and technical assistance to house owners both in urban and rural areas;
- (iii) setting up of brigades to undertake the construction of houses;
- (iv) mobilization of people in solving the housing problem; and
- (v) setting up and strictly enforcing housing standards in both urban and rural areas";
(Transitional National Development Plan, 1982/83-1984/85, Vol.2).

For the financing of these housing programmes, the strategy decided upon was:

- (i) "to transform the present National Housing Fund into a financially self-sustaining institution;
- (ii) to encourage employers to assist their employees in acquiring houses through loans; and
- (iii) to arrange for building societies to extend loans to low income workers".

In order to reduce building costs, the Government put its trust in: (a) "direct involvement by Government in the production of building materials and the construction of houses through building brigades and with an essential

participatory component from the people themselves; and

(b) carrying out research into developing cheaper building materials, methods and techniques as a means of inducing further savings in the long run".

House loans were to be arranged for owners. The possibility of a grace period on loan repayments for both serviced plots and houses was also to be investigated. At the same time, investigation would be carried out on the possibility of relating household market rates to some suitable measure(s) of ability to pay.

Having outlined the housing policy as followed by the Government of Zimbabwe, it is essential to know something about the arm of government responsible for the development of housing. The Ministry of Construction and National Housing is divided into four divisions. These are Administration and Finance, Professional Services, Operations, and Housing and Office Administration. The functions of the Ministry are:

- (a) to formulate and implement housing policy;
- (b) to lend funds to local authorities for the construction of houses for low income people;
- (c) to compile and maintain a national housing waiting list for low cost housing;
- (d) to provide loan guarantees to both civil servants and the general public in respect of loans made available to them by building societies;
- (e) to provide technical and professional advice on

house construction to small local authorities; and

(f) to carry out rural construction programmes.

These functions are those which have regard to the provision of low income housing.

Having gained an appreciation of the objectives and strategies of government housing policy, as well as the functions of the MCNH, the housing policy and the strategies adopted will now be discussed in the light of data from the fieldwork.

5.1.i Building Brigades

The establishment of building brigades has been one of the most publicised strategies. There are three types of brigades, namely:

- (i) "materials production brigades" which are concerned with the production of building materials, mainly cement building blocks, clay bricks, window frames, doors and door frames and alternative technology roofing materials;
- (ii) "building brigades (construction)" which deal with the construction of new housing units, schools, clinics etcetera. They consist of bricklayers, carpenters, electricians, plumbers and other relevant artisans; and
- (iii) "renovation and upgrading brigades" which are concerned with renovation and upgrading work, as

the name suggests.

Building brigades are formed by local authorities in consultation with the MCNH. They are formed by expanding the local authorities' works departments, maintenance and engineering departments. As mentioned before, building brigades were intended as a strategy for reducing building costs for low income housing and several reasons were advanced for their establishment :

- (a) the reduction of input costs, in view of the rapidly escalating cost of building materials, estimated to be 30% per annum between 1980 and 1983, (Harris, 1983);
- (b) a reduction in construction time, in view of the government's claim that the private sector could not cope efficiently with the volume of work; and finally,
- (c) creation of more permanent employment opportunities for casual workers in the building industry and the absorption of formerly unrecognised semi-skilled informal building industry workers.

All the brigades in the urban areas are employed by the local authorities and are supposed to enjoy the same conditions of service as any other municipal workers. According to a Government policy paper, once the brigade policy is fully operational, it is stipulated that private contractors will

not be allowed to engage in low income housing work, except in the provision of infrastructure. By August 1983, materials production and building brigades (construction) had started operating in at least eleven urban centres (Zimbabwe Department of Information, 1983). The most publicised to date have been those employed by the Kwekwe municipality. These consist altogether of 250 members involved in building and production of cement blocks, window frames, claybricks, lintels, ventilation blocks, door frames and sink frames. The Kwekwe materials production brigade was estimated to be producing 3000 cement blocks and 2500 claybricks per day, (Zimbabwe Department of Information, 1983).

From the "informant" interviews, it would appear that building brigades have generally not been successful in meeting the first two reasons given for their establishment. The overwhelming opinion from the interviews is that building brigades are expensive and slow in meeting deadlines. In one interview with a housing official, building brigades were described as a "bunch of lazy unproductive municipal employees". It was estimated that building brigades were 50% more expensive than labour hired directly by the beneficiaries because of higher administrative and overhead costs, (MCNH, 1984).

The one surprising finding was to discover that the MCNH itself is aware that the brigades are more expensive than conventional contractors. This view was however not

reflected directly from the interviews of top civil servants, who took great pains to praise the efficiency of the brigades. Even more surprising is the fact that brigades continue to be part of the MCNH housing policy, in spite of the knowledge that they are generally more expensive.

Another indication of the failure of the brigades can be deduced from the data. Although "stand allottees" in aided self-help projects have a number of options to build their houses, in practice, very few allottees (65 or 1.5%) have opted for brigades, (Department of Community Services, 1985). There are several reasons for the unpopularity of the building brigades, namely:

(a) building brigade staff, although employed by the local authorities, cannot be retrenched without the approval of the Ministry of Labour, Manpower Planning and Social Welfare. Local authorities have to seek the assistance of the MCNH before approaching the Ministry of Labour, Manpower Planning and Social Welfare. The hiring and firing of building brigades is therefore a cumbersome bureaucratic affair. Since they cannot be dismissed easily, building brigades tend to have less accountability than other municipal employees and are therefore difficult to discipline;

(b) building brigades are not as time sensitive as conventional contractors. Even when they fail to meet contract deadlines, they continue to draw their normal wages

and consequently do not have the same incentive for efficiency and speed as their conventional counterparts. An example of such lack of time sensitivity was revealed in one interview in which it was alleged a brigade team of more than 10 workers took over 13 weeks to build a small toilet of less than 4 square metres.

5.1.ii Aided Self-help

This is another important feature of Government housing policy. Under this strategy, local authorities provide serviced stands, technical assistance and affordable loans. Participants build their own houses using their own additional resources such as labour, transport, tools and materials. The small loans provided by the local authorities are supposed to complement self-generated resources, the level of assistance depending on the beneficiary's financial capability. As well as the loans, the local authorities are also expected to provide house extension plans, building materials for sale and limited transport for moving materials.

The new aided self-help housing schemes were implemented at Kuwadzana (Phase I), Warren Park "D", Hatcliffe and Dzivaresekwa Extension in 1984/85. Table 5.1 illustrates the extent of the operation. The target group for the aided self-help schemes was, in the case of Kuwadzana, those earning below the median income Z\$175 as at August 1982. For Warren

TABLE 5.1

Allocation of Stands and Loans: New Housing Areas

<u>Area</u>	<u>No of Plots</u>	<u>No Allocated to 30.6.85</u>	<u>Building Loans Authorised</u>	<u>Total Amount of Loans Authorised</u>
Kuwadzana	4 066	3 730	3 465 (93%)	8 415 986
Dzivaresekwa	454	439	343 (78%)	853 389
Warren "D"	1 325	1 257	1 038 (83%)	2 607 985
Hatcliffe	749	704	490 (70%)	1 161 520
	<hr/>	<hr/>	<hr/>	<hr/>
	6 594	6 130	5 336 (87%)	13 038 880
	<hr/>	<hr/>	<hr/>	<hr/>

Source: Department of Community Services (1985)

TABLE 5.2

BUILDING LOANS AFFORDABILITY TABLE : NEW HOUSING AREAS

Monthly Income	WARREN PARK 'D' DZIVARESEKWA (200m ²) Cost \$410 Basic \$17.83		HATCLIFFE (300m ²) Cost \$600 Basic \$19.38		PARKRIDGE/ FONTAINBLEAU (300m ²) Cost \$855 Basic \$21.47		PARKRIDGE/ FONTAINBLEAU (200m ²) Cost \$600 Basic \$19.38	
	Maximum Repay	Maximum Loan	Maximum Repay	Maximum Loan	Maximum Repay	Maximum Loan	Maximum Repay	Maximum Loan
\$	\$	\$	\$	\$	\$	\$	\$	\$
70	1,42	159	-	-	-	-	-	-
80	4,17	468	2,62	294	-	-	2,62	294
90	6,92	777	5,37	603	3,28	368	5,37	603
100	9,67	1086	8,12	912	6,03	677	8,12	912
110	12,42	1395	10,87	1221	8,78	986	10,87	1221
120	15,17	1704	13,62	1530	11,53	1295	13,62	1530
130	17,92	2013	16,37	1839	14,28	1604	16,37	1839
140	20,67	2322	19,12	2148	17,03	1913	19,12	2148
146+	22,26	2500	-	-	-	-	-	-
150	-	-	21,87	2457	19,70	2222	21,87	2457
151+	-	-	22,26	2500	-	-	-	-
170	-	-	-	-	25,28	2840	27,37	3075
175	-	-	-	-	26,65	2994	28,75	3230

Source : Department of Community Services (1985) Parkridge/Fontainbleau - former name of Kuwadzana.

Cost - cost of plot plus services

basic - monthly payment for plot and services.

Park "D" those in the target group were earning more than Z\$175 per month. For Dzivaresekwa, it was the same as Warren Park "D", except that preference was given to tenants of inferior rented accommodation in Dzivaresekwa who were willing to build their own new homes. The priority in Hatcliffe was given to those employed in the north-eastern peri-urban areas. The conditions attached to the Kuwadzana target group were stipulated by U.S.A.I.D. which funded a major portion of the project. This aspect added to government fears of having policy dictated to it by donor agencies.

The conditions of allocation are that serviced and surveyed plots are made available on payment of 5% of the plot purchase price. Plot costs ranged from Z\$410 to Z\$855, depending on size and allocation. Most plots are about 300 square metres in area. The balance of the purchase price is repayable over 30 years at current interest rates. Allottees are required to complete 4 rooms plus ablutions (washing and toilet facilities) within 18 months of allocation, although provision for the extension of the building period exists. Allottees are not permitted to live on site until at least one room has been completed.

Allottees are also eligible for building loans based on income and subject to a maximum of Z\$3230 in Kuwadzana and Z\$2500 in other areas. Table 5.2 shows the application of the income formula and the amount of loan entitlement. There is a grace period of six months after which payments fall due and

are repayable over 25 years at current interest rates. Loan ceilings are set so as to ensure that allottees commit more than 27.5% of their income to plot charges, purchase instalments and loan repayments.

Building loans are advanced in instalments of Z\$500 after allottees have completed their foundation trenches. Subsequent instalments are only advanced after inspection to the satisfaction of a municipal Building Liaison Officer. Permanent improvements to the value of previous advances must have been constructed on the plot. Loans are available in the form of building materials (Kuwadzana) only or as cash advances. The allottee has absolute discretion as to the use of his loan, subject to the proviso that it must be used for the construction of an approved permanent dwelling.

A municipal building material store was opened in Kuwadzana in November 1984. Its facilities are available to allottees from all the new housing areas. Normal building and plumbing materials are stocked, except bricks, sand and aggregate. Available data indicates that the store is popular and as at 30th June 1985, materials to the value of Z\$608690 had been sold, (Department of Community Services). Plates 5.1 and 5.2 show the building material store at Kuwadzana.

Judging from the small number of defaulters on repayments, (only 203 or 3.3%), the aided self-help scheme appears to be generally popular. However, one might argue that this is because there are not enough plots to go round and therefore



Plate 5.1 - Kuwadzana Administrative Offices

Plate 5.2 - The building material store at Kuwadzana





Plate 5.3 - From this temporary shelter and months of sacrifice; - To

Plate 5.4 - To a well built solid house. Note construction in progress in the background.



allottees cannot afford to risk losing their plots for a few dollars. Success notwithstanding, the aided self-help is not for the faint-hearted. It demands considerable sacrifice and input from the allottees. Consequently it is still too expensive an option for many low income earners. The loans are insufficient to finance a full 4 roomed house and allottees have to contribute their own resources. Plate 5.3 shows the temporary shelter one allottee was living in while building an approved permanent dwelling.

One particular aspect of the aided self-help strategy which merits special discussion is that of ablutions facilities. The housing authorities do not provide these for several reasons:

- (i) to reduce public sector costs of housing provision, and
- (ii) an ablution facility at one end of the plot reduces the options of the allottee on plot usage.

While the first reason can stand up to some scrutiny, the latter is hardly a plausible argument for there are very limited options open to the allottee on the use of plots since the authorities have prescribed the type of housing expected. The authorities even provide house plans which differ very little from each other, although admittedly this is in a bid to reduce costs for the beneficiaries. A key factor in the successful implementation of an aided self-help project is the ability of allottees to move on to their plots

at the earliest possible time. This is only possible if there is an adequate ablution facility. Therefore the logical move is to sacrifice options in plot usage and have the housing authorities provide these facilities. Early settlement on the plots ensures successful implementation for the following reasons:

- (i) the allottees are able to guard their building materials on their plots;
- (ii) the allottees can effect savings on transport and double rents by not having to move to and from their plots to build, while also renting both their present accommodation and their plots;
- (iii) allottees can put more personal effort into building their houses if they settle on the plots at an early stage.

The Glen View and Warren Park schemes provided a "wet core" of potable water and sanitation and thus enabled habitation from an early stage in house construction. They were considered very successful schemes.

There is also reason to believe that the stated target of 4 rooms plus ablutions within 18 months is unrealistic. Available data indicates that only about 25% of the allottees in Kuwadzana achieved this, (Department of Community Services). A further 50% will take up to 5 years to complete their houses and the balance may have real problems

in making significant progress within the near future. Instead of the housing authorities concerning themselves with seeing to it that the stipulated 4 rooms are completed, their energy would be better spent on investigating ways of putting the aided self-help scheme within the reach of a bigger target population. Effort should be directed towards placing the cost of the plot within the means of more needy people, for instance by reducing the quality and level that go with it. This is an aspect which is dealt with in the next chapter.

On the target population side, many allottees tend to over-estimate their capacity and resources by attempting to complete the entire 4 roomed unit at one time. The result of such over-estimation is that resources are exhausted before any part of the house is habitable. Consequently allottees have to continue paying double rents for a much longer period as development to a habitable stage takes longer. This is unnecessarily expensive to the allottees. Loan agreements therefore now stipulate that building loan funds shall be used for the construction of a slab, one room and ablutions facilities before they are used for any other purposes.

5.1.iii Housing Co-operatives

One of the strategies formulated by the MCNH to deal with the low income housing problem is that of building co-operatives. These are formed by groups of beneficiaries or potential home owners who pool their resources together for the purpose of building their houses more cheaply. Co-operatives (as stipulated by the Government) are also expected to achieve the following objectives:

- (i) "to enable beneficiaries to participate significantly in the provision of their own housing;
- (ii) to increase the level of people's satisfaction, responsibility and commitment to their housing projects through direct involvement;
- (iii) to import building and other related skills to members of the building co-operatives; and finally
- (iv) to ensure that there is an equitable distribution of housing resources by providing houses to people who have been neglected",
(MCNH, 1985).

The guiding principles for housing co-operatives are stated as (a) open and voluntary membership,

- (b) democratic control,
- (c) non-profit making,
- (d) education and training of members, and

(e) co-operation between co-operatives.

The local authorities are expected to provide the co-operatives with technical, administrative, financial and training assistance. The advantages of co-operatives have continually been stressed by the Government. There has been little response from the target population and to date no significant building co-operatives have been formed. Co-operatives are an attempt to invoke the spirit of housing provision in the traditional built environment where housing was provided through participation and community co-operation. The main reason for the lack of response to housing co-operatives can be attributed to the lack of affinity which the urban dweller has with his neighbour. The element of trust is crucial for co-operative action and this is mostly non-existent in the current urban situation. This is in contrast to the traditional scenario where there were common loyalties and a unified sense of purpose.

5.2 Size and Characteristics of the Present Housing Stock

The urban housing stock is generally believed to be in a very sound condition, though it is severely overcrowded, (Manson and Katsura, 1985). Government policies, both past and present, have been against the development of squatter settlements and this has meant that informal housing is not a significant proportion of the present urban stock. Table 5.3 shows the municipal housing stock in the low income (high

density areas (...plot size below 400msq. m. :over 14 units/ha.). Epworth, the only squatter settlement, has been tolerated because it consists of four long established semi-rural villages. It also has one newly developed section.

The level of facilities provided in the low income, high density areas is generally very high. The exception is the hostels, and of course, the squatter area. The cost of these services is also high and forms a substantial part of the monthly payment for housing. The sound condition of the urban housing stock was indicated in the results of a survey of low income areas by Marja Hoek-Smit (1983). Close to 90% of all households were found to have access to fully waterborne sanitation. In addition, 90% of all the households had water connections on their plots either inside or outside the house, while communal water points occur only in hostels. Plates 5.5 and 5.6 show Mbare hostels.

For electricity, 52% of the households had connections in their dwelling. Generally the older neighbourhoods within the city boundaries are better served. At the same time, it is government policy to provide electricity to all high density areas.

Little data is available on the quality of the housing stock in the urban areas. However, preliminary estimates from the 1982 census suggest that more than 99% had access to a flush toilet. This tends to confirm the sound status of the urban stock as reported by Marja Hoek-Smit (1983). The differences

TABLE 5.3

MUNICIPAL HOUSING STOCK HIGH DENSITY AREAS 30TH JUNE 1985

AREA	HOME OWNERSHIP	RENTED	TOTAL
Mbare	3 328	5 257 (1)	8 584
Kuwadzana	3 730	68	3 798
Highfield	5 235	2 596 (2)	7 831
Mabvuku	4 629	1 142	5 771
Mufakose	6 887	601	7 488
Dzivaresekwa	2 101	2 641	4 742
Glen View	8 571	62	8 633
Hatcliffe	704	-	704
Glen Norah	6 178	702 (3)	6 880
Warren park	4 827	10	4 837
Kambuzuma	2 458	15	2 473
Westwood	81 (5)	-	81
Marimba Park	256	-	256
Tafara	2 274	1 031	3 305
	<hr/>	<hr/>	<hr/>
	51 259	14 124	65 385
	<hr/>	<hr/>	<hr/>

Notes (1) Includes 2 876 family flats
(2) Includes 51 family flats
(3) Includes 451 family flats
(4) Includes 9 family flats
(5) Includes 2 family flats

NB Does not include 167 bachelor flats in various areas and 6 119 single hostel berths in Mbare.

Source: Department of Community Services (1985)



Plate 5.5 - Mbare hostels near Musika. Facilities are generally poor.

Plate 5.6 - Mbare hostels at Magaba. The space in the foreground is a disused tennis court now used as a playground for children.



TABLE 5.4

URBAN HOUSING DENSITY FACTORS

URBAN AREA	TOTAL POPULATION LOCAL GOVERNMENT AREAS	TOTAL HOUSING STOCK	TOTAL NUMBER OF ROOMS	AVERAGE NUMBER OF ROOMS PER UNIT	AVERAGE NUMBER OF PERSONS PER ROOM
BULAWAYO	313,543	53,719	204 132	3.8	1.53
GWERU	68,760	13,568	39,347	2.9	1.74
HARARE	411,193	56,230	174,313	3.1	2.35
CHITUNGWIZA	172,556	27,526	82,578	3.0	2.08
KADOMA	38,916	7,043	12,677	1.8	3.06
KARIBA	12,387	1,597	3,354	2.2	3.69
MARONDERA	17,371	3,061	10,713	3.5	1.62
MASVINGO	20,837	3,301	8,913	2.7	2.33
MUTARE	52,248	8,641	23,331	2.7	2.24
NORTON	12,360	1,542	3,855	2.6	3.20
KWEKWE	35,571	7,629	21,360	2.5	1.66
VICTORIA FALLS	5,537	1,220	3,050	2.5	1.8
TOTALS	1,161,189	185,077	587,623	2.8	2.3

Sources : 1982 Census figures (provisional) CSO, Ministry of Housing

TABLE 5.5

URBAN LOW INCOME HOUSING STOCK
AND GROWTH FACTORS
FOR 11 MAJOR TOWNS OF ZIMBABWE

URBAN AREA	1980/81	1981/82	NEW UNITS	% GROWTH	1982/83	NEW UNITS	% GROWTH
BULAWAYO	44,509	51,151	6,642	14.9	53,719	2,568	5.0
GWERU	12,593	13,568	975	7.7	13,568	0	0.00
HARARE	54,225	56,165	1,940	3.5	56,230	65	0.11
CHITUWGUIZA	24,188	26,316	2,123	13.8	27,526	1,215	4.60
KADOMA	5,589	7,043	1,454	26.0	7,043	119	1.7
KARIBA	1,407	1,407	-	-	1,597	190	13.5
MARONDERA	2,453	3,011	558	22.7	3,061	50	1.66
MASVINGO	2,460	3,301	841	34.1	3,301	0	0.00
MUTARE	7,171	8,641	2,470	20.4	8,641	0	0.00
NORTON	1,507	1,542	35	2.3	1,542	0	0.00
KWEKWE	6,151	7,560	1,409	22.9	7,629	69	0.91
VICTORIA FALLS	1,160	1,220	60	5.1	1,220	0	0.00
TOTALS	163,413	180,925	17,507	14.4	185,077	4,276	2.3

Source : MOH, Local Authorities
Harare Combination Master Plan Preparation Authority (April 1984)

in the census estimates and Hoek-Smit's findings may be explained by the latter's concentration on the high density areas. By any measure, the urban housing stock of Zimbabwe is in good condition, structurally and in terms of basic service provision.

Although the urban housing stock is generally in good condition, the high rate of rural-urban migration and a stagnant residential construction industry have created severe overcrowding. Table 5.4 indicates the level of overcrowding in the housing stock. From the table Harare has an average of 2.35 persons per room and 1.9 households each of 4.7 persons occupy a house of about 2.8 rooms. People are accommodated at a density of 3.2 persons per room, (Harare Combination Master Plan, Housing Study Report, April 1984). In 1978, records from the local authorities and the former Ministry of Local Government and Housing indicate a housing backlog of 26% of the housing stock (USAID 1981, p 29). The situation has been aggravated by continued rural-urban migration, on the one hand, and the depressed level of residential construction.

From the 1982 population census of Zimbabwe, the data shows that rapid urbanization occurred between 1969 and 1982 (CSO 1984, p 9). In 1982, 25.7% of Zimbabwe's population was living in urban areas, compared with 18.4% in 1969. This migration has continued and the most rapid urban growth has been shown to have occurred in the metropolitan areas, Harare

included. Urban areas of at least 20 000 inhabitants grew at a rate of 6.07% annually, while the remaining urban areas grew at a slower rate of 4.00% per year, (Manson and Katsura June 1985, p 13). This rapid migration has exacerbated the overcrowding.

At the same time the construction of residential units has been depressed. Private sector construction of residential units has largely been for middle to upper income housing and the reduction has meant that middle income earners have no new houses to buy. Hence they have to queue with the low income earners, thereby making the competition for the cheaper housing more fierce for those least able to afford it. With the purchase price of existing middle and upper income housing around 60% of replacement cost, the construction of new houses has been unprofitable (MCNH 1984a, p 8).

The Government of Zimbabwe has assumed the active role of producer of housing in recent years since the inactivity of the private sector construction industry has done nothing to help the housing situation. Consequently, the housing backlog is now generally believed to be around 39% of the existing stock, (Manson and Katsura June 1985). In the end, the low income households bear the brunt of the housing shortage as they face greater competition for the scarce housing.

Table 5.5 indicates the growth factor in the construction of

housing for Harare and ten other urban centres. It is quite obvious that for the years 1982/3 the percentage growth was a mere 0.11% in contrast to the 3.5% of 1981/2 over the preceding year. The Central Statistical Office monitors the number of houses and flats included in municipal plans from time to time. However these figures are based on the number of approved plans rather than the actual construction which has taken place. They must therefore be treated accordingly. The highest number of units included in building plans was in 1978, when 15 718 was recorded (CSO 1984a). This is clearly far below the 58 000 officially stipulated new units needed annually if the MCNH is to achieve its target of providing adequate housing to all urban residents within 15 years.

5.3 Housing Options

Before independence in 1980 attempts were made to provide housing affordable to the majority of wage earners. In order to keep the development costs as low as possible, the standards of design and construction of low cost housing and its supporting infrastructure were reduced to a level which the housing authorities regarded as the minimum consistent with the need to provide an extendable house core with water, sewerage and electrical services. Presumably, this level was considered to be affordable by the majority of wage earners. This section discusses the housing prototypes which were

developed in both pre- and post 1980 periods. These are discussed with respect to housing standards set by the Government in post independence times. The cost of construction of these prototypes is important to the discussion.

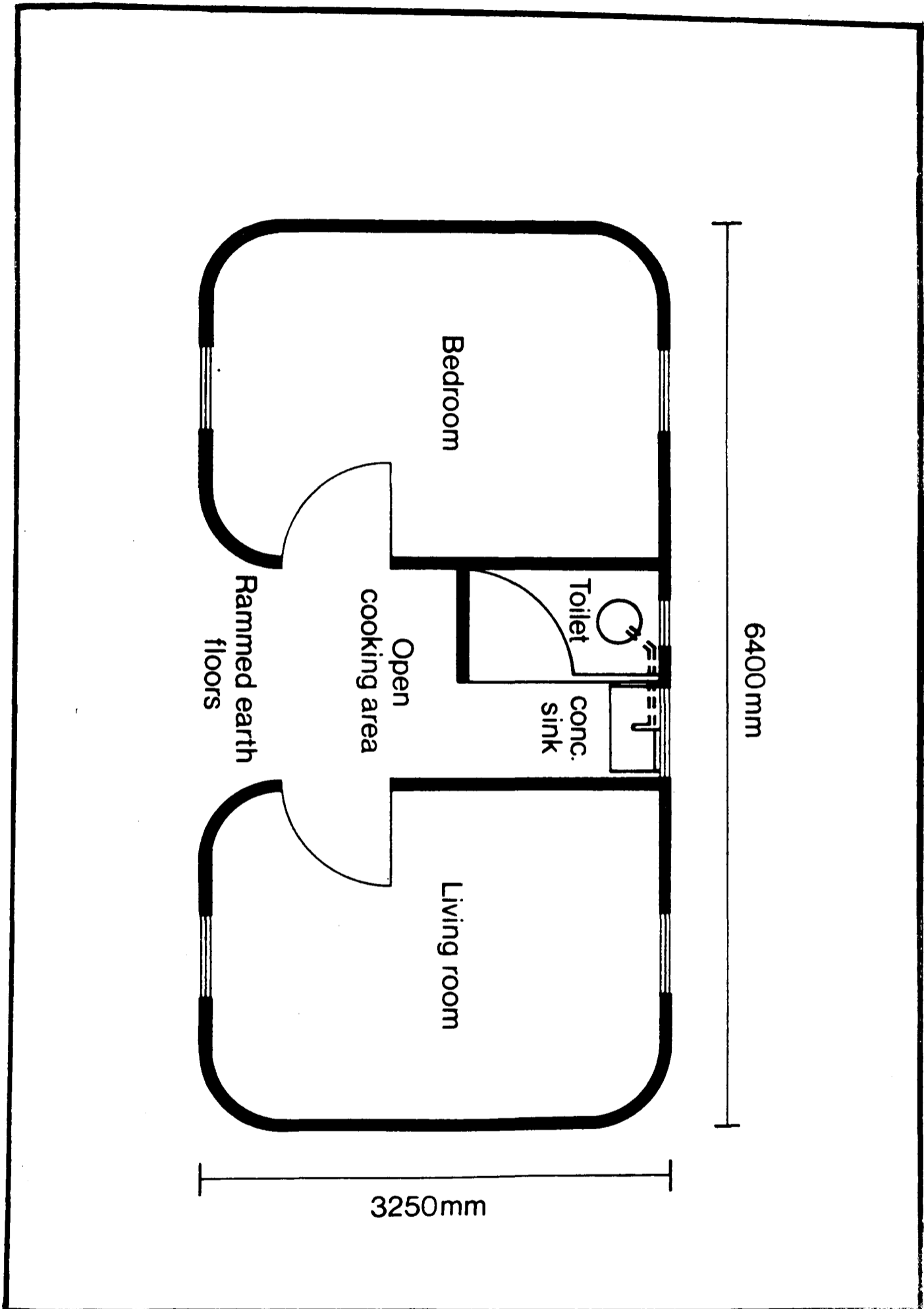
5.3.i The Ultra Low Cost House

The ultra low cost house was a pre-1980 option developed to produce a house within the reach of the lowest paid workers. It is a pre-independence housing prototype which was continued after independence. Some initial form of shelter, together with ablution and service facilities which would form the nucleus of future expansion, was considered necessary. Three reasons were stated to support this thinking.

- (i) it is the initial development which the households find the most difficult;
- (ii) unsatisfactory and non-hygienic housing can be avoided; and
- (iii) control of development is simplified and obviates the traumas of future upgrading programmes, which are generally hamstrung through lack of further finance.

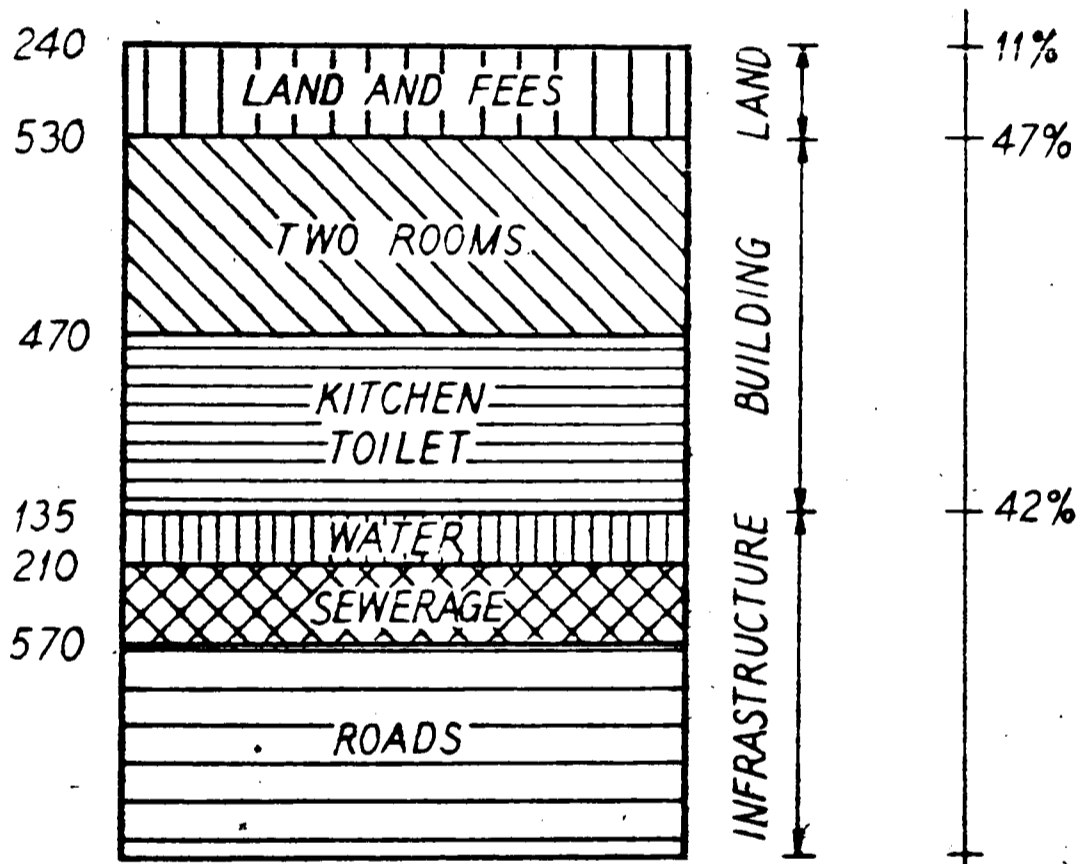
The ultra low cost house, as shown in figure 5.1, was designed to be the cheapest structure available. The first cost reducing factor was the size of the plot on which the

Figure 5.1 - The ultra low cost house



Source : Mutizwa-Mangiza (1985)

Figure 5.2 - Development cost of an ultra low cost house.



DEVELOPMENT COST OF AN ULTRA LOW COST HOUSE.

Source - Gerd-Jan De Kruyff (1981)

structure was to be built. The plot was 10 x 20 m (200 square metres). However this was later changed to a minimum of 300 square metres. In practice, plot dimensions were 14 x 21.5 m (301 square metres) or 12 x 25 m (312.5 square metres). Research which was carried out by the HDSB* demonstrated that a 10 x 20 m plot represents a 26% saving over a 12.5 m x 25 m plot in terms of internal services alone. It was demonstrated that the less costly the type of house, the more important, relatively, the infrastructure costs become, (as Appendix 5.1 shows). Conversely, the more expensive the type of house, the more relatively important are the building costs.

The 200 square metre (10 x 20 m) plot was thought to represent the smallest and most economical house plot that could validly be used while allowing some cultivation on the plot. The thinking was that such a plot would not permit serious disruption of the cultural life style of the workers which included cultivation of subsistence crops. Assuming an average of six persons per dwelling unit, an ultra low cost core developed on a 200 square metre plot would give a net density of 110 persons per hectare (including related community and sports facilities).

The ultra low cost unit was governed by the minimum space requirements considered suitable for human habitation. The net overall area was determined by the provision of two living spaces, each 7.4 square metres, together with toilet/shower

*Housing Development Services Bureau.

and a minimum size kitchen, including a sink. The overall size of the unit was 26.07 square metres.

Other cost saving design features were the single skin concrete blocks. Both cement and the block making machinery are manufactured locally. The single block walls were treated externally with one coat of cement slurry/paint mixture to render the walls waterproof. Internally, the walls remained waterproof. There were more cost saving features such as:-

- (i) Minimum sized foundations (300 x 100 mm). These were laid immediately below the ground level, hence reducing the amount of excavation required;
- (ii) No floor slabs were provided at all in the first instance, except in the toilet/shower. This had a useful benefit of (a) cost reduction in overall terms of 4.2%, that is, approximately Z\$38 per house or Z\$3 800 per 100 houses, (or the equivalent of 4 houses - 1981 prices); and (b) allowed the occupant the potential for house improvement on a self-help basis.
- (iii) Glazed windows were not provided in the first phase. However, openings were left in the facade for the later inclusion of windows. Savings from this exclusion were calculated as 4% of unit construction costs.
- (iv) The roofing was of locally made asbestos cement

sheeting. This was fixed to timber purlins running longitudinally along the length of the building.

- (v) All houses were reticulated electrically with provision made for a one plate electric stove. This was to prevent continued denudation of indigenous timber in surrounding areas, in so far as the need for firewood for cooking was obviated.
- (vi) Every house was provided with sewerage and water reticulation. Although this provision is initially more expensive than the alternative of communal water points and ablution facilities, the HDSB considered the long term advantages as outweighing any savings. Communal provision would present both short and long term problems.
- (vii) The building cost for each ultra low cost core unit, 1981 prices, was Z\$1 000, excluding service infrastructure costs. According to figure 5.2, building costs represented only 46% of overall development costs.

5.3.ii The One Room Core House

Figure 5.3 shows the one room core house, which represented the next up the scale of low cost housing provision. This type of house fell within the range of 17% of those requiring housing. Each house was sited on a plot of 12.5 x 25 m and

this size allowed for incremental growth of the core unit to 4 extra bedrooms. With an average occupancy of 6 persons per house, a net overall density of 80 persons per hectare is achieved. The one room core house had the following features:-

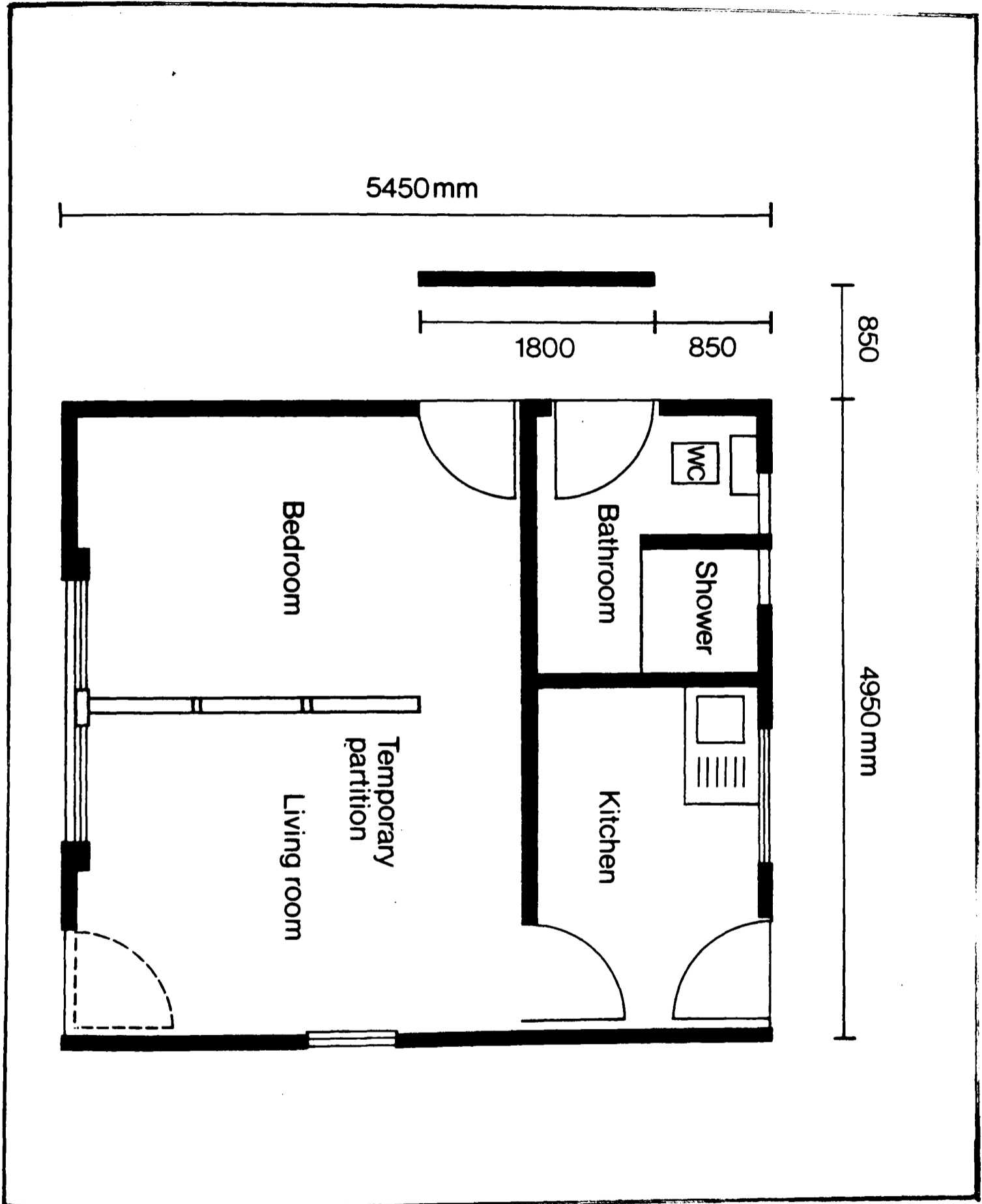
- (i) the core was limited to 27 square metres in size, in the first phase. The room space provided was initially divided into two areas separated by a temporary partition. This partition was designed to be easily removable on the addition of extra bedrooms. Thus in the first phase a toilet and shower are also provided, with the latter being possibly replaced by a bath, if required, in the later development phase.
- (ii) The actual construction of the unit is in concrete blocks. Construction of concrete blocks is a labour intensive process and therefore creates much needed employment.
- (iii) a single blockwork skin (115mm.) formed both the external and internal walling. The application of a coloured cement wash rendered the external walls waterproof and to relieve the monotony, different colours were used from unit to unit. Inside the walls were painted white with locally produced "carbex", a material generally considered economical and easy to renew.

- (iv) the design of the foundations and the concrete floor slab were to the minimum standard which the authorities considered as sufficient for effectiveness. The consequent reduction in cement supposedly effected savings in a contract of 1000 houses or more. However, under the local building codes as they were then enacted a single skin walling of 110mm. and the provision of a 65mm. concrete floor slab would not have been acceptable.
- (v) as with the ultra low cost house, each core unit was roofed by asbestos cement and had water and sewerage reticulation as well as electrical installation. For electrical reticulation, the short term cost savings by excluding it were considered of little consequence in comparison to the increase in ultimate installation costs. In 1981, the unit building cost was Z\$1 800 excluding excluding service infrastructure.

5.3.iii The Two Bedroom Core House

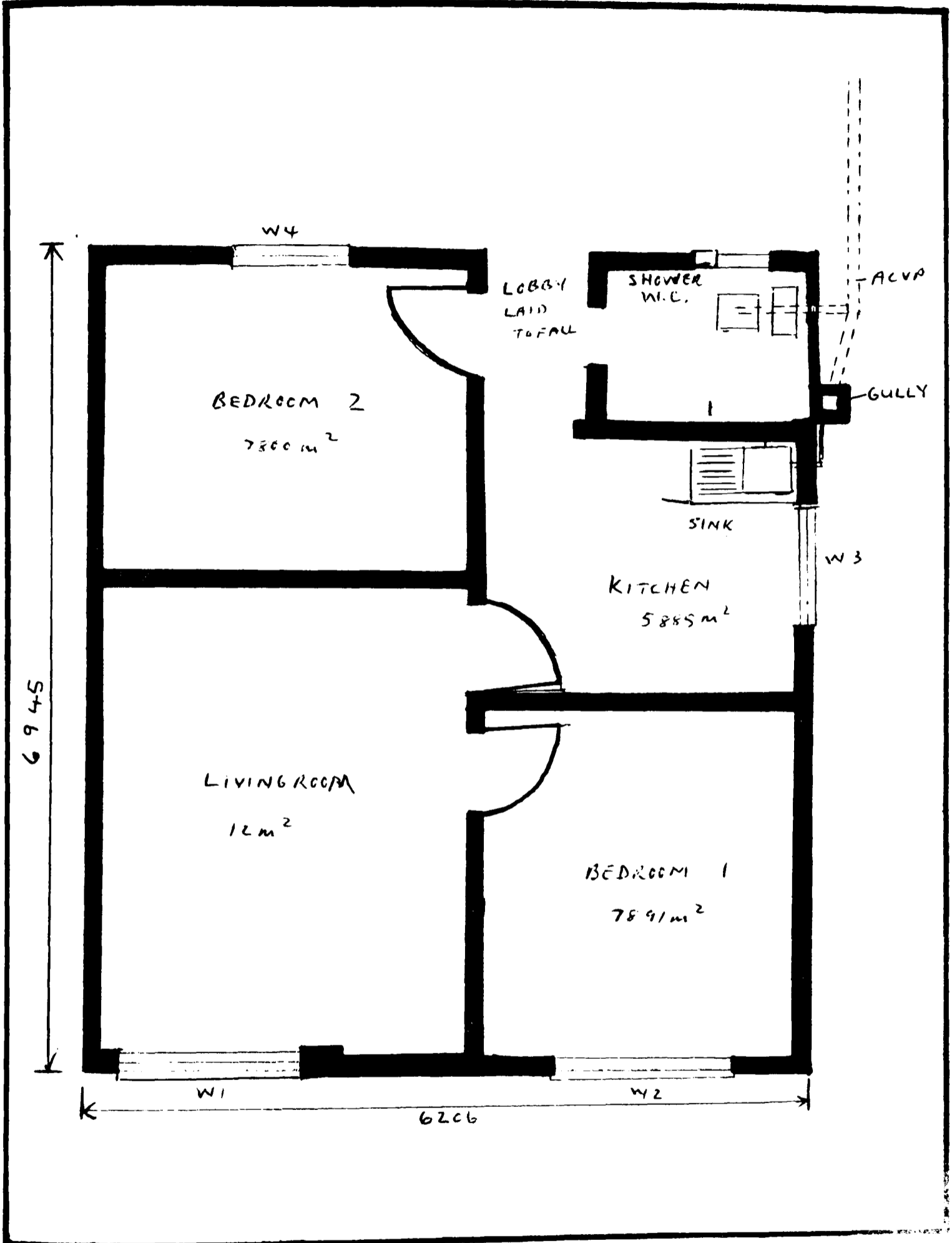
The two bedroom core house, as shown in figure 5.4, was designed to meet the needs of potential occupants then earning in excess of Z\$2 000 per annum, but less than Z\$6 000 per annum. As with the one room core house, the house was located on a 12.5 by 25m. plot, giving an overall density of

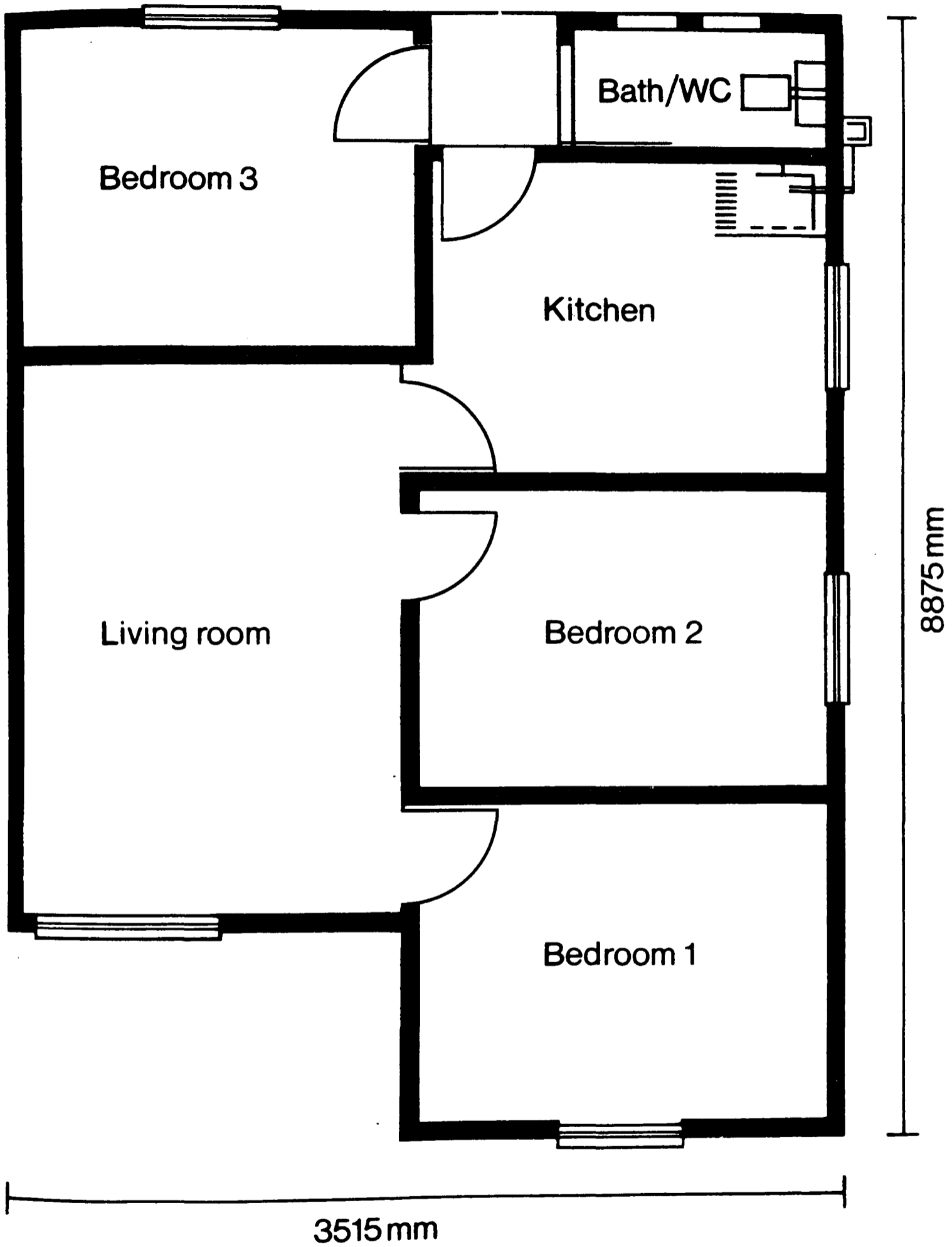
Figure 5.3 - The One Room Core House



Source - Mutizwa-Mangiza (1985)

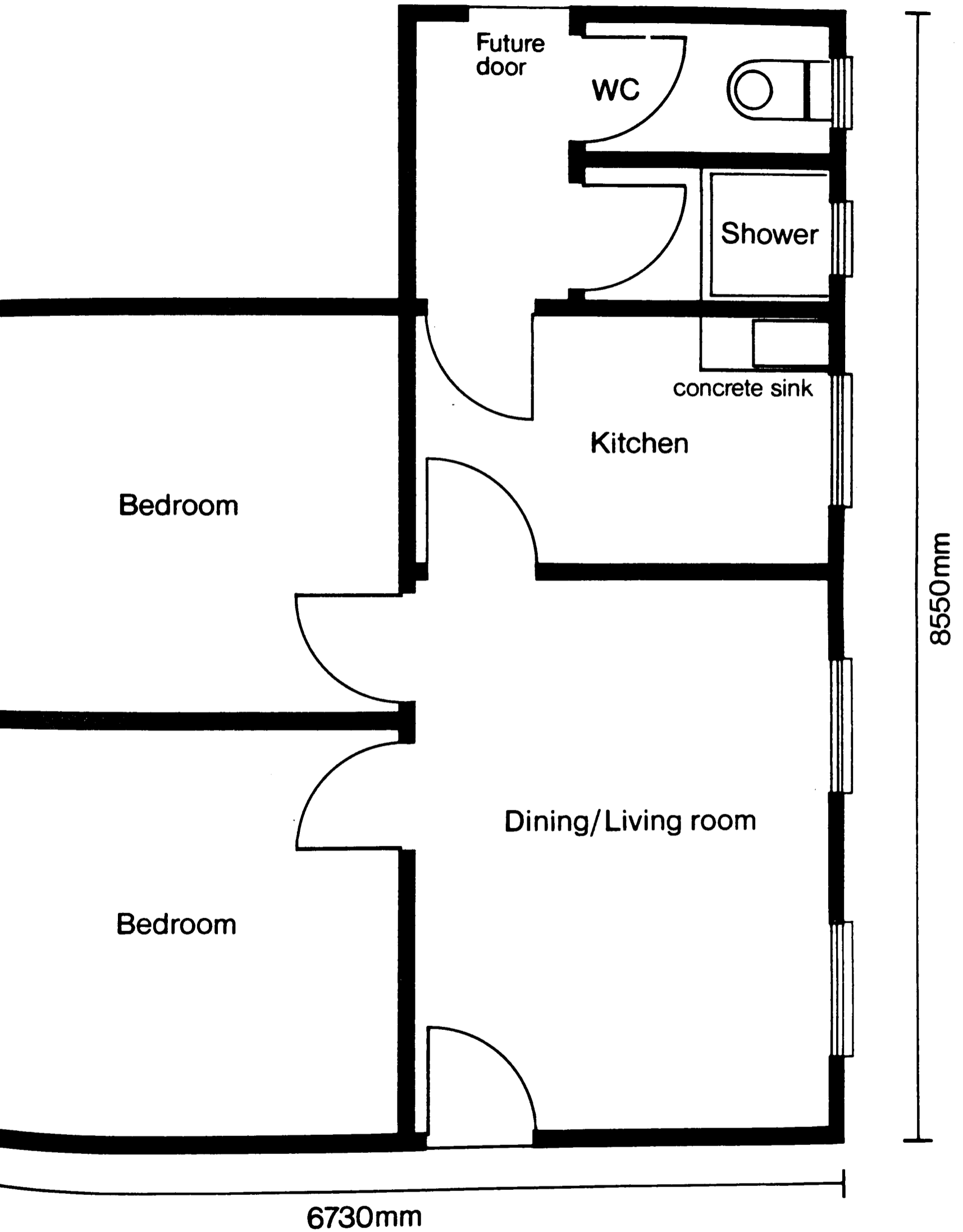
Figure 5.4 - The Two Bedroom Core House





Source - N.D. Mutizwa-Mangiza (1985)

House



80 persons per hectare, if occupancy is assumed at 6 per house.

The construction is identical to the one room core, with 300mm by 100mm concrete foundations, concrete block walls and asbestos sheet roofing. The application of "cemwash" externally, rendered the walls waterproof. The standard of finish, both internally and externally, was commensurate with low cost housing philosophy.

The design of the two bedroomed core house was based on two phase development of a four bedroomed unit. With the initial core at 45 sq. metres in plan size, room sizes were more generous than provided in the one room core house. Like all the units, all houses had reticulated electricity, sewerage and water. The estimated cost of the two bedroomed house, by 1981 prices, was Z\$3 250, excluding infrastructure costs.

In addition to the housing prototypes described, figure 5.5 shows another pre-independence conventional housing unit. The unit was for the more well to do and the quality of finish is higher. It consisted of of five rooms including a living room.

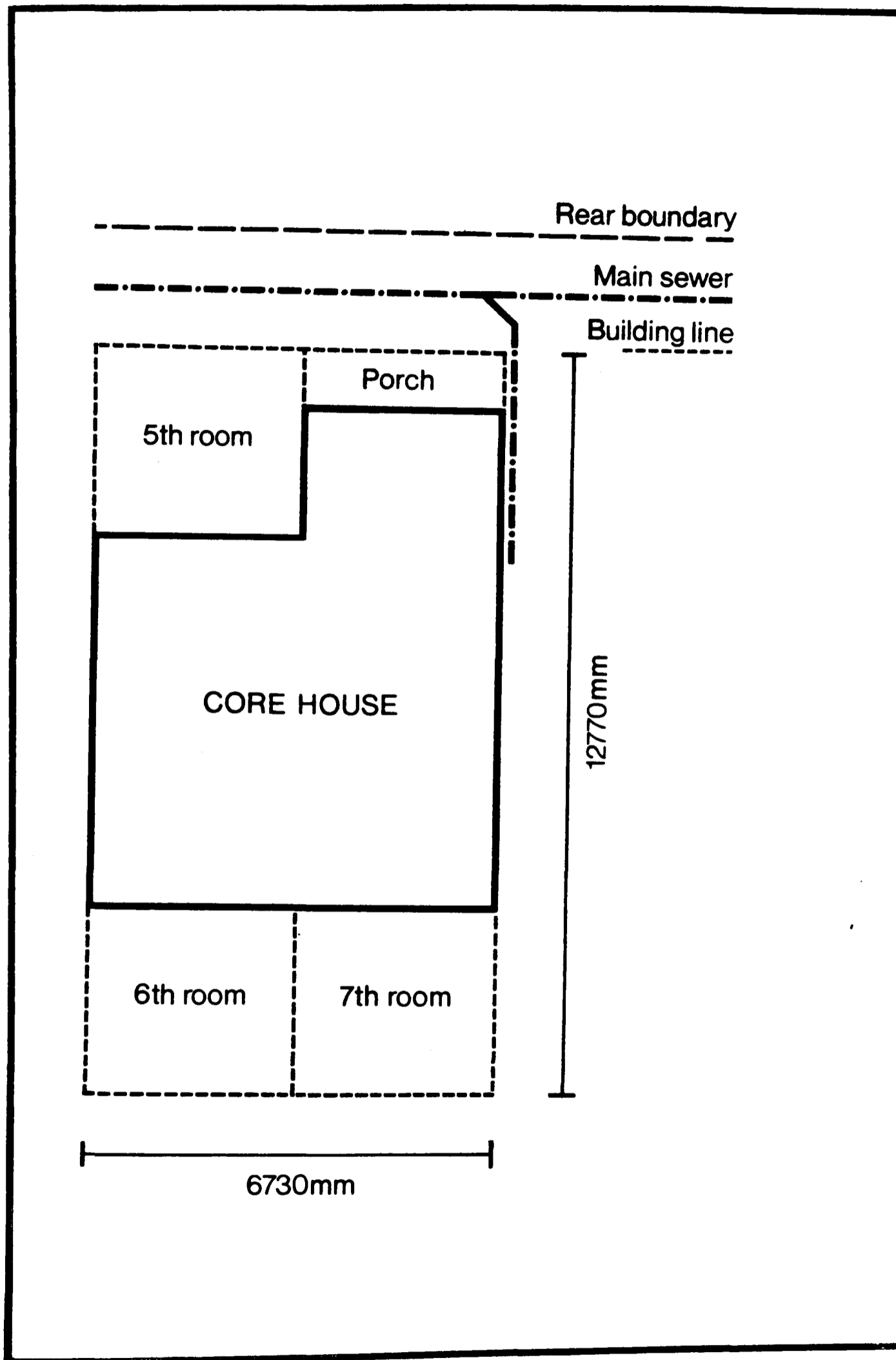
5.3.iv The Four Room Core House

After independence in 1980, the Zimbabwe government introduced a four room core house. This is built of cement blocks and has asbestos roofing. It was recommended as the absolute minimum for a typical low income household of six

members, (Horrel, 1983). Figure 5.6 is an illustration of such a house. As shown on the plan, the core consists of two bedrooms, a combined dining room/living room, a kitchen and an internal bathroom consisting of enclosed bath and toilet cubicle. The intention is that the core would be extended by the addition of the required number of bedrooms, up to seven rooms, as shown in figure 5.7. The basic four room core can also be implemented through the site and services approach. Where the site and service approach is adopted, owners are required to build the minimum four room core within eighteen months. This type of house has thirteen variations.

It is obvious that the current housing strategies are a consolidation of the variety of experiments started during the colonial period, from the 1960s. There have been some changes since independence. However, the same criticism directed at pre-independence units can still be brought against present housing options. There is a lack of variety in unit alternatives to cater for different affordability levels. On the pre-independence housing strategy, Geoff Underwood (1983) wrote that housing policy focussed on "different methods of constructing one basic unit type". That same observation is valid in relation to existing housing strategies. Not only has the monotony which characterised the housing options continued, but there is now an insistence on even higher standards of dwelling units, with the four room core house as the absolute minimum stipulated by the

Figure 5.7 - Extensions of the Four Room Core House



Source - N.D. Mutizwa-Mangiza (1985)

Government.

5.4 Housing Affordability

This section has been split under various headings. Housing affordability will be discussed under the headings: (a) household income, (b) household expenditure, (c) the costs of housing development, (d) freehold tenure and (e) tied accommodation.

5.4.i Household Income

The primary objective in discussing the household income of the target population is to be able to assess the potential affordability levels. In order to formulate valid policies, every policy maker must make it their business to have an intimate knowledge of the people for whom they are planning. Household income is one of the crucial variables which cannot be dispensed with in the formulation of relevant policy. Therefore it is important to assess not only the main income of the head of household but also the stability of that income, as well as the contribution of secondary sources of income of the entire household. Secondary sources of income are very often left out by policy makers due to difficulties in data collection.

A survey conducted by Marja Hoek-Smit (1983) found that 85% of all heads of household in low cost housing were in full time employment. Only 7% of the heads of household had had their jobs for less than a year while over half of all household heads had been employed for more than five years.

Private sector employment was predominant (65%) and only 9% of all heads of household were self-employed. Most self-employed (66%) were not part of the informal sector but were fully licensed in their trade such as hawking, furniture making, etc. The majority of households (75%) had a single income earner and only 7% of all household heads were unemployed.

The data shows remarkable stability of the source of income, which is essential for investment in home ownership. The full employment picture has important consequences for housing policy. The full time employment of the heads of household will have an impact on the participation of the home owner in the building process. With only 8% of the housewives in regular employment outside the home, this indicates that they will be around the house much more often. Assuming that this translates into free time, this could make them an interesting focus for self help training or building activities. However, judging from recent bulletins on the national economic performance, there is reason to believe that the full employment picture has changed somewhat, although no data is available as to the extent of the change. The median income of employed heads of household of the sample population as a whole was Z\$130. If unemployed heads of household are included, Hoek-Smit established the median income to be Z\$125. The median income of Harare as a whole was established at Z\$175 and this is the figure which has

been used for most of Harare's housing projects. From Hoek-Smit's household survey, median incomes were established as follows:

<u>Tenure</u>	<u>Group</u>	<u>Median</u>	<u>Income</u>
			/per month
	owners	Z\$	150
	tenants		120
	lodgers		128
	squatter owners		90

(squatter owners - those who have settled illegally on Epworth Mission farmland on the outskirts of Harare).

The median and modal income range for the different housing areas is shown in table 5.6. The difference between the median and modal values can be explained as an indication of the heterogeneity of the income distribution within each neighbourhood.

For Epworth squatter settlement, a surprisingly small proportion (13%) of the heads of household are unemployed, (Harare Combination Master Plan, April 1984). At the same time, 19% are formally self employed. Recent surveys have revealed the average income of the Epworth squatters to be between Z\$100 and Z\$125 per month, (Harare Combination Master Plan, 1984). Table 5.6 shows the median income of Epworth as Z\$80 while the modal income range is put at Z\$90 to Z\$110. A comparison of Epworth with the other low income residential

TABLE 5.6

MODAL AND MEDIAN INCOMES OF HEADS OF
HOUSEHOLDS PER HIGH DENSITY AREA, HARARE 1982*

	<u>Modal Income Range in Z\$ per month</u>	<u>Median Income in Z\$ per month</u>
Dzivarasekwa	90-110	120
Glen Norah	110-130	150
Glen Norah Flats (17)	551-600	450
Glen View	111-130	145
Mbare	90-110	135
Highfield	110-130	140
Kambuzuma	150-200	175
Mufakose (two modes)	90-110 150-200	135
Tafara	111-130	115
Single Hostels	90-110	105
Family Hostels (14)	150-200	165
Epworth Squatters	90-110	80
(Domestic Workers in Low Density Areas)	50-70	55

*Unemployed included

The numbers in brackets give the total number of interviews carried out in the area

Source : Marja Hoek Smit (1983)

Table 5.7

SAMPLE OF 33 OUT OF 251 PERSONS ALLOCATED
PLOTS IN KUWADZANA: FEBRUARY 1984

	Household Income \$	Age of Allottee	No of Dependants	Loan Entitlement \$
	\$138.67	37	3	\$ 2 148.00
	157.43	37	5	2 766.00
	136.09	42	4	2 148.00
	139.00	34	2	2 148.00
	136.09	53	3	2 148.00
	142.00	55	3	2 148.00
	132.00	43	4	1 839.00
	155.68	36	3	2 457.00
	159.99	37	4	2 766.00
	136.00	56	-	2 148.00
	157.00	41	5	2 766.00
	142.00	42	4	2 148.00
	131.40	63	2	1 839.00
	158.38	55	4	2 766.00
	142.00	41	2	2 148.00
	148.00	54	4	2 457.00
	174.00	63	5	3 075.00
	134.55	32	3	1 839.00
	136.00	32	4	2 148.00
	136.09	55	5	2 148.00
	142.00	52	2	2 148.00
	90.00	43	4	603.00
	148.85	62	3	2 457.00
	162.68	30	3	2 766.00
	145.10	43	4	2 148.00
	157.00	44	4	2 766.00
	136.09	36	5	2 148.00
	115.00	44	3	1 221.00
	146.77	N/K	7	2 457.00
	154.86	48	2	2 457.00
	136.09	44	3	2 148.00
	136.09	65	1	2 148.00
Total	4 698.90	1 456	111	73 665.00
Average	142.39	44.12	3.36	2 232.27
Highest	174.00	65	7	3 075.00
Lowest	90.04	30	NIL	603.00

Source: Harare Combination Master Plan Preparation Authority
(April 1984)

areas shows that the income levels are not dramatically different. Dzivaresekwa and Mbare, for instance, have modal income ranges of Z\$90 to 110 and Z\$90 to 130, respectively, which is not very different from Epworth's Z\$490 to Z\$110. The reasons for squatting are therefore of great importance in the formulation of policies. The results of a survey by the Department of Physical Planning (1983) revealed that 44.8% of the surveyed population were in Epworth because formal housing was too expensive for them, while 26% cited Epworth's close proximity to Harare. Another 22.9% said they had relatives in Epworth while 16.4% were attracted by the relatively large plots in Epworth.

A sample of applicants for housing in Harare revealed a range of incomes. About 40% earn between Z\$121 and Z\$175 per month and 71% are between Z\$121 and Z\$250. The Harare City Council did not normally consider people earning more than Z\$450 per month until quite recently. Table 5.7 is a sample of persons allocated plots in Kuwadzana. It shows the income ranges of those allocated plots.

5.4.ii Household Expenditure

The share of the income that households devote to housing is of crucial importance in assessing housing affordability levels.

The assumption held by the MCNH, as well as other housing authorities in Zimbabwe, is that 25.7% of a household's

income can ideally be devoted to housing. This is questionable. Data from income and expenditure surveys in the late 1970s found that households differ in what proportion of their income is devoted to housing expenditures, (Manson and Katsura, 1985, p44). Households in the lowest income groups devoted 23% of their income to housing. This share steadily declined with increasing household income. Households in the upper income brackets directed only 13% of their income to housing.

A survey, during 1982, of the low income areas in Harare, indicated that tenants with incomes near the median, devoted only 13% of their income to housing, (Hoek-Smit, 1983, pp 42--48). This is a percentage much lower than is assumed by the housing authorities. Hoek-Smit's findings can be accepted as more valid because they are more recent than the surveys of the 1970s which suggested that 23% as the proportion of household income spent on housing. Among other survey findings, Hoek-Smit found that home owners in low income areas devoted a higher share of their income to housing than did renters. Median income home owners spent 18% of their income on housing, while the share for households with lower incomes was 19%. This means that the lower income groups have to make greater sacrifices to afford the same housing.

There is also little evidence to support the commonly held assumption that householders would spend more of their income for better housing. Hoek-Smit found that among

homeowners, only 25% would be willing to increase their housing expenditures for better housing. The proportion among renters was less than 50%. Manson and Katsura (1984) argue that on net figures, the data suggests that better housing would induce no more than a 2% rise in housing expenditures among low income households.

5.4.iii Housing Affordability and Construction Costs

The cost of houses (construction, services, engineering, works, etc.) has risen so high that with the prevailing income levels, few people would be able to afford, for instance, a 6 to 7 roomed house produced commercially or by a local authority without an aid scheme.

In 1979, fully serviced and surveyed plots containing a toilet and a shower were sold for Z\$850. A similar plot but without the ablution block now costs Z\$925. In 1979 the total charges payable by a tenant of a 5 roomed house constructed in Glen View were Z\$31.22 per month. A similar standard of house, but containing only 4 rooms now attracts charges of Z\$111.97 per month. The inflationary trend in construction costs is frightening. Income inflation has not been able to keep up with cost inflation. To afford a 3 bedroomed house (table 5.8) now costing about Z\$5 500, requires a monthly payment of Z\$58.14 per month. To afford this, a person would be earning Z\$211 per month above the top level in table 5.7. A 200 sq. metre serviced plot in the new housing estate of

TABLE 5.8

BASIC COSTS OF HOUSING UNITS/STANDS IN RECENT
AND CURRENT SCHEMES VIS-A-VIS AFFORDABILITY

BY BENEFICIARIES

<u>HARARE</u>		<u>TOTAL SELLING PRICE \$</u>	<u>MONTHLY REPAYMENT</u>	<u>MINIMUM MONTHLY INCOME</u>
1	200m ² Parkridge Fontainbleau	600.00	19.38	70.47
2	300m ² Parkridge Fontainbleau	855.00	21.47	78.07
3	200m ² Glen View (with toilet) (1979 prices)	585.00	11.20	40.73
	200m ² Glen View (with toilet) (1984 prices)	1 283.50	24.57	89.35
<u>CHITUNGWIZA</u>				
4	Det. 2 room Core house (1979 prices)	1 355.00	17.74	64.50
	Det. 2 room Core house (1983 prices) *	2 973.50	31.90	116.00
5	"C" type Core House (1979 prices)	1 778.00	21.46	78.03
	"C" Type Core House (1984 prices)	3 900.00	46.80	170.18
6	Det. 3 Bedroomed House (1979 prices)	2 500.00	26.63	96.84
	Det. 3 Bedroomed House (1984 prices)	5 485.00	58.14	211.42

Notes:

- 1 Between 1979 and 1983, construction and engineering costs are estimated to have risen by 2.194.
- 2 Changes in interest have not been calculated separately.

Source: Harare Combination Master Plan Preparation Authority (April 1984)

Kuwadzana would call for a monthly repayment of Z\$19.38 as shown in table 5.8. A similar sized plot of land as originally envisaged by the Harare housing authorities called for repayments of Z\$16.71, as worked out below:

<u>Cost of plot</u>	<u>Z\$</u>
road and stormwater drainage	395
survey	60
land (at 30 cents/sq. m. from Council)	95
water and sewerage connection fees	60
Total	<u>600</u>
	—
 <u>Monthly repayments</u>	
capital (Z\$600 less 5% deposit with interest)	6.09
waste management	1.05
sewerage charge	2.82
supplementary charge	4.50
water (minimum charge)	2.25
repayment over 30 years	<u>16.71</u>
	—

Working on the assumption that 27.5% of household income is devoted to housing, the Housing authorities in Harare calculated that people earning Z\$170 or more will be able to afford a core house priced at Z\$3 900, paying Z\$46.80 per month. Those earning Z\$145 per month can afford a monthly repayment of Z\$39.87 for a house valued at Z\$3 080. Monthly

incomes will enable them to meet monthly repayments of Z\$68.75 and Z\$82.50 for houses costing Z\$6 600 and Z\$8 250.

The cost of construction of a low income house has been estimated at Z\$100 per sq. m. (MCNH) while the city of Harare has put the cost at Z\$125 per sq. metre. Consequently, a minimum sized 4 room core house would then cost Z\$5 000 and Z\$6 250 respectively. Only people in the income bracket of Z\$200 to Z\$240 could begin to afford such a house. The average loan of Z\$2 232 would pay for only 22.32 sq. metres and for 17.8 sq. metres, according to the respective costings. It is generally thought that self built housing constructed from low cost materials would cost about Z\$65/sq. m., a belief which strengthens the argument for the self help approach. However no evidence has been put forward to support that belief.

When everything has been said, 4042 families or 18% of applicants for housing on the waiting list earn Z\$150 per month and therefore cannot afford the site and service schemes initiated by the Harare City Council, even if they were to devote 27.5% of their incomes to that end. The minimum income for participants on the World Bank housing schemes in Harare is Z\$160 per month. The data also reveals that 89% of applicants on Harare's housing waiting list cannot afford the cheapest rented house now constructed by the city council. While 82% are eligible for site and service schemes, 18% do not qualify.

If as little as 18% is generally spent on housing and yet the housing schemes have been planned for 27.5%, how do the successful applicants manage to build their houses? The plausible explanation lies in the fact that most household surveys concentrate on formal income and ignore informal sources of income as possible sources of housing resources. There are diverse ways in which the informal sources of income contribute towards housing.

While the main aim of the government housing policy has been to provide affordable housing for all, this has obviously failed. The majority of the wage earners cannot afford the cheapest structure on the market. Appendix 5.2 indicates that 56% of the target population were unable to afford the cheapest house in 1981. This situation is hardly likely to have improved because of the worsening economic situation; (see Appendix 5.3).

The great majority of the low income people whose median income has been established at Z\$135 per month cannot afford a conventionally built house. The problem is compounded by the escalation of building costs. An overhaul of the affordability criteria is essential for appropriate housing policies.

5.4.iv Freehold Tenure

Another aspect of the Government policy in the post 1980 period is that which relate to freehold tenure. The predominant mode of tenure before 1980 was rented accommodation. Due to a partial relaxation of segregationist policies, during the Zimbabwe-Rhodesia period (1978-1979), a small category of freehold tenure was introduced.

However, there were no significant changes in the mode of tenure until after independence when occupiers of rented council accommodation were given a rent-to-buy option. Tenants with an occupancy period of thirty years and above immediately assumed ownership without further payments, according to a sliding price scale based on the length of occupancy. This was an extremely popular move and the demand for council housing to purchase soon outstripped the supply of units.

5.4.v Tied Accommodation

During 1985, the MCNH had a change of heart on tied accommodation. The ministry ruled that all new housing schemes should provide a minimum of 10% rented units and that this amount should be reserved as "tied accommodation" for civil servants. In other words, it is only if the Harare City Council is able to build more than 10% rented units in any scheme that the remainder will be available to the general public.

At the same time, a series of press statements urging the private sector to get involved in low income housing were released. These were:

19/7/84 : "Firms urged: help house the workers"

29/5/85 : "Employer aided housing favoured : The Government is keen on encouraging the participation of employers in the provision of houses....."

1/6/85 : "Workers' houses a must: Bosses told. The Minister of Construction and National Housing called on employers to seriously consider providing housing for their employees...."

12/7/85 : "Help provide more workers' houses" and again on

31/7/85 : "Firms urged to build houses for workers---Ten industrialists from the Mashonaland Chamber of Industries toured housing projects...."

In the meantime, what was happening within the middle to higher income housing market meant more problems in the low income housing backlog. The supply of middle and higher income housing dried up and there was a resultant price increase for the few available houses still on the market. The price "jump" has been estimated at about 30%. In spite of such a massive price increase, it is still cheaper to buy a house than to build one because current market values are at around 60% of the replacement cost. This has resulted in some "downward raiding" of low income housing by people better able to afford the housing, thereby displacing the target low income population who are less able to compete for the scarce

housing. The level of "downward raiding" cannot be quantified although it is known to exist. The standard house building cost presently stands at Z\$500 per sq. metre. Government has not taken enough recognition of the repercussions of a shortage of this category of housing and consequently has been taken by surprise at the effects caused by the shortage.

5.5 Evaluation

In summary, although Government policy has emphasised the importance of low income housing, such emphasis has not been backed by revised action in the light of new priorities. One of the most challenging problems facing housing policy makers is that of finding ways of helping low income families obtain adequate privately owned housing which is also within their economic means. Government policy as it stands does not seem to have realised this important factor although the desire to attain it has been expressed. Not much has been done in the way of trying to achieve housing affordability, besides the granting of small loans with a six months grace period and the establishment of building brigades. The latter, as we saw, have not been particularly successful in reducing costs and in fact may be responsible for increasing them.

Drastic cuts in budget allocations for low income housing have also undermined the priority position of housing. Housing plays second fiddle to perceived priorities such as agriculture, defence, and education. This attitude was even

reflected in the selection of priorities for inclusion in the National Development Plan where housing was only included as an appendage to such sectors as construction and health.

Other criticisms which can be directed at Government low income housing policy are:

(i) Housing is widely recognised as having an important role to play in social development. The Government housing policy, while acknowledging this fact, treats low income as a social service rather than as an economic activity. The process of improving housing, especially for the poor, not only provides a means of enabling the poor to become self-reliant and confident, it is also a potent tool in the redistribution of income. Housing policy does not reflect this recognition judging by the casual way low income housing is handled and yet at the same time Government exalts the merits of an egalitarian society and the distribution of wealth in a socialist state which it seeks to establish. While the macro-political philosophy is socialist, there seems to be some confusion when it comes to low income housing.

(ii) Present housing expenditure by the Government is approximately 1.1% of gross domestic product. While the policy on squatters continues to be the bulldozer without the provision of viable alternatives to try and solve the problem, this cannot go on indefinitely. The

policy on squatter settlements, of demolishing them wherever they appear, is merely disguising the problem and giving it time to become bigger and more complicated. The country already has a disguised housing problem in the form of severe overcrowding in the housing stock. In some of the low income residential areas, this overcrowding has reached frightening proportions, with as many as 40 people to a house designed for a household of just six persons in Zengeza. In Glen view, 17 people to a 7 roomed house is not an uncommon phenomenon. Such high levels of overcrowding are likely to have deleterious effects on social behaviour.

(iii) The Government low income housing policy is not properly set out in macro-economic perspective. Traditionally, housing policy for the low income families has been the responsibility of the Government, while market forces satisfy middle and upper income demands. In recent years, it has become increasingly clear that if housing goals are to be achieved, the Government should encourage, orient, and if necessary, supervise the private housing sector. The integration of both private and public resources is being called for. Chapter 7 deals with financial resources for housing and market forces and their influence on housing are discussed.

(iv) The Government low income housing policy displays either a refusal or an inability to learn from the mistakes of past low income housing experience. The new stipulated four room core house, for instance, can hardly be called low cost and very few of the target population can afford it. Yet this is the housing unit which has been declared the absolute minimum in low income housing provision. In addition, the variety of housing options which existed previously (and catered for different affordability levels) have been swept aside. In this respect, Government policy is out of touch with the requirements of the low income housing problem. While high standards should be "scientifically desirable", they should also be "socially acceptable, culturally and economically feasible" (Mabogunje et al, 1978). Chapter 6 which follows addresses itself to the whole question of planning and housing standards and the effects on low income housing.

Chapter 6 : An Evaluation of Urban Planning Standards

In chapter 5, various aspects of government low income housing policy and housing affordability were discussed. It is hardly possible to discuss housing affordability, let alone housing policy, without examining the crucial issue of standards. This chapter therefore discusses urban planning standards in Zimbabwe, with respect to housing affordability by the urban poor. This chapter has four major divisions, the first part of which gives a contextual framework of standards before moving on to infrastructure design standards. Planning and subdivision standards are discussed in a subsequent section and the evaluation forms the final part of the chapter.

6.1 Contextual framework

Housing standards are generally defined as "relative measures of livability, suitability and acceptability for a given socio-cultural, economic and technological setting", (Audu, 1983). A similar definition, but with a dynamic or time element is given by the United Nations. It defines housing standards as "measures of the acceptability of housing at a given time and place and in a given cultural technological and economic setting", ("The Social Impact of Housing....goals, standards, social indicators and popular participation"; U.N. 1977).

The definitions therefore measure both quantifiable and

unquantifiable entities and inherently deal with aspects such as relative expectations and health.

The quantifiable aspects can be measured and include amount of space, type of construction and proximity to place of work or town centre. The non-quantifiable aspects which also affect the acceptability of housing include concepts such as design, and the extent to which housing offers privacy, efficient functioning, good appearance and protection against the elements. The issue of housing standards is therefore not limited to physical criteria. It is for this particular reason that the impact of standards should be assessed to ensure that the assumptions, philosophies and concepts upon which they are based are adhered to throughout all stages of planning, design and execution. Housing standards must therefore be viewed in totality as a set of closely inter-related criteria intended to achieve the best possible balance between the needs and resources of population groups at various stages of development.

Housing standards were first introduced in the Western world in the Nineteenth Century, to protect the weaker members of the community against overcrowding and ill-health. Agarwal (1981) shows how the main focus of standards then was to prevent landlords and building speculators disregarding minimum requirements of hygiene, safety and privacy. Minimum mandatory standards specifying occupancy rates by number of persons per room, or the minimum cubic capacity of room per

person were adopted. Initially standards were chiefly the concern of the public health inspector, the sanitary engineer and the social reformer.

In the Third World, planning and housing standards are said to have been instituted by the colonial government to protect the European officials and settlers. Consequently, the standards usually led to a replication of the type of dwelling enjoyed in the home colonial countries. Developing countries have tended to adopt standards which find more relevance in developed countries than in Third World conditions, (Agarwal, 1981). This is generally true of most developing countries.

The need for shelter has been translated into "rules about roofs, walls and windows; the need for health into rules about sanitation, water supply and air regulating devices", and so on, (Dewar and Ellis, 1979). Over time the standards have taken on a life in their own right as a result of administrative expediency. A certain amount of arbitrariness attaches to standards because low level requirements have not been sufficiently tested and classified under various conditions, (Gathara, 1984). In the absence of tested criteria in many developing countries, these countries turn to standards derived from the experience of other developed countries who may well to have different development patterns. Due the lack of a cost approach to minimum standards and of rationally tested measures of performance

and consumers' preferences, most countries adopt "desirable quality targets" as housing standards, (Gathara, 1984).

The irony of it all is that while it is the intention of planning and housing standards to promote better quality living environments by ensuring that basic health and safety standards are met and basic services provided, in most developing countries the standards play do exact opposite role.

They hamper the performance of the housing market and the provision of housing for the poor. Most of these ill conceived planning and housing codes tend to reduce housing output, with the most vulnerable being the lower income group. Only a few members of the elite can afford houses built to official standards while a vast majority either go unhoused or are housed below standard.

It is in that context that this chapter will evaluate planning and housing standards. It seeks to determine whether or not Zimbabwe's standards might have fallen into the same trap as most developing countries. Has housing affordability, and consequently housing the urban poor, been impeded through inappropriate planning and housing codes? If so, to what extent can housing affordability be improved by "lowering" existing standards to suit the resources and needs of the urban poor? At the end of this chapter, it is hoped one will be in a position to be able to answer some of these questions. The evaluation will bear in mind that the purpose

of regulations related to building or planning "should be to encourage better living environments". This is only possible by striking "a balance between what is desirable (in terms of health and safety), attainable (by both large and small construction operations) and affordable by the majority of households and nation as a whole", (Blitzer, S; Hardoy, J.E; and Satterthwaite, D; 1981).

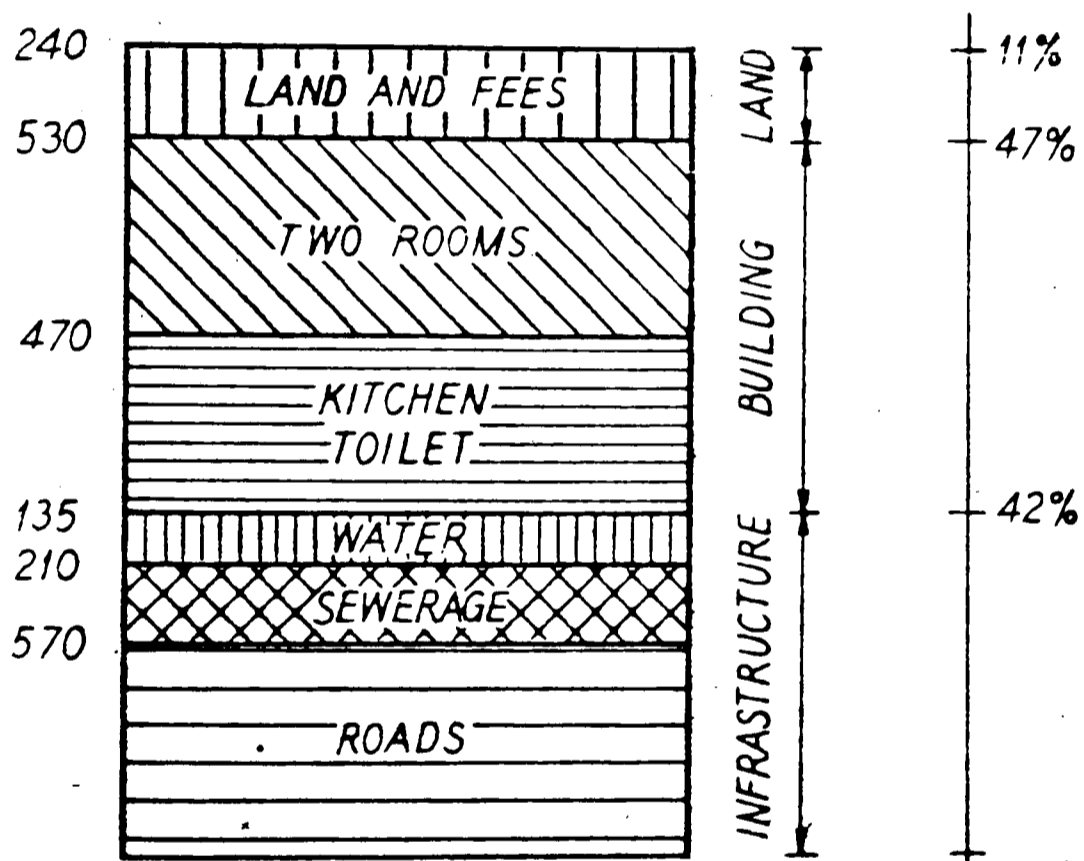
6.2 Infrastructure Costs

The cost of services in the low income housing sector contributes to a considerable proportion of the total construction costs. Figure 6.1 shows the infrastructure costs at almost 42% of total construction cost in 1981. That proportion can definitely be expected to be higher because of a 2.5% compound escalation of costs per month, (City of Harare, 1985). Off-site infrastructure costs have increased even more rapidly because of continued and increasing urban sprawl in Zimbabwe's major urban centres. The diminishing resources of cheap water supply, sewerage disposal and electricity have also contributed to the cost escalation.

6.2.i Roads and circulation

Circulation in the low income housing estates comes in two forms : (a) vehicles - roads and car parking; and (b) pedestrians - footpaths. Roads are responsible for up to 30 - 50 % of the infrastructure costs in low income housing provision, as shown in figure 6.1. It is evident that roads

Figure 6.1 - Roads are responsible for up to 30 - 50% of the infrastructure costs in low-income housing provision.



DEVELOPMENT COST OF AN ULTRA LOW COST HOUSE.

Source : Manson and Katsura (1985)

account for a sizeable proportion of the infrastructure costs. Simple observations in low income residential areas show that walking and public transport are the principal means of transport for the great majority of the urban low income population. Although no figures are available, present levels of car ownership in low income residential areas are low. Since car ownership is low and roads account for a considerable proportion of infrastructure costs in low income housing provision, an examination of road standards and layouts is therefore not out of place.

A land use analysis of Kuwadzana housing scheme by Gerd-Jon De Kruyff (1981), revealed that circulation consumes 30% of the total area. In comparison with low income housing estates in other African countries, circulation in these other countries does not normally exceed 20% of the gross residential density, (De Kruyff, 1981). To reduce the land allocated to circulation, if possible, would therefore lower the overall development cost per plot. Present provision of land for roads in the low income housing areas consists of a road reserve containing the carriageway and stormwater drains in open V channels. Services such as water pipes, sewers and electricity power lines may be located in the road reserves or wayleaves. There is normally no provision for pedestrian walkways in spite of the low car ownership levels. For economic reasons, services such as water, sewerage and electrical reticulation are mostly located in servitudes at

the back of the plots, (see plate 6.1).

Requirements for road reserves and carriageways and the proportion of the total width of the road reserve used by the carriageway in Zimbabwe, are as follows:

<u>Road class.</u>	<u>Reserve</u>	<u>Carriageway</u>	<u>%</u>
District distributor	30m.	6.7m.	22%
	25m.	6.7m.	27%
Local distributor	20m.	5.5m.	27%
	15m.	5.5m.	37%
<u>Road class.</u>	<u>Reserve</u>	<u>Carriageway</u>	<u>%</u>
Stand access roads	12.5m.	3m.	24%
	10m.	3m.	30%

It is obvious from the above that a large proportion of the land contained in the road reserve is used for road shoulders, surface water ditches and verges, while the carriageway itself uses less than 40% of the land. Plate 6.2 shows a local distributor road in Kuwadzana low income housing estate in Harare. All roads in Zimbabwe's newer housing estates, especially in Harare, are tarred. There is a need to revise road standards such as reducing road reserves, and not surfacing plot access roads at least, in a bid to reduce the low income housing provision costs. Such a move would not only enable more of the target population to afford available housing solutions, but it would also make it possible to provide more housing opportunities to the urban

Plate 6.1 - Most services are normally located in servitudes.



Plate 6.2 - A local distributor road in Hatcliffe. Note the construction taking place and the electrical reticulation already in place. All roads in the newer housing estates are tarred.



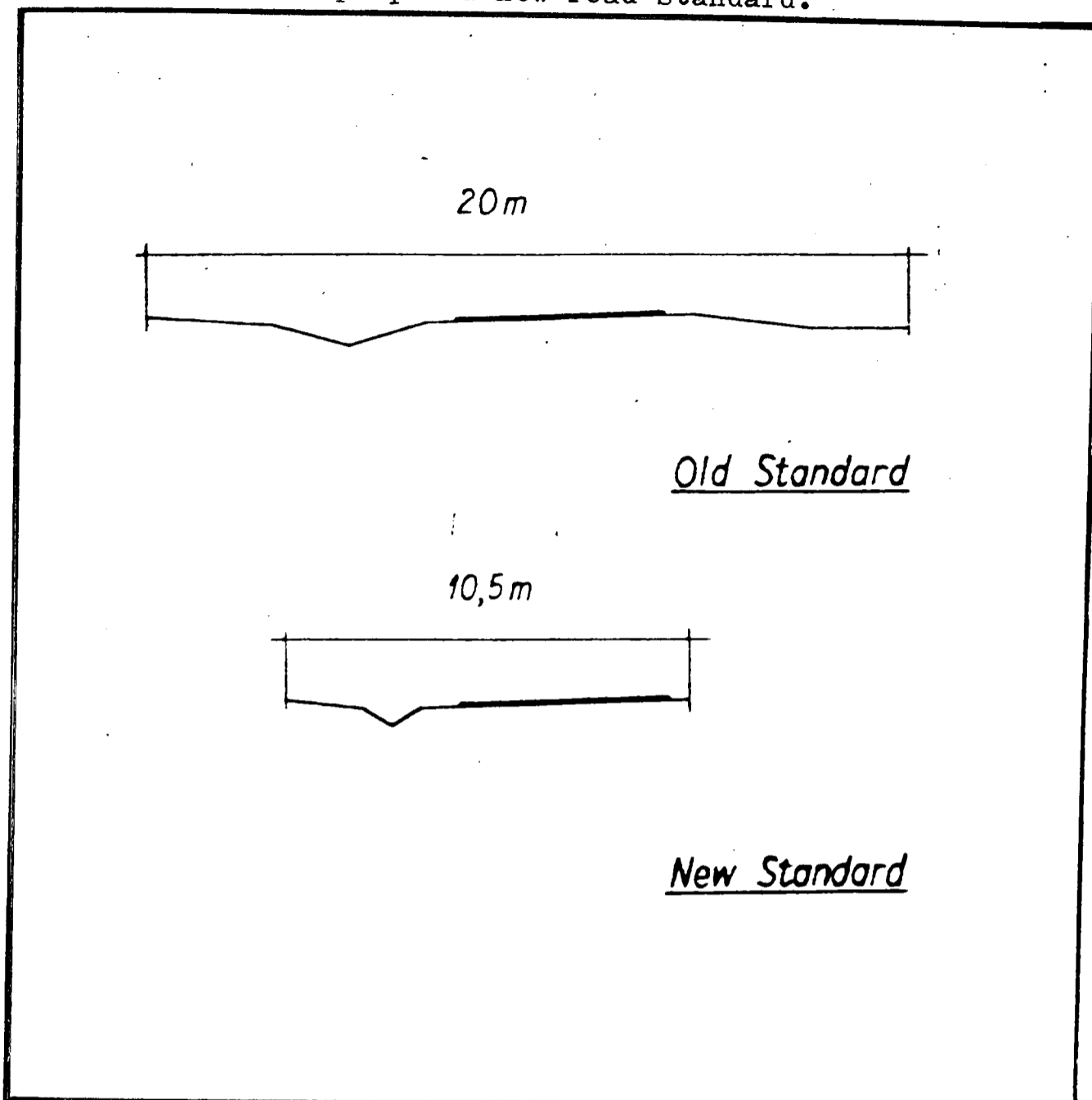


Plate 6.3 - A high standard of road access to each plot is provided in spite of the low car ownership rate. Road contribute significantly to the high infrastructure costs.

Plate 6.3a - Another view of Hatcliffe housing estate showing the already tarred road and the high level of construction in progress.



Figure 6.2 - The proposed new road standard.



Source : De Kruffy (1981)

poor. Recognising the need to accommodate essential services, the reduction in road reserves would necessitate the adoption of a new standard in road provision whereby the percentage in land usage of the carriageway would be considerably increased. A new road standard has been proposed by De Kruyff (1981), and this merits closer inspection by housing authorities. This new standard is shown in figure 6.2.

Although Zimbabwe's low income housing areas have low car ownership levels, it is still the practice in formal housing schemes to provide road access to each plot. Plate 6.3 illustrates the high standard of road access provided in the new low income housing estate of Hatcliffe. In some countries with higher levels of car ownership, the concept of pedestrian/vehicular separation exists. Such a concept does not seem to exist in Zimbabwean planning but there seems to be no reason why layouts cannot be rationalised to allow for easy pedestrian movement while minimising vehicular movement. Minimum road access is necessary to allow for access by service vehicles. Rationalised layouts which allow easy pedestrian movement would make footpaths independent of the road pattern. There are environmental costs involved. These are for example dust clouds raised by both the wind especially in Autumn and by passing vehicles. At the same time, street lighting will have to be geared towards pedestrian convenience.

Jonathan Kauffman (1981), using the CITRUD model developed by

the PADCO/Bertaud team demonstrated that a cul-de-sac design in one of Zimbabwe's low income housing projects required 27% less circulation space than a grid for the same size of area under consideration. In addition, monthly payments per plot holder were reduced by 7% and the residential density increased by 10%. Kauffman's work points to the benefits to be reaped from appropriate housing layouts.

From the informant interviews conducted with housing professionals, 60% of the respondents felt that housing costs could be reduced by more rational layouts and not tarring roads. As a result more people would be in a position to afford available housing unit options.

6.2.ii Sewerage reticulation

It is standard practice in Zimbabwe's low income housing areas to instal reticulated sewerage systems. The costs of providing this service are considerable. For example, in Kuwadzana in 1981, this cost was estimated at Z\$491 per plot, (Atkins, 1981). The costs for providing waterborne sanitation for the ultra low cost house was calculated as follows:

Toilet	Z\$235
Drains	Z\$ 50
Sewerage on site	Z\$191
Sewerage off site	Z\$ 15
Total (excluding treatment)	<u>Z\$491</u>

Although no current figures are available, appendix 6.1 shows

the suggested rates for costing in the high density areas. This gives some indication of the relentless escalation of costs in the provision of reticulated sewerage.

With the increasing costs of construction, it is unlikely that the existing type of waterborne sanitation can be provided for below median cost housing areas. Without going into the technical details of sewerage reticulation, experts have found it to be technically unfeasible to lower existing design standards in order to reduce costs.; (De Kruyff, 1981). However, a reduction in plot frontage and an increase in overall densities would go some way towards reducing costs by shortening the length of run of sewerage reticulation systems.

Exploring alternative sanitation systems is another possible method of improving housing affordability among the urban poor. Ideally, these sanitation systems should be upgradeable over a period of time with the aim being to achieve lower capital investment, and lower the operating costs. The main objective for an appropriate sanitation system should be to provide a toilet for every plot. This need not necessarily be a flush toilet. Such a move is bound to shatter many expectations among the target population. However, the time is not far away when that choice may have to be seriously considered if formal housing opportunities are to be extended to those in need of shelter.

Several problems can be identified with waterborne sanitation

system in Zimbabwe's low income housing areas. These are :(a) sewer blockages - people with low incomes cannot normally afford to spend money on toilet paper. As a result, they use solid waste of a more substantial nature such as newspapers etc. The housing authorities therefore have to have repair teams constantly on the move, especially in the older residential areas where smaller diameter pipes were used;

(b) water needs - waterborne sanitation is generally extravagant with water.

(c) the use of conventional waterborne sewerage systems means adding vast quantities of expensively treated and transported water to excreta and thereafter, treating to remove the excreta before the effluent can be discharged into the river or a lake. The logic and expense involved in this method is questionable. In Harare's case, because the effluent is drained back into the water catchment area, the effluent standards have been set very high.

The escalating costs of housing development make it logical for housing authorities to consider alternative sanitation options which, no doubt, would have a big impact on density standards. Some research into alternative sanitation options has already been carried out by the Blair Research Laboratories who have developed the Blair Pit Latrine. Other options are the ventilated improved pit latrine and the ventilated twin pit latrine, (see Appendices 6.2 and 6.3).

6.3 Planning and subdivision standards

6.3.i Residential densities for low income housing areas

Land prices in Zimbabwe are generally undervalued, by world standards. The official price of land allocated to low income residential plots for Harare is around Z\$0.30/sq.m. Land generally contributes a small fraction of housing development costs. In comparison to the U.S. price of Z\$21.50/sq.m. (U.S.\$30.00/sq.m.), increasing to Z\$35.50/sq.m. (U.S.\$50.00/sq.m) for the best low income locations, (M.C.N.H. 1984) the price of land in Zimbabwe is obviously very low. Since land is so easily available generous space standards and almost unrestrained urban sprawl have been allowed. The siting of low income housing areas away from the city centre and places of work (for political reasons before independence in 1980) increases the urban sprawl.

In Zimbabwe, urban residential densities are generally quite low. Harare has gross residential densities varying from 6.6 to 13.1 dwelling units per hectare (du/ha). Table 6.1 shows the gross residential densities in some of Harare's low income housing developments. Zimbabwe's low income housing projects, at approximately 10 dwelling units/hactare (60 to 80 persons per hectare) are three to four times lower than comparable single storey and low rise projects, as shown in Tables 6.2 and 6.3, (Kauffman, 1981). Several reasons can be attributed to this phenomenon :

TABLE 6.1

CROSS RESIDENTIAL DENSITY IN EXISTING AND PROPOSED LOW COST HOUSING PROJECTS : HARARE REGION

TOWNSHIP	DWELLING UNITS (D.U.)	OFFICIAL POPULATION (P)	AREA (IN HA)	DU/HA	P/HA	OCCUPANCY PER D.U.
DZIVARESEKWA	2 899	15 000	422	6,6	34	5,2
GLEN NORAH	7 003	35 600	713	9,8	50	5,1
HARARE*	6 082	40 000	465	13,1	86	6,6
HIGHFIELD*	8 537	62 435	716	11,9	87	7,3
KAMBUZUMA	2,443	16 044	259	9,4	62	6,6
MABVUKU	5 728	35 000	629	9,1	56	6,1
MAFAKOSE	7 500	48 900	454	17,0	108	6,5
TAFARA	3 304	17 793	313	10,6	57	5,4
TOTAL	43 496	270 772	3 971	11,0	68	6,2

*These figures take no account of the single quarters and hostels in the various townships.

Source : PADCO/USAID

TOWNSHIP	DWELLING UNITS (D.U.)	OFFICIAL POPULATION (P)	AREA (IN HA)	DU/HA	P/HA	OCCUPANCY PER D.U.
CHITUNGWIZA Seki K Area Plain Density	2 351	14 106	107	22,0	132	6,0
PARKRIDGE EAST Unit 5 Net Residential Density	624	3 744	18,73	33,3	200	6,0
PARKRIDGE EAST Unit 5 Area	624	3 744	28,6	21,8	131	6,0
PARKRIDGE FONTAINBLEU Gross Density	10 000	60 000	1360 ^{1/}	7,4	44	6,0

^{1/} Includes 300 ha unuseable land and 69ha. servitudes

TABLE 6.2 : LOCALITIES, PHYSICAL CHARACTERISTICS AND DENSITIES OF POPULATION

LOCALITY	DWELLING TYPE AND UNIT	DWELLING DEVELOPER	DWELLING FLOORS	LOT AREA	LOT COVERAGE	DWELLING UNIT AREA	PERSONS/DWELLING	DWELLING UNIT AREA/PERSON	GROSS DENSITY	NET DENSITY	RATIO GROSS/NET
			No.	m ²	%	m ²	No.	m ²	No./Ha	No./Ha	
BOSTON AREA, U.S.A.											
Columbia	High Rise, Apartment	Public	7	NA		78	4	20.0	747	1449	1.9
North End	Walk-up, Apartment, Row	Private	4.5	158	65	47	2	24.0	708	1040	1.5
Charlestown	Walk-up, Apartment	Public	3.4	NA		70	4	18.0	395	570	1.4
East Boston	Walk-up, Apartment	Public	3.4	NA		65	4	16.0	414	510	1.2
South End	Walk-up, Apartment, Row	Private	4.5	144	50	58	3	19.0	287	480	1.7
Washington Park	Walk-up, Apartment, Detached	Private	3.4	243	50	119	4	30.0	232	317	1.4
Cambridge Port	Walk-up, Apartment, Detached	Private	3.4	319	38	114	3	38.0	112	148	1.3
Lincoln	Detached, House	Private	1.2	17500	1	195	4	49.0	2	2	1.0
LATIN AMERICA											
El Aqualino (flat), Lima, Peru	Row House	Popular	1	36	100	36	6	6.0	525	664	1.3
Villa Socorro, Medellin, Colombia	Grouped House	Private	1	96	45	43	6	7.0	279	574	2.0
El Aqualino (hill), Lima, Peru	Row House	Popular	1	62	69	43	6	7.0	403	552	1.4
Custas, Lima, Peru	Row House Shop	Popular	1	158	89	140	6	14.0	275	410	1.5
El Enaltazo, Lima, Peru	Row House	Popular	1	160	69	110	10	11.0	206	341	1.6
Meadocite, Lima, Peru	Row House	Popular	1	46	100	46	8	6.0	166	238	1.4
El Gallo, Ciudad Guayana, Venezuela	Detached House	Public	1	300	22	65	6	11.0	124	186	1.5
Mariono Malyar, Arequipa, Peru	Row House Shop	Private	1	240	92	221	10	18.0	87	126	1.5
NAIROBI, KENYA											
Mathare Valley	Grouped, Rooms, Tenements	Private	1		100	12	4	3.0	1600	3333	2.1
Kariobangi	Grouped, Rooms, Site & Services	Public	1		100	14	4	3.5	532	2660	5.0
Karura Village	Grouped, Shanties, Temporary	Popular	1		100	41	11	3.7	720	2400	3.3
Kirinyaga Village	Grouped, Shanties, Temporary	Popular	1		100	13	2	6.5	450	2250	5.0
River Road	Row, Rooms, Tenement	Private	2.3	255	87	10	3	3.3	768	1280	1.7
Uhuru Phase 4	Row, Houses, Subsidized	Public	2			71	6	12.0	312	780	2.5
Kawangware	Grouped, Rooms, Tenement	Private	1			14	4	3.5	552	699	1.3
Eastleigh	Row, Rooms, Tenement	Private	1	300	41	10	15	0.7	480	666	1.4
Pumwasi	Walk-up, Apartments, Subsidized	Public	3			52	6	9.0	313	549	1.7
Bahati	Row, Rooms, Subsidized	Public	1			17	11	1.5	320	405	1.3
Kariobangi South	Row, Houses, Subsidized	Public	1	133	47	63	4	16.0	270	380	1.4
Woodley-Kibera	Row, Houses, Subsidized	Public	2	222	47	166	7	24.0	217	310	1.4
Quarry Road	Detached, Houses, Subsidized	Public	1	150	32	48	6	8.0	114	173	1.5
Quarry Road	Semidetached, Houses, Subsidized	Public	1	250	40	100	9	11.0	72	83	1.2
Woodley 1	Detached, Houses, Subsidized	Public	1	1800	6	100	7	14.0	35	41	1.2
Dagonetti	Grouped, Rooms, Traditional	Private	1			28	19	1.5	36	41	1.1

Figure 1 : TABLE OF LOCALITIES, PHYSICAL CHARACTERISTICS AND DENSITIES OF POPULATION. (Taken from : URBAN DWELLING ENVIRONMENTS, Caminos, Turner, Steffian, M.I.T. Press, Cambridge, Massachusetts, 1969, for Boston and Latin America, PEOPLE, DWELLINGS AND LAND, Caminos, Goethert, Chanu, Nairobi-Cambridge, 1974, unpublished, for Nairobi) The Table illustrates existing cases. Other references are the following examples of densities assuming specific physical characteristics. LAND UTILIZATION : Circulation 20%; Semipublic 15% (open 12% + building 3%); Private 65% (open 43% + covered 22%).

DWELLINGS : rooms in tenements, apartments, houses, row and groups: Land coverage 1/3 of private land; Dwelling area per person 12m²; Shops and miscellaneous area per person 3m²; Open area per person 10m².

NUMBER OF FLOORS :	1	2	4
GROSS DENSITY persons/Ha :	147	294	588
NET DENSITY persons/Ha :	225	450	900

TABLE 6.3

SPACE STANDARDS OF THE SECOND URBAN PROJECT IN KENYA

TABLE A2 Housing Types, Plot Data and Occupancy

		"OPTIMUM" SITUATION					"MAXIMUM" SITUATION			
	Dwelling Size (m ²)	Plot Size (m ²)	Floor Space Index (Stand Coverage)	Optimum Plot Occupancy Persons	Optimum Per Capita Dwelling Space (m ²)	Optimum Per Capita On-Plot Open Space (m ²)	Maximum Plot Occupancy Persons	Minimum Per Capita Dwelling Space (m ²)	Minimum Per Capita On-Plot Open-Space (m ²)	
Nairobi	1P1	78	.48	8	9.7	10.3	11	7.0	7.3	
Prototypes	1P2*	70	.48	6	11.6	12.4	9	7.7	8.3	
	1P3	71	.49	8	9.0	9.0	11	6.4	6.6	
	1P4	48	.50	4	12.3	12.0	7	6.8	6.6	
	1P5	57	.50	6	9.5	9.1	9	6.3	6.1	
	1P6*	56	.50	6	9.3	9.3	9	6.1	6.2	
Mombasa	2P1*	105	.48	6	13.1	13.9	11	9.5	10.1	
Prototypes	2P2*	85	.40	6	14.5	21.4	9	9.7	14.3	
	2P3*	115	.53	12)1)	9.5	8.5	15	7.6	6.8	
Kisumu	3P1	87	.45	8	10.8	13.2	11	7.9	9.5	
Prototypes	3P2	87	.45	8	10.8	13.2	11	7.9	9.5	

*Also suitable for Kisumu

(1) Assumes that two small bedrooms have an optimum occupancy of one each.

TABLE 6.3 (continued)

Housing Prototypes, Gross and Net Density (Persons per hectare)

		"OPTIMUM" SITUATION				"MAXIMUM" SITUATION				
		Per Capita Public Space (m ² /p) (1)	Per Capita Private Space (m ² /p) (2)	Gross Density	Net Density	Per Capita Public Space (m ² /p) (5)	Per Capita Private Space (m ² /p)	Gross Den- sity (p/ha)	Net Den- sity (p/ha)	Ratio Gross/Net
Nairobi	1P1	18.5	20.0 = $\frac{10,000}{38.5}$	260	384	10.5	14.5 = $\frac{10,000}{28}$	357	488	1.4
Prototypes	1P2	18.5	24.0	235	335	12.3	16.0	353	455	1.3
	1P3	18.5	18.0	274	415	13.5	13.0	377	525	1.4
	1P4	18.5	24.0	235	338	10.5	13.7	413	508	1.2
	1P5	18.5	18.6	270	406	12.3	12.4	405	543	1.3
	1P5	18.5	18.6	270	406	12.3	12.5	405	546	1.3
Mombasa	2P1	18.5	27.0	220	303	13.5	19.6	302	380	1.3
Prototypes	2P2	18.5	36.0	183	238	12.3	24.0	275	333	1.2
	2P3	18.5	18.0	274	416	14.1	14.4	342	490	1.4
Kizumu	3P1	18.3	24.0	235	333	13.5	17.4	323	427	1.1
Prototypes	3P2	18.5	24.0	235	333	13.5	17.4	323	427	1.3

(1) From Table 16 (Interim Report)

(2) From Table 15 (Interim Report) per Capita private space and Per Capita dwelling space + per capita on Plot Space.

(3) One hectare (10,000m²) divided per Capita public space + per Capita private space

(4) Per Capita net residential area and per capita private space + 3.0m² / for roads, + 2.m²/p for parking + 1.0m²/p for incidental open space

(5) This column assumes that the amount of public open space remaining constant in a given situation, while the population density increases. For example, in the case of IPI, the optimum situation allows for 18.5m² public open spaces per person, i.e. for 8 persons 148m². In the maximum situation, the same amount of public open space (148m²) is shared amongst 11 people, therefore the per capita allowance is 13.5m².

NOTE : The densities arrived at in Table A2 are theoretical and are based upon assumed per capita land use requirements.

SOURCE : Ast, Guide A, Space Standards for Urban Low Cost Housing in Kenya, HRDU, University of Nairobi, 1979

TABLE 6.3 (continued)

Housing Prototypes, Gross and Net Density (Persons per hectare)

		"OPTIMUM" SITUATION				"MAXIMUM" SITUATION				
		Per Capita Public Space (m ² /p) (1)	Per Capita Private Space (m ² /p) (2)	Gross Density	Net Density	Per Capita Public Space (m ² /p) (5)	Per Capita Private Space (m ² /p)	Gross Den- sity (p/ha)	Net Den- sity (p/ha)	Ratio Gross/Net
Nairobi	1P1	18.5	20.0 = $\frac{10,000}{38.5}$	260	384	10.5	14.5 = $\frac{10,000}{28}$	357	488	1.4
Prototypes	1P2	18.5	24.0	235	335	12.3	16.0	353	455	1.3
	1P3	18.5	18.0	274	415	13.5	13.0	377	525	1.4
	1P4	18.5	24.0	235	338	10.5	13.7	413	508	1.2
	1P5	18.5	18.6	270	406	12.3	12.4	405	543	1.3
	1P5	18.5	18.6	270	406	12.3	12.5	405	546	1.3
Mombasa Prototypes	2P1	18.5	27.0	220	303	13.5	19.6	302	380	1.3
	2P2	18.5	36.0	183	238	12.3	24.0	275	333	1.2
	2P3	18.5	18.0	274	416	14.1	14.4	342	490	1.4
Kizumu Prototypes	3P1	18.3	24.0	235	333	13.5	17.4	323	427	1.1
	3P2	18.5	24.0	235	333	13.5	17.4	323	427	1.3

(1) From Table 16 (Interim Report)

(2) From Table 15 (Interim Report) per Capita private space and Per Capita dwelling space + per capita on Plot Space.

(3) One hectare (10,000m²) divided per Capita public space + per Capita private space

(4) Per Capita net residential area and per capita private space + 3.0m² / for roads, + 2.m²/p for parking + 1.0m²/p for incidental open space

(5) This column assumes that the amount of public open space remaining constant in a given situation, while the population density increases. For example, in the case of IPI, the optimum situation allows for 18.5m² public open spaces per person, i.e. for 8 persons 148m². In the maximum situation, the same amount of public open space (148m²) is shared amongst 11 people, therefore the per capita allowance is 13.5m².

NOTE : The densities arrived at in Table A2 are theoretical and are based upon assumed per capita land use requirements.

SOURCE : Ast, Guide A, Space Standards for Urban Low Cost Housing in Kenya, HRDU, University of Nairobi, 1979



Plate 6.4 - The result of generous space provisions has been patchy development. A view of Kuwadzana low-income housing estate.

Plate 6.5 - Another view of Kuwadzana showing the large unprogrammed space allocation.



- (a) Large proportions of unusable land in Zimbabwean building sites. This consists of easements, vleis (poorly drained areas), inclines and outcrops;
- (b) Recreation space standards and public open space amounting to 49% of Harare municipality sites and 35% outside Harare are relatively high, (Kauffman, 1981). These have a tendency of reducing gross residential densities;
- (c) Generous circulation space standards;
- (d) Unprogrammed open space and generous provision of space for schools (at 20 hectares for secondary schools) and other public facilities.

The net result of generous space provisions has been patchy development with large stretches of unallocated land, as shown in plate 6.4 and 6.5. Sometimes some of the open space becomes a public nuisance through the accumulation of rubbish, compounding the lack of maintainance.

One significant result of low residential densities has been the high costs of infrastructure per plot, spiralling off-site servicing costs and high opportunity costs in land use. Sewerage systems, for instance are generally subject to economies of scale. The length of run of service infrastructure is adversely affected if the design population densities are not high enough. It would therefore appear illogical not to exercise similar stringent control of costs on exogenous housing project costs to complement those exercised on low cost housing designs.

6.3.ii Plot size

The Ministry of National Housing and Construction (MCNH) allows the 312.5sq. m. (12.5 by 25m.) plot as the absolute minimum. The coverage ratio for the plot is stipulated at 20% and space standards of minimum floor area and total living space per person are:

minimum floor space	7.00sq.m./person
minimum total living space	35sq.m./person
(includes house, plot and public open space).	

When compared to other developing countries in Africa, the allowable plot coverage ratios in Zimbabwe are quite low. Whendero (1979) has described the plot as serving both economic and social purposes. Economic from the fact that vegetables are sometimes cultivated and sold to supplement low incomes, and social due to its use as a sitting place where women are often seen talking together with the children playing nearby. In the same way the traditional courtyard acts as a living area during the daylight hours, the plot functions as a "living room" with both "active" and "passive" areas. Sometimes cooking is also done outdoors.

The survey data points towards a need for a greater variety of plot sizes for different affordability levels which include the lowest paid. Application of the CITRUD model by Kauffman (1981) showed how economies could be achieved by increasing the plot ratio.

6.3.iii Plot efficiency

Current practice in Zimbabwe favours building of detached dwelling for low income housing projects. Semi-detached and terraced houses have been tried before. These proved unpopular among the occupants because of party walls. The objections to party walls are:

(a) Sound transmission across the party wall is high, thereby reducing privacy. Privacy, as was illustrated in the description of the traditional built environment, is a major aspect of traditional lifestyles;

(b) The sense of ownership, that is right to individual occupation, which is highly refined in the traditional environment, is not so well defined in semi-detached dwellings because of the common walls. Householders therefore do not feel that they own their houses.

The advantages of party walls on the other hand, are quite considerable. These are:

(a) Economies in construction costs can be effected through sharing a common wall;

(b) possible economies in connection costs can also be realised by the introduction of "wet" party walls; finally

(c) Rationality in space usage is achieved by the elimination of side aisles. This allows efficient use of narrow plots with a high plot ratio.

There are also possibilities for the introduction of courtyard oriented plans (which are sympathetic to

traditional house forms) in the use of party walls. Further savings can be realised from party walls in setting up costs and labour provided the ability to transmit sound is reduced perhaps through increasing the wall thickness or via other means, for example, sand filling of gaps.

6.3.iv Building standards

Model Building By-Laws were set up in 1977 by the Government of Zimbabwe. These are finely detailed regulations which specify exact technical requirements concerning the design and construction of buildings and other related services. The regulations cover a wide range of issues such as foundations, masonry and walling, miscellaneous materials and construction, water supply, lighting, drainage and sewerage, ventilation, fire protection and public safety. The by-laws provide for a very high level of structural safety and operational efficiency.

Although it was intended that the Model Building By-laws form the basis of building development throughout the country, many local authorities have their own by-laws. Local councils in Zimbabwe are the prime regulators of residential construction, both private and public. The local authorities's by-laws are not as stringent as the Model Building By-Laws. However, they also specify requirements with respect to design and construction of buildings. These by-laws also relate to public services, fire protection and

public safety precautions. The high standards of residential construction dictated by the regulations reflect "the past influence of established British building codes and practices and the requirements of the Building Societies", rather than a concern for the need to meet severe loading conditions, (Wright, J; Oakley, D; and Baker, L; 1981). There has been little effort to modify these building regulations by the introduction of performance standards.

6.4 Construction of low income housing

To reduce the cost of low income housing, the number of decorative finishes and other fixtures have been reduced to what is considered a minimum. Aspects such as brick veneer plaster, ceilings, tiled roofs, complicated roof trusses, timber, plastics etc. or other floor surfaces, built-in cupboards, and so on, have been omitted. The major elements in low income dwelling units are the foundation, the superstructure, the floor, the roof, and the minimum of fittings and decoration. A fuller description of the principal elements of low income housing has been given in Chapter 5 when the different housing prototypes available were discussed. A brief description of the principal elements of low income housing is given below:

6.4.i Foundation

Foundations are generally 400mm. deep with concrete footings of 300mm. by 100mm. or 150mm., depending on conditions. The foundation support brick, concrete block or clayblock foundation walls.

6.4.ii Superstructure

Hollow concrete blocks (460 by 300 by 110mm.) or hollow clay blocks (230 by 230 by 110mm.) are the most commonly used materials. Sometimes burnt claybricks may be used as well as prefabricated concrete panels. The latter have a relatively short history in low income housing construction. "Cemwash" is normally applied externally for waterproofing while internally, the finishing consists of cement or a cement slurry or limewash.

6.4.iii Floors

Ground conditions determine the materials used for floor construction. A hardcore base of between 125mm. and 150mm. thick, covered by a 75mm. layer of coarse gravel under a 65mm. concrete floor is common.

6.4.iv Roof

Timber roof supports are usually wall plates and purlins only. Laminated pine which does not warp or twist, is used to make them. Corrugated asbestos sheets locally known as "Trafford Tile" sheets are used exclusively for roof covering.

6.4.v Fittings

Low income houses are commonly fitted with a combined toilet and shower area. The toilets usually consist of pedestal or squat pans with a cistern. At the same time, most dwelling units are fitted with at least one sink, located either in the kitchen or just outside the house. The sink may be stainless steel, concrete or asbestos cement.

6.4.vi Space and ventilation standards

The specified minimum floor area of any one room, except the kitchen, is 7 sq.m., with a minimum horizontal dimension of 2.1 metres. Adequate headroom, daylight and ventilation are stipulated requirements. The minimum clear height from the floor to the roof is fixed at 2.4 metres, while the minimum window area is stipulated as 10% of the floor area. Of this 10% minimum window area, 50% of it should be able to open and permanent ventilation is in the form of two air bricks set as close to the roof as possible.

6.5 Evaluation

With the Model Building By-Laws it was estimated that the cheapest dwelling unit that can be built would cost in the range of Z\$5 000 to Z\$6 000. These very high specifications price low cost housing out of the reach of the majority of the urban poor. Most of the dwelling units constructed in the public sector low income housing projects conform to the most important specifications laid down by the Model Building By-

Laws. The only major deviations concern the thickness of walls and the size of the concrete footings. Comparing the cost of a minimum structure built according to the specifications with the median income of the target population of Z\$175 per month (Z\$2 100 per annum) in most of Harare's low income housing projects, the regulations clearly pose a major threat to mass housing.

Existing building standards and codes are restrictive in character and performance criteria have been completely ignored in the setting up of regulations. It is doubtful whether housing authorities can afford to continue with the present restrictive regulations because of the increasing inability to afford the cheapest public sector provided housing options by the urban poor. Present standards have been conceived to conform to what is officially acceptable minimum housing rather than in affordability terms.

There is no close relationship between the standards set and the target income groups and hence severe overcrowding due to housing shortages and other housing problems exist in Zimbabwe's main urban centres.

Standards should provide a useful guide for the provision of low income housing, including community facilities. They must also ensure the best possible balance between the performance of buildings in relation to the social and other requirements. Zimbabwe's planning and housing standards are not only restrictive, but a large majority of the target

income groups cannot afford the cheapest housing option available. These people must be taken into account in standard setting. Standard setting as a process should simultaneously consider all the factors involved such as family, social and functional requirements, inter alia.

Mabogunje et al (1978) recommend that standards should evolve from people's needs. Often, standards tend to reflect middle class technocratic perceptions of what these needs are. In order to be acceptable and enforceable, standards must meet several criteria which Mabogunje et al have set as follows:

- (i) cultural compatibility,
- (ii) social responsiveness - that is flexibility to the ever changing social conditions,
- (iii) economic feasibility,
- (iv) technological suitability,
- (v) physical and biological harmony,
- (vi) temporal relevance.

Zimbabwean planning and housing standards do not live up to most of the stipulations above. For instance, the last stipulation advocates continuous review in order to be temporally relevant. Zimbabwe's standards have changed little in the past ten years.

The conditions above point to a new approach in standard setting. Standards should generally be attainable by the bulk of the population. They ought to satisfy the needs of different sizes and types of families. The United Nations

(1977) has indicated that the process of standard setting should ensure;

- (i) equitable distribution of housing resources;
- (ii) equitable distribution of community services; and
- (iii) community participation in planning and assessing the provision of community facilities and services.

In the Zimbabwean situation, these criteria are far from being fulfilled and there is a rigid hierarchical structure which effectively excludes the target income groups from participation in planning, let alone standard setting.

Social analysis and family behaviour studies should be incorporated to aid in architectural design and layout. These variables are often lacking in policy making with the net result being inappropriate standards and codes as well as unsuitable architectural designs and layouts. Such social analysis would take into account household preferences for different housing types and cultural sensitivities required in dwelling unit and layout design. They would therefore complement family affordability calculations. Policy making which includes these variables should produce more appropriate solutions to the shelter problem, as in the traditional built environment where there was a close relation between housing provision and other social variables.

Standard setting is therefore not a simple exercise but one which encompasses diverse criteria. Not only should standards

governing housing services and community facilities be related to the country's environmental, economic, technical and social conditions, they should also relate to the quality and quantity of resources that are available. For instance, in determining the kinds of building materials, floor space and requisite services and facilities, "the task involved is to strike a balance between health, cultural and safety requirements", on the one hand, and available financial resources for house construction, ("Housing Policy Guidelines for Developing Countries", p.66, U.N.1976).

While high enough to represent an improvement over the current level of living conditions, basic standards should nevertheless be attainable by the bulk of the population.

The relationship between planning and housing standards comes out in the next chapter. Chapter 7 discusses resources for low income housing finance in Zimbabwe.

Chapter 7 : Finance for Low Income Housing

From Chapter 6 which dealt with the issues on standards, the next major question on low income housing is that of financial resources for housing. This is a big question which is often the biggest constraint in housing provision. This Chapter concentrates on finance for low income housing. It is divided into four major sections. These are :

- (a) Structure of the financial sector;
- (b) Public sector housing finance;
- (c) Private sector housing finance; and
- (d) Evaluation of the low income housing finance system.

It is important to ensure a fair grasp of the structure of the financial sector in Zimbabwe before dealing specifically with low income housing finance.

7.1 Structure of the financial sector

The financial sector in Zimbabwe is sophisticated and well developed, by most developing countries' standards, (see table 7.1). It consists of the Reserve Bank, 5 commercial banks, 4 accepting houses or merchant banks, 2 discount houses, 5 finance houses, 3 building societies and the Post Office Savings Bank. In addition, there are also approximately 50 registered insurance companies and over 1300 registered pension, provident and retirement annuity funds operating in the country. Other institutions designed to

channel public and/or private sector capital subscription funds to specific economic sectors also exist. The Agricultural Finance Corporation is a good example of these institutions.

The financial requirements of private individuals have always been met by commercial banks, finance companies, the Post Office Savings Bank and the pension plans. Therefore the majority of the financial institutions have addressed themselves primarily to meet the needs of the commercial and corporate sector.

The sections comprising the financial sector and their functions are briefly discussed below.

7.1.i Reserve Bank of Zimbabwe

It was established by the Reserve Bank Act of 1964. The Reserve Bank of Zimbabwe (RBZ) stands at the apex of the banking and monetary system. It controls the money supply, administers Government loans and treasury bills and looks after the country's foreign exchange reserves.

The RBZ performs the functions of a central bank. It is both the commercial banks' bank and a banker to the Government of Zimbabwe. It allocates foreign reserves, issues currency and provides clearing house facilities. The RBZ also sets liquidity reserve requirements and regulates and supports the commercial financial sector etcetera.

TABLE 7.1

ZIMBABWE : STRUCTURE OF THE FINANCIAL SYSTEM

(Current Z\$ millions at end of period)

	<u>Total Assets</u>					<u>Proportion of Total</u>				
	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>
Reserve Bank	428.2	662.0	695.9	1,015.8	1,031.6	9.6	12.6	11.6	14.7	13.8
Commercial Banks	980.9	1,227.3	1,438.9	1,508.7	1,581.8	22.0	23.3	24.0	21.9	21.1
Merchant Banks	313.5	264.8	308.4	305.2	342.8	7.0	5.0	5.1	4.4	4.6
Discount Houses	101.3	110.2	104.7	131.1	145.6	2.3	2.1	1.7	1.9	1.9
Finance Houses	136.2	184.8	176.8	202.1	210.9	3.0	3.5	2.9	2.9	2.8
Post Office Savings Bank	271.7	313.2	375.1	445.4	572.6	6.1	5.9	6.3	6.5	7.6
Building Societies	596.3	605.8	643.4	652.0	649.8	13.3	11.5	10.7	9.5	8.7
Insurance Companies	691.1	772.2	921.4	1,025.2 ^{1/}	1,140.4 ^{2/}	15.5	14.7	15.4	14.9	15.2
Pension and Provident Funds	809.9	985.2	1,166.0	1,390.0	1,568.1 ^{2/}	18.1	18.7	19.4	20.2	20.9
Agricultural finance Corporation	<u>139.3</u>	<u>141.9</u>	<u>166.3</u>	<u>219.4</u>	<u>250.7</u>	3.1	2.7	2.8	3.2	3.3
Total	4,468.4	5,267.4	5,996.9	6,894.9	7,495.7					

Sources : Central Statistical Office, Quarterly Digest of Statistics
 Report of the Registrar of Financial Institutions and Building Societies
 Report of the Registrar of Insurance
 Report of the Registrar of Pension and Provident Funds
 Reserve Bank of Zimbabwe, Quarterly Economic and Statistical Review

1/ End of June

2/ Estimate

7.1.ii Commercial Banks

The five commercial banks in the country are :

- (a) Bank of Credit and Commerce Zimbabwe Limited,
- (b) Barclays Bank of Zimbabwe Limited,
- (c) Grindlays Bank plc,
- (d) Standard Chartered Bank, Zimbabwe Limited, and
- (e) Zimbabwe Banking Corporation Limited.

The banks provide deposit and current account facilities to both individual and corporate clients. Most loans provided by the banks are short term and chiefly for working capital and commercial agriculture finance. They are usually on an overdraft basis secured by real property and commercial assets. Through the Register of Co-operation, which is a cartel agreement of commercial banks, interest rates and charges are fixed to ensure a stable working environment. In the period from 1980 to 1984, the banks have controlled between 21% and 24% of Zimbabwe's financial assets.

7.1.iii Merchant Banks

Merchant banks, known as "accepting houses" in economic parlance, include :

- (a) Merchant Bank of Central Africa Limited,
 - (b) RAL Merchant Bank Limited,
 - (c) Standard Chartered Merchant Bank Zimbabwe Limited,
- and (d) Syfrets Merchant Bank Limited.

These cater exclusively for large account holders and

corporate needs. They provide a range of services including the financing of imports and exports through acceptance credits, processing of commercial letters of credit and foreign bills of exchange, provision of short and medium term financing as well as bridging finance and foreign exchange transactions and dealings. Specialising in the flotation of companies and arranging for mergers and takeovers, they are also the only authorised foreign currency brokers in the country.

7.1.iv Discount Houses

The two discount houses are BARD Discount House Limited and the The Discount Company of Zimbabwe. Modelled on British institutions, they accept call money from both financial and non-financial institutions. They invest the funds into a wide range of financial assets, mostly with short maturity, such as treasury bills, bankers' acceptances, negotiable certificates of deposit etc. They also maintain markets in treasury bills, bankers' acceptances, stocks belonging to Central Government and Municipal Governments, the Electricity Supply Commission, inter alia.

7.1.v Finance Houses

These provide hire purchase, lease hire business and direct term financing. The finance houses in Zimbabwe are FINCOR, Grindlays Finance Limited and udc Limited. Finance houses are not permitted to accept deposits of less than 30 days.

7.1.vi Post Office Savings Bank (POSB)

Although it has been in business for the last 80 years, its predominance as a deposit taking concern is a relatively new development.

With a total of 858 000 accounts, the POSB is served by 160 offices nationwide, (Coleman and Lintz, 1985). It is required to invest the bulk of its funds with the Government. It can therefore not lend to the private sector.

7.1.vii Building Societies

The three building societies, Beverley Building Society, Central Africa Building Society and Founders Building Society receive deposits from the public and provide mortgage mostly for residential development and some commercial construction. Deposits with the building societies have stagnated since 1980. The reason can be found in the unattractive allowable deposit rates relative to other institutions, especially the POSB. The decline in the Building Societies share of the country's total financial assets is illustrated in Table 7.1. The share held by the Societies fell from 13.3% at the end of 1980 to 8.7% at the end of June 1984. Building Societies have to maintain 15% of their assets in liquid government and quasi-government securities. Liquidity in this case refers to under 6 year maturity.

7.1.viii Insurance Companies

At the end of 1982, there were 48 direct insurers registered to operate in Zimbabwe. These include both life and non-life companies.

7.1.ix Pension, Provident and Retirement Annuity Funds

Of the 1 222 pension, provident and retirement annuity funds registered at the end of 1982, 76 pension and 26 provident funds were self administered while 1 105 pension and provident funds and 15 retirement annuity funds were administered by insurance companies. Like life insurance companies, pension funds have to hold 60% of their assets in government and quasi-government securities. At the end of 1984, their hold of the nation's financial assets was over 20%, (Coleman and Lintz, 1985).

7.1.x Low income housing finance

The national gross fixed capital formation (GFCF) between 1968 and 1977 is shown in table 7.2. From the table, it is evident that residential development has not exceeded 16% of GFCF and that low income housing did not exceed 4% of the GFCF over the ten year period.

Low income housing development reached a peak of 51% of the Central Government FCF in 1971 but declined in 1972 to 13%. Since then, it has varied from year to year between 13% and 20% of the Central Government FCF, up to 1979, (Whitsun Foundation, p.19, 1979). In 1978, low income housing

TABLE 7.2 : GROSS FIXED CAPITAL FORMATION (G.F.C.F.) 1968-1978
(in Z \$ million)

YEAR	G.F.C.F.	RES- DENTIAL G.F.C.F.	RESIDENTIAL AS A % OF GROSS	LOW INCOME HOUSING G.F.C.F.	LOW INCOME HOUSING AS A % OF GROSS	LOW INCOME HOUSING AS A % OF RESIDENTIAL
1968	148	23	15,5	1,7	1%	7%
1969	145	23	15,7	3,0	2%	13%
1970	175	28	16,0	3,1	2%	11%
1971	222	29	13,1	8,2	4%	28%
1972	256	36	14,1	3,7	1%	10%
1973	331	50	15,1	7,1	2%	14%
1974	422	48	11,4	7,5	2%	16%
1975	467	47	10,1	11,1	2%	24%
1976	403	44	10,9	11,6	3%	27%
1977	368	48	13,0	8,8	2%	18%
1978	330	33	10,0	9,7	3%	29%

Source : National Accounts of Zimbabwe, 1978

accounted for 25% of Local Government FCF. The percentage of Gross Domestic Product (GDP) channelled to the construction of new housing through the formal sector was 0.67% in 1984, (Coleman & Lintz, 1985). As a percentage of total Government expenditures, investment in new housing was slightly higher at 1.8%, (Coleman and Lintz, 1985).

It is obvious that housing has been poorly catered for in terms of the national economy, especially in the low income housing sector where needs are greatest. With that background in mind, public and private sector finance are the next issues for discussion.

7.2 Public Sector Housing Finance

7.2.i Local Authorities

Within the public sector, Local Authorities (LA) have traditionally been responsible for low income housing. The principal role and responsibility of the LAs consists of the development and administration of low income housing in their areas. The role includes allocation and management of LA owned rental housing. Currently, they are developing new low income housing mostly for sale.

There are three main sources of LA funds, namely :

- loans from the Government of Zimbabwe (GOZ), appropriated from the annual budget;
- loans from the private sector financial institutions such as building societies, insurance companies,

pension funds, etc;

- locally generated revenues from taxes and /or LA business ventures.

The bulk of LA finances for residential purposes come from Central Government loans allocated through the National Housing Fund. The loans from Central Government are usually for 30 years with a fixed interest rate of 9.75%. The market interest rate of mortgage loans from building societies is 12.5%. So the cost of funds to the NHF is clearly greater than the return on assets or loans to borrowers.

The LAs lend the money to home buyers at the same interest rate as they are charged, although a small fee to cover administrative costs is usually added. In Harare, a flat fee of Z\$3.85 per month per loan is charged for this purpose to help defray loan administration costs.

Loans from the private sector to the LAs have actually dried up since 1980. Only Harare and Bulawayo City Councils have borrowing powers in the private sector. However, the Minister of Local Government, Urban and Rural Development is the ultimate authority on loan conditions and terms. This source of finance is no longer permitted by the Government.

Before independence in 1980, there were two main sources of locally raised funds. The first source was a Services Levy on certain employees. The money was directed towards the construction of low income housing and community services. This was repealed at the end of 1979.

The second source of locally raised funds was the African Beer Funds. Under this program, LAs produced and sold traditional beer. From the proceeds of such sales, 50% of the profits were allocated to a revolving fund for the development of low income housing. Since 1980, this source of funds has been greatly diminished because of the excise taxes which the Government has levied on traditional beer. This has meant that 80% of the profits end up in central tax coffers, rather than remaining with the LAs for the development of more housing. The revolving funds established with beer receipts continue to provide some money for new housing development. Harare generates Z\$1 million annually in this way, (Coleman and Lintz, 1985). The interest charged is below the inflation rate and this severely restricts the flow of money especially after taxes.

This indicates a decapitalization of the fund. Although no figures were forthcoming, revenues from both local sources have continued to diminish with each passing year.

A new source of funds is likely to become available to the LAs because of a recent development. One building society has agreed to make mortgage loans directly to allottees of low income plots under a World Bank sponsored project in four urban councils. The four LAs will now be in a position to use GOZ financing as a construction account to finance and develop plots. Once the building society provides the long term mortgage financing, the LAs will be reimbursed for the

cost of developing the plots. These funds can then be rolled over to develop new plots.

7.2.ii The National Housing Fund

Established in January 1982, it is an amalgamation of two separate housing funds - the Local Government Areas Building Fund and the Provincial Building Fund. Its principal purpose is to function as an intermediary for GOZ loans to LAs for the development of low income housing. These loans are allocated annually.

National Housing Fund disbursements for the period 1980/81 to 1984/85 are shown in table 7.3. An awareness of the urgent need to increase the nation's housing stock is reflected by the allocation of Z\$469 million in the Transitional National Development Plan. However, the actual budget allocation fell far short of that target over the three year period from 1982 to 1985. Estimates of expenditure reflected only Z\$138.2 million while budget constraints further reduced actual disbursements to Z\$115.6 million. Therefore, only 24.6% of the funds originally intended in the Transitional Plan were disbursed. In spite of lower than desired levels to the NHF, the figures are in excess of levels in those years previous to 1983. Only Z\$17.4 million in 1981 and Z\$19.0 million 1982 were disbursed in housing loans.

Loans to the NHF are made at a fixed interest rate of 9.75% annually, to be amortized over a 30 year period. Non-central

TABLE 7.3

NATIONAL HOUSING FUND INVESTMENTS 1980/81 - 1984/85

(Current Z\$ Million)

Year	Transitional Plan 1982/85	Budgetary Allocations	Actual Disbursements	Disbursements as a % of 1982/85 Plan
82/83	108.0	59.5 ^{2/}	37.9 ^{3/}	35.1
83/84	149.6	31.7	39.8	26.6
84/85 ^{1/}	<u>211.4</u>	<u>47.0</u>	<u>37.9</u>	<u>17.9</u>
Total	469.0	138.2	115.6	24.6

Source : Ministry of Construction and National Housing

1/ Estimated

2/ Budget reduced during year by Z\$25 million by MFEPD

3/ Figures in Government Blue Book vary slightly from those figures due to next year updates prepared annually by the Ministry.

government loans comprised about a third of the NHF's capital account in 1985. No loans have been derived from private sector sources in recent years.

The NHF uses GOZ loans to lend to LAs for housing schemes. The NHF is generally a "pass through" financial intermediary. However, the cost of funds to the NHF is greater than the return on assets or loans to borrowers. A possible explanation is that interest rates on earlier loans to the LAs have not been adjusted to reflect the increases in the cost of capital to the NHF. While the NHF receives GOZ loans at an interest rate of 9.75%, loans to the LAs are carried at much lower interest rates. It appears the GOZ is aware of the problem because in 1983, it made a grant of Z\$777 000 to help reduce a budget deficit caused by the interest problem. The continued deficit situation jeopardizes the success of the NHF which cannot pass on the high interest rate to the LAs. The self sufficiency of the NHF is also questionable because its administrative expenses are covered by the GOZ's housing vote and budgetary allocation to the Ministry of Construction and National Housing (MCNH) for administrative expenses. Local Authorities arrears to the NHF also prejudice the success of the NHF. LAs were in arrears of Z\$10 577 000 as of December 31, 1984, with Z\$7 689 000 more than 90 days in arrears. However, a considerable portion of that is attributable to the Chitungwiza Town Council which was at the time in dispute with GOZ over damages to a number of NHF

financed houses. As a percentage of NHF's loan portfolios, LAs' bad debts totalled less than 0.05%. None of the debt has been written off.

7.2.iii The Housing and Guarantee Fund (HGF)

The HGF operates two programs : (a) a guarantee scheme whereby a portion of a mortgage loan obtained from a private financial institution is guaranteed for repayment; and (b) a rental housing ownership and management scheme.

(a) The Guarantee Scheme

The Housing Guarantee Scheme was established in 1953. The GOZ acting through the MCNH guarantees a top portion of a loan obtained under specific criteria from a financial institution, usually a building society. The fund usually guarantees the first 30% of the loan with the building society assuring repayment for the remaining 70%. With this guarantee a public servant is able to obtain a loan equal to the purchase price of the dwelling unit.

In return, the beneficiary has to sign an agreement giving the GOZ a first lien on his/her pension in the event of a default. The GOZ also deducts monthly payments directly from the beneficiary's paycheck to be sent to the lender.

The other loan scheme is the 90% scheme which is for the general public and is more restrictive. People not employed by the public sector may obtain a loan guarantee on condition that they make a down payment or deposit equal to 10% of the

purchase price. The GOZ then guarantees the top 20% of the loan while the building society takes the remaining 70% risk. The maximum purchasing price under this scheme is Z\$17 000 with a maximum loan of Z\$15 300 (90%). Monthly payments are not to exceed 22.5% of the purchaser's salary, or in the case of joint purchasers, two or more salaries.

It is up to the borrower to obtain a mortgage loan. The building society's analysis of the borrower's credit worthiness and ability to repay the loan is accepted at face value by the HGF. The borrower must also pay transaction costs associated with the purchase of a house, that is taxes, stamps, recording etc. and a commission to the HGF for issuing the guarantee. The commission is .05% of the amount of the loan or 3% of the maximum liability of the Fund, whichever is lesser.

Recently up to 100% of some loans have been guaranteed. This concerns low income families who need additional help to purchase homes they occupy as tenants. These loans are usually less than Z\$2 000.

The number of building society loans guaranteed from 1980 through 1984 totalled 10 712, of which 48% were given to public servants and the remainder to the general public.

7.3 Private Sector Housing Finance

Building Societies have no competition from any other private sector financial institutions in the provision of credit. There is, however, strong competition for the financial resources which might otherwise supply housing credit. This has major effects on the ability of the Building Societies to mobilize funds.

Depositors hold voting rights and ownership is vested in a stock society of non-savings depositors. Only depositors of up to 4 year fixed certificates known as share capital, hold voting rights and receive a fixed interest rate or dividend on shares. The other short term depositors earn interest on savings. Certificates may not be redeemed on less than six months notice. The Building Societies are governed by Boards of Directors who are elected for staggered time periods by share capital holders.

In the period 1980 to 1985, 24 539 loans have been disbursed to purchase existing homes but not to construct new homes. The total loan amount was Z\$350 million with Z\$ 72 million for 4 921 loans originating in 1983/84.

The relatively comfortable environment in which the building societies operated prior to independence was rapidly transformed to one of acute competition. The societies have continued to operate in the black but with greatly reduced profit margins. Two tax considerations affect the building societies. The first provision is positive in that profits

are not subject to corporate income taxes. Therefore any surplus income can be re-invested in the societies to promote growth and development. In practice, profits over the past few years have been insufficient to meet statutory reserve requirements. Consequently, the tax free benefits on surplus have not been enjoyed.

The second provision of the tax code tends to have a negative impact on the prosperity of the building societies. The interest paid on savings deposits and share capital are taxable, with the amount of individual tax contingent on the recipient's income tax bracket. The result of this provision is that while the chief competitor to the building societies, the POSB, offers tax free interest paid on savings deposits, the societies are put in an inferior position to attract savers. This explains the stagnation in the growth of deposits and shares in building societies in recent years.

Generally, building societies have regressed in recent years. For example in the first six months of 1984, mortgage loans increased to Z\$416 million, an increase of Z\$8 million over the 1983 figure. This translates into an annual rate of less than 4%. When compared with the current inflation rate of around 14% over that same period, it is apparent that the societies are not even matching the inflation rate. They are also reducing their percentage holdings in other assets, judging from the 9.4% growth in assets over the same six month period.

Another factor in the downward trend of the societies' fortunes is the regulation that requires them to contribute to statutory reserves prior to distributing dividends.

7.3.i Building Society Loans to Home Owners

The repayment of mortgage loans is restricted by the Building Societies Act of 1965 to 35 years. However, societies normally require payment over a maximum of 25 years by equal instalments of capital and interest.

The current rates of interest charged in respect of owner occupied dwelling houses are as follows :

12.50% where the house is under Z\$12 000,

13.50% where the house is over Z\$12 000,

13.75% where the house is not occupied by the owner.

(Interest rates have increased from the pre-1980 figures of between 7.25% and 8.5% to the above).

(Source : Quarterly Digest of Statistics, June 1984).

All accruals to and interest received by the building societies in respect of mortgage loans and all other investments are specifically exempt from taxation in terms of income tax legislation. On the other hand, no tax relief is granted to the purchaser in respect of interest on mortgage loans. Where property is let, the interest payable may be offset against the rented income .

Loans are limited to 75% of the cost or valuation of the property, whichever is the lower, determined at the time of

making the advance. The percentage loan may be increased provided it is supported by certain specified forms of collateral security on such terms and conditions as may be determined by the Minister of Finance. Collateral security may consist of of :

- (i) cash deposited with the society, equal to the full amount deposited, (by the bondholder);
- (ii) deposits with a registered society or fixed deposits with a bank, equal to the full amount of the deposits;
- (iii) shares in a registered society, equal to the amount paid upon the shares;
- (iv) a life insurance policy, equal to the surrender value of the policy;
- (v) a bank guarantee or any form of guarantee approved by the Registrar of Building Societies, equal to the full amount guaranteed;
- (vi) any form of suretyship or guarantee other than a bank guarantee where the suretyship or guarantee is supported by additional security in the form of (i) to (iv) above;
- (vii) a first mortgage bond over the immovable property equal to 75% of the value of the property in the case of a reducible advance (66.67% in the case of a fixed term advance);
- (viii) any other security that may from time to time be

approved by the Registrar of Building Societies.

In addition to the above, there is provision for certain guarantees as collateral security. These normally take the form of guarantees either by government (discussed before) or by certain statutory bodies and approved employers. With statutory body or employer guarantees, these only apply to certain organisations approved by the Registrar of Building Societies. The arrangements are negotiated individually by the organisation concerned since they can vary with respect to the location of the property and the financial standing of the organisation.

7.3.ii Building Societies and Minimum Building Specifications

Minimum building specifications, which generally conform to LA by-laws are laid down by the Building Societies. Two prime reasons have been cited for these specifications :

- (a) to protect the interests of their shareholders and depositors as well as the interests of home purchasers;
- (b) to ensure an acceptable level of structural standard and durability.

When it became obvious that almost all the prospective low income home owners would not meet the minimum building specifications laid down, a new specification known as Grade B was produced. The main difference from the higher

specification is a lower standard with regard to internal finishes. However, it remains basically the same with regard to other aspects, including structural requirements.

The lower specification allows a greater number of houses to be considered for Building Society loans. Nevertheless, in practice, it excludes all low income housing. No monetary value is attached to Grade B specification, but it was generally believed, in 1979, that a house constructed to these standards would cost between Z\$5 000 and Z\$6 000. Such a house would cost between 25% and 30% more by current building costs, because of inflation and escalating building costs and would therefore be beyond the reach of the low income buyer.

Building societies have generally been reluctant to accept a lower minimum specification to include low income housing for the following reasons :

- (i) the societies consider it their responsibility to safeguard the interests of their shareholders and depositors. Consequently, they do not consider that houses constructed to standards lower than Grade B specification provide adequate security for the funds invested by their shareholders and depositors;
- (ii) they consider that it is their moral duty to safeguard prospective home buyers by ensuring that the house purchased remains structurally sound and

habitable for a minimum period of 25 years without major maintenance expenditure. The 25 year period is also the bond repayment period;

- (iii) the administrative structure of the building societies makes it extremely difficult for them to administer a very large number of small loans. To undertake such a task would require an enlarged staff (or time saving computer facilities, which are presently not available to them),. An enlarged staff would result in an increase in administrative costs and hence interest rate structures.

Among private sector sources of housing finance, the building societies' monopoly is almost complete. The impact of other private sector sources such as commercial companies which provide houses for their employees is therefore so negligible as not to merit discussion.

7.3.iii Low Income Housing Production and Rent Control

This discussion on rent control has been included in this section on private sector finance because of the policy implications on the amount of financial resources channelled to low income housing construction.

The Housing and Building Act of 1979 enabled the Minister of Construction and National Housing to establish a Rent Appeal Board. The Board would "control the letting and hiring of

immovable property". The Act permits the Government to "restrict or suspend the rights under common law, of lessors of immovable property, including rights relating to leases entered into before coming into operation of such legislation". Promulgated in 1982, the effects of rent control on the housing rental market have been significant. The Rent Appeal Board has the right to decide a "fair rent" of all rental units, which include both existing and new units. Several factors are taken into consideration in determining the "fair rent". These include rental rates in the area, the possible effects of the rent level on other rental rates, and the condition of the property. In addition, the Board, in determining a reasonable charge to the lessee, "assumes that supply and demand are in reasonable balance and shall not have regard to any abnormal conditions of supply and demand". In essence, the legislation removes the ability to determine rental charges from the lessor and lessee, and places it with the Rent Appeal Board.

Several consequences have resulted from these changes. As was intended by the Government, there was immediate relief to lessors because rents were frozen. In some cases, they were even rolled back. Rents for many lessors are so reasonable that it is illogical to buy a house since amortization payments are much higher than rental payments.

While this was beneficial in itself, the long term effects have been negative. The process which landlords have to go

through to raise rents is complicated and time consuming. The net result is that landlords have resigned themselves to low rents and there has been a curtailment of new housing construction. Since rents are controlled, the expected financial rate of return makes investments on new construction unprofitable vis-a-vis returns on other investments.

Another consequence has been the deterioration in the condition of existing rental housing stock because landlords can only incur further losses when making improvements and repairs to property for which no additional income will accrue.

There has also been a spate of selling off and conversion of rental flats into office space especially near Harare city centre. The result is the creation of an acute shortage of rental accommodation (flats) in the lower middle income group, and a resultant increase of pressure on the scarce low income housing units on the market.

A review of the legislation on rent control is therefore necessary. Without such re-examination of rent control, it is predictable that private sector investment in rental housing will remain negligible, with serious long term effects.

7.3.iv Personal Savings

The pattern of savings and especially the ability to save as a function of income, is an important parameter for the design of housing finance systems. A survey by Marja Hoek-Smit (1982) revealed that overall, 40% of the households did not have any savings (or at least did not admit to have any). Personal savings play an important part in low income housing finance, particularly in self-help schemes where Government provided loans are not sufficient.

In Zimbabwean traditional culture, cattle are an important asset and indicator of wealth. Cattle ownership as a form of saving therefore becomes important because cattle can be sold more readily than other assets, should an urban household want to invest in housing. Most urban households maintain some land in the rural areas.

Of all the heads of household in Hoek-Smit's survey, 35% owned cattle in the rural areas, but a large majority had less than 5 head of cattle. Table 7.4 shows the savings patterns and where the savings are kept. From the table, 29% kept their savings with one of the building societies and 16% in the POSB.

No conclusive results can be deduced from these figures. Bearing in mind that one is dealing with low income people then the will and ability to save, which obviously exists, must be taken into account in any housing policy.

TABLE 7.4

SAVINGSHARARE LOW INCOME RESIDENTIAL AREAS 1982

Income of Household Z\$ per month	Average Amount of Savings per Income Group in Z\$ (of those with savings)	Percentage of Income Group without Savings
< 10	--	100
11-30	75	80
31-50	160	68
51-70	90	71
71-90	150	59
91-110	120	52
111-130	115	43
131-150	125	26
151-200	180	30
201-250	270	21
251-300	255	14
301-350	400	19
351-400	520	5
> 400	500	--
n = 1060	no answer : 9%	

Place Where Savings are Kept	Percentage of Total
No Savings	41
Post Office	16
Bank	09
Building Society	29
At Home	03
No Answer	01
n = 1060	

Source : Marja Hoek-Smit (1982)

7.4 Evaluation of the Housing Finance System

Zimbabwe has a well developed financial system and good institutional capacities (matched by very few developing countries) for efficiently mobilizing resources for low income housing. Despite this relative sophistication, several gaps can be identified in the financial system. These critical gaps are as follows:

- (i) The lack of any role for the private sector in generating significant resources for low income housing supply. The housing market prior to 1980, was characterised by two essentially separate housing delivery systems. The first was based on the private sector and enjoyed the sophisticated housing finance capability provided through the network of efficient financial intermediaries, (for example the Building Societies). Access to this financial system was limited to the middle and upper income households with lower income households, for all practical purposes, excluded. Building Societies' participation in low income housing was limited to the provision of block grants to LAs. This exclusion of prospective low income home buyers has largely survived although, just recently, one Building Society has agreed to grant loans directly to beneficiaries in a World Bank sponsored project.

The second delivery system was based on the public sector and was implemented by the Local Authorities. It was designed for low income (black) households. The building specifications, the Societies' need for collateral security and their administrative constraints ensured their inability to participate in low income housing finance.

- (ii) The absence of any linkage between the public sector housing programs and private sector sources of finance.

In recent years, it has become increasingly clear that if national housing goals are to be met, the Government should encourage, and if necessary, supervise the provision of incentives for the private sector in a joint effort towards low income housing provision. What is called for is the integration of both private and public resources.

- (iii) Historically, the LAs have been the prime initiators of low income housing projects. The low income housing policy of Central Government in the pre-independence period was largely one of non-intervention in housing except in the provision of loans to LAs for low income housing. Low income housing policy on the part of the

Government was, in fact, non-existent with participation limited to annual budget review and provision of a few selected services.

With increased rural-urban migration and the resultant low income housing demands in the post independence period, the LAs are unlikely to cope by maintaining significant housing programs. LA sources of local funds have been eroded largely by Central Government's appropriation of previously lucrative beer receipts. The LAs are faced with a progressively shrinking financial base. The future financial viability of the LAs depends on their ability to expand their revenue base by identifying new sources of income. Alternative financing arrangements have to be introduced to ease the low income housing burden facing the Central Government, including even the reintroduction of Beer Profits.

- (iv) Budgetary constraints have severely curtailed the ability of Central Government to grant housing loans to the LAs. While the urban areas are caught between increased low income housing demands as well as rural urban migration, Central Government is also channelling more investment resources to the previously neglected rural areas where the bulk of the low income population live. An

important target of low income housing policy should therefore be efficient use of fewer public resources to meet increased demand in housing.

(v) The ability of Building Societies to provide housing finance depends on their continued competitiveness in relation to other financial institutions. There is therefore the need to keep the Societies sufficiently competitive to attract funds (while keeping interest rates as low as possible) without sacrificing other development goals. A compromise has to be struck for a problem which appears to have no obvious rational solution.

(vi) Individual savings, already representing a large part of total financial resources presently being employed in low income housing, are completely ignored by policy makers in the low income housing finance system. Households allocated publicly built houses are required to make down payments. A large part of this amount comes from personal savings. The neglect of personal savings in housing policy formulation is a conspicuous oversight which needs to be redressed to take into account even semi-legal income generating activities such as informal sector hawking, cycle repairs, knitting etc.

The solution to the problem of low income housing finance for the majority of the urban poor lies neither with Government sponsored housing programs nor with conventional lending facilities. The former cannot possibly generate enough resources to cater for all the needy, while the latter is characterised by high eligibility requirements and restrictive loan terms that assume that beneficiaries have regular incomes and acceptable forms of collateral. The fundamental conclusion is therefore that conventional approaches to low income housing finance cannot and do not resolve the problem of the low income households. The approaches can neither accommodate the lifestyles, values and saving capacities of the poor nor provide realistic and efficient attempts to meet the enormous challenge of low income housing finance. This has been vindicated in the analysis of Zimbabwe's housing finance system which, in spite of its sophistication, has failed to cope with the problem. What is needed is a complementary approach which brings in traditional methods and local resources to bear on the shelter problem of the urban poor.

The co-operative approach and sense of common purpose of the traditional built environment has amply demonstrated the success of this approach, although the issues in that situation have a different level of complexity. Such non-institutional non-conventional financing to bridge the gap with the conventional system is non-existent in Zimbabwe.

The conclusions in the next chapter address themselves to this and other issues discussed in this study.

Chapter 8 : Summary, Conclusions and Proposals

In the introduction, the stated aims of the study were to analyse public sector urban low income housing policy, to identify the shortcomings of that policy and to provide a basis for deriving housing and planning policies which are socio-economically and culturally relevant to the Zimbabwean experience.

The intention of this final chapter is to summarise and bring together the key issues of the different sections of the research, to reach some final conclusions, and to advance several proposals as solutions.

8.1 Summary

From the outset, the scarcity of relevant literature was identified as a problem. Not only was literature on African, let alone the Zimbabwean traditional built environment scarce but some of the few works available were strongly influenced by individual personalities and ethnocentrism in their descriptions. African buildings were not accepted as architecture nor were they recognised as such. The paucity of literature on the African built environment reflected, among other factors, a lack of interest in the indigenous answer to shelter provision.

Small wonder then that when African urbanisation began in Zimbabwe, at the start of this century, it brought drastic cultural changes and dislocations in many walks of life.

Urbanisation, largely brought about by a series of measures including the enforced decline of African agriculture, resulted in severely overcrowded housing conditions where housing provision lagged behind demand. The lack of interest in the African models of shelter provision manifested itself firstly in the lack of a coherent policy on low income housing and, secondly, in the imposition of alien solutions to local shelter problems.

Major features of the colonial low income housing policy were the development of urban residential land on strictly segregated lines and control of the rural-urban migration of job seekers. The latter was achieved through repressive influx control laws. Its important effects include the relative under-urbanisation of Zimbabwe in comparison with other countries on the basis of gross national product, the absence of massive squatter settlements, and the development along segregated lines of the urban areas.

One important implication of influx control legislation is that, since rural-urban migration could be controlled, the number of job seekers in the urban areas were a function of job availability and hence housing demand could be controlled to match housing provision.

The colonial period was also characterised by a preoccupation with growth rather than development and the neglect of policies designed to improve wealth and income distribution. For example, in 1977, of participants in waged employment,

114000 whites, Asians and coloureds (persons of mixed race) received an average of Z\$6156 per head. On the other hand, 908 000 blacks received Z\$588 per head; (Economist Intelligence Unit, Annual Supplement, 1979, p.9). Whites and others therefore received about 11 times as much as blacks. The spatial imprint of segregated development was therefore reinforced by attendant income and housing differences. Development along segregated lines has remained but has largely been replaced by segregation based on income inequalities with the advent of national independence in 1980.

When the study moved on to the traditional built environment to analyse it, this was to try and learn from the African experience a new approach to the shelter problem. The analysis of the traditional built environment, as a result of the scarcity of documentary sources, was based on material from the National Archives as well as the few available written accounts of which the most useful was by Du Toit. The first concern was with defining the concept of housing, before proceeding to a discussion of both Shona and Ndebele housing.

After grappling with problems of definition, it became obvious that housing in the traditional environment is not just mere physical structure. It is the product of a diverse range of social, cultural, economic and even political forces. The traditional house was the result of an intricate

interplay of these forces.

Housing provision was also a highly cooperative venture in the community. The high degree of consensus resulting from the "gemeinschaft" society, where strong primary ties existed, made this possible. The users of housing were the principal actors in the planning and construction of their housing regardless of resource levels. The building of housing was a major social occasion in which the participants or the people to be housed made all the choices. These are choices which, according to John Turner (1972), are still open to the rich.

Privacy was a strong feature of the traditional environment and the use of space was highly refined. The sense of privacy in the traditional Shona and Ndebele societies was highly developed and was achieved through the use of various simple mechanisms and symbols. These were reinforced by cultural mores or social values where the observance of good manners was germane to rural lifestyles.

Home ownership was a vital feature of traditional lifestyles. Home ownership traditionally served both as a system of social security and investment as well as social stability. The opportunity for people to house themselves and own their houses was always present. This is an important aspect which is lacking in contemporary low income housing policy in Zimbabwe and accounts in part for the failure to provide adequate housing for all.

The advantages in using appropriate building technology is effectively demonstrated in the traditional Shona and Ndebele societies. The building materials were cheap, easily available and most important, everyone in the society knew how to use them. Amos Rapoport (1969, p.6) aptly described the traditional practice where the craftsman is only called upon because of his more intimate knowledge of the rules.

Above all, the most striking and crucial factor underlying the success of traditional housing provision was the high degree of popular participation. The people needing to be housed made the decisions themselves and had real responsibility in helping themselves. The philosophy of popular participation was entrenched in all the important social activities.

Having made these observations of the response to housing provision in the traditional societies, contemporary urban low income housing could then be examined with these principles in mind. But first, although it is obvious that there is a housing backlog in Zimbabwe, some effort had to be made to establish its magnitude. Therefore a chapter was devoted to examining the methods used and problems encountered in assessing the housing backlog. The object of the exercise was not only to attempt to quantify the magnitude of the housing need, but also to determine the method best suited to the Zimbabwean situation. The immediate

task was to discuss concepts such as population growth, housing demand and housing need. Several methods used in some Western countries were looked at.

In the discussion it was shown that while housing need in Zimbabwe could not be quantified, it is fuelled by a very high population growth rate. At 3.1% per annum, it is one of the highest on the African continent. On the other hand, the urban annual growth rate for Harare has been estimated at 6.17% (Manson and Katsura, 1985). By the year 2000, 38.2% of Zimbabwe's population is expected to be living in the urban areas; (United Nations : "Demographic indicators of countries : estimates and projections as assessed in 1982").

An overview of the methods came to the conclusion that although many of these methods involve impressive mathematical computations, they have serious shortcomings. Their failure to take into account the importance of the cultural and socio-economic criteria in the assessment of housing need renders them inappropriate for application to Zimbabwean needs. Their data hungry qualities make them impossible to satisfy without extensive research lasting over several years. Such data requirements cannot be satisfied in the present situation.

In addition, the methods gloss over housing distribution and no attention is paid to important aspects such as affordability. Steve Godfree's (1978) comment that "housing provision is not simply a question of supply" is very much

applicable to most of the methods which ignore access to such housing.

The surveys by Hoek-Smit revealed how grossly out of date Harare's waiting list was. The 1985 waiting list showed 22781 applicants; a figure which is generally suspected to be hopelessly conservative. In another survey by the Department of Physical Planning, only 6.8% of Epworth's squatter population was registered on Harare's waiting list.

In spite of its shortcomings, the housing waiting list remains the only source of "hard" data which the housing authorities have to work with.

Faced with all these frightening statistics, and in the absence of a reasonably accurate housing need figure, the housing authorities have misread the nature of the housing problem.

At the time of Hoek-Smit's surveys, the maximum income limit for Harare's waiting list was under consideration for a raise from Z\$325 to Z\$450. At the time of the author's research in 1985, the limit was raised to Z\$600. This is not what the problem demands and instead such a move has increased the competition for the scarce housing resources to the disadvantage of the low income earners.

The Government's low income housing policy was outlined. The low income housing strategies, size and characteristics of the present housing stock, including the type and level of

provision of services, housing options and housing affordability and construction costs were all discussed. Government attempts at solving the housing problem were examined. The Government, through its housing policy, was committed to a "numbers game" of matching the number of households to the number of dwellings.

The existing housing stock in Harare was shown to be grossly overcrowded with an average of 2.35 persons per room and 1.9 households each of 4.7 persons occupying a house of about 2.8 rooms. At the same time, the housing authorities remained strongly intolerant of any form of informal housing in spite of the lack of viable affordable alternatives for the target population. The housing shortage is therefore largely disguised in dwelling units which are accommodating more than their capacity. Meanwhile the percentage growth rate in the provision of low income housing has dropped to a mere 0.11% in contrast to the 3.5% of 1981/82 over the preceding year. There is even some doubt over the number of new units built because the figures kept by the Central Statistical Office are those of approved plans rather than units actually built. The Government was therefore losing the "numbers game".

While the housing policy saw the introduction of building brigades and housing co-operatives as a way of reducing construction costs and hence achieving affordability, building brigades have been shown to be inefficient and

costly. Only 1.5% of plot allottees in aided self-help projects have opted for the services of such brigades.

Statements promising to provide an "appropriate level and form of financial and technical assistance" are found in the policy documents. In reality, inadequate efforts have been expended in this direction especially for the poorest section of the urban community.

The housing options being offered by the housing authorities have shown little change over those of previous years. It is unfortunate that while the housing backlog has increased, in spite of the resolve to eliminate it, in the policy statements the authorities misjudged the problem by raising the minimum standard of the house unit to the "four room core". This particular unit can hardly be called low cost and the inevitable effect has been the total exclusion of a large section of the population (estimated at 56% and in all probability much higher).

Among the objectives of the Government's low income housing policy is a commitment to the setting up and strict enforcement of housing standards. While there is nothing wrong with standards per se, there is everything wrong with those standards when they stand in the way of housing the majority of the urban poor.

The raising of the minimum plot size from 200 sq.m. to 300 sq.m. resulted in marked increases in unit costs and hence fewer people could be accommodated from the scarce resources

available.

Analysis of the planning and housing standards which are part of the low income housing policy for the urban areas examined issues such as planning and subdivision standards, residential densities, plot size efficiency and building standards.

The evaluation concluded that :

- (i) infrastructure costs are responsible for a large proportion of the low income housing provision costs. A sizeable chunk of this proportion is taken by superfluous road systems and generous space provision of unprogrammed land. While car ownership levels are low in the low income residential areas, circulation provision consumes as much as 30% of the total area. The carriageway itself uses less than 40% of the land, the rest being taken by road shoulders, surface water ditches and verges;
- (ii) the very high standards laid down by the Model Building By-Laws have effectively put the cheapest dwelling unit that can be built in the cost range of Z\$5000 to Z\$6000, hence out of the reach of the majority of the urban poor. A negative relationship exists between standards and the target income groups. Existing standards and codes are restrictive in character and performance criteria have been ignored;

(iii) urban planning standards have been conceived in complete absence of social analysis and family behaviour studies. Hence no account of household preferences for different types and cultural sensitivities in dwelling unit and layout design has been taken into account.

Residential densities in Zimbabwe's low income housing projects, at approximately 10 dwelling units per hectare (or 60 to 80 persons per hectare) are generally low by world standards. Layouts are generally loose and unsympathetic to traditional house forms and space usage patterns and large unprogrammed open spaces are often left unused and unusable. This is possible because of the cheap cost of land which, at around Z\$0.30 per sq.m. for low income residential plots in Harare, contributes a small fraction to housing development costs.

Since infrastructure costs are high, the high standard of sewerage reticulation to the total exclusion of other non-water based systems also has a major negative impact on the provision of adequate housing.

The intimate relationship between standards and costs was clearly shown when the finance for low income housing was examined.

It was discovered that not only does the private sector not play any significant role in generating resources for low income housing supply, but access to private sector housing

finance is limited to middle and upper income households. The main reasons are the inability of low income housing to meet the minimum building specifications required by the building societies, the large number of small loans and the high risk involved as well as the lack of collateral by low income applicants.

In addition, there is a lack of linkage between the public sector and the private sector sources of finance.

At the same time, Local Authorities' sources of finance have shrunk making it increasingly difficult for them to be independent of Central Government finance. Meantime Government budgetary financial constraints have meant that low income housing has had to compete more fiercely with other investment priorities.

The competitiveness of the principal sources of private sector finance, that is the building societies, has progressively been eroded vis-a-vis the Post Office Savings Bank making it difficult for them to attract funds.

Only formal sources of income are taken into account in the allocation of low income housing and in the planning of policy.

Although the Government has started giving incremental loans to plot allottees in self help projects, the analysis shows that Government resources alone cannot cope with the full burden of low income housing finance.

8.2 Conclusions

When Zimbabwe became independent in 1980, she inherited a society with serious inequalities, and housing was not the least of them. The intention to create an egalitarian society was soon stated and the phrase "growth with equity" coined. The Government sought to redress these inequalities.

From the study, it has been shown how, in spite of laudable intentions and a strong commitment to providing adequate shelter for all, the housing problem has remained as intractable and persistent as ever. The high population growth and urbanisation rates have ensured the long term nature of the housing problem. On the other hand, the percentage growth rate in low income housing provision has reached an all time low. It was also revealed that urban low income housing policy was not only socially, economically and culturally inappropriate to the housing needs of the urban majority, but many aspects of the policy had a negative result. Consequently, they were a disservice to the very people they sought to help. While the rich are better able to help house themselves and articulate their interests, this is not the case with the large non-participating urban poor who cannot afford the cheapest housing options on offer.

The description of the traditional built environment revealed how "housing policy" evolved from within the community. Both Shona and Ndebele settlements recognised

housing as more than just physical units. The settlement layouts, house design and construction reflected the behaviour patterns and lifestyles of the people for whom it was intended. For instance, the use of the courtyard (chivanze) was determined by the societal attitudes and behaviour patterns towards various aspects of domestic life. In short, there was harmony between the "housing policy" and the target population for whom it was intended.

In contrast, public low income housing policy gives the impression of having been formulated in a "vacuum" without adequate knowledge of the target population. There are ample examples of negative policy aspects such as the imposition of a minimum "four room core house" without any consideration of affordability problems and the high building specifications which disqualify well over 56% of the target population, inter alia. The analysis reveals how low income housing policies do not effectively meet the interests of the people they mean to benefit. While the traditional built environment is the result of policies evolving from the grassroots, public sector urban low income housing policy is the product of a "top-down" approach where the important decisions on housing are taken by the planners and policy makers. This has all the hallmarks of the paternalism inherent in advocacy planning where the planners are the guardians of the so-called public interest. Consequently, the housing policy is far from being a well oiled and co-

ordinated response to the low income housing problem.

The success and failure of traditional housing provision and public sector low housing policy is dependent on the high level of popular participation in the former and the absence of such activity in the latter. The success of traditional housing provision was not only dependent on popular participation in the policy formulation, but also in the implementation of that policy. The "gemeinschaft" society where kinship ties were strong allowed a co-operative and community approach to shelter provision. This was made possible by the high level of consensus. The social nature of housing policy was recognised whereas this is not the case with public sector low income housing policy.

The investigation has revealed that the current public sector low income housing policy must be changed if it is to fulfill socio-economic and cultural goals of the user groups. The inevitable and fundamental conclusion of the study is that current public sector urban low income housing policy is not socio-economically and culturally relevant to the needs of the target population. It is "out of touch" with the requirements of the housing problem.

8.3 Proposals

The proposals section is divided into four major parts : popular participation, broad principles of housing policy, developing alternative urban development strategies and

finally on rural development. Section 8.4 discusses the theoretical aspects of popular participation and advances practical ways by which the concept can be employed in low income housing policy.

Broad principles in the formulation of an effective housing policy are discussed in Section 8.5.

Section 8.6 deals with the technicalities of developing an alternative urban strategy using the Bertaud model and a modified Plan Evaluation Matrix. An alternative strategy is proposed.

In the final section, 8.7, the concept of rural development as practised in Zimbabwe is discussed and its contribution to solving the urban low income housing crisis is assessed.

8.4 Popular participation and low income housing

8.4.i The rationale and philosophy of popular participation

From the analysis of the traditional Shona and Ndebele built environments, the high level of popular participation in the provision of shelter was apparent. The success of traditional housing provision on the one hand, and the inability of the public sector urban low income housing to accurately identify the needs of the target population, on the other, reflects the vast differences in popular participation, inter alia, of these societies. If the concept of popular participation is that important, then it is essential to define it from the outset.

Popular participation has been defined as a process of "active and meaningful involvement of the masses at different levels : (a) in the decision making process for the determination of societal goals and the allocation of resources to achieve them; and (b) in the voluntary execution of resulting programmes and projects", ("Popular participation in decision making for development", U.N. 1975, p.4, Sales No.E75 IV 10).

A considerable amount of literature has been published on the concept of popular participation. The Skeffington Report ("People and planning, the Skeffington Report", H.M.S.O., London 1969.) is a notable landmark in British literature on the subject. Many of the published reports are agreed on the fundamental need for popular participation in planning and the idea has been recognised as an inherent part of development.

It has been realised that the task of allocating resources and the setting of goals are political activities. These are some of the responsibilities which a planner has to perform. In that respect, planning becomes much more than a purely technical activity. In addition the task of goal setting should ideally be based on societal preferences among alternatives and hence the need for popular participation.

Popular participation is an elusive and difficult concept which covers a wide range of philosophical issues. Among

some of the issues is the political style of the community at the local government level and also the decision making procedures. These issues are even raised in the justification for the concept which, according to Sewell and Coppock (1977, p.1) is rooted in "the general belief in democratic societies that the individual has the right to be consulted and to express his views on matters which affect him personally".

As result of the social implications of housing policy, the idea of popular participation becomes of great importance in housing policy. The concept of popular participation potentially covers a vast area of philosophy and policy considerations. It therefore has both philosophical and practical considerations. It hinges on challenging the role of the planner and his professional expertise in deciding what is best for the people being planned for. The role of the planner has a lot to do with the allocation of scarce resources among the target population. This is by no means a purely technical, objective and essentially non-political activity. Therefore the planner cannot be the guardian of community interests without seeking political legitimacy for his actions. Since housing is a scarce resource and is crucial to national development, it is all the more important that popular participation should be an integral part of the development process both in the formulation and implementation of policies. This is an idea which has long

been accepted as an ideal by such international development agencies as the United Nations.

The practical consideration of popular participation is connected with the need for plans, decisions and policies to accurately identify the people's requirements. In addition, because housing is an all inclusive concept which involves economic, social (cultural), physical and even political aspects, professional expertise must be tempered by the recognition and understanding of the cultural values and socio-economic circumstances of the target people. Nowhere is this more apparent than in traditional housing provision. Effective participation by the majority of the people would ensure that these values are not pushed aside.

Popular participation implies some measure of decentralization. While traditional societies were so decentralized as to permit not just popular participation, but direct popular participation, the same level of decentralization can hardly be expected of modern society.

Concerning the political aspects of popular participation, a number of models have been advanced by Michael Fagence (1979, p.7-11). A few of these examples are the traditional-idealist model, and the structural models which include both the elitist and the pluralist models. Mills (1956) is a well known proponent of the former whereby power supposedly "floats" within the community among different groups.

The traditional-idealist model envisages a decision making process which is implemented by a group of interested local citizens (non-politicians) who are assisted by a planner who acts as an advisor. The structural model on the other hand proposes that community decision making is determined by the "environmental structure" or the context within which the decision has to be made.

As is apparent by now, popular participation has close ties with many aspects of political theory and cannot be tied down to any one discipline. The close knit Shona and Ndebele societies enabled a community approach to shelter provision. Since there are fundamental differences between the political styles of traditional Shona and Ndebele societies and contemporary urban society in Zimbabwe, to attempt to foster the same level of community participation is certain to meet with failure. Not only is the modern society characterised by secondary ties (gesselschaft society) but it is more heterogenous and therefore not likely to have the same affinity and unity of purpose as traditional society.

In spite of fundamental differences in the societies, popular participation in development, of which housing is an important part, is accepted as a major ingredient in the success of any project. Laquian (1983,p.223) has acknowledged how "the active involvement and participation of project participants made the project more responsive to people's needs, how community development aroused acceptance

and commitment rather than antagonism....in the long run, involving people was cheaper and more effective".

8.4.ii Problems of popular participation

Although popular participation has been accepted as an essential part of development, readings from the literature suggest that it is a difficult entity to foster. Participation at the local level is more likely to be sustained than at the national level. This is because people can perceive a direct link between their actions and concrete results and will therefore derive satisfaction from it. Mass participation cannot easily be sustained.

Even though local participation can be sustained better than national participation, it still tends to be episodic. The traditional form of participation, for instance, although based on communal self-help found its rallying points around building houses, cultivating fields or harvesting a crop. The United Nations ("Popular participation in decision making for development", 1975) has observed that participation seldom occurs spontaneously. When it does occur, it is often a disorganised response to a specific crisis.

8.4.iii Promoting popular participation

Participation implies far more than a communication process. However, effective communication is a fundamental component of participation. As part of the re-examination of planning that has occurred since the 1960s (and indeed still goes on)

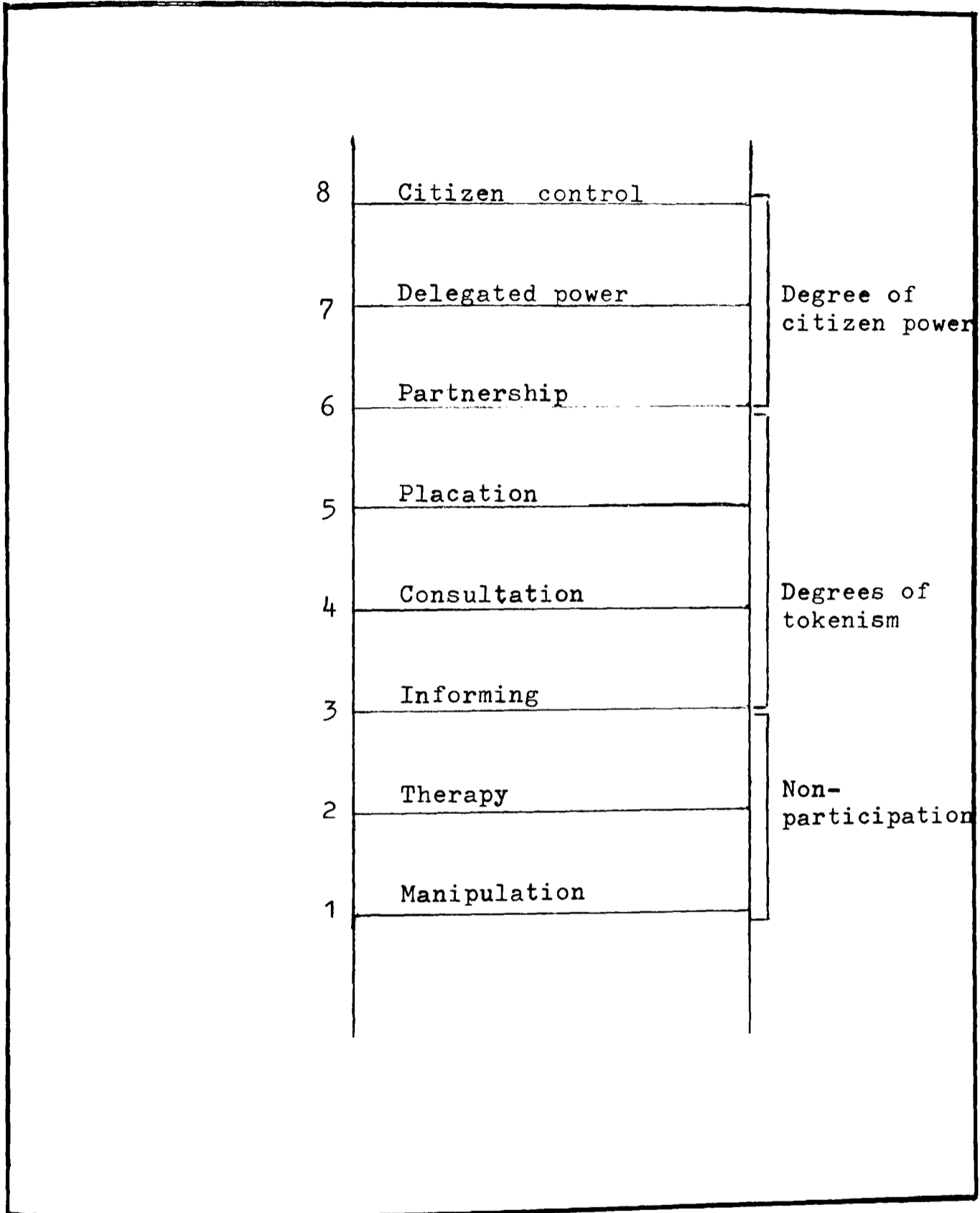
the Skeffington Committee was appointed in 1968 "to consider and report on the best methods, including publicity, of securing participation of the public at the formative stage in the making of development plans for their area. The committee concluded that "there will be full participation only when the public are able to take on an active part throughout the plan making process". (Figure 8.1 shows the different stages of community participation). Their specific recommendations included community forums and community development officers. Participation was made a statutory obligation, in British planning, in the 1968 Town and Country Planning Act and the Housing Act (1969). In spite of the legislation, the nature of participation and relationship to established institutions remained extremely ill-defined, reflecting the elusive nature of the concept.

So how then can the energy and spirit that manifested itself in traditional housing provision be harnessed? Writing on local government and planning in Zimbabwe, Mutizwa-Mangiza (May, 1986, p.154) has acknowledged the "absence of a coherent system of participation in planning in Zimbabwe".

The generally accepted principle is that participation should initially be promoted around concrete projects, for example, in the form of self-help construction of community infrastructure such as bridges, schools etc, and even housing. Such an approach would complement the self-help strategy adopted by the Government of Zimbabwe towards low

(After Arnstein)

Figure 8.1: Eight rungs on a ladder of citizen participation.



Source : M. Roberts (1974)

income housing.

Another approach is to carry out general promotional activity by creating organisations prior to specific projects. Communities are encouraged to discuss their problems, decide to organize, and through group processes, decide on considered priorities.

This approach was used in Costa Rica (U.N. "Popular participation in decision making for development", 1975, p.37). The community development agency restricted itself to promoting local organisations and training local leaders and did not engage in direct activities. The agency gradually withdrew as soon as the community was sufficiently organised. Therefore its role was to act as a catalyst and a source of technical assistance.

At the operational level, it is important that both formal and informal channels of participation are maintained, although the distinction between the two may not be clear cut. In many countries, traditional forms of popular participation (village councils, tribal councils etc.) have been used to form the basis of new approaches to development. A few examples of these are the barrio councils in the Phillipines and the concept of the Ujamaa village in the context of African socialism; ("Popular participation in decision making for development", U.N. 1975). The traditional structures were usually the first to disappear with the advent of colonialism and have been replaced by

Western structures of local government.

In that context, the elected representatives are crucial to the articulation of community opinion and they are the leaders of issues as well as controllers of planners. The fact that serious policy shortcomings were identified in the analysis points to a malfunction of the system.

To achieve openness and accessibility of elected representatives, council meetings should be held in public. Machinery should also be established for the dissemination of information about council proceedings and decisions as well as the issues under consideration. The cumbersome nature of this method of doing things often deters many well intentioned public bodies from effective interaction with the public.

To make it possible for people to participate effectively in planning issues, they need to know more about the problems being faced by the town or city council. Opening council committees to the public can solve this problem, in addition to the presentation of discussion documents to the public and allowing presentation of views and asking of questions. Sometimes prior discussion and information can be allowed to take place outside council machinery through informal channels in the councillor's ward.

The co-option of outside members into council committees and planning commissions can also bring valuable lay opinion as well as lay advice into planning and policy making. Co-

option of these additional members can be carried out by either inviting names from groups among the target population or co-opting representatives elected by the community on a ward or neighbourhood basis.

Promoting popular participation among a relatively settled and identifiable community is easier than dealing with a group which is in a constant state of flux. In Zimbabwe's case the majority of the people needing accommodation have been in the urban areas for quite some time and have recognisable hierarchies of community organisation, for instance, the squatter committees in Epworth. These are the institutions around which the promotion can be focussed. Even with rapid urbanisation, new-comers tend to fit into already established communities as their first lodgings are generally with relatives or friends.

The problem becomes even simpler where lodgers in formal housing are concerned as they are represented in formally established channels.

8.4.iv The benefits of popular participation

The success of such a system not only ensures the generation of public enthusiasm (at the grassroots level) in low income housing schemes, but it also attempts to harness some of the community effort which was so prominent in the success of traditional housing provision. Such community effort and grassroots enthusiasm is crucial to the success of some of

the low income housing strategies such as housing co-operatives which are dependent upon enthusiasm at the bottom. There are possible dangers in consulting experts in that it can lead to the mistaken belief that only experts should participate in policy making. A related problem is the consultation of sectional interests to the neglect of other opinions especially those of the more under privileged.

The developing world is littered with many failed housing projects which attempted to impose inappropriate solutions and which neglected popular participation of the population. While it is impossible to guarantee the success of any planning system, effective popular participation does also have benefits for the planner. It facilitates information collection and helps reduce mistakes in design and implementation. It can also supply the planner with more information about behavioural patterns and likely reaction to new policies.

Most important of all, effective community participation ensures a "bottom-up" approach to low income housing policy where greater responsibility is exercised and decisions taken by the people being planned for. While it is impossible to ensure the same common unity of purpose and consensus as existed in the traditional societies, the "bottom-up" approach to policy making recognises the social basis of housing policy and has a greater chance of success.

8.5 Broad principles for future housing policy

The investigation and analysis has not only revealed the shortcomings of current housing policy but it has also made clear that fundamental changes have to be made in the housing policy. Such changes are essential if housing is to accurately reflect the needs of the target population.

8.5.i The social nature of housing policy

There is a need for housing which meets the social, cultural and economic aspirations of the people. Such housing would not only accommodate the characteristics and lifestyles of its occupants but it should be capable of growing and maturing as the households grow in family size, prosperity and age.

The process of providing and improving housing conditions provides a means of enabling the poor to become self-reliant and confident. The success of low income housing provision cannot be measured purely in terms of the number of dwelling units provided. Hence the social nature of housing must be recognised.

In addition, the complex nature of housing demands a comprehensive and flexible approach to policy formulation. Housing needs are part of an overall shortage of a wide range of social requirements that include health, employment, etcetera. Flexibility in decision making is essential if housing needs are to be catered for within the limits of

available resources. This has to be complemented by effective agency structure and organisational skills.

Adequate housing is widely accepted as having an important role to play in social development. Therefore since housing is one of many variables affecting individual well-being, the causal relations that exist between housing and those many other factors must be appreciated in the formulation of housing policies.

8.5.ii Low income housing policy and standards

Standards are an essential part of housing policy. The ideal role of standards should be to enhance the quality of life in human settlements. However, the analysis has shown that standards tend to take on a life in their own right and become ends in themselves.

Since housing is among other things, a cultural phenomenon, standards for housing should relate to people and their culture. Ideally standards should be determined not only by socio-cultural and economic conditions, but the way in which they are perceived by the user groups. Standards must recognise prevailing cultural norms if they are to be useful in low income housing provision. An example of such a norm is the preference for outdoor living which was characteristic of rural lifestyles.

Standards should not be regarded as measures of absolute quality, but should also reflect such normative values as

social acceptability. Since cultural norms are not static, standards must also be dynamic in keeping with changing socio-economic circumstances. This implies flexibility as well as temporal relevance. Therefore standards must be continually evaluated and their performance assessed. In addition to being economically feasible, standards must be socially acceptable and responsive as well as technologically suitable. To be economically feasible, they must take into account what people can achieve within their financial constraints. On the other hand, standards which are technologically suitable should recognise the importance of appropriate technology.

Above all, a balance must be struck between health, cultural and safety requirements on the one hand, and the financial resources available for housing construction on the other. Such a balance cannot easily be achieved without the use of performance criteria and intimate knowledge of the intended user groups. This will help to avoid some of the anomalies discovered in current low income housing policy.

8.5.iii Design and physical form

The design and layout of housing contributes greatly to the success of housing provision and the satisfaction of the user groups. The organisation of space should be influenced by the behaviour patterns and lifestyles of the target population, whilst taking into account efficient and economic

usage. Therefore harmony should exist between the design and construction of housing and the socio-economic situation of the intended user groups.

Special importance should be attached to the design and layout of the dwelling to accommodate lifestyles and behaviour patterns, for example the provision of courtyards to satisfy the desire for outdoor living during the summer months. The analysis of the traditional built environment revealed how outdoor living was an important part of the lifestyle and the many functions of the kitchen which ranged from cooking place, living room to bedroom. These are aspects of rural lifestyles which still manifest themselves in the lifestyles of the urban poor and are not acknowledged in the housing options provided.

One important characteristic of the type of house that should be chosen is its potential for improvement. That means the extent to which the dwelling provides an opportunity for the occupant to incrementally improve and expand it. For example, while 3 or 4 storey walk-ups are difficult to improve, semi-detached or "l-shaped" houses with courtyards are much easier to enlarge.

Site and service schemes are an effective way of providing housing assistance to the poor because of their potential for incremental improvement as well as the wide range of possibilities. The income levels of the user groups should determine the differences in these schemes such as the

provision of small plots with communally shared water taps to larger plots with a full complement of services. In other words, a range of alternatives in terms of the level and quality of infrastructural provision should be provided to match the diverse income groups.

The location of such low income residential areas should be within easy access of work places and other community facilities since the cost of public transport to the poor would negate the benefits of these housing schemes. Encouragement of public transport systems, a rational land use policy in the drafting of layouts and the dispersal of employment centres within or near low income residential areas would complement the drive to provide affordable housing. While layouts should be rationalised to avoid superfluous road systems and other practices wasteful of both land and services, a balance must be struck between economic considerations and user efficiency.

8.5.iv Financial arrangements

There is no simple answer to the thorny problem of housing affordability and the lack of adequate financial resources for low income housing. However, housing policy should be adequately represented on national forums when annual budget allocations are decided. Often fiscal and monetary policies are undertaken without regard to the effects on the construction sector. A clear policy on the volume and

allocation of funds for housing and related programmes must be formulated. The Government should also seek to promote, supervise and co-ordinate financial institutions whose duty is to attract savings and provide long term credit.

Low income housing should not be considered primarily as a social welfare measure. There is no doubt that a substantial and equitable subsidized housing programme will play an important part in income redistribution as well as economic development. The magnitude of the housing deficit is so great as to exceed by far the resources at the disposal of the Government, as in most developing countries. Therefore public funds alone cannot be expected to meet adequate housing needs. To this end, public funds should therefore be used not only as resources with which to provide housing opportunities, but also as a lever to multiply the volume of private savings and investments directed into housing.

Portfolios of loans for low income families are generally risky and small for the usual banking practices as was shown in the analysis. Innovative financial mechanisms are therefore needed to bridge the gap between the conventional financial practices and the often non-market orientation of the target population. Such bridging mechanisms can sometimes take the form of housing co-operatives, credit unions, flexible repayment schedules and small incremental financial and building material loans. In addition, more flexible definitions of guarantees and collateral can be

employed to make it possible for the poor to obtain building loans. An example of a flexible definition of a guarantee or collateral is acceptance of a steady source of income as collateral.

The policy maker is often confronted with the problem of finding ways of assisting low income families obtain adequate housing which is also within their reach. This is a crucial area where construction standards connect with financial considerations. Affordable housing therefore means a trade-off in construction standards and implies an element of self-help labour for the poor. Here again, an intimate knowledge of the population is essential in order to determine household incomes and expenditures.

8.6 Developing an alternative urban development strategy

8.6.i Design aims

The rapid urbanisation which is characteristic of Zimbabwe's urban centres has direct implications on the growth of urban poverty. This is not only in the sense that more dwellings, land and services are needed but also, more critically, that these need to be provided to an ever expanding population with less capacity to pay for these items. This is the immediate problem which faces the Zimbabwe Government. It is made worse by current practices and procedures of urban development which are wasteful of both land and services and do not help the poor in any way, as observed in the analysis.

The description of both Shona and Ndebele settlements revealed how housing was much more than physical units. Housing was the focus of a wide range of forces of which it was a product. These wide ranging forces exerted a strong influence on things such as settlement layouts and house designs to match with behaviour patterns and lifestyles. Hence there was harmony between the design and construction of housing on the one hand and the cultural and socio-economic circumstances of the people on the other.

Yet what is needed in current low income housing policy, design and implementation is something more than a sentimental look back at the past. The design aims of an alternative urban development strategy should address themselves to producing a product based on local experience, that is, within the cultural and socio-economic circumstances of the people while avoiding some of the pitfalls which plague current housing policy, for example inaffordability. By so doing, it is hoped that this could harness some of the forces responsible for the success of the systems of traditional housing provision.

It should, however, be recognised that the traditional built environment cannot be recreated within the urban areas, even if this were preferred. The constraints imposed by a large concentrated population, the economics of sophisticated sewerage and water reticulation, not forgetting the drastic changes in the aspirations of the urban residents, make this

ambition impossible to realise.

The design aims and objectives are therefore listed below:

- (i) to develop a range of options, in terms of house types and layouts, affordable by a greater number of the target population than is presently the case; and
- (ii) to develop a house and plot design which incorporates as many aspects as possible, of Shona and Ndebele traditional lifestyles.

The alternative designs which are developed are not a prescription for development but examples of possible interpretations of the broad housing principles which have been established, (see Figures 8.5, 8.6 and 8.7 in section 8.6.ix).

8.6.ii The choice of a methodology

Formulating a development strategy and systematically choosing among several options is never an easy task. A few techniques have been developed to cope with just such a task. Some of the techniques were developed in the 1960s when it was realised that planning was not just the production of a blue print through the traditionally accepted linear process of survey, analysis and plan.

The traditional approach was criticised on the basis that it assumes and requires complete knowledge and control over the systems being planned. Among the critics was Hickling (1974) who developed the the A.I.D.A. (Analysis of Interconnected

Decision Areas), which is claimed to be a technique for systematic analysis and management of uncertainty. A.I.D.A. falls under the Strategic Choice Approach to decision making. It works on the assumption that decisions are interconnected and that a decision in one area is affected by choices made in others.

Its basic premise is that the traditional linear process of planning is counterproductive because the collection of field data is carried out without adequate knowledge of the problem. Therefore the wrong data is usually collected and decisions made under such a system are inevitably the result of compromises. A.I.D.A. advocates a cyclical process and perceives planning as an iterative affair. It talks about decision areas (mutually exclusive alternatives from which a choice has to be made) and commitment packages.

Openshaw and Whitehead (1977) are other critics of the traditional approach to planning. They developed D.O.T. (Decision Optimising Technique) which is an integer linear programming generalisation of A.I.D.A. D.O.T., it is claimed, is capable of functioning in situations of widespread uncertainty where there is neither knowledge nor control of the planned systems. It uses a set of weights as constraints and evaluations at a given point in time to come up with decisions or sets of decisions to form policies or strategies.

Its tools of analysis include option bars (drawn across

policy options considered totally incompatible), the objective function (a set of weights derived according to the criteria chosen as a result of plan performance) and constraints (a set of weightings attached to each policy option and also assigned to decision areas).

The use of such complex methods as DOT and AIDA involves making many crucial assumptions. The result from such analysis is something far removed from reality. The task of evaluating house and layout designs on a systematic basis is still very much in its infancy. The choice between various options is therefore a subjective practice and systematic evaluation can only be achieved when the physical attributes of each plan are compared.

What is required is a purely scientific or technical methodology which does not need any assumptions to make it functional. It should carry out analysis on a strictly physical and systematic basis. One such model has been identified and selected to translate the design aims and objectives of the previous section into physical design, that is, the Bertaud Model.

8.6.iii) The Bertaud Model and analysis of low income shelter options

The model was developed by Alain Bertaud working for PADCO. In 1977, the World Bank commissioned CITRUD in co-operation with PADCO to develop the "Bertaud Model". A report was submitted to the World Bank at the end of 1978 and the model has since been field tested and distributed.

The Bertaud Model has been selected in this study for a variety of reasons:

- (i) the model has been developed as a working tool for technicians and policymakers charged with the responsibility for low income housing settlement projects in developing areas. It deals with design and project financing questions that are essential in formulating feasible settlement projects;
- (ii) the Bertaud model was formulated in the wake of a period marked by efforts to improve low income urban households in the developing world. This was a period marked by some successes and many failures. The model was therefore formulated to tackle some of the common problems which have dogged many projects. Many of these problems are similar to those that have been identified in the analysis. Some of the problems are listed below:
 - the failure to recognise the scale and seriousness of problems associated with low income housing. The

number of urban households in need of shelter is very large and since many governments cannot sustain subsidies on a continuous basis, the affordability of projects should therefore be of critical importance. This is against a background where many truly affordable solutions have been generally considered too low to be politically or socially acceptable;

-the realisation of the importance of affordability where this has occurred, has not been tempered with the recognition that the poor are not a homogenous group with a single set of needs. On the contrary, there are a great variety of household types needing different levels of governmental assistance;

-insufficient recognition of the importance of participation of potential user groups in the early stages of project formulation and in project construction and maintenance has been another problem. Without such participation, user group needs cannot accurately be identified and there was a lack of awareness of financial and other consequences of the different options;

-the insufficient awareness of the capacity of the poor to improve themselves with a minimum of government help, including security of tenure;

(iii) the model can help answer many relevant project design and construction questions such as :

affordability : how much can specific types of low income households afford to pay for shelter, given their present and foreseeable incomes?

-financial terms : what sort of changes in affordability terms can be expected if interest rates, recovery periods or downpayments are changed? Alternatively, will the amounts user groups can afford change, if graduated monthly payments are introduced to reflect expected increases in income or if subsidies are introduced?

plot and housing designs : what are the physical and shelter options available to specific types of households within the expenditures they can afford? What plot sizes are feasible and what densities are implied? What type of and level of infrastructure, community facilities and housing are feasible? To what extent do individual project features have to be sacrificed to achieve improvements in other features and still maintain affordability? An example is how much do plot sizes have to be reduced in order to incorporate higher standards of infrastructure, or as the obverse of this, how much do infrastructure standards have to be reduced in order to achieve larger plots?

-cost recovery and project design : what mix of household types and shelter options can be included in

a project and still retain affordability and cost recovery for the project as a whole?

These questions, inter alia, are crucial to project design and implementation. Identifying affordable solutions for each household type, communication with low income groups to help them identify the cost and other implications of shelter options they prefer, evaluating the social, environmental and economic consequences of options are not simple tasks. It is not therefore surprising that simplistic solutions and miscomprehension of the housing problem has been the order of the day, (as illustrated in the analysis), especially without the use of adequate tools.

The Bertaud Model has therefore been selected because it was formulated in the light of experience with many practical projects in developing countries. Most importantly, it has been chosen because it addresses itself to the most relevant issues in low income housing. One of the biggest advantages of the model is that computer runs can be carried out to determine what will happen if project components are changed more easily than with physical replicas and drawings. This is a big time saving factor given the complexity of low income shelter problems.

8.6.iv Structure of the model

The Bertaud model is comprised of five elements or submodels:

- one for analysing the relationships among basic variables in low income housing projects which have layouts approximating a grid;
- one for analysing the variables which affect circulation space and the cost of on-site infrastructure in more complex layouts;
- one for examining the consequences of differential land pricing;
- one which aids in evaluating the impact of graduated monthly loan payments which reflect expected increases in household incomes; and
- one which makes it possible to identify the subsidies implied by alternative housing development strategies, together with their institutional cash flow implications.

All the submodels have a mathematical equation., or set of equations, which represent relationships among the particular project variables to which it refers. Consequently, there are five programs, one for each submodel. For the purpose of this study, Program I has been selected to assist in the generation of alternative housing options because it deals with most of the basic variables and their relationships in low income housing. Appendix 8.1 lists the set of equations which make up Program I.

8.6.v Program I

This can be used to analyse the consequences of changes in the basic project components which the model represents. Program I has a high level of flexibility in that it allows a project to be examined from different viewpoints. Changes in project variables which can be expected to take place when other sets of variables are altered, can be identified.

For example, expected changes in the capital investment that households of specific types can afford for housing if yearly interest rates, recovery periods and/or downpayments change can be examined. In addition, Program I can also be used to determine how much plot sizes would have to be reduced in order to achieve higher on-site infrastructure standards without increasing the total cost of individual shelter units, and also changes that will be required in some variables if other variables change, in order to remain within the cost of other constraints established for the project. It can also be used to establish affordable land prices within specified unit costs, if minimum standards are set for sets of other project features such as plot sizes, infrastructure and core housing.

In a nutshell, Program I is used for the analysis of major project variables under three categories : (a) financial, (b) design standards and unit costs, and (c) project layout variables. Appendix 8.2 and 8.3 show a listing of all the variables in the different categories while appendix 8.4

explains the measurement of project design variables in a grid layout.

The model has often proved to be quite useful in initial housing policy discussions and Program I alone can be very helpful at this stage. Of all the programs, Program I is the most widely applicable and can assess trade-offs in financial terms, design standards and unit costs and project layout variables.

8.6.vi Limitations

Although the Bertaud model does have great value in the identification of housing options, preparation and appraisal, a task which would be difficult and time consuming without such a model, it does have its limitations. It is important to recognise these limitations for correct interpretation of analysis from the model. The limitations of the model are as follows :

- (i) it deals only with physical features and some of the financial aspects of low income housing. Therefore other components which are of fundamental importance such as the creation of job opportunities close to or in residential sites, legal assistance to low income households to help them obtain security of tenure to the land, provision of additional and/or improved health and community facilities are left out;
- (ii) the model does not generate data on the demand for

housing, residential or other types of space. Although it can answer what type of housing each target group can afford, it can neither identify optimal projects nor can it reveal the preferences of individual target groups;

- (iii) the Bertaud model does not generate project ideas or decisions as to how shelter options can and should be modified, should the proposed solutions be found not to be feasible by the target population. It will, however, help to identify project components which need to be changed in order to achieve financial feasibility;
- (iv) only some of the relevant constraints are dealt with as inputs into the model itself. Others not directly recognised by the model must be considered before project decisions are taken. These include for example, technical constraints on infrastructure design which are imposed by the type of equipment available, or constraints on site selection because of exogenous effects including social acceptability of the image of low income housing in a particular area;
- (v) the model does not necessarily produce options or solutions which are optimal in terms of resource allocations. Additional analyses outside the model have to be used in reaching decisions about project desirability, using conventional measures such as

internal rates of return and/or qualitative criteria.

8.6.vii Alternative plot configurations

Several problems were encountered in the analysis using the Bertaud Model. Firstly, the model was initially designed for use on the Texas Instruments T.I-59 and the Hewlett-Parckard 67 programmable calculators. Since none of these were available to the researcher, a fortran program had to be written for use on the IBM mainframe computer available in the University.

The second problem was the errors which were detected in both the equations used to derive the model inputs and in the composite equation itself, as stated in the manual. The errors could not be put right without going into the fundamental derivation of the model itself, something which is possible only with the aid of the Bertaud model sponsors because not much has been written on it.

This second problem proved a more formidable one. The results of the analysis were therefore not an unqualified success and were quite modest in view of the full capabilities of the model. However, some important results were salvaged from the analysis and these were used in conjunction with similar analysis carried out by CITRUD in Zimbabwe a few years earlier.

Table 8.1 shows the effect on monthly payments, of varying plot ratios while keeping the plot area constant. Monthly payments are reduced with increase in plot ratio, for

VARIATION IN MONTHLY PAYMENT WITH VARIATION IN
DOWN - PLOT SIZE
ACROSS - PLOT RATIO

	1.00	1.20	1.40	1.60	1.80	2.00	2.20	2.40	2.60	2.80
100.00	19.67	18.49	17.57	16.85	16.25	15.74	15.31	14.93	14.61	14.31
120.00	20.33	19.13	18.20	17.46	16.86	16.34	15.91	15.53	15.19	14.89
140.00	21.03	19.81	18.87	18.12	17.50	16.98	16.53	16.15	15.81	15.50
160.00	21.77	20.53	19.57	18.80	18.17	17.64	17.18	16.78	16.43	16.12
180.00	22.52	21.25	20.27	19.49	18.84	18.30	17.83	17.43	17.07	16.76
200.00	23.28	21.98	20.99	20.18	19.52	18.97	18.49	18.08	17.71	17.39
220.00	24.04	22.72	21.70	20.88	20.21	19.64	19.15	18.73	18.35	18.02
240.00	24.80	23.45	22.41	21.58	20.89	20.31	19.81	19.38	19.99	18.66
260.00	25.57	24.19	23.12	22.27	21.57	20.98	20.47	20.02	19.63	19.29
280.00	26.32	24.92	23.83	22.96	22.25	21.64	21.12	20.67	20.27	19.92

AFFORDABILITY AND PLOT YIELD (DENSITY) FOR VARYING PLOT SIZES

INPUTS

DESIGN : CUL DE SAC
 PLOT RATIO : 2.76
 HOUSE : 26 Sq.M.ULC
 PUBLIC USE : 35 Sq.M/PERSON
 INFR : SEWERS

		Model Run	<u>4</u>	<u>5</u>		<u>11</u>	
			VALUE	VALUE	% CHANGE	VALUE	% CHANGE
					(-)		(-)
<u>INDEPENDENT</u> <u>VARIABLES</u>	Stand Size (m ²)		200	160		160	
	Roads (m)/(m)		15/10	15/10		7.5/3.5	
<u>OUTPUTS</u>	Monthly Payment (\$)		15.32	15.49	1.1	14.17	(7.5)
	Density (Persons/ha)		114	121	6.1	137	20.2
	Capital (£/Stand)		2089	2111	1.1	1932	(7.5)
	Circulation (%)		21.82	26.43	21.1	14.7	(32.6)
	Infrastructure Cost (\$/m ²)		1.21	1.38	12.3	1.26	4.0
	PLOT YIELD AND COST <u>DIFFERENTIAL</u>	Increased Yield (dwellings)			610		2020
	Savings/dwelling (\$)			(220)		157	
	Savings/10 000 dwellings (\$)		(2 200,000)			1 570,000	

1/Run 4 as base.

(Source : CITRUD ANALYSIS - M.C.N.H.)

(cost of plot, rates and services are included in monthly payment)

Table 8.3

AFFORDABILITY AND PLOT YIELD (DENSITY) FOR VARYING PLOT RATIOS

INPUTS

DESIGN : CUL-DE-SAC
 STAND : 200 SQ.
 HOUSE : 26 Sq.M. ULC
 PUBLIC SPACE : 35 Sq.M/PERSON
 INF : SEWERAGE

		Model Run	2	4	% CHANGE	9	8	% CHANGE	
			VALUE	VALUE	(-)	VALUE	VALUE	(-)	
<u>INDEPENDENT</u> <u>VARIABLES</u>	1. Plot Ratio (L/W)		2.00	2.76		2.00	2.76		
	2. Road Hierarchy (m)/(m)		15/10	15/10		10.5/7.5	10.5/7.5		
<u>OUTPUTS</u>	3. Monthly Payment (\$)		16.03	15.32	(4.4)	15.37	14.73	(4.2)	
	4. Density (Persons/ha)		111	114	2.7	119	121	1.7	
	5. Capital (\$/Stand)		2185	2089	(4.4)	2095	2007	(4.2)	
	6. Circulation (%)		23.72	21.82	(8.0)	18.48	16.89	(8.9)	
	7. Infrastructure Cost (\$/m ²)		1.34	1.21	(2.2)	1.30	1.17	(10.0)	
	PLOT YIELD	8. Increased Yield (dwellings)			270			170	
	AND COST	9. Savings/dwelling (\$)			96			88	
<u>DIFFERENTIAL</u>	10. Savings/10 000 dwellings (\$)			960 000			888 000		

(SOURCE : CITRUD ANALYSIS - M.C.N.H.) (cost of plot, rates and services are included in monthly payment)

instance, monthly payments stand at Z\$19.67 on a 100sq. metre plot of ratio 1:1 and at Z\$14.31 on the same plot size of ratio 2.80:1. However, increase in plot size also had important results on monthly payments which seemed to go up by a greater percentage.

Therefore the logical step was to strike a balance between the plot size and the plot ratio for the optimum values in monthly payment, taking into account affordability by the target group and, of course, other equally important criteria such as social acceptability etc. Among other things, the Bertaud model showed that increasing plot depth will bring about savings because of narrow plot frontages and consequently smaller service costs per unit. Where party walls are used, narrowing plot frontages also throws more of the perimeter wall into shared use.

Using the Bertaud Model the CITRUD analysis showed that merely reducing the plot sizes will not necessarily reduce costs. In fact reducing the plot sizes from 200sq. metres to 160 sq.metres while keeping other variables constant actually increased monthly payments by 1.1% and road area by 21.1%, as shown in table 8.2. Infrastructure costs also went up by 12.3% although site density was increased by 6.1%. This unexpected result was largely due to the low land costs which stand at Z\$0.30 per sq. metre for Harare. If land costs were higher then the situation of increasing monthly payments with increase in plot size as portrayed in table 8.1 would hold

true.

Table 8.3 illustrates how monthly payments are reduced, densities increase and capital costs decrease when plot ratios are varied while plot size is held constant.

The balance between plot size and plot ratio for the optimum monthly payment was decided in favour of the 200sq. metre plot with a ratio of 2.76:1. From the table, this plot size and ratio gives an approximate monthly payment of Z\$14.73, which is roughly 10% of monthly income if the average monthly income of the intended user group is taken to be Z\$150. (The housing authorities in Zimbabwe are currently designing for a much higher average monthly income of which, it is stipulated, not more than 25% should be spent on housing, an arbitrary "rule of thumb" method given the problems of income estimating).

The 200sq. metre plot represents the smallest economical size that can be used while allowing some cultivation and other aspects of traditional lifestyles to take place. It prevents serious disruption of the traditional lifestyle and potentially permits greater residential densities than is presently the case, thereby reducing costs per unit. Residential densities are also dependent on other factors such as subdivision patterns. On a 10 000 unit base, potential savings of approximately Z\$1 million can be realised.

8.6.viii Alternative subdivisions

The issue of subdivision patterns is very important where low income housing is concerned because of the effects on affordability. In that respect, an analysis of several subdivision patterns was carried out to illustrate the importance of layouts in the use of space.

Figure 8.2 shows five grid layout patterns. The choice between layouts depends on how each of them compare to each in terms of servicing costs. The five grid layouts have varying qualities in the use of land (whether public or private). From Figure 8.2, the lots of 200sq. metres have the same plot proportions that was selected after the use of the Bertaud model. To select between the most cost effective among these layouts, one to five, (in column five), Table 8.4 helps in that respect as it details the allocation of space between public, semi-public and private land as well as circulation length. Figure 8.3 gives a graphic portrayal of these land uses.

The analysis was carried out by Caminos and Goethert (1978) and shows how layouts three to five achieve the same number of plots (450) and land utilization between the different categories.

The percentage of public land is 21.25%, semi-public land is 16.12% and private land is 62.63%. The main purpose in choosing the layouts three to five is to select a choice which increases private land at the expense of public and

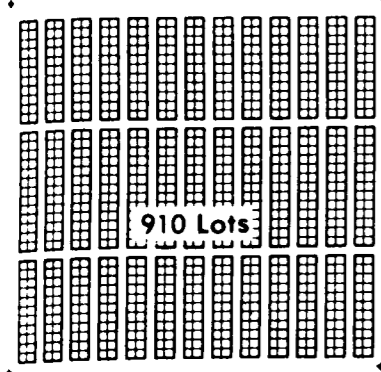
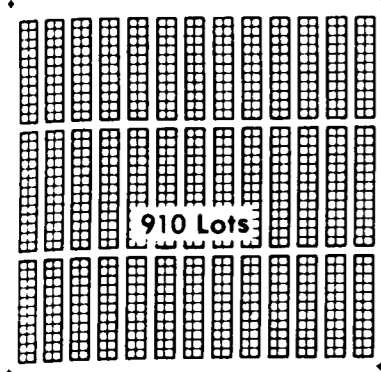
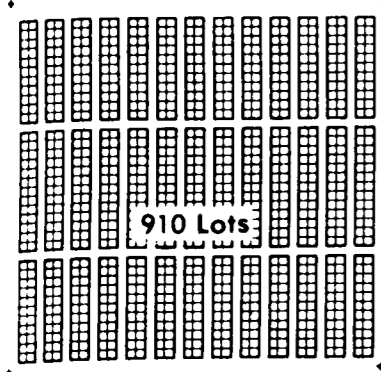
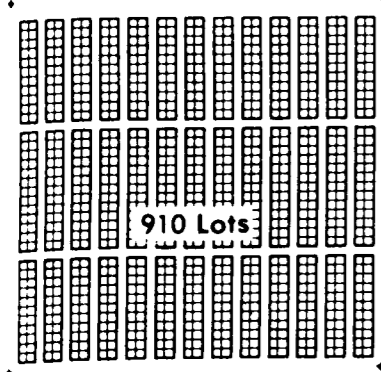
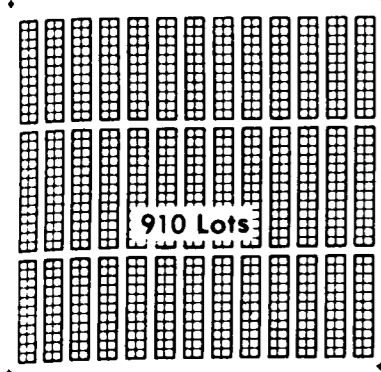
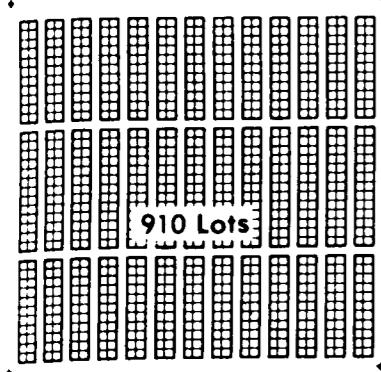
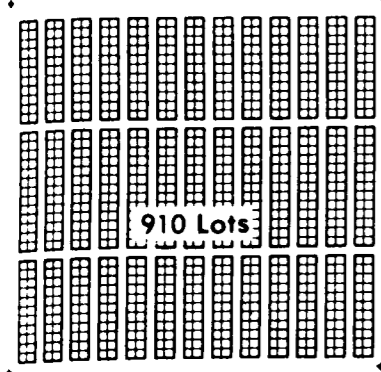
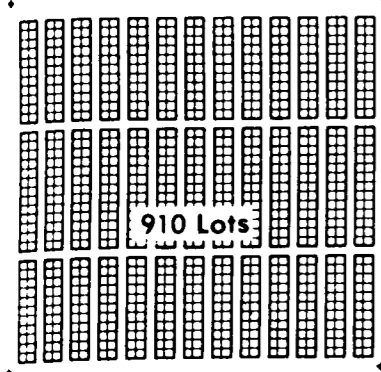
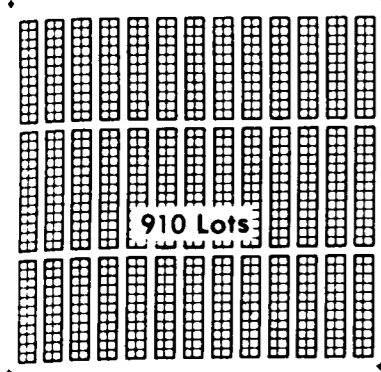
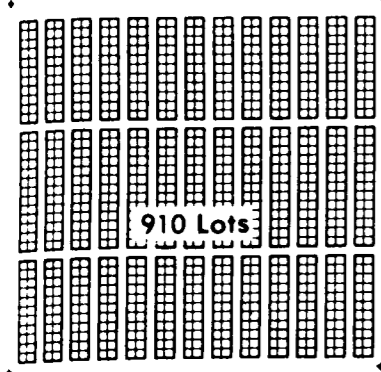
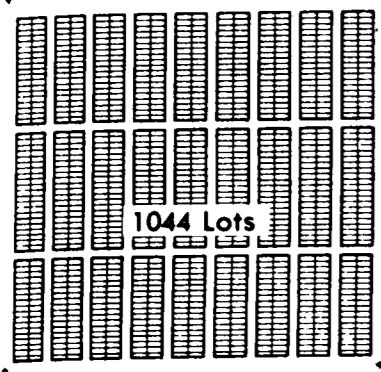
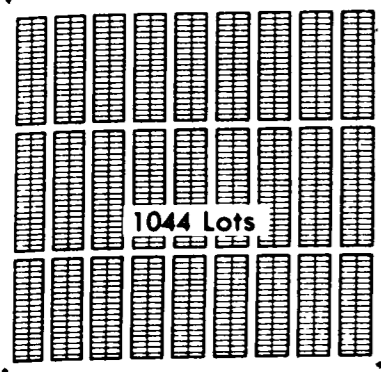
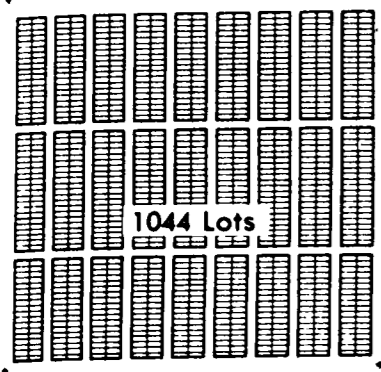
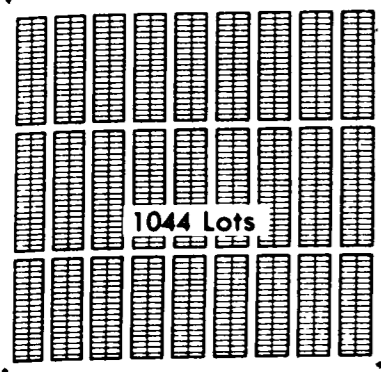
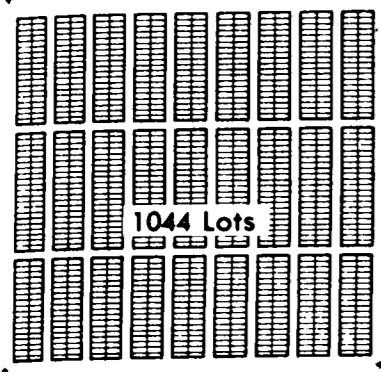
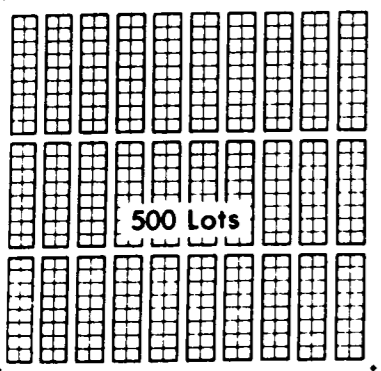
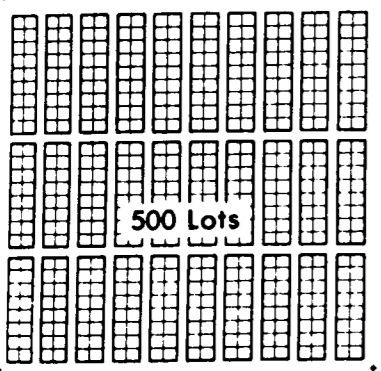
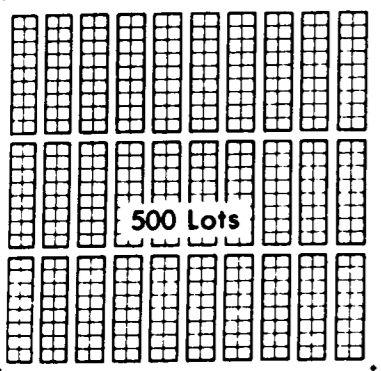
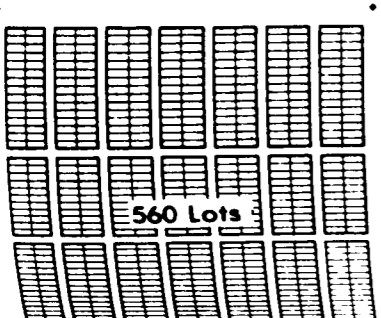
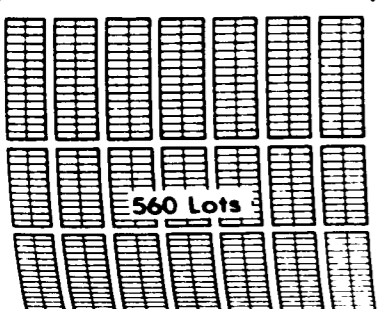
Figure :8.2 - A comparison in space usage between five lots layouts.

lots scale 1:10000
0.75x22.85 = 200m²

lots 14.00x14.50 = 203m²

lots 6.03x16.66 = 100m²

lots 10.00x10.00 = 100m²



DESIGN CRITERIA

LAYOUTS	LOTS		LAND UTILIZATION						STREETS			UNIT LENGTH			
	AREA m ²	No.	Public		Semipublic		Private		Areas(Has)		Length (m)			Total	m/ha
			Has	%	Has	%	Has	%	I-II	III-IV	I-II	III	IV		
1	100	□ 910	6.90	43.13	—	—	9.10	56.87	4.96	1.94	5600	600	200	6400	400
	100	▬ 1044	5.50	34.38	—	—	10.50	65.62	3.66	1.94	4000	600	200	4800	300
	203	□ 500	5.85	36.56	—	—	10.15	63.44	3.91	1.94	4400	600	200	5200	325
	200	▬ 560	4.80	30.00	—	—	11.20	70.00	2.86	1.94	3200	600	200	4000	250
2	100	□ 728	6.12	38.25	2.60	16.25	7.28	45.50	4.18	1.94	4760	600	200	5560	347
	100	▬ 834	4.99	31.21	2.62	16.37	8.39	52.42	3.05	1.94	3453	600	200	4253	265
	203	□ 404	5.29	33.06	2.51	15.69	8.20	51.25	3.35	1.94	3790	600	200	4590	286
	200	▬ 450	4.42	27.63	2.58	16.12	9.00	56.25	2.98	1.94	2775	600	200	3575	223
3	100	□ 728	3.40	21.25	2.60	16.25	10.00	62.50	1.46	1.94	1600	600	200	2400	150
	100	▬ 834	3.40	21.25	2.62	16.37	9.98	62.38	1.46	1.94	1600	600	200	2400	150
	203	□ 404	3.40	21.25	2.51	15.69	10.09	63.06	1.46	1.94	1600	600	200	2400	150
	200	▬ 450	3.40	21.25	2.58	16.12	10.02	62.63	1.46	1.94	1600	600	200	2400	150
4	100	□ 728	3.40	21.25	2.60	16.25	10.00	62.50	1.46	1.94	1600	600	200	2400	150
	100	▬ 834	3.40	21.25	2.62	16.37	9.98	62.38	1.46	1.94	1600	600	200	2400	150
	203	□ 404	3.40	21.25	2.51	15.69	10.09	63.06	1.46	1.94	1600	600	200	2400	150
	200	▬ 450	3.40	21.25	2.58	16.12	10.02	62.63	1.46	1.94	1600	600	200	2400	150
5	100	□ 728	3.40	21.25	2.60	16.25	10.00	62.50	1.46	1.94	1600	600	200	2400	150
	100	▬ 834	3.40	21.25	2.62	16.37	9.98	62.30	1.46	1.94	1600	600	200	2400	150
	203	□ 404	3.40	21.25	2.51	15.69	10.09	63.06	1.46	1.94	1600	600	200	2400	150
	200	▬ 450	3.40	21.25	2.58	16.12	10.02	62.63	1.46	1.94	1600	600	200	2400	150

Table : 8.4 - Comparison in space usage
(Source : Caminos and Goethert, 1978)

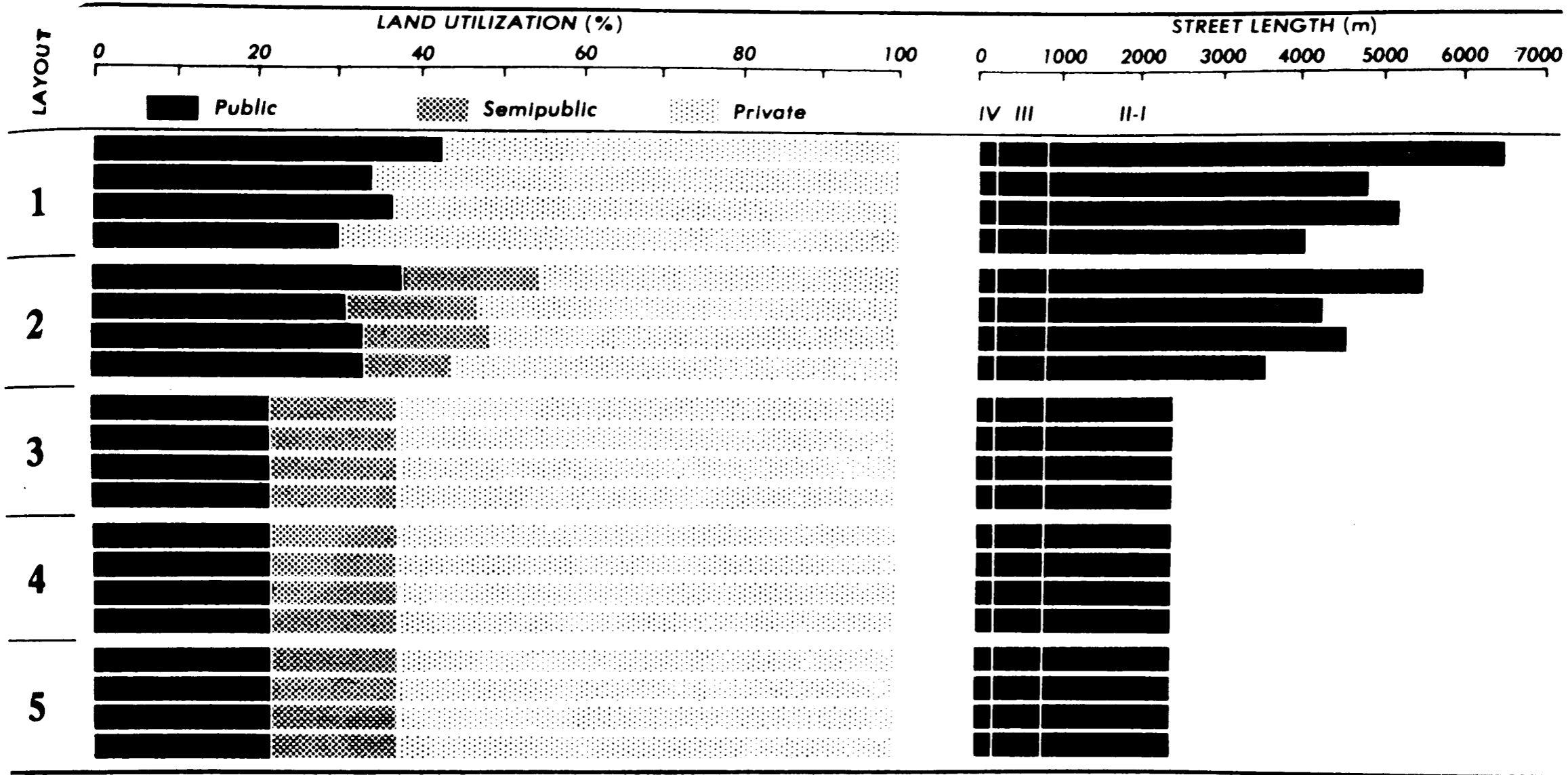


Figure : 8.3 - comparison in land utilization and street length.

(Source : Caminos and Goethert, 1978)

Table 8.5

AFFORDABILITY AND PLOT YIELD (DENSITY) FOR VARYING SUB DIVISION PATTERNS

INPUTS

PLOT RATIO : 2
 STAND : 200 SQ.
 HOUSE : 26 Sq.M. ULC
 INF : SEWERAGE
 ROADS : 15m/10m

		<u>3a</u>	<u>1a</u>	% CHANGE	<u>1</u>	<u>2</u>	% CHANGE	
		VALUE	VALUE	(-)	VALUE	VALUE	(-)	
<u>INDEPENDENT</u> <u>VARIABLES</u>	1. Subdivision Pattern	Grid	Cul-de-sac		Grid	Cul-de-sac		
	2. Public Space (M /person)	61.5	61.5		35	35		
<u>OUTPUTS</u>	3. Monthly Payment (\$)	20.67	19.32	(6.5)	17.19	16.03	(6.7)	
	4. Density (Persons/ha)	73	80	9.6	100	111	11	
	5. Capital (\$/Stand)	2817	2633	(6.5)	2343	2185	(6.7)	
	6. Circulation (%)	30.43	23.72	(22)	31.16	23.72	(24)	
	7. Infrastructure Cost (\$/m ²)	1.37	1.34	(2.2)	1.39	1.34	(3.6)	
	PLOT YIELD	8. Increased Yield (dwellings)		960			1100	
	AND COST	9. Savings/dwelling (\$)		184			158	
<u>DIFFERENTIAL</u>	10. Savings/10 000 dwellings (\$)		1 840 000			1 580 000		

(SOURCE : CITRUD ANALYSIS - M.C.N.H.)

semi-public land and also minimises street length. It is important to remember that one is designing for low income residential areas where services have to be as cheap as possible and also where car ownership levels are quite low. From the analysis in chapter 6, it was revealed how a considerable proportion of housing provision costs were accounted for by roads and general service provision.

Having selected among grid layouts above, the effect of varying subdivision patterns is illustrated in Table 8.5. Savings in circulation area of about 23% can be achieved by changing from a grid layout to a cul-de-sac with simultaneous increase in plot yield. The design of the cul-de-sac must be kept simple and the block length reasonably long. There is however a loss of user utility in cul-de-sacs, especially for delivery vehicles etc.

Appendix 8.5 presents graphs from the CITRUD analysis showing that loops are slightly less efficient than cul-de-sacs. Serving runs however, avoid "dead" ending and refuse trucks can negotiate loops more easily. Alternative D in Appendix 8.5 illustrates how the gains of cul-de-sacs are almost entirely lost if unnecessary transverse routes are introduced. This is a possible cause of the high circulation area for the new low income residential area of Kuwadzana.

From all the above analysis of subdivision patterns, cul-de-sacs as illustrated in Appendix D are obviously the most cost

effective and therefore recommended for low income housing. Road hierarchy must be kept under strict control to ensure savings. Excessive length of high order roads result in corresponding increases in road and other infrastructure related costs.

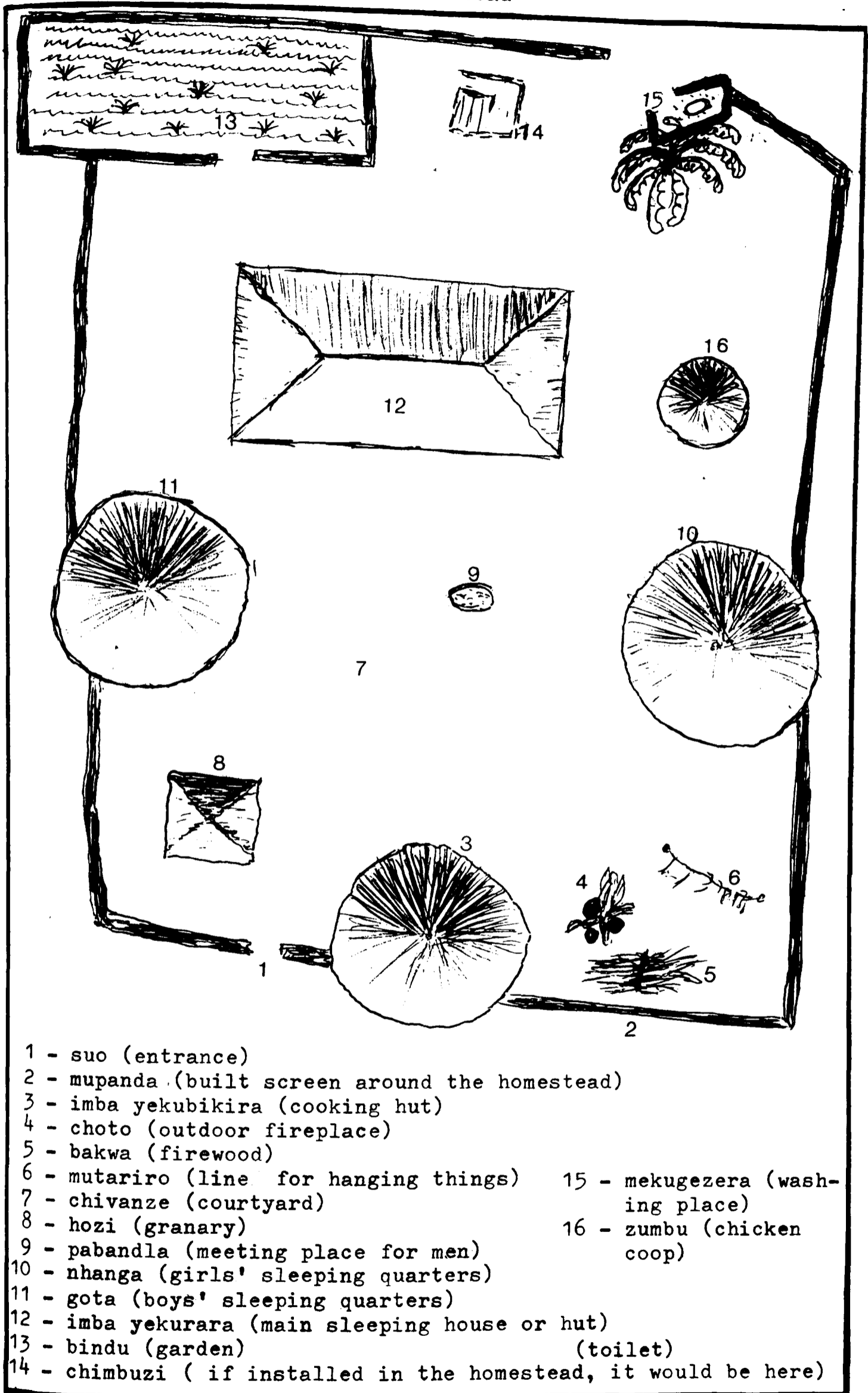
8.6.ix Actual suggested housing and plot designs

Figure 8.4 shows a plan of the traditional Shona homestead. The layout is strongly influenced by the lifestyles of the people it was intended for. Although the rough rectangle of the layout may measure as little as 20 by 20 metres, the constraints of providing essential services would make it impossible to recreate in the urban environment. It would no longer qualify as a low income solution.

From the diagram, the traditional homestead layout offers separate sleeping facilities for the children and the parents, a hut for cooking which, as was apparent earlier can be used for other purposes, a defined courtyard where most social activities take place and a piece of land for agriculture. In addition, it also offers toilet and washing facilities within the homestead area and privacy is afforded by the careful definition of space usage.

Therefore several housing and plot layout options were generated which take into account these observed characteristics of the traditional homestead layout. These attempt to incorporate the important aspects of the

Figure 8.4 - A plan of a Shona homestead



- | | |
|---|---------------------------------|
| 1 - suo (entrance) | |
| 2 - mupanda (built screen around the homestead) | |
| 3 - imba yekubikira (cooking hut) | |
| 4 - choto (outdoor fireplace) | |
| 5 - bakwa (firewood) | |
| 6 - mutariro (line for hanging things) | 15 - mekugezera (washing place) |
| 7 - chivanze (courtyard) | 16 - zumbu (chicken coop) |
| 8 - hozi (granary) | |
| 9 - pabandla (meeting place for men) | |
| 10 - nhanga (girls' sleeping quarters) | |
| 11 - gota (boys' sleeping quarters) | |
| 12 - imba yekurara (main sleeping house or hut) | |
| 13 - bindu (garden) | (toilet) |
| 14 - chimbuzi (if installed in the homestead, it would be here) | |

Source : Adapted from F.P. Du Toit (Oct.1981)

traditional built environment while at the same time keeping to the plot proportions demonstrated in the analysis to be cost effective, and hence in line with low income philosophy. In a search for objectivity, a strategy for selecting the alternative that best meets the desired objectives had to be found. In this respect, the plan evaluation matrix is a method commonly used for evaluating and comparing various strategies before making a final decision. It describes numerically how well objectives are met by the alternative plans.

The plan evaluation matrix does have several advantages :

- (i) it can provide a clear and logical framework for the presentation of information, thereby showing the strengths and weaknesses of each alternative;
- (ii) it is flexible and can be expanded or simplified in many ways;
- (iii) it can also be used to produce a measure of the overall effectiveness of each strategy.

However, the plan evaluation matrix does have an area of major uncertainty. That area is devising a criteria for plan scoring, especially where qualitative aspects are involved. Nevertheless, a scoring system had to be devised in order to be able to use the plan evaluation matrix. Table 8.6 shows the scoring strategy for the attributes of each alternative. The alternatives themselves are described below :

Table 8.6: Scoring for the different plan attributes

Shared Walls

0.....9	= 1 score
10.....11	= 2 scores
12.....13	= 3 scores
14.....15	= 4 scores
16.....17	= 5 scores

Courtyard Size

20.....25	= 1
26.....30	= 2
31.....35	= 3
36.....40	= 4
41.....45	= 5

Floorspace

40.....45	= 1
46.....50	= 2
51.....55	= 3
56.....60	= 4
61.....66	= 5

Garden Size

70.....79	= 1
80.....89	= 2
90.....99	= 3
100.....109	= 4
110.....119	= 5

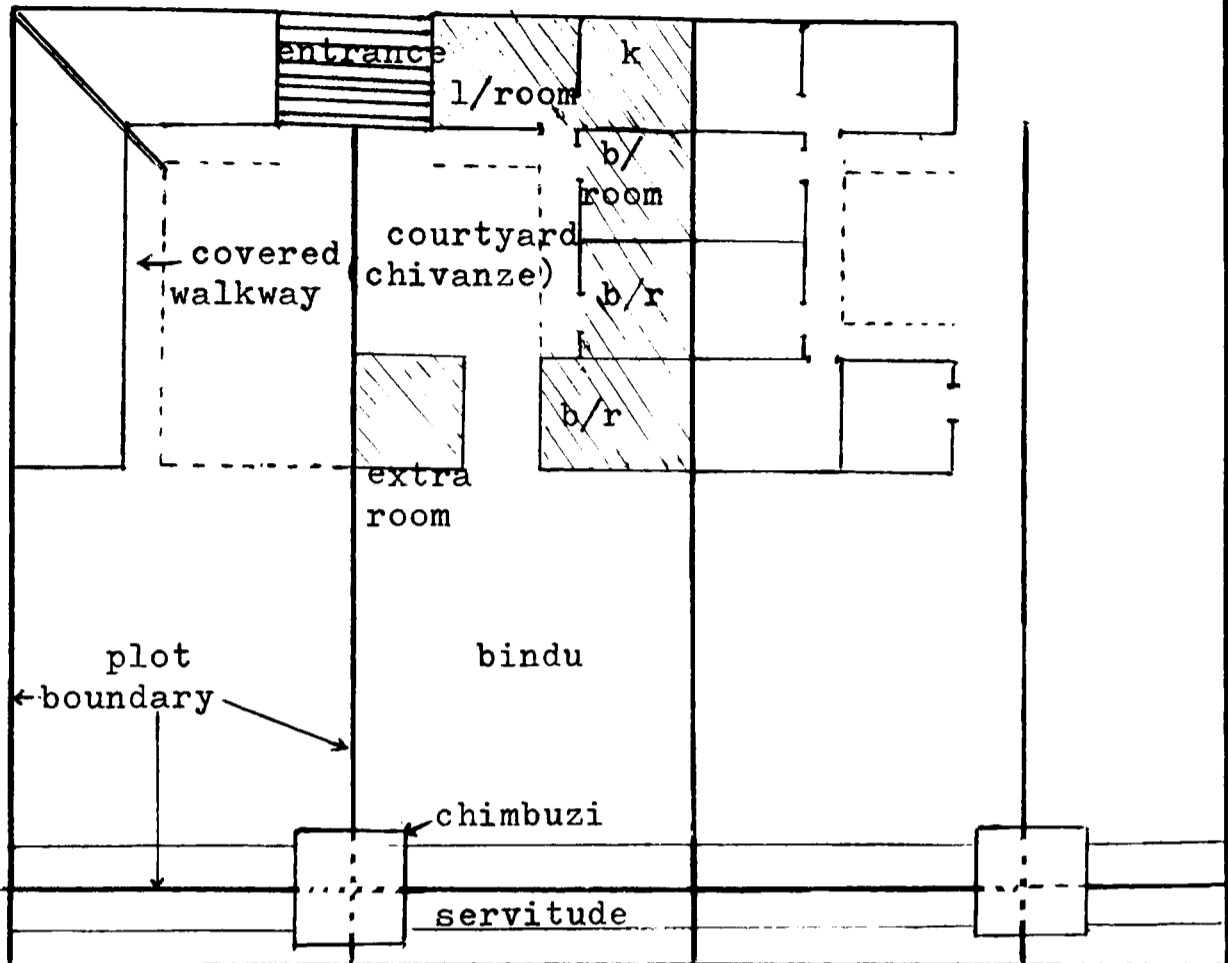
Plot Coverage

20.....25	= 1
26.....30	= 2
31.....35	= 3
36.....40	= 4
41.....45	= 5

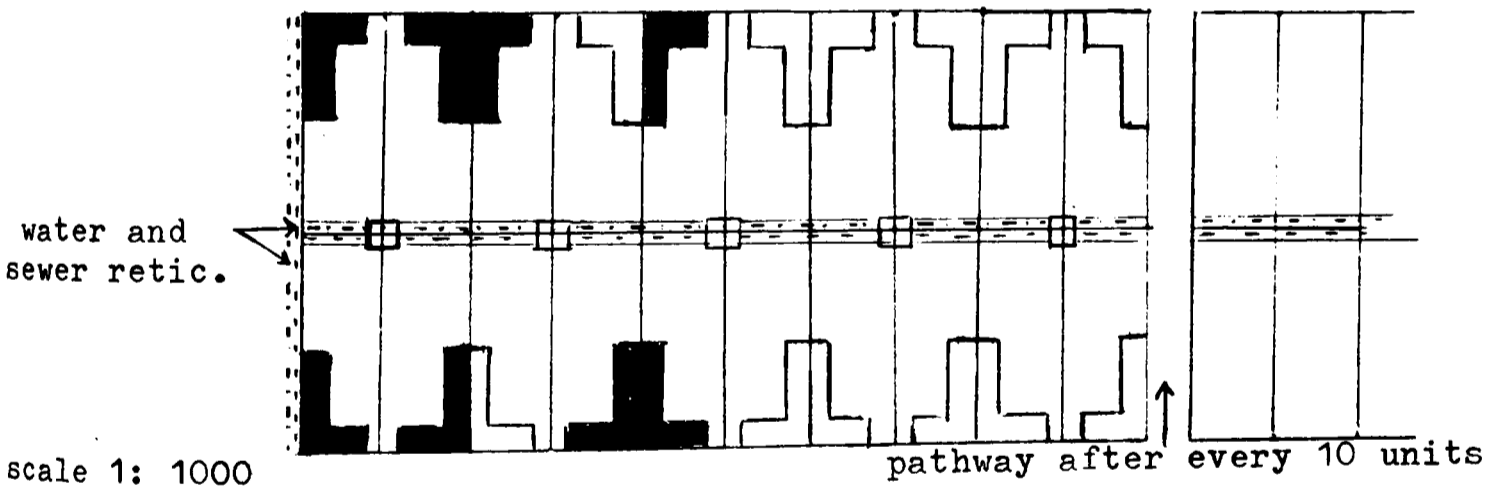
Note : all measures are in square metres with the exception of the length of shared wall which is in metres.

road

pedestrian path (unpaved)



scale 1: 250



scale 1: 1000

Comment : No water supply is provided to the kitchen.
There is a tap outside the chimbuzi.
Eventual internal water reticulation to the kitchen is possible as the unit is improved and by the use of a soakaway.

Plan I

Plan I is shown in Figure 8.5.

(a) House design : The proposed house is "l" shaped with five rooms which are the living room, kitchen and three bedrooms including the main bedroom. The average size of the rooms is 3 by 3 metres. The house easily lends itself to incremental construction, which is an important consideration with low income housing. The structure can be functional from very early stages because of the room by room construction.

One of its important features is the possibility of adding an outside room which can be used by lodgers, thus generating income for the household and accommodation for more people. The extra room can be attached to the main building but in a way which while allowing compact construction, still maintains the privacy of the main household from the lodger. Alternatively, the lodger's room can be free standing thereby creating better definition of the courtyard as shown in figure 8.5. In addition, the plan offers the possibility of a covered entrance.

The advantages of this courtgarden house are :

- (i) privacy, which is an important feature of traditional lifestyles, is obtained by inward focusing on the courtyard;
- (ii) although neighbouring courts are separated, they borrow visual space from each other;

- (iii) economy in construction is obtained because of the shared wall;
- (iv) the shared plot entrance, in addition to the courtyard, allows easy social interaction and hence the basis for the creation of a neighbourhood. The house arrangement on the plot still permits the control of unwanted interaction should this be preferred.

The courtgarden house is the result of a compromise and therefore suffers from several disadvantages :

- (i) the lack of indoor toilet and washing facilities and also internal circulation, which is replaced by external circulation;
- (ii) the absence of a gabled and prominent roof departs from the general practice to which the user group is accustomed and might therefore meet some resistance.

(b) Plot and layout : The dwelling unit and the courtyard cover an area of 108 square metres while the garden covers 96.75 square metres of the plot. The plot is 22.85 by 8.75 metres.

A servitude is allowed at the back of the plot for services such as water and sewerage reticulation. The smaller size of the plot as opposed to the currently used 300 square metre plots permits greater gross residential densities while the four way reflection of the plots enables economy of servicing. It is worth remembering from the analysis in

chapter 6, that infrastructure costs are not related to the land area, but to extended lengths of all infrastructure and services from sewers, supply pipes, etcetera, to public transport costs.

Plans II and III are shown in figures 8.6 and 8.7. They are variations of the same theme generated in Plan I.

For Plan II, there are five rooms which comprise of a living room or dining room of 5 by 3 metres and a kitchen of 3 by 3 metres. The rest of the rooms are 3 by 3 metres. The large living/dining room and kitchen represent a recognition of the fact that more time would be spent in these rooms, as in traditional lifestyles, unlike the bedrooms which are only used for sleeping purposes.

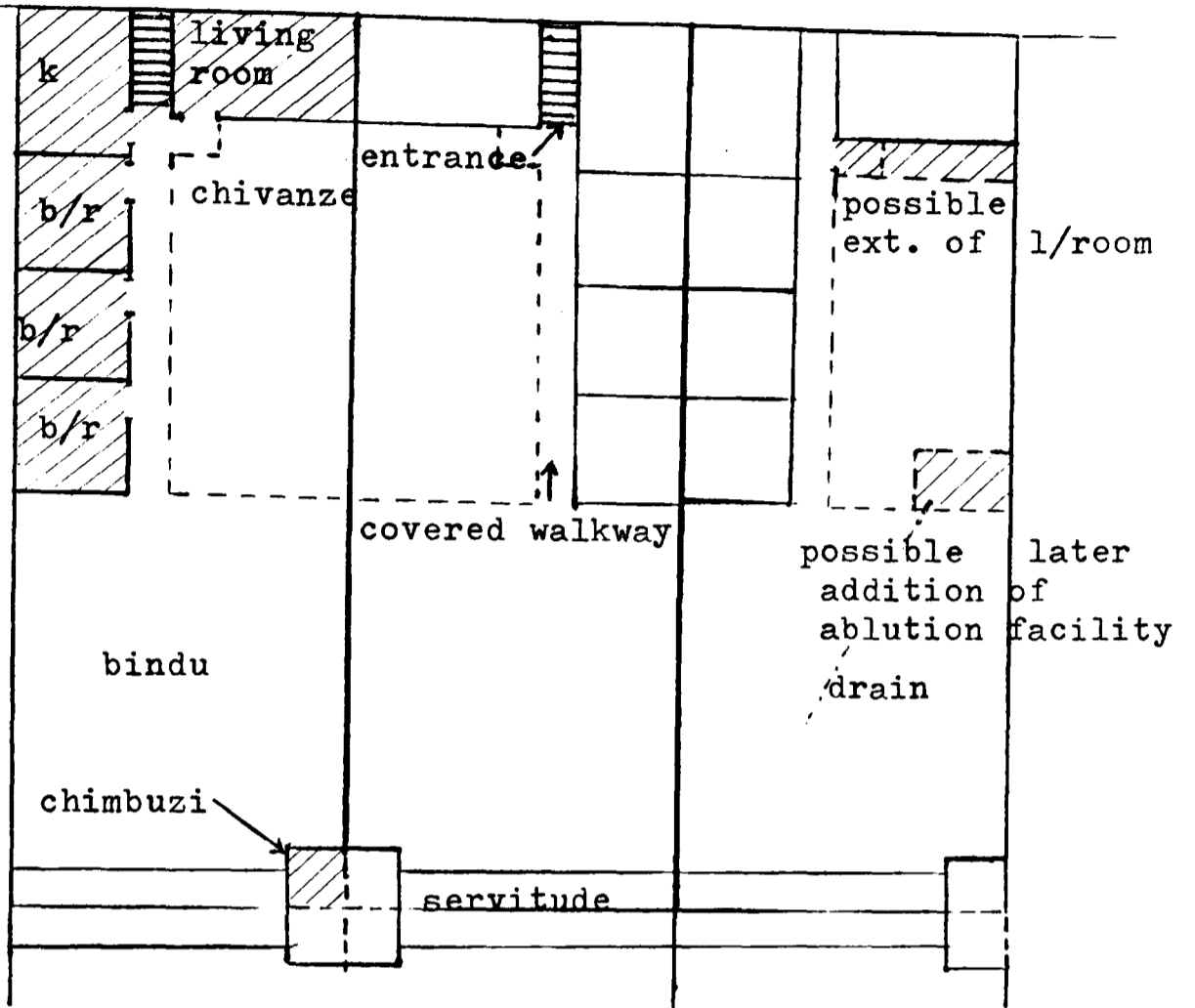
In addition, it is not uncommon in low income housing for either the kitchen or living room to be used as sleeping quarters when visitors arrive. Visitors are usually given priority to the bedrooms apart from the main bedroom. The two large rooms come in handy with large households where there is not enough sleeping space.

The house and the courtyard cover an area of 117 sq.metres while the courtyard covers about 88 sq. metres of the plot.

In Plan III, which is another variation of Plan I, there are two rooms of 3 by 2.5 metres (the living room and one bedroom), and two bedrooms of 3 by 3 metres each. The kitchen is 4 by 3 metres. The larger size of the kitchen

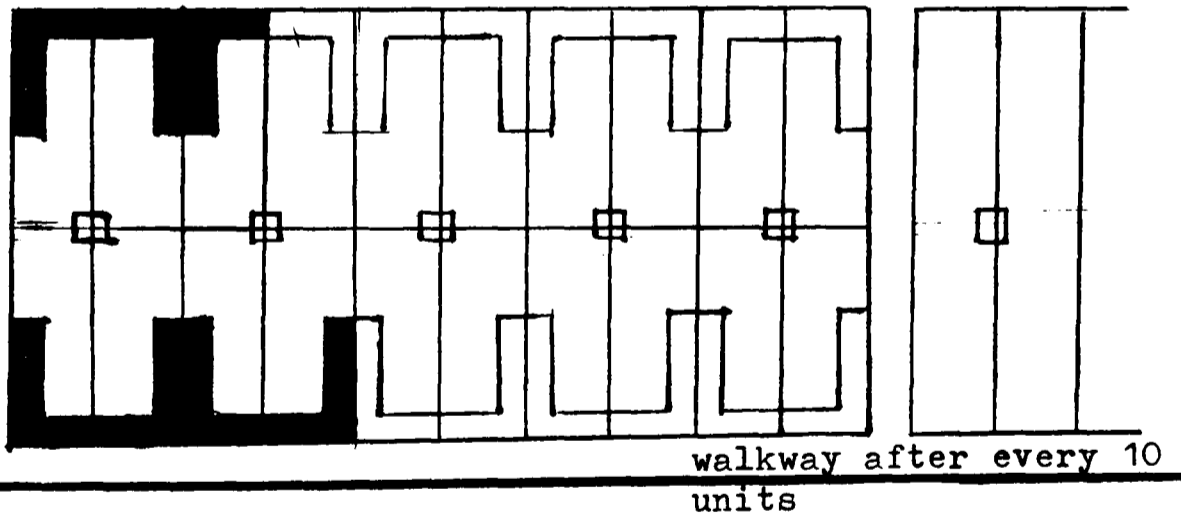
improved pedestrian path

road



water and sewer. retic.

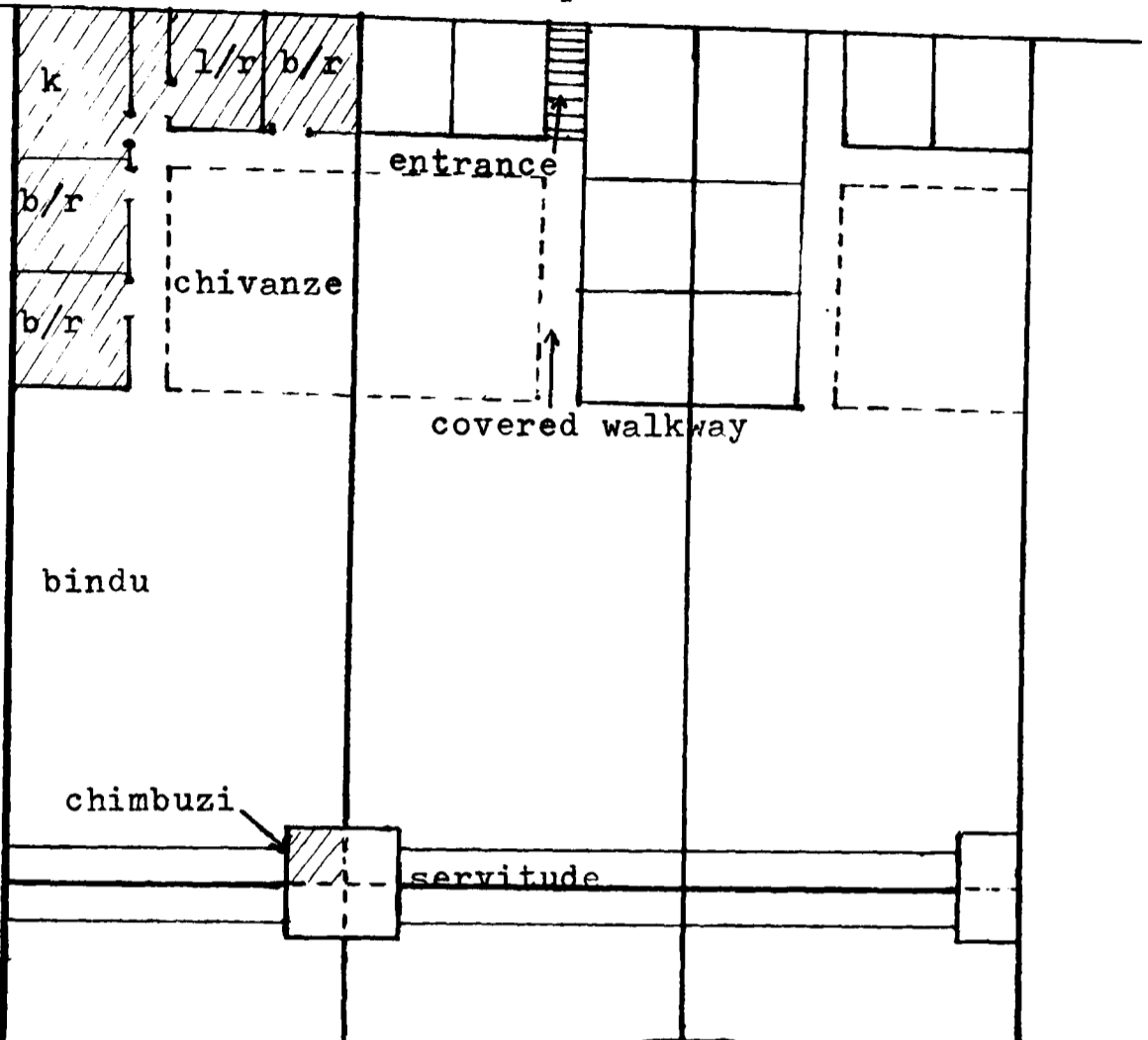
scale 1: 1000



Comment : An ablution facility can be added in later development of the dwelling unit, as shown.

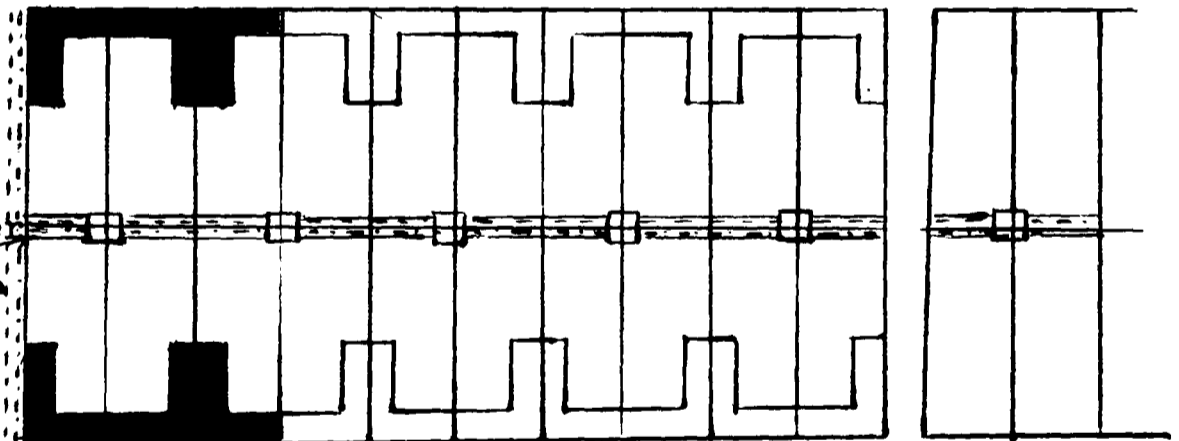
road

unpaved pedestrian path



scale 1: 250

water and sewer
reticulation



scale 1: 1000

Table : 8.7 -Evaluation of the different plans using the Plan Evaluation Matrix.

		S T R A T E G I E S					
		Plan I		Plan II		Plan III	
			scores		scores		scores
S T R E T T E M E N T S E L E M E N T S P L A N E L E M E N T S	Shared walls	(one wall) 12 metres	3	(one wall) 13 metres	3	(one wall) 10 metres	2
	Court- yard (size)	25sq.m	1	45sq.m	5	30sq.m	2
	Floor- space	54sq.m	3	57sq.m	4	48sq.m	2
	Plot- covera- ge	27.5%	2	28.5%	2	24%	1
	Garden size	97.75sq.m	3	87.75sq.m	2	114.75sq. m	5
	Privacy	adequate		adequate		adequate	
Total Scores			9		16		12
General Comments							

accommodates the traditional lifestyle where a great deal of time was spent in the kitchen, although that was mostly by women and children. The men congregated at the padare or pabandhla.

The house, together with the courtyard, covers an area of approximately 90 sq. metres. The garden covers an area of 108 sq. metres, which is over 50% of plot coverage.

All the designs have kept within the housing policy principles established earlier in section 8.5. They are all amenable to incremental construction and can be improved easily. At the same time, the simplicity of design has taken into account problems of affordability as well as the important aspects of the life styles. The units also allow functional usage at an early stage of building.

Comparing the traditional homestead layout, the proposed plot layouts have been able to retain the courtyard as well as the garden. Gardening is an important feature of rural lifestyles and this has been reflected even in the urban residential areas where families still maintain a small garden to either supplement their food or to generate income from vegetable sales, (or both).

In order to achieve systematic choice between the different plans, the plan evaluation matrix has been employed. Table 8.7 shows the evaluation of the different plans. From the Table, it is apparent that plan II is a clear choice with a

total of 16 points. Plan III scores 12 points while plan I scores only 9 points. The recommended plan is therefore plan II.

8.6.x Implementation strategy

The recommended development strategy should be implemented on a site and service self-help basis, which can be complemented by government aid in the form of financial and building material loans. The proposed, strategy represents a relatively cheap, option which if developed with a variety of alternatives in the level and quality of infrastructural provision, would contribute to a solution of the low income housing problem. It would cater for a variety of affordability levels.

While the Government strategy towards low income housing provision long shifted from central provision, it should make greater inroads towards "local enablement" as described by Turner (1983). In other words, the Government should facilitate low income shelter provision as much as possible.

A starting point is the provision of as many serviced plots as possible. Where servicing is not possible because of inadequate funds, provision of even unserviced plots would provide security of tenure for the poor and thus an alternative to squatting and a waste of resources which takes place when demolition occurs. Plates 8.1 and 8.2 show the high quality of development in Epworth squatter settlement,

which with sufficient official guidance and security of tenure for the occupants, will have very few problems in the upgrading process and provision of essential services when the finances permit.

8.6.xi Building materials

Zimbabwe is in a fortunate position when it comes to building materials because most of the components required for servicing and building low income housing are produced locally. Only 7.6%, in cost terms, of all building materials for, say, a four room core house, are imported. The imported components comprise of glass, all of which is imported, 25% of paint requirements, 50% of copper and plastic and 50% of other miscellaneous items.

In comparison with most developing countries, Zimbabwe is therefore in a unique position with respect to the production of building materials. However, there is no reason for complacency and the recently established Building Research Unit will enable further investigation into cheaper materials as a first priority. In addition, flexibility in favour of performance criteria is required in the application of some building materials' standards in low income housing. This would permit the use of not only cheaper but more accessible materials for the poor. Examples of such materials produced by small entrepreneurs are shown in plates 8.3 and 8.4 which illustrate informal sector production of a wide range of



Plate : 8.1 - Epworth "squatter" settlement. Note the high quality of fencing around the large plots.

Plate : 8.2 - The high standard of construction is typical of houses in Epworth, and represents considerable financial investment by the owners.





Plate : 8.3 -Informal sector production of building materials building aids ...from fire grates, iron dishes, storage drums, burglar bars, scotch carts and steel window frames, to ...

Plate : 8.4 -..steel and wooden door frames and general household furniture.



items from steel window and door frames to wooden furniture and scotch carts. At present, the use of such informal building materials is not permitted in government sponsored housing projects and strict regulations concerning quality are always applied. The use of such materials will not dramatically lower costs but they can help to reduce the burden of shelter provision faced by the poor, especially those who cannot afford formal sector materials.

8.7 Rural Development

This is an issue which deserves mention because part of the solution to the urban housing problem lies in the rural areas. In order to provide adequate housing in the urban areas, the rate of rural-urban migration has to keep pace with the ability to provide low income housing opportunities. While the colonial Government employed influx control legislation, such drastic measures are an infringement of human rights and are therefore unacceptable in a democratic society. The Government of Zimbabwe has therefore recognised the importance of rural development in an effort to raise the quality of life in the rural areas and therefore stem the tide to the urban areas. Development in the rural areas, if realised, would help in reducing the attraction of the cities in search of a better livelihood.

A rural programme was drawn up by the MCNH. Its main objectives were stated as :

- (i) the provision of decent, affordable and durable housing;
- (ii) the provision of adequate infrastructure for the people in the rural areas; (MCNH, 1985).

According to the MCNH, planned villages would be established in the rural areas and people would be encouraged to abandon unplanned village settlements. The planned villages would be called "Planned Village Settlements", to use the terminology of the MCNH.

The strategy of the MCNH is similar to that adopted by the Department of Physical Planning which has the statutory responsibility for rural development. The department has designated certain areas as District and Rural Service Centres. Criteria such as population concentration and economic viability have been used in the selection of these centres. The centres would be the focus of considerable investment in the construction and provision of infrastructure for the rural inhabitants. In this respect, the Government has what is known as the Public Sector Investment Programme whereby financial resources are allocated every year for rural development.

It is still too early to judge how successful or otherwise the rural development programme has been in stemming the tide to Zimbabwe's urban areas. What is not clear, however, is the precise relationship between the planned village settlements as advocated by the MCNH, and the service centres

designated by the Department of Physical Planning. There appears to be some duplication and sometimes conflict in the implementation of the two strategies. In many ways, the misunderstanding is a reflection of the lack of specific terms of reference and clear demarcation of areas of jurisdiction, between several ministries, including the MCNH, when it comes to rural development.

The scale of rural development makes it essentially a long term solution and therefore one can safely predict that the migration to the urban areas will continue for the foreseeable future until such time that rural existence can offer the same job opportunities, health facilities, housing, etc, that is, a quality of life equivalent to that in urban areas.

Finally, there are alternative ways both in the urban and rural settings in which the housing needs of households who cannot afford the serviced plot option might be met. These include reducing of standards, (for example, in sanitation systems, in favour of cheaper solutions such as the Blair Pit Latrine which technology has been developed locally and is internationally accepted), subsidies and cross subsidies. These are possibilities for further investigation.

If this study has clarified some of the issues and perhaps act as a catalyst to some solutions, then the time and effort expended will not have been in vain.

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INFORMANT INTERVIEW QUESTIONNAIRE

1. What is the role of your organisation in low income housing?
2. What is your housing policy?
3. What do you think are the major housing problems?
4. If you had the opportunity to solve the low income housing problem, what solutions would you propose?
5. What are the major constraints in low income housing and how can these be overcome?
6. Do you think the housing/planning standards are:
(i) too high; (ii) too low, and (iii) alright? Why?
7. What are your housing/planning standards for low income housing provision?
8. What kind of houses are most acceptable to the target population and why?
9. How much does each of these housing units cost?
10. What role, if any, does self help play in housing provision?
11. What is the role of Co-operatives and Building Brigades in low income housing provision?
12. Do you think that Building co-operatives and Building Brigades have been successful in providing affordable low income housing? Yes? No? Why?
13. What contribution is the target population able to make to meet basic housing needs?
14. What are the economic and social characteristics of the target population?
15. How does your performance in low income housing provision match with the housing need?
16. What do you perceive is the future of urban low income housing provision in Zimbabwe?

URBAN HIGH DENSITY RESIDENTIAL AREA SURVEY

NAME OF INTERVIEWER -----

TIME AND DATE OF INTERVIEW 8:55 22/5/84 -----

AREA Green View ----- HOUSE NUMBER 8341 -----

CHECKED BY -----

A1.0 AFFORDABILITY OF THE DWELLING UNIT

A1.1 Are you the:- (i) Owner (or are you on home ownership scheme or not?)
ii) Main tenant of this house?

A1.2 If you are the owner, was the house built by you I
 bought II
or inherited ? III

A1.3 If the answer is I above, refer to I below

I : BUILT BY YOU

A1.3.1 If you built the house or part of it, did anyone help you? Yes

3.2 Who? (specify) INFORMAL (Relatives etc.) YES
 NO

Contractor? YES/NO

Paid Labour? YES/NO

A1.3.3 When?

A1.3.4 State what kind of help

A1.3.5 How much? -

A1.3.6 Terms of Repayments?

A1.3.7 When did you start to build the house 1981 & 82

A1.3.8 What was the cost of the site? \$30 Deposit - \$11 rent

A1.3.9 Are there any extensions? YES/NO

A1.4 If yes.. when were the extensions added?

	No. of Rooms	Materials	Labour
Year			
Cost			

A1.4.1 Is any part of the house still under construction? YES/NO

A1.4.2 How much has it cost you up to now? *Don't know*

A1.4.3 When do you hope to complete it? *1985*

A1.4.4 How much more do you think it will cost you? *\$ 1,000*

A1.4.5 TOTAL COST OF HOUSE BY ITEMS

Walls	\$	Roof	\$	Furnishing, Floor/Walls	\$
Builder		Builder		Builder	
Labour		Labour		Labour	
Materials		Tiles/ Asbestos		Cement	
		Rope & Nails		Windows/Doors	
		Wood/Sawn wood		Paint	
		Corrugated iron			

A1.5 II - If the answer is II - bought and not built, or not being built by respondent, refer to II below

II

A1.5.1 What was the cost of the house?

A1.5.2 How much deposit did you pay for the house?

A1.5.3 Did you receive a loan? YES/NO If the answer is yes, how much?

From whom?

A1.5.4 What are the terms of repayment?

A1.6 If the house was inherited, refer to III below.

III

A1.6.1 From whom was it inherited?

A1.6.2 When?

A1.6.3 Relationship of benefactor to respondent?

A1.7 If I, II and III do not apply, how much rent do you pay per month?

A1.8 Do you think the rent you pay is

too high
too low
satisfactory

 or

?

 ?

A1.9 How long have you stayed in this house?

A1.9.1 Do you hope to have your own house in future?

A2 ASPIRATIONS AND FUTURE PLANS - PERCEPTION OF CURRENT HOUSING

A2.1 Are you happy about your accomodation?

<input checked="" type="checkbox"/> YES/NO
--

A2.2 What do you like about your house? *Water taps*

A2.3 What do you dislike about your house? *No passage in the middle*

A2.4 What improvements do you think your house most needs? *Toilet inside*

A2.5 Have you carried any improvements, apart from the extensions already mentioned, (on the house) in the past five years?

YES/NO

If answer is YES, fill in the table below

	Walls	Roof/ Ceiling	Floor	Window/ Doors	Outside
Describe When? Cost?					

A2.6 What improvements are you going to make to your house?
(Describe and state anticipated cost)

Extension + toilet inside

A2.7 Which do you think is best: i) to purchase
ii) rent
or iii) build your own house?

Why? *To purchase is more expensive. /- Contd.../-*

A2.8 Which do you think is best: i) Government or Local Authority Built?
 or ii) Self-built house?

Why? *Build your own plan*

A2.9 Of these services, which do you think is most important?
 (Indicate your choice in order of preference)

- 1 i) Water
- 3 ii) Electricity (Domestic Use)
- 2 iii) Toilets
- 4 iv) Street lighting

A2.10 Where do you prefer the toilet to be positioned? (Indicate)

Prefer inside toilet

A2.11 What form of street lighting do you prefer

i) Tower lighting

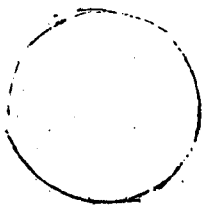
or ii) Conventional street lighting

Why? *Can see better*

A2.12 Which of these three plans would you prefer for your house and why?



It looks better



Haven't seen one before

A2.13 What are the good and bad things about this area?

GENERAL FAMILY DATA

B.

B1.1

House Member	Relationship to Household Head	Birth Place and age	Years in		Education	Occupation
			House	Town		
Wife		30 yrs. Chinnaman	4	13	State	
Husband		Ab. It " 40	4	20	State	Carpenter
5 Children						
3 Lodgers						

H. + 3 kids

B.I.2

What was your father's occupation?
(If a woman, your husband's father's occupation)

B1.3 What was the occupation of your grandfather?
(If a woman, your husband's grandfather)

B1.4 Are your parents still alive? *late*
(Or husband's parents, if it is a woman)

B1.5 Where did you live before coming to this town?
Chinnaman

B2. HOUSEHOLD INCOME

B2.1 Describe your occupation?
Carpenter

B2.2 Are there any other formal/informal sources of income?
(Describe them)
Sometimes now but not very often

B2.3 Where do you work?
Carous Garage

B2.4 How long employed in that job?
11 yrs

B2.5 How many hours do you work per day?
8 HRS.

B2.6 What is your income per week/month?

Between

20 - 50	50 - 150 <i>✓</i>
150 - 300	over 300

\$150

YES/NO

B2.7 Do you rent out any rooms?

If yes, how many? 2

B2.8 Income from rent per month?

\$ 30

B2.9 Are there any other working household members?

(State number and type of occupation) 2 Lodgers work, 1 out of work

B2.10 Total household income per week/month?

\$ 180

B3 SOCIAL INTERACTION

B3.1 Do you live with close relatives? Yes How many? 1

B3.2 How many lodgers live here? 3 lodgers
(State composition of lodging families) stated already

B3.3 Do you have close relatives in town not living here? Yes
Where do they live?

B3.4 How often do you meet your relatives?
Highfields Glen View

B3.5 Do you know your neighbours on either side of your house? every week to Highfields Yes

B3.6 How well do you know them?

very well
not at all
fairly well

B3.7 Where do your children play?

Play here

B3.8 How many households do you get on with in your block?
(A block is defined as two rows of houses, back to back)

7 Houses.

B3.9 Do you attend residents' association meetings? If so, how often?

OBSERVATION SECTION

C1.0 QUALITY OF ENVIRONMENT

- C1.1 Number of residential structures in the block
- C1.2 Distances between the houses (side)
- C1.3 Distances between the houses (back)
- C1.4 Distances between the houses (front)
- C1.5 Number of non-residential structures in the block
- C1.6 Percentage of non-residential structures in the block
- C1.7 Percentage of open space
- C1.8 Percentage of tree cover in stands
- C1.9 Number of trees in the block
- C1.10 Variety of house types and colours used - Diversity of street layout
- C1.11 Amount of through vehicular traffic
- C1.12 No. of different land uses
- C1.13 Percentage of recreational land use (designated and non-designated)
- C1.14 Number of rooms per house 7
- C1.15 Percentage of public and semi-public land use

C2.0 LAND USE

C2.1 USE OF STAND

Category of Land	Square metres	Percentage
Play area and Paths		4%
Gardens		10%
Fowl Runs/Animal Related uses		None
Storage Space		

Average area in sq. metres in evaluation of all households.

C2.2 FLOOR AREA

- C2.2.1 Outside length and Width of House 6m x 5m
- C2.2.2 Number of rooms? 4 Number of bedrooms? 1 Length and Width
- C2.2.3 Sleeping area per household in square metres? Kitchen at Back
- C2.2.4 Sleeping area per person in square metres?
- C2.2.5 Floor area per individual

Type of Cooking facilities for the Household?

Firewood in (plastic) Kitchen at back

Appendix 4.1

MINISTRY OF CONSTRUCTION
AND NATIONAL HOUSING,
P.O. BOX 8031
CAUSEWAY.CIRCULAR NO. 1/1985

DATE: ..8. January.. 1985

TO: All Town Clerks
All Secretaries to Town Councils
All Secretaries to Rural Councils
All Secretaries to Local Boards
All Chief Executives of District Councils

Dear Sirs,

THE STANDARD PRIORITY SYSTEM TO BE USED IN ALLOCATING HOUSES
AND/OR SERVICED STANDS

The attached standard Priority/System has been formulated with the view of standardizing the allocation criteria throughout the country.

The Standard Priority System has been formulated in consultation with most Local Authorities whose views have been incorporated into this new system.

The new system includes all criteria, including exceptional circumstances, that can be used to select and screen beneficiaries. This flexibility has been allowed into the system so as to make the system more accommodating and socially acceptable. However, Local Authorities should treat exceptional circumstances with the greatest responsibility as this may give the latitude for maladministration.

Notes on how to use the scoring method have been attached. However this is only an example, for the allocating scores vary from one local authority area to another depending on the ~~different~~ housing situation in each local authority.

Local Authorities should adopt this system and use it with the spirit in which it was formulated. The task will definitely require Local Authorities to re-examine and re-adjust their allocation criteria in order to meet the requirements of this system and attain the maximum efficiency at minimal costs.

M. Zinyanda

T.K. ZINYANDU

for: SECRETARY FOR CONSTRUCTION AND NATIONAL HOUSING

TZ/rca:

11/27/91
 MINISTRY OF CONSTRUCTION
 AND NATIONAL HOUSING,
 P.O. BOX 8081,
 CAUSEWAY.

DATE: 8 January 1985

CIRCULAR NO. 1/1985

To: All Town Clerks

All Secretaries to Town Councils

All Secretaries of Rural Councils

All Secretaries of Local Boards

All Chief Executives of District Councils

THE STANDARD PRIORITY SYSTEM USED IN ALLOCATING HOUSES/SERVICED STANDS

1. Definition

A priority system in this circular is defined as a set of criteria used to determine who on the waiting list should get the house/serviced stand first.

2. Advantages of a Priority System

A standard priority system would :-

- (a) help local authorities to make fair, just and quick decision on who to allocate a house first/Serviced Stand.
- (b) defend local authorities from being unfairly accused of practising nepotism and all sorts of Malpractices and maladministration.
- (c) to create uniformity in the allocation of houses/serviced stands among local authorities thus enabling the Ministry of Construction and National Housing to monitor and control the process of allocating houses/serviced stands in different local authority areas including dealing with cases of maladministration in allocating houses/serviced stands.
- (d) formalize the process of allocating houses/serviced stands, thereby avoiding suspicion between local authorities and Central Government.
- (e) help foster good public relations.

3. Formulation of a Standard Priority System

It has come to the attention of this Ministry that different local authorities have different priority systems for allocating houses/serviced stands.

In order to standardize the system for allocating houses/serviced stands, the Ministry has formulated a standard priority system which is here attached. The Ministry requests all local authorities to adopt this new standard priority system.

4. Criteria

The following criteria constitute the standard allocation priority system.

* 4.1 Length of Residence in the area

- (a) In allocating both rental and home ownership accommodation, priority should be given to an applicant who has lived and worked in the local authority area longer than the other applicants on the waiting list. This point takes into consideration those applicants who were late to register on the waiting list because they were not well informed or were absent at the time of registration.
- (b) The movement of an applicant from one employer to another within the same local authority area does not affect criterion (4.1 (a)) above. But where an applicant has moved with the same employer to and fro between local authority areas and the time lapse is less than twelve months, he or she should continue to retain his status as resident of the first local authority area.
- (c) Clause (4.1(b)) above does not apply to ex-combatants' period of absence during the liberation struggle. If an ex-combatant decides to settle in any local authority area and decides to enlist with that particular local authority's waiting list, then the number of years in the struggle as authenticated by the appropriate authorities, should be counted as part of the ex-combatant's length of stay in that particular local authority area.

4.2 Head of Household

- (a) In all cases priority should be given to an applicant who is head of a household and consideration may be given to the size of the household.

- (b) Applicants should not be discriminated against on the grounds of sex. An applicant who can produce documentary proof that he/she has custody of minors or dependants should be entered on the waiting list. In the case of divorce, or where the applicant is not the parent a court document granting custody of minors or an affidavit should be produced at the time of registration.

4.3 Affordability

- (a) before the allocation of houses or stands, a thorough assessment of the applicant's affordability should be carried out to ensure that the beneficiaries can afford the cost of the house. In assessing affordability, authorities should bear in mind that not more than 25% of the applicant's income should go towards housing costs.

However, local authorities should note that where the income bracket of the beneficiaries of a housing scheme is stipulated by a sponsor or donor agency, this criterion may be relaxed.

- (b) Self employed applicants should also be considered under this criterion. The applicant's indirect income/resources should be carefully and fairly assessed. i.e. sources such as pension market stall sales, dependants contribution, employers' contribution, savings etc.

4.4 Exceptional Circumstances : Rental Housing

- (a) In the case of rental accommodation, priority should be given to essential workers/expatriates who have been transferred to work in the local authority area.
- (b) Since it is not possible to list all cases that would merit exceptional circumstances for each local authority area, each local authority is required to carefully examine all other areas of priority and prevalent circumstances for consideration under this criterion.

4.5 Renting and Ownership of any other Property in Urban Areas

- (a) In allocating rental accommodation priority should be given to applicants who do not own or rent a house/ serviced stands or any other form of accommodation anywhere in the local authority area he, or she is applying for rental accommodation.

- (b) In the case of the applicant applying for Home Ownership accommodation priority should be given to the applicant who does not own a house in any other urban area.
- (c) Past experience has shown that where applicants from rented housing have applied for Home Ownership (core or site and service) they were allowed to retain the rented houses, whilst they developed the core or stand. However, it has been proved that after development of their home ownership, they sublet it and carry on living in the rented house. To remove them has usually resulted in protracted legal processes.

It is recommended that the applicant's lease be cancelled as from the day of allocation to a stand or home ownership house. If need be that the tenant should stay whilst developing his stand, he should do so on a period agreed upon between the tenant and the local authority.

5.0 The Scoring System

The proposed standard priority system is a synthesis of the priority systems submitted by various local authorities. The Ministry assumes that some of the local authorities are already familiar with the system. The Ministry is therefore recommending the use of the scoring system which some of the local authorities have been successfully using. However, local authorities are free to adopt any scoring system as long as such a system is objective.

- 6.0 Local Authorities should note that the standard priority system is not meant to alter the current procedure and steps taken in the process of choosing beneficiaries, but to be used as a selection tool at each stage of the selection process. i.e. application forms, waiting lists, short listing applicants etc.

M. Zinyandu
M. ZINYANDU

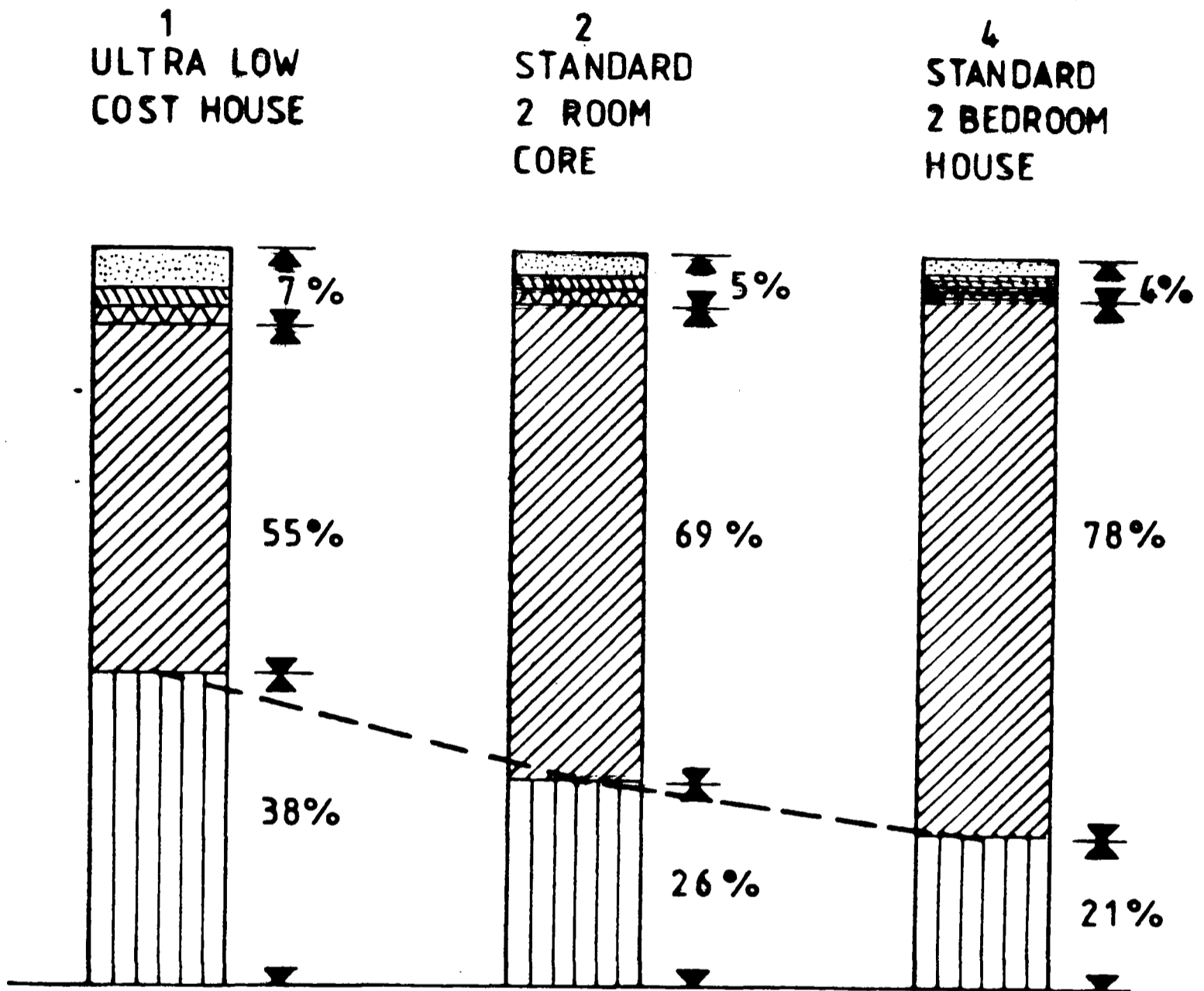
SECRETARY FOR CONSTRUCTION AND NATIONAL HOUSING

/rcn:

MINISTRY OF CONSTRUCTION AND NATIONAL HOUSINGHOW TO USE THE SCORING SYSTEM:EXAMPLE:

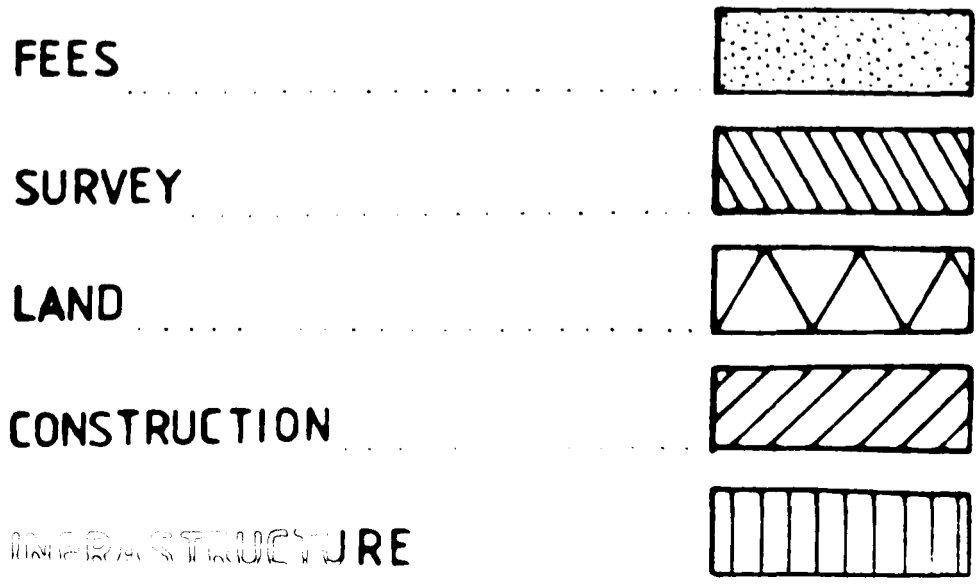
- (a) Below is an example of how to apply the scoring system. This is only an example and local authorities are encouraged to devise their own tables.
- (b) When using a scoring system, scores are awarded to each of the criteria listed above according to the weight or importance of the criterion.

(i) <u>CRITERION</u>	<u>NUMBER OF PEOPLE</u>	<u>SCORES</u>
Size of Household	1 - 3 people	1
	4 "	2
	5 "	3
	6 "	4
	7 "	5
	8 "	6
	9 "	7
	10 "	8
(ii) <u>CRITERION</u>	<u>NUMBER OF YEARS</u>	<u>SCORES</u>
Length of Residence	1 year	1
	2 years	2
	3 years	3
	4 years	e etc
(iii) <u>EXCEPTIONAL CASES</u>	<u>NATURE OF CASE</u>	<u>SCORES</u>
	transfers	10
	expatriates	20
	disabled	5
	ill-health	5
(iv)	Not renting or owning any other property in urban areas.	5

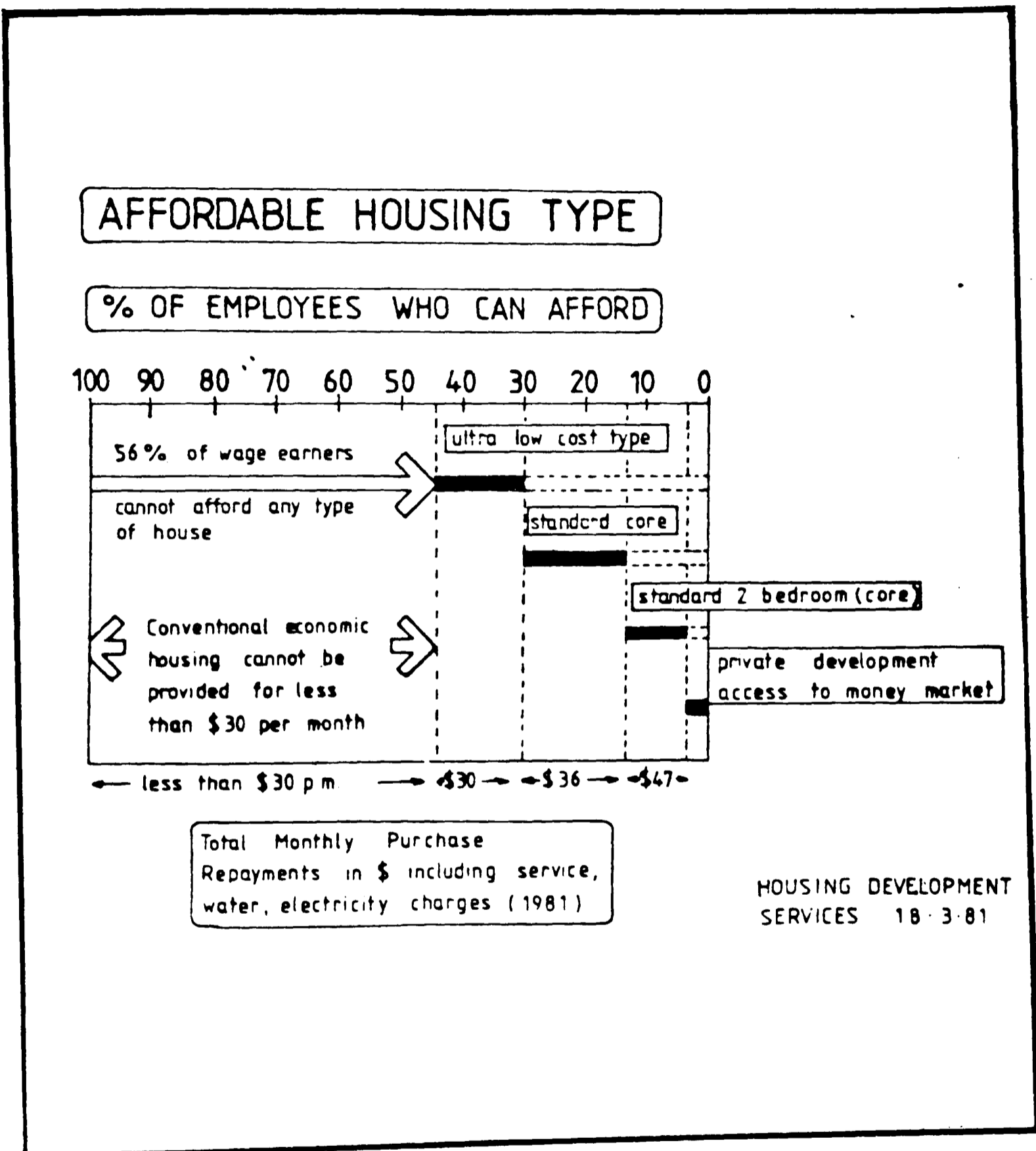


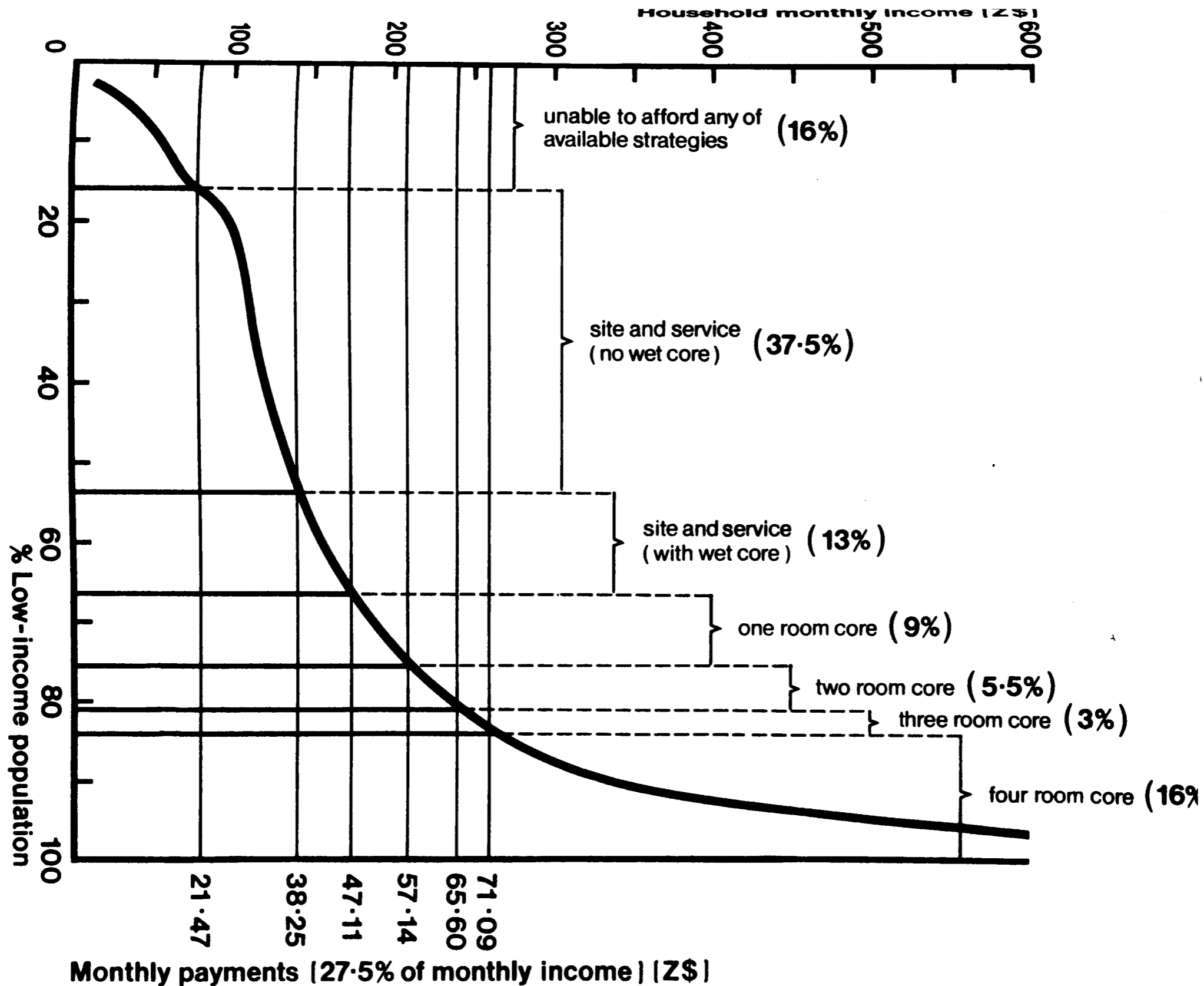
ESTIMATED DEVELOPMENT COSTS—PARKRIDGE / FONTAINBLEAU PROJECT 1981/82

ESTIMATED COSTS OF COMPONENTS OF VARIOUS TYPES OF LOW-COST HOUSING FOR PARKRIDGE / FONTAINBLEAU.



APPENDIX 5.2





Source - Mutizwa-Mangiza (1985)

APPENDIX 6.1

CITY OF HARARE

DEPARTMENT OF WORKS

SPECIAL PROJECTS SECTION

SUGGESTED RATES FOR COSTING IN
HIGH DENSITY AREAS

1. Water Reticulation

(Includes all fittings but not house connections)

(a) Upto 100mm \varnothing - \$24,89/m

(b) Upto 225mm \varnothing - \$58,14/m

(c) Upto 300mm \varnothing - \$80,20/m

2. Sewerage Reticulation

(Includes all fittings but not house connections)

(a) Upto 225mm \varnothing - \$51,25/m

(b) Upto 300mm \varnothing - \$75,04/m

(c) Upto 450mm \varnothing - \$101,54/m

(d) Upto 525mm \varnothing - \$161,38/m

(e) Upto 600mm \varnothing - \$242,07/m

(f) Sewer Connection Fee - \$27,83

3. Roads and Stormwater Drainage

(a) Upto 18m road reserve - \$87,42/m

(b) Upto 30m road reserve - \$114,31/m

- 20 to 25% of roads and stormwater drainage are non-residential

- surfacing costs 25% of given figure

- stormwater drainage costs 25% of given figure

- kerbing - \$20,18/m

- walkways:- (a) premixed - \$16,14/m²

(b) slabs - \$10,76/m²

ADDITIONAL PERCENTAGES

1. Escalation

These rates are estimated as at 1st January, 1985. For future costs, allow a 2½% compound escalation per month.

2. Preliminaries and General

Allow 8% for this item.

3. Scale of Contract

These rates are estimated for a scheme of about 3 000 housing units. For smaller contracts, the following percentages should be added.

<u>No. of Stands</u>	<u>Percentage</u>
1 - 500	12,5
501 - 1 000	10,0
1 001 - 1 500	7,5
1 501 - 2 500	5,0
2 501 Plus	0

4. Contingencies

Allow 10% for physical contingencies.

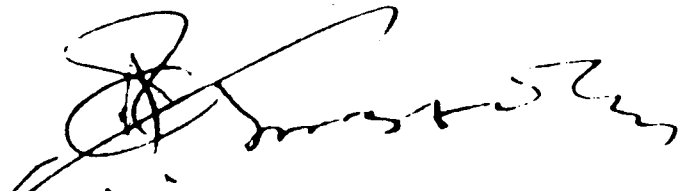
5. Design and Supervision

Allow 10% for design and supervision.

SEQUENCE OF ADDITIONAL PERCENTAGES

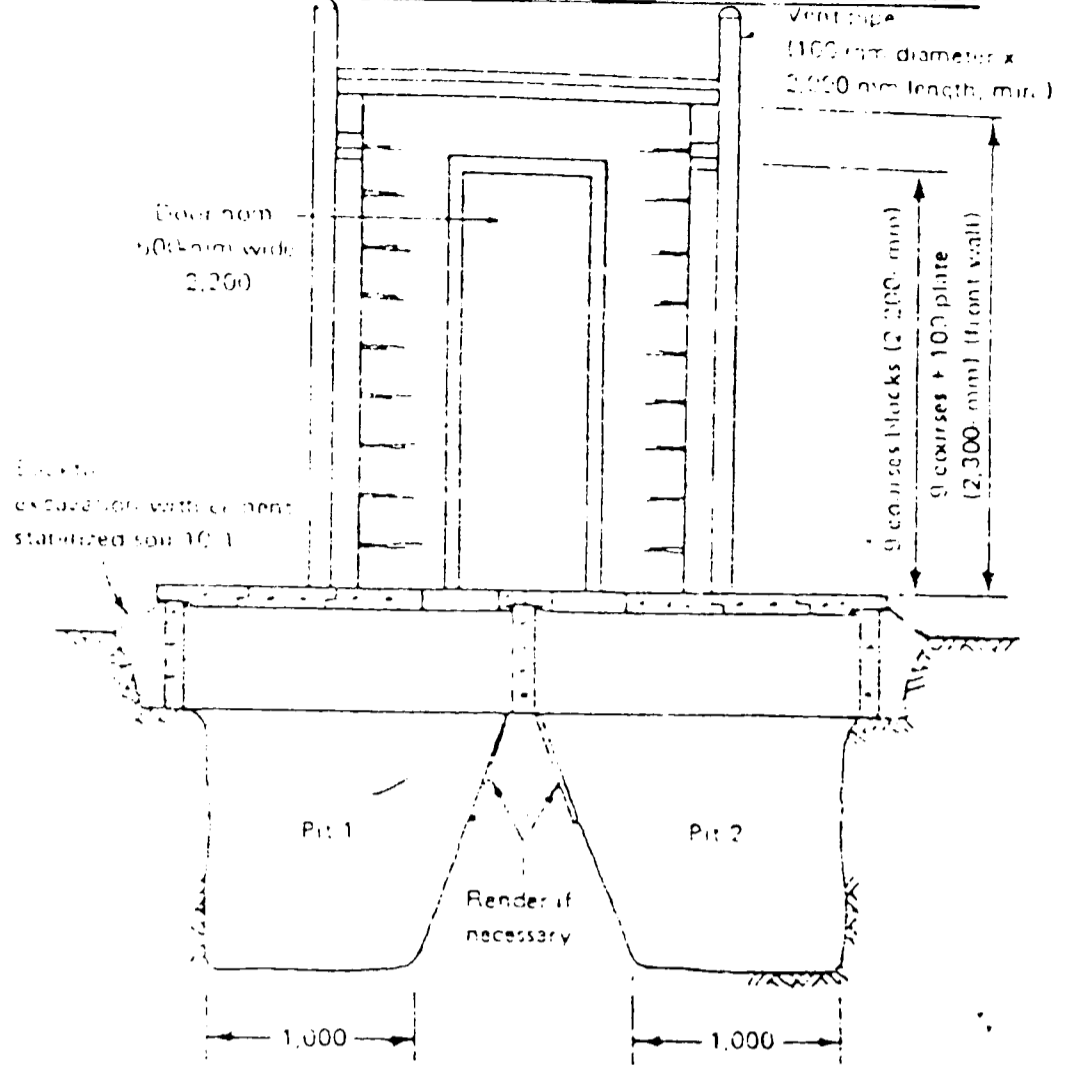
The additional Percentages should be added as follows:-

Estimate + Escalation % + P. & G. % + Scale of Contract % +
Contingencies % + Design and Supervision %.

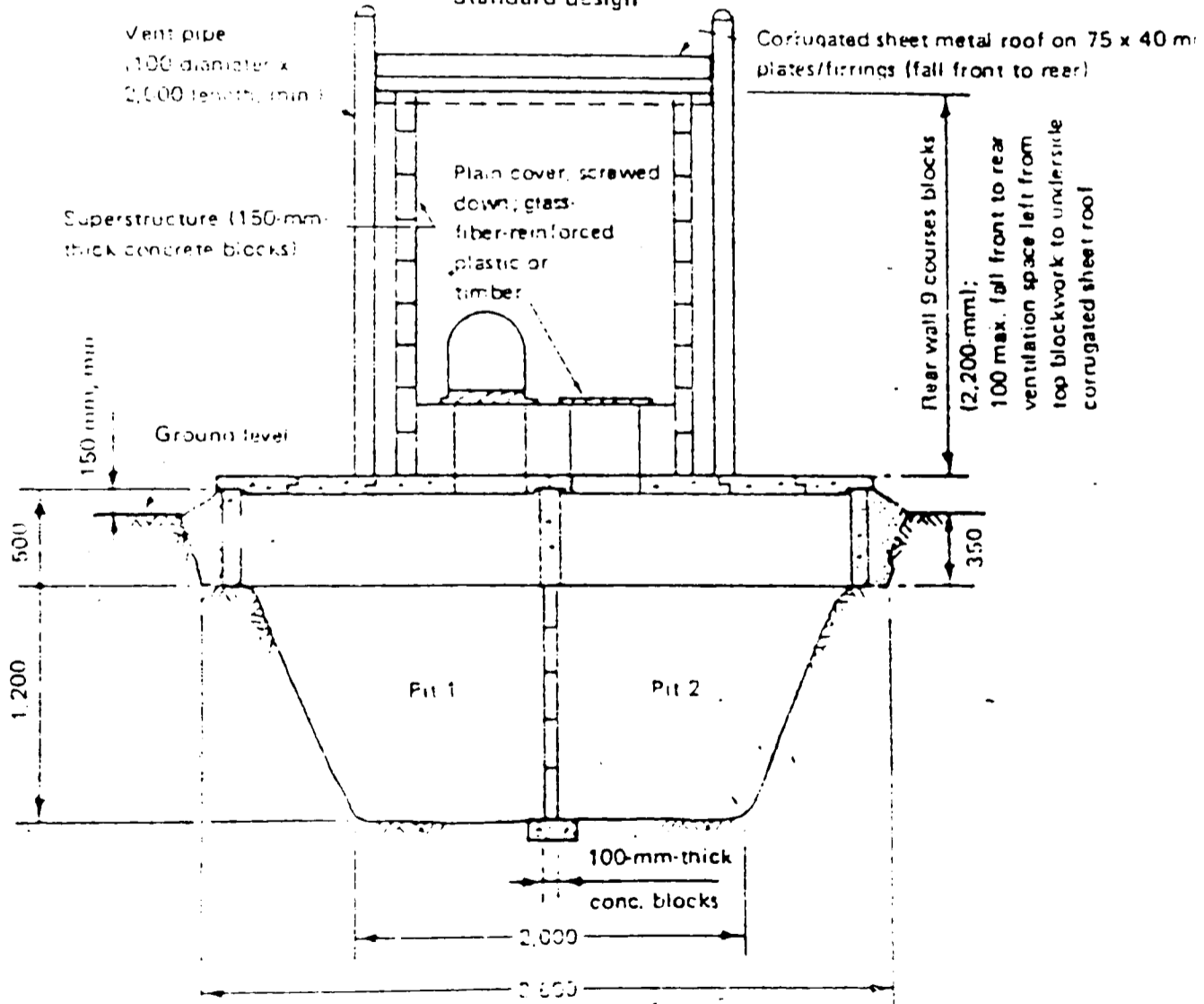

G.A.R. CHISEVE B. ENG (UNZA), AMZweIE, ~~MZIM~~ MHISA
DEPUTY CHIEF ENGINEER (SPECIAL PROJECTS)

GARC/cc

FIG. 1. Double Pit Improved Pit Latrine



Standard design



Optional design

Source: Adapted from R. Carroll (1979).

Appendix 8.1

PROGRAM 1

$$k = \frac{1 - \left(1 + \frac{i}{1200}\right)^{-12N}}{\frac{i}{1200} \left(1 - \frac{h}{100}\right)} \quad (\text{eq. 1})$$

Calculates the discounted present value of future housing payments plus downpayments to determine the amount of capital per household affordable for housing investment.

$$k = \frac{10,000 i (e+c_1+c_2)}{d} + a_1 b_1 + a_3 + \frac{a_4}{y} \quad (\text{eq. 2})$$

Calculates the capital cost per unit of housing from the various elements of unit cost.

$$\frac{1 - \left(1 + \frac{i}{1200}\right)^{-12N}}{\frac{i}{1200} \left(1 - \frac{h}{100}\right)} = \frac{10,000 i (e+c_1+c_2)}{d} + a_1 b + a_2 + a_3 + \frac{a_4}{y} \quad (\text{eq. 3})$$

Equates the right sides of equations 1 and 2 to establish the condition for designing affordable projects.

$$d = \frac{10,000 i (e + c_1 + c_2)}{\frac{1 - \left(1 + \frac{i}{1200}\right)^{-12N}}{\frac{i}{1200} \left(1 - \frac{h}{100}\right)} - (a_1 b + a_2 + a_3 + \frac{a_4}{y})} \quad (\text{eq. 4})$$

Solves equation 3 for gross residential density (d). This is used to calculate the affordable density for a project.

$$d = \frac{10,000 i (e+c_1+c_2)}{k-(a_1 b+a_2+a_3+\frac{a_4}{y})} \quad (\text{eq. 4a})$$

A simplified version of equation 4.

$$e = \frac{d \left[k-(a_1 b+a_2+a_3+\frac{a_4}{y}) \right]}{10,000 i} - (c_1+c_2) \quad (\text{eq. 5})$$

Solves equation 4 for the cost per square meter of land (e). This can be used to calculate an affordable land price.

$$c_1 = \frac{d \left[k-(a_1 b+a_2+a_3+\frac{a_4}{y}) \right]}{10,000 i} - (c_2+e) \quad (\text{eq. 6})$$

Solves equation 4 for the cost per square meter of on-site infrastructure. This can be used to calculate an affordable cost for on-site infrastructure.

$$d = \frac{100 i (100-m_1-p)}{j + m_2 i} \quad (\text{eq. 7})$$

Calculates the gross residential density of a project from the project layout variables.

$$\frac{10,000 i (e+c_1+c_2)}{\frac{f \left[1-(1+\frac{i}{1200})^{-12N} \right]}{\frac{i}{1200} (1-\frac{h}{100})} (a_1 b+a_2+a_3+\frac{a_4}{y})} = \frac{100 i (100-m_1-p)}{j+m_2 i} \quad (\text{eq. 8})$$

Equates the right sides of equations 4 and 7 to establish the condition for determining an affordable plot size.

$$j = \frac{(100-m_1-p) \left[\frac{f \left[1 - \left(1 + \frac{i}{1200} \right)^{-12N} \right]}{\frac{i}{1200} \left(1 - \frac{h}{100} \right)} - \left(a_1 b + a_2 + a_3 + \frac{a_4}{y} \right) \right]}{100 (e+c_1+c_2)} - m_2 i \quad (\text{eq. 9})$$

Solves equation 8 for plot size (j).

$$j = \frac{100 i (100 - m_1 - p)}{d} - m_2 i \quad (\text{eq. 9a})$$

A simplified version of equation 9 used to determine the affordable plot size.

$$f = \frac{\frac{i}{1200} \left(1 - \frac{h}{100} \right)}{1 - \left(1 + \frac{i}{1200} \right)^{-12N}} \left[\frac{100 (e+c_1+c_2) j + m_2 i}{100 - m_1 - p} + a_1 b + a_2 + a_3 + \frac{a_4}{y} \right] \quad (\text{eq. 10})$$

Solves equation 9 for monthly payment (f).

$$p = \frac{(wu + 2v\sqrt{jx}) 100}{w (2\sqrt{jx} + u)} \quad (\text{eq. 11})$$

Calculates the percentage of circulation space.

$$t = \frac{\sqrt{jx} + \frac{u-v}{2} + w}{w(2\sqrt{jx} + u)} \quad (\text{eq. 12})$$

Calculates the network length per square meter of project area.

$$c_1 = tc_3 + \frac{P}{100} c_4 \quad (\text{eq. 13})$$

Calculates the cost per square meter of on-site infrastructure.

$$c_1 = \frac{\sqrt{jx} + \frac{u-v}{2} + w}{w(2\sqrt{jx} + v)} c_3 + \frac{(wv+2v\sqrt{jx}) 100}{w(2\sqrt{jx} + u)} c_4 \quad (\text{eq. 14})$$

Substitutes equations 11 and 12 into equation 13.

$$f = \frac{\frac{I}{1200} (1 - \frac{h}{100})}{1 - (1 + \frac{I}{1200})^{-12N}} \left[\frac{100 \left[e + c_2 + \frac{\sqrt{jx} + \frac{u-v}{2} + w}{w(2\sqrt{jx} + u)} c_3 + \frac{wu + 2v\sqrt{jx}}{w(2\sqrt{jx} + u)} c_4 \right] (j+m_2 i)}{100 - m_1 - \frac{(wu + 2v\sqrt{jx}) 100}{w(2\sqrt{jx} + u)}} + a_1 b + a_2 + a_3 + \frac{a_4}{y} \right] \quad (\text{eq. 15})$$

Substitutes equations 11 and 14 into equation 10 to produce a composite equation representing all the mathematical relationships described in Chapters 1 and 11.

Project Variables

	<u>Symbol</u> ⁺
I. FINANCIAL VARIABLES	
Monthly payment	f
Yearly interest rate (%)	I
Recovery period (years)	N
Downpayment (%)	h
Capital affordable per household*	k
II. DESIGN STANDARDS AND UNIT COSTS	
Capital affordable per household*	k
Land cost per m ²	e
On-site infrastructure cost per m ² of project area	c ₁
Off-site infrastructure cost per m ² of project area	c ₂
Construction cost per m ² of floor area	a ₁
Construction cost per plot	a ₂
Special feature cost	a ₃
Community facilities cost	a ₄
Core house size (m ²)	b
Number of households sharing community facilities	y
Persons per plot	i
Gross residential density (persons per hectare)*	d
III. PROJECT LAYOUT VARIABLES	
Gross residential density*	d
Circulation space (%)	p
Parks and open space (%)	m ₁
Community facilities space (m ² per person)	m ₂
Plot size (m ²)	j

* Linking variables

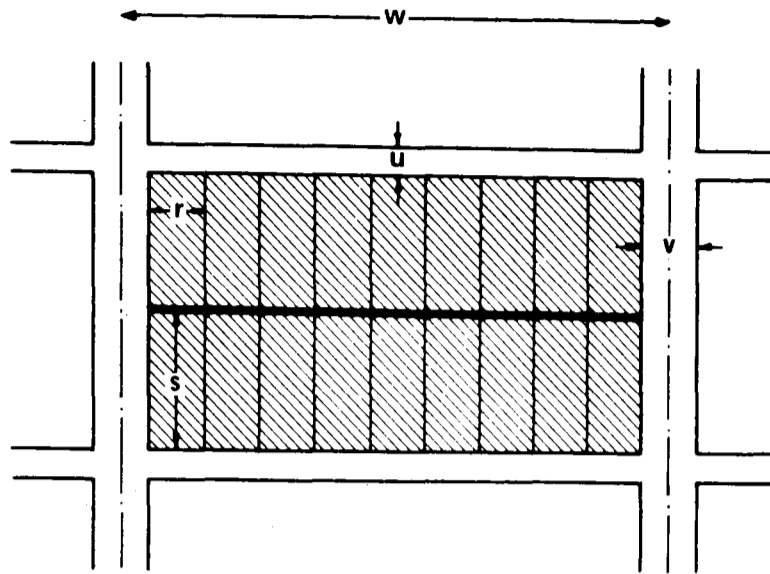
+ See Annex 1 for the mathematical equations using these symbols.

Appendix 8.3

Variables Used in Program I in the Calculation of More Values for the Percentage of Circulation Space and Cost Per Square Meter of On-Site Infrastructure

	Symbol
1. Plot size (m ²)	j
2. Width of primary streets (m)	u
3. Width of secondary streets (m)	v
4. Block length (m)	w
5. Plot ratio (length:front)	x
<hr/>	
6. Circulation space (percentage)	p
<hr/>	
7. Network length per m ²	t
8. Network cost per linear m	c ₃
9. Circulation cost per m ²	c ₄
<hr/>	
10. On-site infrastructure cost per m ²	c ₁

Project Design Variables in A Grid Layout



The Measurement of Network Length

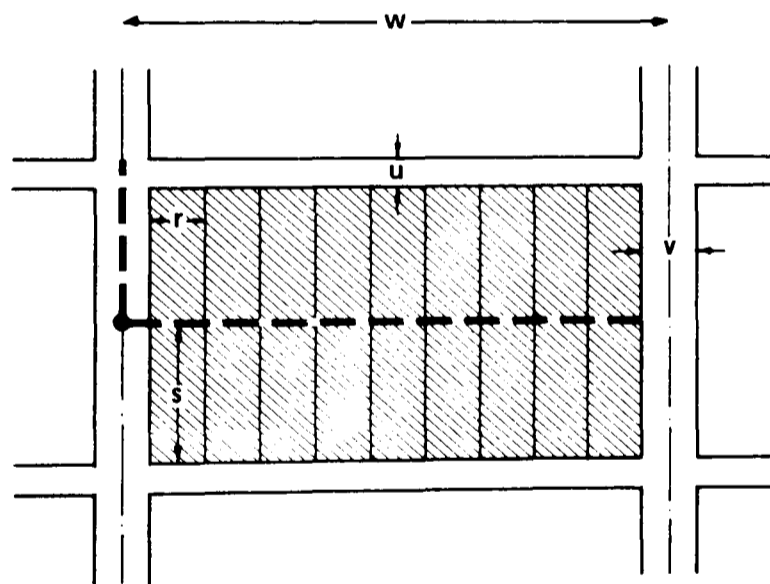
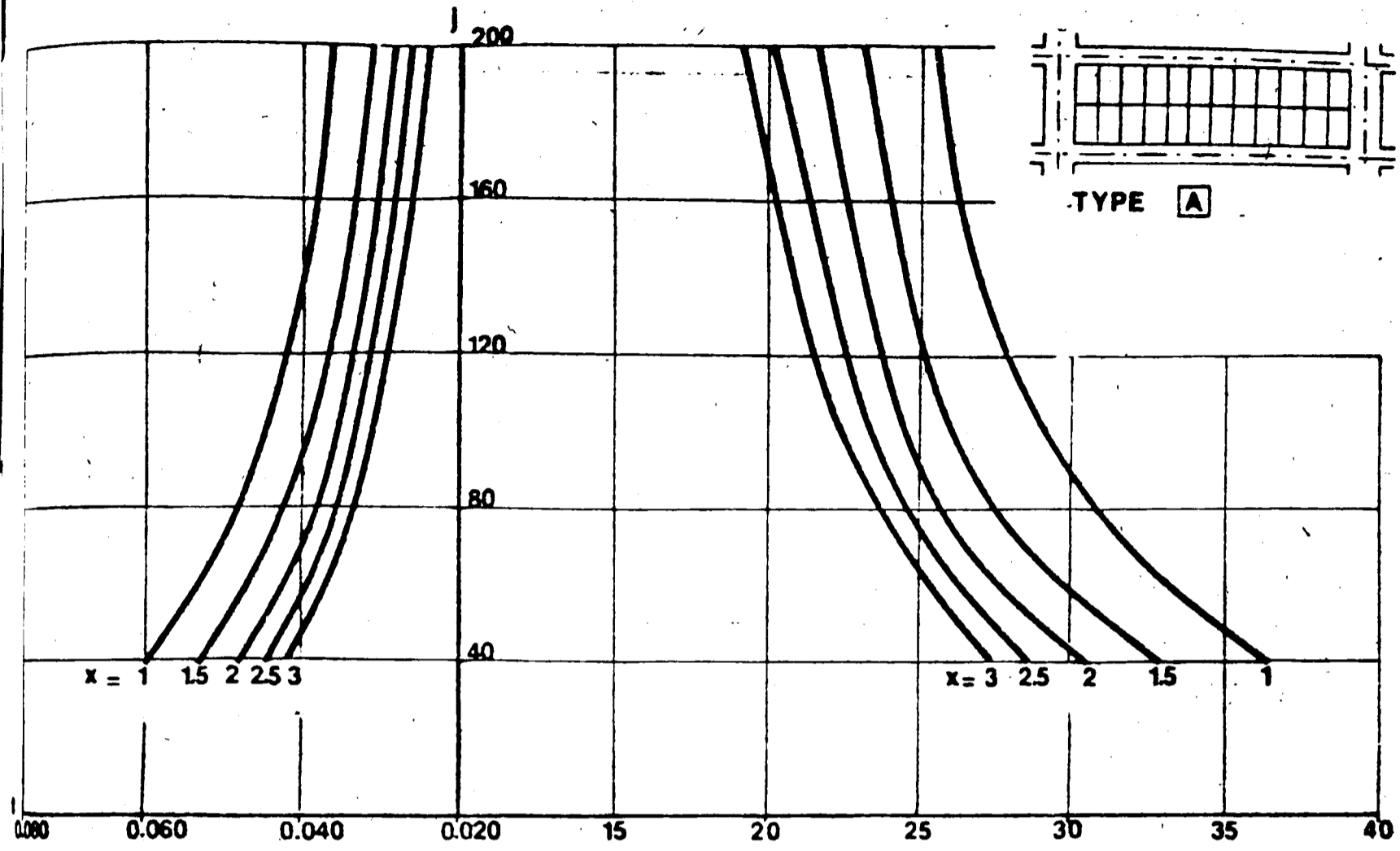


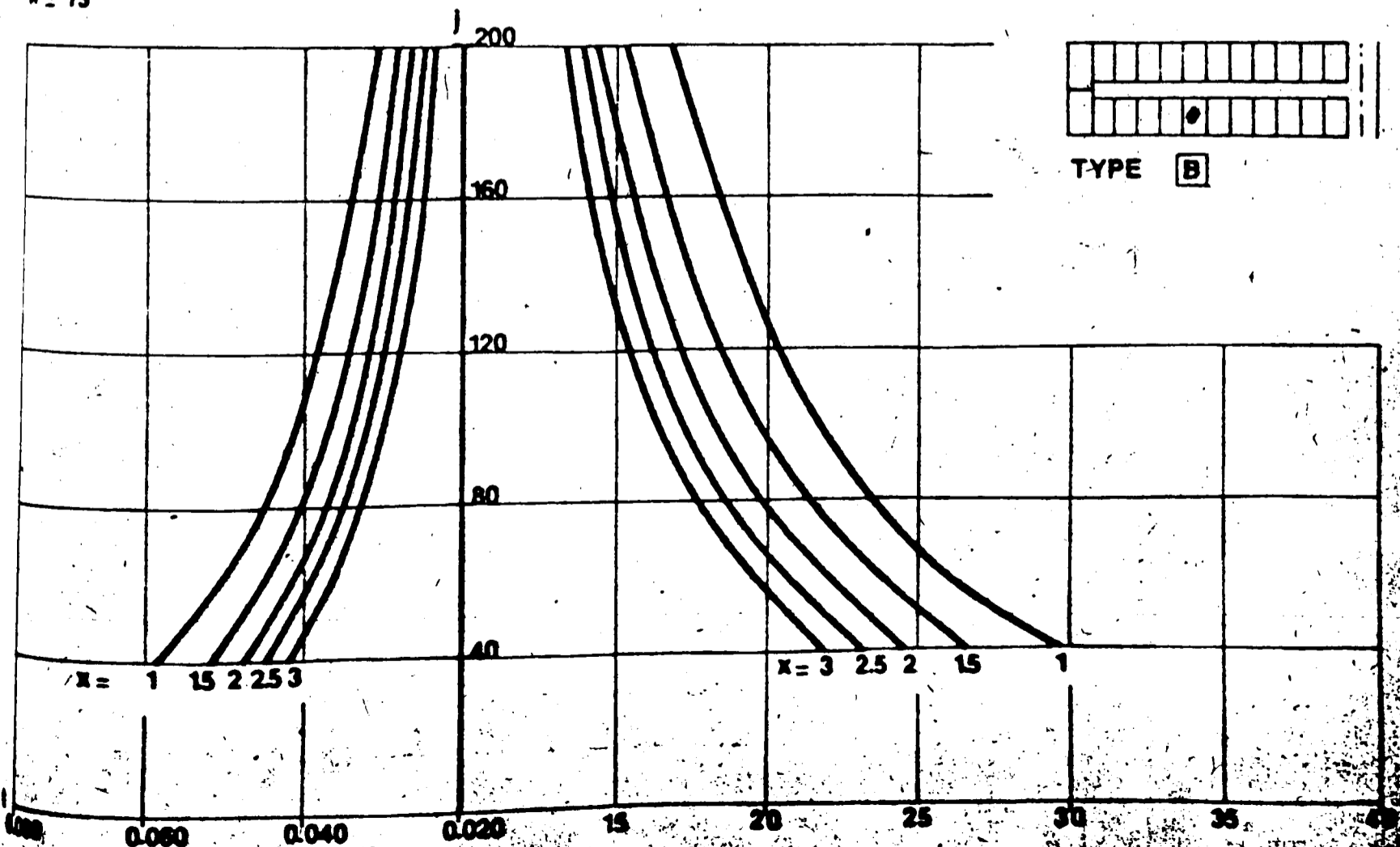
FIGURE 11 CITRUD MANUAL GRAPHS OF SUBDIVISION PATTERN EFFICIENCY

Figure 19

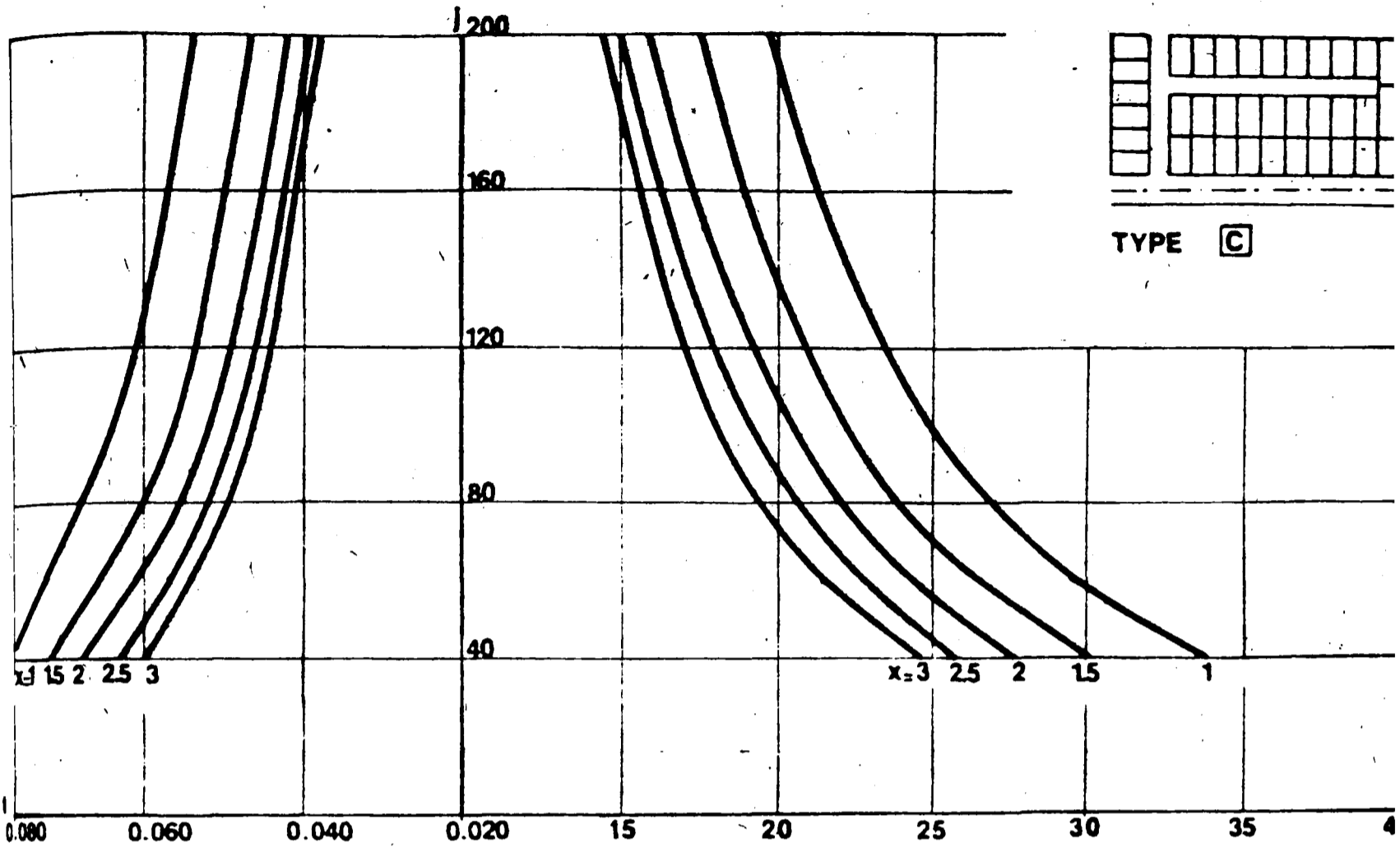
VARIATION OF p AND i AS A FUNCTION OF PLOT SIZE FOR VARIOUS STREET LAYOUT TYPES



u = 5
v = 8
w = 75



Appendix 8.5



u = 5
v = 8
w = 75

