

ON SELF-HELP IN A SITE AND SERVICES PROJECT IN KENYA

by

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M. Arch., University of Nairobi
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Submitted in Partial Fulfillment
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ABSTRACT

The concept of self-help in a site and services project is based on the assumption that given the security of land tenure, an owner-builder can manage the whole process of house implementation. Generally, in any sponsored site and services project this assumption is supported by "aid"; that is, the sponsor provides some financial and/or technical assistance. While this "aid" is minimum, often provided in the form of infrastructure, serviced plots, and some cash for purchasing building materials, it is assumed that such "aid" would assist the owner-builder in implementing the dwelling on the serviced plot. It is also assumed that the planning and construction of the dwelling would be carried out through the dweller's own decision-making and self-help efforts. In theory, the concept is valid. It is also adopted in most of the site and services projects in East Africa. Self-help is assumed to contribute towards economic savings, mobilisation of human resources, increase in community spirit and group participation and to achieve a host of other benefits.

This study looks at one such site and services project in Nairobi, the capital of Kenya.

Through several in-depth case histories of carefully selected allottee families from the Dandora Community Development Project, a site and services project in Nairobi, the thesis shows the actual form(s) and practice of self-help. Several allottees were interviewed to understand further the real nature of self-help. That is, who did what, when, how and at what cost. Other inquiry was on the background and characteristics of the allottees' families, their approach to house planning and construction, characteristics and economics of construction, self-help practice amongst different groups of allottees, cost and benefits of self-help and some impact of the rules of the Dandora Community Development Department (DCDD) in house implementation.

The study presents several case histories of immigrant families in the process of urbanization in Nairobi. The cases trace the path of these low-income families from squatter settlements to the site and services project, emphasizing the element of self-help underlying the process of settlement.

The actual role of an owner-builder is different from some of the assumptions held on self-help housing. The hard line of economic cost and benefits, as perceived in theory, does not necessarily hold true and neither do other assumptions on self-help applications in the site and services project.

Chapters 1 and 2 present some background to the study, the research method employed and some of the theoretical constructs underlying the concept of self-help.

In Chapters 3, 4, 5, 6 and 7 findings of the field research are presented. Specifically, different forms of self-help, their characteristics, practice, costs and benefits, and some illustrations as observed in the site and services project are presented. All the material covered under these Chapters is an outcome of the author's intensive field research on the allottees of the Dandora Community Development Project, from later 1978 to mid 1979.

In Chapter 8 the uses, costs, and benefits of the dwellings completed by means of the various self-help forms are further articulated. In the final Chapter the findings on actual self-help practices are compared with the assumptions held on self-help. This analysis is followed by major conclusions drawn from the study.

Thesis Supervisor: Anne Vernez-Moudon
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Acknowledgements

The outcome of this study is a result of intensive field research on the residents of the Dandora Community Development Project in Nairobi, Kenya. Assistance was received from various individuals during the period of August 1978 through mid-1979, while I was a research associate at the Housing Research and Development Unit, University of Nairobi. The study was feasible by means of support and assistance from various individuals at different stages of my field work.

Throughout this field study my thesis committee at the Massachusetts Institute of Technology has provided me with invaluable guidance and inspiration. In fact, the idea of undertaking a trans-continental research as a way to thesis preparation was initiated by Professors Lisa Peattie and Alcira Kreimer; to learn further about the actual nature of self-help in site and services. This became the focus of the study. Both advisers were of the opinion that intensive field research about the actual role of owner-builder in a site and services project would yield valuable insights on the meaning of self-help.

The idea was initiated in the Spring of 1978. A year later, Professor Anne Vernez-Moudon from the Department of Architecture, MIT joined the thesis committee and chaired it. I owe special gratitude to both Professor Lisa and Anne for this initial idea and the moral support provided during the study while I was in Kenya. Their support has proved to be a vigorous inspiration to learn about the low-income settlements; I believe without their motivation and guidance the field work may have been less explorative. My thanks also go to Mr. Praful Patel of the World Bank as a Reader of my thesis.

The feasibility of implementing the field research, once in Kenya, lies in organizing various resources in Nairobi. Without these I would have found it extremely difficult and perhaps impossible to do the actual data collection through participant observation of the residents of the Dandora Project. In organizing this task my thanks are due for Mr. Tara Chana for associating me as a researcher in the Housing Research and Development Unit, University of Nairobi, Mrs. Mutuko of the Community Development Department, Dandora Project and other officials of the Dandora Project. I am also indebted to the Government of Kenya and the Nairobi City Council for facilitating my research in Nairobi.

Simultaneously, various individuals have played resourceful roles. Stimulating discussions took place with Mr. Naigzy Gebremedhim of UNEP, Mr. Davinder Lamba of the Monitoring and Evaluation Study of the Dandora Project and Dr. A.A. Laquian of the International Development Research Centre (resigned in July 1979). The discussions ranged from study content to methodology and general aspects which a researcher often finds himself submerged in.

Two of the significant issues faced during my field study were lack of finance and accommodation for my family. For helping me overcome these I am particularly grateful to Dr. Laquian for arranging a grant from the International Development Research Centre and to Dr. M.M. Shah for extending his hospitality and providing us with accommodation.

The success of any field study is dependent upon the willingness of the respondents. Howsoever difficult and persuasive it was for me in being "accepted" by the respondents of the Dandora Project their ultimate co-operation bears a special mention. It can only be hoped that this study will contribute in some small way to future project planning and ultimately be beneficial to the very groups of people who have helped in adding meaning to the concept of self-help in site and services. My thanks also go to Peninha, Charles, Jason and Jimmy who assisted me in the initial phase of data collection.

After the general data collection phase, the participant-observation period was the most important part of this study and indeed the whole thesis is based on it. For whatever it's success my appreciations go to Jimmy Mwakishia, whose late night stays with me and the allottee families at the Dandora Estate provided me with immediate moral support, translatory services and social interpretations which often escape the purview of a foreigner.

Preparing the final draft report from the data and participant-observation notes is perhaps the most crucial phase of the thesis; its interpretation and straightforwardness for the readers. In preparing this draft my final appreciation goes to Dr. Saad Yahya, whose insights on low-income settlements have provided me with an invaluable touch to give some clarity to my work.

Undoubtedly errors remain and they are mine alone.

Table of Contents

	Page
Abstract	i
Acknowledgements	iii
List of Figures	viii
List of Tables	ix
 <u>Chapter 1 - Introduction</u>	
Background	1
Study Justification	3
Purpose and Scope	7
Research Method	10
Criteria for Selection of the Allottee Families for In-depth Interviews	14
Notes	20
 <u>Chapter 2 - The Dandora Community Development Project</u>	
Introduction	23
Project Background	23
Scope of Dandora Project	25
Principle Administrative, Physical and Financial Components	29
Administrative Requirements of the Allottees	35
Application and Selection Criteria	35
Alternative Plot Development Processes	37
Monitoring of Construction Progress	38
Notes	40
 <u>Chapter 3 - Background of the Dandora Project Occupants</u>	
Introduction	42
The Hope of Immigrating to Nairobi	42
Economic Realities	44
Housing Situation and Options	47
Immigrants Discover the DCDP: Their Rationale for Acceptance	51
 <u>Chapter 4 - Self-help in Planning and Construction of the Dwellings</u>	
Introduction	57
Nine Case histories	58
Characteristics of the Allottees' Situation at the Time of Plot Occupancy	66
Principles on the Forms of Self-help	67

Chapter 5 - The Allottee-Built Form of Self-help

Introduction	75
Determining the Need for Temporary Shelter	75
Characteristics of the Temporary Shelter	76
The Process of Building the Temporary Shelter	77
Utilization and Benefits of the Temporary Shelter	80
DCDD's View and Impact of It's Rules on Allottee-built shelter	82

Chapter 6 - The Subcontract Form of Self-help

Introduction	85
Building Materials	86
Construction Processes, House Type Plans, and Decision-making	87
Stage 1. Identification of the Subcontractor and Organization of the Construction Team	90
Stage 2. Setting Out of the Rooms	93
Stage 3. The First Phase of the Construction - Foundation Trenches and Construction of the Foundations and Ground Floor Slab	96
Stage 4. Construction of the Walls	102
Stage 5. Construction of the Roof	107
Stage 6. Fittings, Finishes and Other Small Fixtures	110

Chapter 7 - Building Group as a Form of Self-help

Introduction	113
General Objectives of a Building Group	114
Organization of the Building Group	114
Rules of the Building Group	117
The Role of an Allottee member	118
Some Advantages and Disadvantages of a Building Group	120

Chapter 8 - Uses, Costs and Benefits of the Completed Dwelling

Introduction	124
Factors Affecting Useage of the Completed Dwelling	124
Social and Economic Costs and Benefits of the Dwelling	131

Chapter 9 - Conclusions

Introduction	136
✓ Assumptions vs. The Practice of Self-help	136
Conclusions	144

	Page
Appendix 1: Layout of the DCDP	152
Appendix 2: Cluster Layout	153
Appendix 3: A Fully Completed Dwelling	154
Appendix 4: An Average Completed Dwelling	155
Appendix 5: A Partly Completed Dwelling	156
Appendix 6: Bibliography	157
Appendix 7: Glossary of Abbreviations and Terms	163

List of Figures

	Page	
1.1	Map of Nairobi	12
1.2	Phase One Layout of the Dandora Community Development Project, Showing the Locations of the Plot-owners Interviewed	19
3.1	Typology of Typical Squatter Dwellings	50
3.2	Typology of Other Alternative Dwellings Used by the Immigrants	52
5.1	Two Typical Layouts of Temporary Shelters	78
6.1	Typical House Plans Prepared by the Technical Section of the DCDP	94

List of Tables

	Page
1.1 List of the Ten Allottee Families Used for In-depth Interviews	17
2.1 Project Cost Estimates and Allocation to Beneficiaries	36
3.1 Housing Systems in Nairobi, 1970	48
5.1 Temporary Shelter - Materials, Prices, Places Purchased From and Approximate Costs	79
5.2 A Simple Economic Cost and Benefit of the Temporary Shelter	83
6.1 An Example of Various Costs for Building Materials, Equipment, Transportation and Labour in a Permanent Dwelling	88
7.1 Comparison of Building Group Performance on a Number of Variables	115
7.2 Material Loan Disbursement Schedule	119
8.1 A Sample of Household Possessions	127
8.2 A Simplified Breakdown of the Main Costs of a Permanent Dwelling Consisting of Two Rooms	129
8.3 Cash Flow for a Sample Plot Development	130

Chapter 1

Introduction

Background

"Aided self-help" is now well known as one of the ways to harness human resources in an effort to alleviate some of the problems experienced in the rapidly urbanising cities of the developing countries. Self-help approaches form important tools for implementing projects which are invariably based on limited resources, a factor which circumscribes most contemporary projects in the developing world. Where human resources abound and are not tapped for specific purposes of economic development, it is argued that given some form of incentive and assistance, benefits could be derived for purposes of general development.

One of the characteristics of developing countries is rapid urbanisation and as a consequence there are such symptoms in urban centres as uncontrolled residential growth, lack of "appropriate" dwellings as well as community and infrastructure services and a shortage of formal job opportunities. Where resources are limited, authorities seek ways to alleviate some of these problems through policies that exploit the limited resources with a view to optimising the economic benefits both at the national level as well as the sub-national level.

One of the pressing problems of urbanisation is the need to stimulate and control urban residential development, particularly to cater for low-income inhabitants. In addition to providing more housing stock, the need for controlled growth presupposes reducing squatter development and as a result providing better amenities to the urban poor. One of the practical approaches is the site and services strategy, a concept which has now become widely accepted in many countries of the developing world. The site and services concept is understood to mean:

"the preparation and subdivision of land for residential buildings and the provision of various combinations of public utilities and community facilities." (1)

This concept is widely advocated as a most practicable way to assist urban residential development. The magnitude of its popularity can be judged by a global survey which was taken in 1972. It revealed that 23 countries had prepared over 770,000 new serviced plots for occupancy by low-income urban residents since the mid-1950s.(2) Since 1972, an additional 148,000 plots in 15 countries have been the subject of loan agreements with the International Bank for Reconstruction and Development (IBRD) as part of multisectoral community development projects. IBRD loans for a further 48 projects are scheduled for negotiations before 1981.

The site and services concept is based on implicit assumptions of self-help. "Aided" self-help methods, as they are popularly known in site and services projects, presuppose the construction of dwellings from the plot-holders own resources. This form of "aid" is meant to subsidize the resources of the plot-holder. A dwelling built through self-help

methods is expected to contribute to savings, reduce costs, mobilise initiative amongst the low-income dwellers, increase community spirit, form a valuable educational experience for the plot-holder and achieve a host of other social and economic benefits.

The concept of site and services and the assumptions behind "aided" self-help also form the basis of housing development policies in Kenya. Kenya is one of the developing countries representative of a number of sub-Saharan African nations whose proportion of urban population is low (11.3 percent), but whose cities are growing at double the rate of national population growth (4.9 percent). (3) Faced with median per capita urban incomes of less than US \$200 per year and a growing proportion of urban residents, Kenya has turned to the site and services approach as part of its strategy for urbanisation. The National Development Plan for 1974-78 called for the allocation of 72 million dollars by the Central Government for site and services. (4) This represented 32 percent of the total Government allocation for all types of publicly funded urban housing and was earmarked for 72,000 plots, to be located in the 36 largest urban centres. Currently, efforts are being made to strengthen the institutional mechanism for implementing the programme and significant international capital is being obtained to finance the development costs.

Study Justification

According to site and services policy, projects cater to Kenya's low-income groups, or those earning between KSh. 200 (US \$28) and KSh. 700 (US \$100) per month (20th to 50th percentile respectively).

(5) This accounts for about 80 percent of the total Kenyan urban population.

Site and services policy provides the vehicle through which plot-holders demonstrate the potential and viability of self-help methods. Savings realised through self-help methods form an important criterion for the validity of implementing the policy.

The post-Independence period in Kenya (after 1963) is marked by continuous programmes to implement urban residential projects. The first one, which was realised as a result of the Nairobi Metropolitan Study, formed the basis for formulating the first Urban Project in Kenya.

Prepared and managed by the IBRD and the Government of Kenya, the first Urban Project in Kenya is located in the eastern sector of Nairobi. The Project, referred to as the Dandora Community Development Project (DCDP), is being developed in several phases and when complete it will have some one hundred thousand inhabitants. The first Urban Project constitutes the first phase of Dandora and consists of about one thousand lots, infrastructure services and some community facilities.

This Urban Project is to form a "model" for future urban residential developments in Kenya. In line with the Government policy to adopt site and services, the second Urban Project was undertaken some two years later. It had one more component of residential development; an upgrading programme for squatter settlements in Kenya. The second Urban Project deals with three major cities; Nairobi, Mombasa and Kisumu. In Nairobi, the second Urban Project includes continuation of the DCDP in its second phase.

The magnitude of urban residential development through these two Projects in Kenya, and currently the third Urban Project, mark an important decision by the public sector to adopt "aided self-help" -- both in site and services projects and squatter upgrading programmes. There are some international donor agencies which are contemplating financing similar projects where the component of self-help would be realized through policy implementation.

A review of existing literature on Kenyan residential development suggests that assumptions held on "aided self-help" are implicitly adopted and upon these are based all contemporary and future projects and policies for low-income housing. (6) Since the site and services strategy forms an important component of urban development, as does squatter upgrading, the implicit assumptions held in the implementation of the projects need to be reviewed.

A need to further understand the self-help component in site and services projects was realized through discussions with Professor Lisa Peattie in Summer 1978. These discussions formed the initial basis for this study. Specifically, what does self-help mean in actual practice by the owner-builder? Does owner-builder undertake the process of construction, or sub-contract? Who decides when and what type of activities will take place in house construction? Is self-help more than just constructing the dwelling? What are the issues faced by the owner-builder of a plot when practicing self-help? Is self-help a way of responding to the process of urbanising in broader terms of savings? What are the practicalities of a project which induce or retard self-help? In order to get an insight into self-help this study was undertaken to

look at the role of owner-builder in construction or participation in the construction of the house in site and services projects.

This thesis is the result of an intensive field study wherein the author engaged in participant-observation of allottee families residing in the DCDP. Dandora was chosen as the "model" for self-help since the project was to form a prototype for similar future projects in Kenya. Some seven months of intensive participant-observation with the allottee families of this project has revealed some interesting facts and phenomena about self-help; the nature of these is discussed indepth in this thesis.

Based on the findings of the thesis, some generalizations are made regarding self-help methods and forms with a view to influencing policy. The insights presented on self-help practices should form an invaluable source of information for those who tend to overlook the simple ways of allottees, their attitudes towards construction, the difficulties they experience, their style of decision-making and finally their aspiration to achieve the reality for which they had immigrated to Nairobi. As it is, self-help in practice is much more than savings in costs, as is often portrayed in economic analyses. It includes allottees' feelings and motives, which form the most meaningful basis for their social behaviour. These feelings are difficult to comprehend, but form a vital force and source of strength in enduring the pressures of urban living, such as lack of finance and technical abilities, lack of support and difficulties in gaining access to credit. In "aided self-help" the "aid" is just a small contribution from the Project Organizers who assume it will go a long way in assisting the plot-holders. Practice

shows that far more resources are required, other than just finance, to ensure completion of a dwelling. That is, the "help" is much greater than "aid". Self-help activities are not associated only with construction. A total view suggests that many aspects of urban dwelling are either conducive or retard self-help activities, and these may influence the plot-holders to improve participation.

Purpose and Scope

Several assumptions underlie the concept of self-help in a site and services project. These assumptions, which are implicitly applied in the site and services project, were learnt from the squatter settlements.

One of the assumptions suggests that low-income earners use their own resources in squatter dwellings. A second assumption suggests that the management of the house planning and construction is an autonomous process, what Turner has called "self government". It implies that the actual tasks and organization of construction are undertaken on the dweller's own accord. There are other assumptions as well. For instance, dwellers mobilise their own resources, respond to the economic environment in ways which best suit their own needs and as a result value their dwellings within the resources available.

These assumptions validated the idea for self-help in site and services projects. The other important assumption underlying the application of self-help was the pure economic rationale - the concept of savings realised through self-help practices. As a consequence of learning the lessons from squatter settlements these assumptions were adopted in the site and services projects.

It is argued that all activities connected with planning, building and maintaining a dwelling environment can be divided into two sets. One set includes all those activities that are best carried out by a centralised organization on a "one shot" instant development basis, eg. the provision of physical infrastructure, such as roads, sewers, etc. The other set of activities includes all those tasks that are best carried out by decentralised, autonomous, small scale units on a progressive basis, eg. building and maintaining individual dwellings.

The latter set of activities suggests that in site and services owner-builders adopt "self government"; autonomy in planning and construction of the dwellings. The Project Organizers assume that the owner-builders would perform similarly to the low-income dwellers of the squatter settlements. The main difference in the site and services project compared to the squatter settlements is the physical setting that avoids the squalor associated with uncontrolled urban settlements.

This thesis is an attempt to understand further the reality of the assumptions adopted on self-help in the site and services projects. Through a particular site and services project, the DCDP, this study looks into the role of the owner-builder in order to understand the activities, tasks, characteristics and issues involved in "self government". How is autonomy defined by the owner-builder, who does what, when, how and at what cost? The topics which are dealt with are as follows:

1) The Dandora Community Development Project;

- Describe the background, scope and objectives of a site and services project. What is the anticipated role of self-help in the project?

- Discuss the major components of the site and services project, in terms of administrative, physical and financial aspects.
 - What are the administrative requirements of the allottees?
 - Discuss the application and selection criteria for the allocation of the plots.
 - Discuss the alternative plot development processes and the monitoring of the construction progress.
- 2) Background of the Dandora Project occupants;
- The purpose and hope for immigrating to Nairobi.
 - What are the economic realities faced by the immigrants after arriving in the city?
 - What is the housing situation of the immigrants at the time of arriving in the city? What are the housing options available to the immigrants?
 - How did the immigrants find out about the DCDP? What are their rationale for accepting plots in the Project?
- 3) Self-help in planning and construction of dwellings;
- What are the general characteristics of the owner-builders at the time of plot occupancy that shape forms of self-help?
 - What are the typical forms of self-help amongst the different types of allottee families in planning and construction of their dwellings?
- 4) The allottee-built form of self-help;
- How is the need for a temporary shelter determined? What are the general characteristics of a temporary shelter?
 - What is involved in building the temporary shelter?
 - How is the temporary shelter used and what types of benefits are derived?
 - What is the DCDD's (Dandora Community Development Department) view and it's impact on the allottee-built form of self-help?
- 5) The subcontract form of self-help;
- What are the characteristics of the dwelling built through subcontracting?

- What are the processes of construction and decision-making during each stage of dwelling construction?
- 6) Building group as a form of self-help;
- What is a building group and what are the general objectives of the building group?
 - How is a building group organized; it's rules, members and decision-making?
 - What are the advantages and disadvantages of the building group?
- 7) Uses, costs and benefits of the completed dwelling;
- What are the general factors which affect and influence the useage of the completed dwelling?
 - What are the general social and economic costs and benefits of the dwelling?
- 8) The lessons learnt on self-help practices from the Dandora Project;
- What are the main differences observed between the assumptions held and the actual practice of self-help?
 - Describe the major conclusions emerging out of the study.

Research Method

There is a considerable body of literature now existing on the topic of housing in Kenya. A general review of this literature suggests that since Independence, more attention is being paid to documentation of the various topics related to housing in Kenya, both urban and rural. In the recent past the intensity of documenting various topics on housing has increased. Such literature is made up of Government statements, a number of evaluation studies, studies done by international agencies and academic theses. (7)

As a result of Kenya's use of the site and services concept, since the early 1960s, there is also considerable literature on the subject.

However, the adoption of self-help as a policy tool for the implementation of site and services programme in Kenya is not explored. None of the studies on site and services attempt to inquire about the actual nature of self-help, forms and performance of the different types, and the general meaning of self-help practices in the site and services strategy.

This thesis is therefore focused on investigation of the actual nature of self-help through an intensive field study. The field study was focused on the Dandora Community Development Project (DCDP) located in the nation's capital city, Nairobi. Dandora is a multiphased site and services scheme consisting of 6,000 plots and related community facilities. It is located on a tract of previously vacant land approximately eleven kilometers north-east of the city centre; refer Figure 1.1. The Project is being implemented by the Nairobi City Council (NCC) under the close supervision of the central Government. At the time of writing this thesis, 1,000 plots have been occupied since early 1977, and the second phase of the Project is under implementation. The implementation of the Project has been accompanied by considerable political controversy. The planning, design and management of the scheme embodies many notions of urban development which run counter to the sentiments of diverse groups in the country. Questions about appropriate environmental standards, relevant allocation criteria and the like generated much debate among both policy makers and ordinary citizens.

The Dandora Project was selected for a study of self-help policy for the following reasons. Firstly, because of the size of the scheme, it's implementation has caused virtually every segment of Kenyan society to

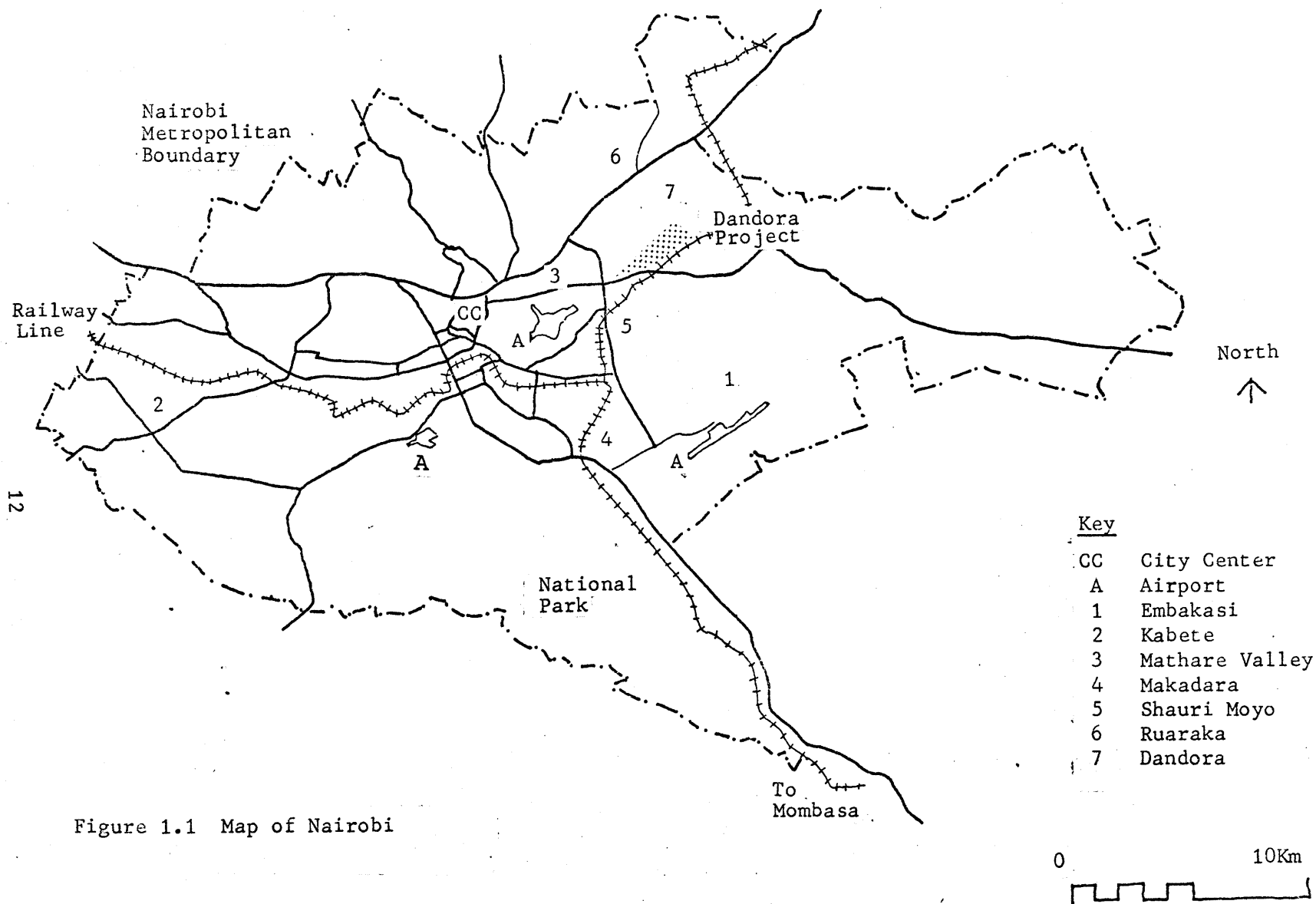


Figure 1.1 Map of Nairobi

make known their opinions of the Project. It is thus a particularly rich episode in Kenyan housing history and crystalizes the major issues underlying the site and services concept as applied in Kenya. Secondly, the Project is being sponsored by the IBRD. As such, it is one of a growing number of such projects which are coming under formative influence of this lending agency. Thirdly, the self-help component of the Project is implicitly adopted to implement the post-implementation phase of the Project, that is plot-owners applying their own resources in the planning and construction of the dwellings.

This thesis is based primarily on field data collected by the author through intensive participant-observation of nine allottee families which were selected by a random sample method, originally designed for a questionnaire survey, to collect general information on the occupancy of the rooms, background of the Project allottees, plot occupancy and useage, and self help methods in house implementation. The questionnaire method adopted for the first round of the field survey was based on approximately 10 percent of the total number of plot allottees. The 10 percent sample was designed on a random basis. Information from this survey consisted of both "open" and "closed" ended answers to various questions which were designed to address some of the broad topics listed above.

Of these 10 percent samples (about seventy allottee families) a carefully selected group of ten families was made on the criteria set forth below.

Criteria for selection of the Allottee families for In-depth Interviews

Out of a sample of one hundred, sixty-seven numbers were surveyed, using a standard questionnaire format. For purposes of further in-depth interviews, the sample of sixty-seven was used for selecting ten allottee families. The findings from the field survey helped in formulating general criteria for the selection of allottee families for further in-depth interviews.

Criteria 1. Accessibility to Interview:

Out of sixty-seven allottees that were surveyed some 30 percent could not be questioned further for one of the following reasons.

- The allottee family was absent. The house was completely sublet and the allottee resided outside the estate.
- The house was vacant, since it was still under construction.
- It was not feasible to meet the allottee, since the allottee was either temporarily gone or was reluctant to respond.

Criteria 2. Typical forms of self-help:

At the actual house construction stage there are two basic forms of self-help - the allottee-built method and the group-built method.

In the first method, the form of self-help is reflected by allottee's role as supervisor and manager; the whole task of house construction is done through subcontracting, either to one "fundi" (fundi is a Kiswahili word which means a semi-skilled contractor, an artisan) or more than one "fundi".

In the second method, the allottee's role is dual. First as a

supervisor and manager while the actual task of house construction is carried out through subcontracting to a "fundi". The "fundi" is hired by the building group. The second role of the allottee is to participate in the building group towards promotion of the group's interest - to build room(s) for the members.

Each of the above self-help form has an internal organization. This internal organization has a number of actors, the roles often defined by the allottee. The allottee often tends to exercise control either by reimbursement or in other services.

Criteria 3. Socio-economic and Attitudinal Characteristics:

Both the process of house construction and the useage of the house are manifestations of the self-help form that the allottee adopts. The self-help form adopted by the allottee family is determined by the socio-economic and attitudinal characteristics of the family.

Criteria 4. Plot Type and the Level of Completion:

The Project allottees were expected to complete two rooms for type A plot-holders and one room for type B plot-holders, over a period of eighteen months. (The meaning of these two different types of plots is given in Chapter 2). The rate at which the houses were built or not built reflected on the ability of the allottee to deal with organizational problems, lack of finances, technical know-how and the DCDD's rules and regulations.

Based on these criteria ten allottee families were selected for further in-depth interviews. The ten allottee families are listed in Table 1.1. Each allottee family interviewed through informal discussions yielded valuable information on such topics as the history of the family; their arrival as immigrants, ways of finding accommodation on first arrival in Nairobi, economic responses; finding a foothold in the Dandora Project, ways in which they went about the construction process, self-help forms, problems encountered, impacts of the rules set by the DCDD, costs and benefits of the investment in the plot and actual useage of the dwelling. Generally, the respondent was the allottee, sometimes accompanied by the wife or the husband.

The case histories were dealt with in great detail. While the information gathered was produced in the form of case histories on each of the families interviewed, the questionnaire survey information formed the base data for cross-checking some of the information from the detailed case histories. The thesis is therefore based entirely on the analyses of these in-depth case histories. The quantitative information developed from the field survey is not considered a significant part of this thesis, but rather a working tool used in the process of analyses and generalization.

The actual field study involved some seven months of surveying, participant-observation, interviewing and at times residing with some of the allottee families. During this period there were interviews with policy makers in the Central Government, professional consultants, IBRD staff, building contractors (mainly "fundi"), university research personnel and other researchers. Data on the case histories and the

Table 1.1

List of the Ten Allottee families used for
In-depth Interviews

Plot No	Type of Plot	Name of the Allottee
202	A	Warimu Kimani
272	A	Mugo
298	B	Mwangi Kahia
524	A	Unice
580	A	Joseph
682	A	Francis
749	B	Edward
761	A	Lucia Wangari
989	A	Mary Wambui
555	A	Not interviewable

Source: Author's participant-observation notes.

quantitative data from the field surveys are available from the author.

Figure 1.2 shows the Phase One of the Dandora Community Development Project and the location of the plot-holders interviewed for in-depth case histories.

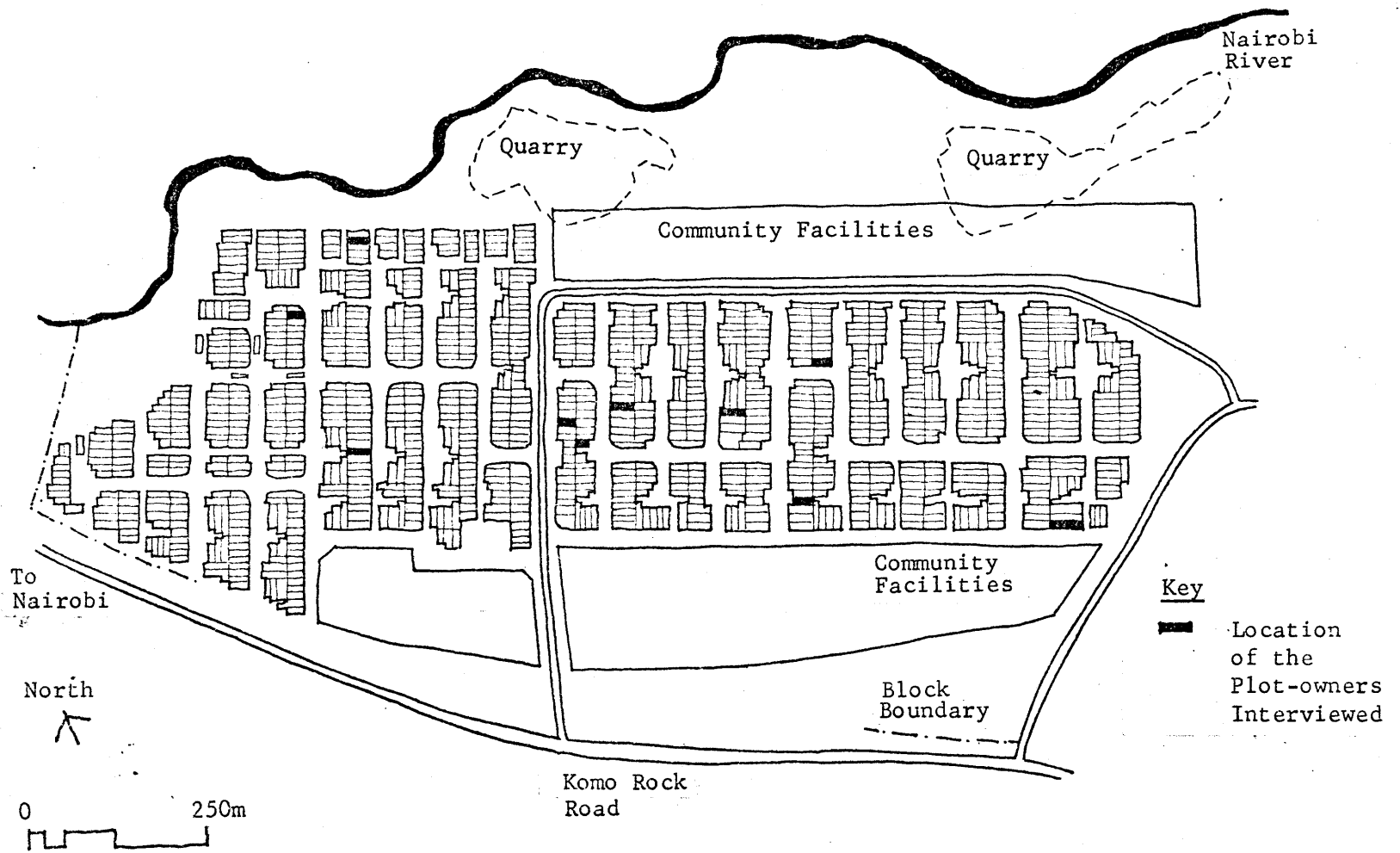


Figure 1.2 Phase One Layout of the DCDP, Showing the Locations of the Plot-owners Interviewed

Source: Author's field notes

Chapter 1 - Notes

1. Merville, Roberts and William Grindley, Sites and Services: The Experience and Potential, unpublished mimeo, IBRD 1973, p.1.
2. IBRD, Sites and Services and Upgrading: A review of World Assisted Projects, Washington D.C., 1977, Attachment 1.
3. IBRD, The Task Ahead for the Cities of the Developing Countries, IBRD, Paper No. 209, Washington D.C. July, 1975, p.21.
4. Kenya, National Development Plan 1974-78 Nairobi, Government Printer, 1973, Table 21.4.
5. Temple F; Politics, Planning and Housing Policy in Nairobi; Unpublished PhD Thesis, M.I.T, 1973., p.37.
6. The Development Plans (1965/66-1969/70, 1970-1974, 1974-1978 and 1978-1983) spell out the general requirements of the National Development, including the urban centres. Some specific financial resources are allocated.
7. Amongst other Government statements, particularly on Nairobi are (1) White, Thorton and Anderson, Master Plan for a Colonial Capital. This was a major piece of literature before Independence in 1963. It outlined a colonial pattern for development of Nairobi, (2) nearly ten years after Independence the Nairobi City Council (the Local Authority) came up with the Nairobi Metropolitan Strategy (Vol.1 and Vol.2). This study was the outcome of the growing concern of the Government and the Local Authority about accelerated growth of Nairobi which is reported to be 7 percent per annum. Prepared by a team of consultants the study was the first of its kind after Independence. It identified short and long term strategies for development of Nairobi. One of the identified areas for residential development was the eastern extension, an area which was planned to cater residential projects for low and middle income earners in Nairobi. That includes those earning between KSh.200 (US \$28) to KSh.700 (US \$100) and KSh.700 (US \$100) to KSh.1,500 (US \$200) respectively. The study also defined some of the major physical standards for residential planning. Future projections of population catchment zones and location of employment centres were identified.

In 1971, the Housing Research and Development Unit (HRDU), a Government-sponsored agency affiliated with the University of Nairobi, undertook a Study of the Mathare Valley; a large

uncontrolled settlement in the Eastern extension of Nairobi. The study highlighted the Kenyan "autonomous" approach. The Mathare Valley study is an important contribution towards understanding some of the issues of low-income dwellings. The findings of this study eventually led to an "upgrading" programme, part of which is currently taken up in the National Approach for the upgrading of squatter areas.

Over the past ten years HRDU has been involved in the research activities for urban development in Kenya. Amongst some of the studies done are:

- (1) Jorgensen, N; National Housing Corporation: its Aims and Activities
- (2) Jorgensen N; Housing Policy for African Countries
- (3) Houlberg and Jorgensen, Sites and Services; Analysis and Report.

The beginning of the 1970s mark further attempts in the field of research on housing in Kenya. The important documents produced were (1) International Labour Organization, Employment, Incomes and Equity, A Strategy for Increasing Employment in Kenya, Geneva 1972, (2) International Bank for Reconstruction and Development, An Appraisal of a Sites and Services Project in Kenya, April 1975 and, more recently (3) the Second Urban Project in Kenya, by IBRD. The purpose of these studies was to address the planning process in the field of employment and shelter in urban areas.

Amongst the academic literature some of those done on Nairobi are: (1) Patel, Residential Land Utilisation in Nairobi, (2) Chana, Land Use Models and (3) Beardmore, Sites and Services Strategy for Kenyan Urban Development (78). The first two identify patterns of land useage for residential areas already existing. Based on case studies, comparative analyses were done to find out optimum range for land utilization for different types of densities. This type of study has therefore documented case studies of existing residential areas and also form a useful source of reference. Beardmore's study is a documentation of a site and services project in Nairobi, the Dandora Project, from various sources already existing on this project. Repeating the Monitoring and Evaluation Group's findings on Dandora, the study attempted to highlight some of the contradictions inherent in the project implementation and theory for site and services approach. The main setback of this study was that it relied heavily on the data produced by the Monitoring and Evaluation Group which had a methodological setup called upon by a multidimensional study and as a result the study had an internal methodological contradiction of its own. It also lacks an examination of the meaning of self-help, a most important component of site and services in order to understand the project allottee's role as implementor.

Two of the other important studies in urban housing are from private consultants. These are (1) Waweru and Associate's Low Cost

Housing and Upgrading (1976) and (2) Cooper and Lybrand, Nairobi Housing Operation (1977). Both studies have a statistical analyses of the housing situation in Nairobi. The first one was a proposal for upgrading of squatter areas of Kenyan urban centres.

A recent study is the continuation of the Monitoring and Evaluation Study of the Dandora Project. Its main objective is to monitor various activities of the Project over a period of some five years.

Chapter 2

The Dandora Community Development Project

Introduction

The purpose of this Chapter is to describe the Dandora Community Development Project, an "aided self-help" site and services project, with a view towards highlighting the self-help component. The material presented is intended to represent the administrative point of view, and includes the following general topics: Project background; Project scope; principal administrative, physical and financial components of the Project; administrative requirements of the allottees; application and selection criteria; alternative plot development processes; and monitoring of construction progress.

Project Background

The early 1970's can be characterized by a relatively more coordinated attempt by the Government of Kenya to develop urban land, including the capital city of Nairobi, than was the practice in prior years. Rapid population increases along with the associated need for infrastructural and housing development became major concerns of the Local Authority, Nairobi City Council (NCC). In an effort to begin coping with the

challenge of providing adequate housing and services for the growing population, NCC established the "Nairobi Urban Study Group" (NUSG) in November, 1970.

The purpose of the NUSG was to coordinate future growth within Nairobi and to identify development projects likely to attract international capital to finance them. The Group's findings and recommendations were summarized in a document entitled, "Nairobi Metropolitan Development Strategy". (1) This report, completed in early 1973, presents an account of the preferred strategy for the greater Nairobi area from 1979 to 1985. Amongst the group's recommendations was the designation of eastern Nairobi for low and middle income residential development.

At the time of this study the International Bank for Reconstruction and Development (IBRD), an agency of the World Bank, was manipulating its priorities in favour of investment in urban infrastructure. More specifically, IBRD was interested in seeking opportunities to finance projects which would improve the pattern of urban infrastructure, land use and housing in the urban centres of developing countries. (2) This shift was an opportunity for the NCC, subsequently resulting in a "lending agreement" which was signed in March 1971. It was in this context that one of the first large scale site and services projects was formulated. At this time the national housing policy-makers for urban residential development in Kenya were also developing interest in the idea of the site and services approach as a practical means to house low-income earners.

The prefeasibility work of the Dandora Project was undertaken by NCC. The work was based upon the NUSG findings and recommendations. The prefeasibility work resulted in an "Interim Urbanisation Project", completed in March 1972. It called for development of a community of 60,000 people to be located at one of several sites in the city's eastern area.

The Dandora Project was thus defined by late 1972. The Project preparation period stretched from January 1973 until May 1974. Project appraisal occurred from June 1974 through May 1975. Actual project implementation was undertaken in May 1975 and the first phase of the Dandora Project, which consists of 1,029 plots, was completed in November of 1976. The first phase was expected to have a population of between 6,000 to 10,000 residents. Formal handover of the serviced plots took place in November 1976.

Scope of Dandora Project

The current population of Nairobi is estimated to be about 700,000 and is expected to increase to about three million by the end of Year 2,000, representing an annual growth rate of about 7 percent. (3) Approximately 10,000 new dwelling units are needed annually to meet the existing and future housing demand in Nairobi through 1985. (4) About 40 percent of Nairobi households have an average income of less than KSh.500 per month (US \$60).

The aim of the Dandora Project is to establish a housing and community development scheme for households earning incomes in this

lower 40 percent category. The broad goal of the Project is: "to bring together the necessary components of employment, shelter, and community services - linked by communications and utility services." (5)

Such a goal is based on the site and services principle which can be summed up as:

"Publicly sponsored subdivisions providing building lots and (generally minimal) services or utilities for low-income owner-builders." (6)

The term is customarily applied to a wide range of projects which include raw land subdivided into plots, with a common water tap serving a number of plots and with common latrines and unpaved streets. Or a project may offer plots with a partly finished houses, each of which is serviced and which could be upgraded. The definition thus varies according to the standard of facilities provided.

The site and services principle is based on the hypotheses of Turner's incremental community development where in such development takes place, largely under the control of builder-leasee and is termed "autonomous housing" (7)

From the hypotheses it is understood that in housing, all activities connected with building and maintaining a dwelling can be divided into two sets. One set includes all those activities which are best carried out by a decentralised organization on a "one shot", instant development basis, eg; the provision of physical infrastructure, such as roads, sewer, etc. The other set of activities includes all those tasks that are best carried out by decentralised, autonomous, small scale units on a progressive basis, eg; building and maintaining individual dwellings. What distinguishes site and services from other more conventional methods

of housing is the location of the dividing line between the two sets of activities so as to minimize the per capita investment of the sponsorer and to maximize the contribution of the participants. Thus, based on the definition and principle of site and services the following goals of the Dandora Project are specified:

- " (a) to provide access to land and security of tenure on a long term basis (10,000 plots) primarily for residential use, with supporting community facilities including schools and clinics,
- (b) to control speculation and profit-making at the expense of the low-income sector,
- (c) to stimulate employment opportunity and industrial activities in the organization of local residents associations as for credit, purchasing, equipment, training of special skills, management, legal assistance and marketing outlets,
- (d) to provide a framework within which residents can develop their own plots by promoting the organization of local resident associations to administer the development of housing units and utility networks,
- (e) to provide communications and utilities channels which will stimulate transportation routes, and investment in residential, industrial and commercial activities, both within and near new communities." (8)

The goals are to be achieved by the following means:

- " (a) acquisition and preparation of 10,000 plots to serve as sites for 20,000 rooms (10,000 housing units of two rooms each), to accommodate an estimated low-income population of at least 60,000,
- (b) formation of a financial institution specialising in loans, for materials and equipment, to the builder-leasee providing incremental's investment housing on these plots. This institution could also construct some of the dwelling units itself and rent them to qualified occupiers and,
- (c) provision of manufacturing facilities - both plant and equipment in case of the larger facilities." (9)

The housing component of the project is to have the following characteristics:

- " (a) All services other than those pertaining to the preparation of the plots will be provided by the NCC as part of its regular responsibilities and will not be charged to the project. This means that the costs of health facilities, circumferential roads (other than those needed for the direct implementation of the project), educational and social facilities will be borne by the NCC budget and only partly covered by charges and taxes paid by the inhabitants of the 10,000 plots,
- (b) the built form, while circumscribed by the nature of materials and equipment provided, will be left to the discretion of the builder-leasee, subject to regulations pertaining to safety and sanitation. Design and production assistance will be necessary to ensure sound investment by the individual,
- (c) the financial institution will be a quasi-private body with powers of eviction, transfer of title, loan moratoria and renewal. The financial institution will procure building materials equipment necessary to construct the housing unit. It will then make loans - in kind in the form of materials and possibly equipment (at an interest calculated to cover its administrative expenses) to the builder-leasee. These loans will be repaid over a period of up to 25 years. The financial institution will also act as agent for the NCC for purposes of collecting the plot rent. This will facilitate payment by the builder-leasee and reduction of administrative expenses,
- (d) the tied loans will be granted in amounts sufficient to enable the construction of a two room dwelling on the plot. The builder-leasee will construct the housing unit, perhaps in cooperation with other such individual's local resident associations. At least one of the rooms built will be occupied by the builder-leasee, while one of the rooms could be rented to another qualified occupant. The responsibilities for payment of the loan and for payment for water, sewerage and refuse disposal and other chargeable services will rest with the builder-leasee."(10)

Principle Administrative, Physical and Financial Components

The principle components of the Dandora Project are guided by the preceding definition of site and services and the main goals of the Project. The Draft Project Report summed it up as:

"The authority demarcates plots and provides basic services, including water, drainage, sanitation, paths, roads, electricity, and telephones at a standard compatible for the provision of the plot occupants to pay. The responsibility for the provision of housing rests with the occupants under the supervision of the authority. Minimum dwellings consisting of wc., store, cooking space, and two habitable rooms are to be built to the requirements of the authority within 18 to 24 months of allocation." (11)

Administration

In 1975, NCC established the Dandora Community Development Department (DCDD) and charged it with implementation of the Dandora Project. The DCDD is responsible for overseeing all administrative and coordinative tasks. The Project's policy-making entity is known as the Dandora Community Development Project Committee (DCDPC). The committee is comprised of the NCC Town Clerk acting as Secretary, representatives of the Ministry of Finance and Planning (now called Ministry of Planning and Community Affairs), Ministry of Local Government, Ministry of Housing and Social Services, National Housing Corporation and the Provincial Commissioner of Nairobi. Among the responsibilities of the committee is the coordination of DCDD with other organizations and agencies involved in the Project. The DCDD consists of several sections. These are listed below, along with the associated responsibilities of each:

Managerial section; consisting of Project Manager, Deputy Project Manager and Project Attorney. This section is in charge of the overall

activities of the DCDD and ensures the other sections conduct their specified tasks.

Technical section; consisting of Project Engineer, Architect/Planner, Architect, Services Engineer, and Surveyor. It is their responsibilities to:

"Supervise detailed planning, engineering, and preparation of tender documents for site infrastructure, wet cores and community facilities,

ensure proper supervision of construction,

provide technical staff with specific building skills on-site to show allottees how to perform technical skills." (12)

Financial section; consisting of Project Financial Accountant/Analyst and Accountant. Their tasks are to:

"Keep all Project Accounts involving expenditures related to the Project,

develop an accounting and management system,

prepare quarterly financial reports, and annual project accounts audited by an independent auditor and

operate and administer the material loan fund." (13)

Community Development section; consisting of Project Community Development Officer, Community Development Officers and Assistants. It is up to them to:

"Publicise the Project,

solicit and process applications for the residential plots,

orient and train allottees prior to the occupation of the plots,

work with families during the construction phase." (14)

Physical Component

Based upon policies prescribed by the NUSG wherein planned housing projects are to be located within easily accessible existing and planned employment centers, a site located 11 km northwest of the Nairobi City Center was selected for the Dandora Project. The elongated shape of the site dictated a physical plan in which the residential areas are appended to a communal and residential spine which runs from west to east through the center of the site. The "central spine" concept is the organizing principle for guiding the physical planning of Dandora. See Appendix one for the layout of the Dandora Community Development Project. Following are descriptions of the main physical components of the Project:

New Residential Plots: The Project is to provide about 6,000 plots with individual water and sewer connections and related basic services and infrastructure, including roads, security lighting and refuse collection. The 6,000 plots include about 1,800 of 100 m.sq.; 2,100 of 120 m.sq.; 1,800 of 140 m.sq.; and 300 of 160 m.sq. each. The people to whom residential plots are to be allocated have a leasehold tenure for period of 50 years. Title deeds to each plot are issued after allottees have constructed a dwelling approved by the Dandora Project Department. The gross density of the Project is 32 plots per hectare (13 plots per acre). Plot occupancy rates are assumed to be 10 people per plot; giving gross residential population densities of 320 people per hectare.

Core Units: Each plot is to be provided with basic services consisting of water connection to wc, shower and gully basin, sewerage and waste water drain in a contractor built superstructure - "wet core". In order to accommodate different income levels within the low-income sector three

options of "wet core" and shelter units are provided.

Option A: (65 percent) 3,900 plots in three different sizes - 100, 120 and 140 m.sq. Each is to have the basic services in the "wet core" and participants are offered a construction material loan (KSh.4,800/-) for developing their shelter. Owners are expected to develop the shelter through self-help. Total plot development costs inclusive of the material loan and physical contingencies are estimated at between KSh.11,000/- and KSh.12,000/- per plot, depending on the plot size.

Option B: (30 percent) 1,800 plots in three different sizes - 100, 120 and 140 m.sq. In addition to the "wet core" outlined in option A above, each is to have one contractor built room (kitchen) and a store. Plot-owners are offered a construction material loan (KSh.2,400/-) for further development of the shelter using self-help. Total development costs including material loan is estimated to be between KSh.12,000/- and KSh.13,000/-.

Option C: (5 percent) 330 plots, all 160 m.sq. in area, have a contractor built dwelling, consisting of two built rooms. No material cost would be offered to plot owners. The development cost of option C plots was estimated to be about KSh.16,500/-.

Community facilities of the Project are to consist of primary schools, health centers, multi-purpose community centers incorporating day care facilities, sports facilities and markets.

Other components are trunk infrastructure, monitoring studies, roads and surface water drainage and sewerage.

Phase 1 of the Project consists of 1,029 residential plots, with 690 type A plots, 264 type 8 plots, 54 type C plots and 21 plots for special purposes, 3 community facilities plots, one primary school, and 2 markets. Phase 1 of the Project was ready for occupancy in November 1976.

Phase 2 construction of the Project was anticipated to commence by end of 1976 and ready for occupancy by the middle of 1979. (15). This phase will consist of a total of 4,971 plots, with 3,180 type A plots, 1,536 type 8 plots, 246 type C plots and various community facilities.

Financial Component

The Project is financed jointly by the Government of Kenya, IBRD and International Development Aid (IDA). The total Project cost is estimated at KSh. 211 (\$25.3) million at January 1975 base prices. (16)

The cost estimates for site preparation, on-site servicing and core units are based on detailed engineering studies for about 700 plots and preliminary engineering studies for the remainder. Price escalation was about 15 percent in 1975. Foreign exchange costs are estimated at about 26 percent. (17) The main costs categories are summarized in Table 2.1.

Material loans are made available to Project participants to "aid" self-help activities. Such "aid" is also meant to supplement their existing personal sources of funds. Participants construct and extend their dwellings on the basis of approved designs as shown in Figure 6.1.

The DCDD, through its Financial section, operates the material loan scheme. Cash loans are made for the value of the materials in that portion of the house already constructed. The rate of interest for loans (material and plot) is 8.5 percent. For type A plots the loan repayment period is 30 years and for type B plots, 20 years.

At the time of the appraisal period, the maximum loan for type A plot holders was KSh.4,800/-, sufficient to build two rooms and, KSh.2,400 for type B plot holders, sufficient to build one room. However, following the occupation of plots in Phase 1, the loans were increased to KSh.5,760/- and KSh.2,880/- respectively, an increase of about 16.5 percent. This was due primarily to price increase over the Project period to date. All loans are repayable in equal monthly instalments (that is, by way of an annuity), consisting of principal and interest. (18) Loan repayment is due on the first of each month, following the month in which the plot is made available for possession to the allottee.

Repayment of material loans commences 18 months after the date the first instalment of the plot loan is due, during which period the construction of the plot is to be completed. The interest accrued during the construction period on any material loan borrowed is capitalised, and the total interest is repayable by type B plot-holder over 18½ years. This period coincides with the remaining plot loan repayment schedule. Type A plot holders who have a five year grace period on principal only; after 18 months they will pay interest only for 3½ years on any material loans borrowed and on which interest is accrued. After 3½ years the grace period expires and they then commence paying interest and principal,

due monthly over the next 25 years. Table 2.1 shows the distribution pattern of cost allocation, including cost recovery for allottees as outlined above.

Administrative Requirements of the Allottees

Administrative duties required of the allottees can be summed up under the conditions of lease agreement for plot allocation. It specifies the following conditions which deal principally with three main administrative requirements of the allottees -- construction, loan repayments and compliance with the lease agreements:

"Undertake construction of dwelling according to the minimum standards laid down by the DCDD, within 18 months of signing the lease. The material used for the construction is either to be one's own or obtained under the material loan scheme.

Pay all charges promptly and in general conform to all lease agreements.

Sublet rooms only on conditions specified by the Project administration and make the identity of tenant known to it prior to subletting.

Notify the administration of intention to leave the Project and conform to the Project rules and regulations regarding the transfer." (19)

Application and Selection Criteria

The application forms for the plots were designed by the Community Section of the Project, approved in March 1976 by the Project Committee. They went on sale to the public at this time. By the time applications were closed on June 30, 1976 a total of 20,948 forms had been sold at KSh.20/- each. Of this, 16,018 were completed and returned to the Project Department. (20)

Table 2.1

Project Cost Estimates and Allocation to Beneficiaries

Category	Cost Estimates						Cost Allocations (%)			
	KSh '000			US \$'000			% of Total Project Costs	Nairobi City Council		
	Local	Foreign	Total	Local	Foreign	Total		User fees, rates	Community facilities	Recovered from lots
1. Site Preparation	109	9	118	305	27	332	1.6	1	8	91
2. On-Site Infrastructure	803	268	1,071	2,250	750	3,000	14.4	44	6	50
3. Community Facilities	295	98	393	824	275	1,099	5.3	100	0	0
4. Core Units	1,146	382	1,528	3,209	1,070	4,279	20.6	0	0	100
5. Materials Loan Fund	1,145		1,145	3,205	-----	3,205	15.4	0	0	100
6. Trunk Infrastructure	1,461	702	2,163	4,092	1,965	6,057	29.2	100	0	0
7. Technical Assistance	466	477	943	1,304	1,336	2,640	13.5	87	6	7
8. Subtotals	<u>5,425</u>	<u>1,936</u>	<u>7,361</u>	<u>15,189</u>	<u>5,423</u>	<u>20,612</u>	<u>100.0</u>	<u>---</u>	<u>----</u>	<u>---</u>
9. Contingencies:										
Physical (7.9% of base cost)	364	223	587	1,019	624	1,643		65	5	30
Price (32% of row 8 & 9)	1,972	623	2,595	5,522	1,744	7,266		---	--	---
TOTAL	<u>7,761</u>	<u>2,782</u>	<u>10,543</u>	<u>21,731</u>	<u>7,790</u>	<u>29,521</u>		<u>---</u>	<u>--</u>	<u>---</u>

Source: IBRD Appraisal Report 607a-KE, p.11 and Annex 9, Table 1.

Basically, the application forms require that an applicant gives personal details, indicate preference on choice of plot type, provides information on the criteria set out and substantiate it with any relevant evidence, indicate any prior participation with any community organization and knowledge in building construction.

Out of 9,308 applicants a total of 5,384 qualified for the plots. The remaining plots, that is, type C plots (616 number) are to be sold at market value. For the first phase of the Project, there are altogether 1,029 plot holders.

The following criteria were applied in eliminating applicants:

"Income being below KSh.280/- per month and income being above KSh.650/-,

having residential property in Nairobi,

not being head of family and family not living with him/her in Nairobi,

having no supporting documents,

application forms being more than one from the same applicant,

incomplete and illegible application forms and application form not on an official form." (21)

Alternative Plot Development Processes

The Dandora Project is required to adopt planning and building standards prescribed by NCC. These apply to house type plans and building/planning specifications prepared by the Technical Section of the Project.

The house type plans proposed by the Technical Section are shown in Figure 6.1. A range of alternative layouts is offered, thus giving allottees choice of plan type. On average, five rooms can be constructed

on a plot averaging about 120 m.sq. in size. The smallest size of plot is 99 m.sq. and the large plots measure about 140 m.sq.

For plot development there are mainly two options. The first option is applied to type A plot-holder. In this case a temporary shelter can be erected since no rooms are provided under this type of plot. The temporary room is either used for residential, storage or combined purposes during the "permanent" building construction period. Following completion of the "permanent" room(s) the temporary shelter has to be removed.

The second option for plot development is relatively straight forward. It mainly applies to type B plot-holders, where along with the "wet core" unit a room is provided. Such a room is used for multi-purposes, including cooking, during the time when other room(s) is being constructed.

Monitoring of Construction Progress

At the time of signing the lease agreement a deposit of KSh.550/- has to be paid by the allottee. Out of this sum KSh.400/- is the deposit towards material loan and is returnable after completion of the "minimum" required number of rooms, and KSh.150/- is for water connection. The latter amount is not returnable. The allottee is provided with the keys for the "wet core", and a set of house type plans and specifications. This provides the source of information for the allottee to commence house construction.

Each stage of the house construction is to be monitored and a progress report maintained by a building inspector. The main stages which are to be monitored and inspected are: setting up of the rooms, foundation trenches and walls, ground floor slab, external and internal walls, wall plates, roof structure and finishes and, fittings and finishes.

The intended purpose of monitoring and inspecting the house construction are three: to ensure the construction is based upon the building specifications and meet the general standards of building and planning practice; to ensure the allottee seeks material loans in the stage that the DCDD specified, that is, at completion of each stage, and finally to ensure that the "minimum" number of rooms are completed within the 18 month period.

Chapter 2 Notes

1. Nairobi City Council, Nairobi Metropolitan Strategy, vol. 1 and 2.
2. World Bank, Urbanization, Sector Working Paper, June 1972, Chapters on Introduction and Summary.
3. Wanjohi, I.G. and T.S. Chana, Strategies for Housing the Lower Income Groups in the DCDP, Nairobi - A Case Study, a paper presented at the HRDU Seminar on "Housing for the Lower-income Groups", May 9, 1977.
4. Wanjohi, I.G. and T.S. Chana, ibid., p.2.
5. Nairobi City Engineer's Department, Interim Urbanization Project, Nairobi, February 15, 1972, p.3.
6. Turner, J.F.C. and Robert Fichter, Freedom to Build, New York, MacMillan Co., 1972, p.157.
7. Turner, J., Uncontrolled Urban Settlements: Problems and Policies, a paper presented to Inter Regional Seminar on Development Policies and Planning, University of Pittsburgh, USA, October 24-November 7, 1966. Sponsored by UNCHBP. See hypotheses presented on uncontrolled urban settlements.
8. Nairobi City Engineer's Department, ibid., p.16.
9. _____, p.6-8.
10. _____, p.8-10.
11. Housing Task Force (HTF), NCC., Draft Project Report, 1973, p.ii-iv.

Also see National Development Plan for the years 1979-83 which recommends site and services as:

"One proven method of reaching the majority of all urban families is through the development of site and services schemes. In these schemes the bulk of construction work will be organized on an individual or collective self-help basis to keep the costs as low as possible." p.172.

12. Wanjohi, I.G. and T.S. Chana, ibid, p.7.
13. _____, p.7.
14. _____, p.7.
15. _____, p.8.
16. _____, p.9.
17. World Bank, Appraisal of a Site and Services Project in Kenya, p.10-11.
18. Keshwani, C.S., Brief Guidelines for Allottees for Receiving and Repaying Loans, DCDP., August 6, 1976.
19. Nairobi City Council, Annual Report of the DCDP, 1976, by the Project Manager.
20. Wanjohi, I.G. and T.S. Chana, ibid. p.6.
21. _____, p.6-7.

Chapter 3

Background of the Dandora Project Occupants

Introduction

This chapter presents the background of Project occupants prior to their involvement with the Dandora Project. More specifically the following topics are addressed: hopes held in immigrating to Nairobi, economic realities and housing options. Finally, the chapter briefly presents the ways in which the immigrants found out about the DCDP, and their rationale for accepting the offer to settle in the Project.

The Hope of Immigrating to Nairobi

A large proportion of site and services project beneficiaries are immigrants from rural areas. One of the main reasons to immigrate is to seek jobs and improve upon the level of income earned in rural home towns. Immigrants to Nairobi come from various towns and trading centers throughout the country.

The places from which the immigrants generally come appear to be characterized by one fundamental issue: lack of opportunity for economic and social improvement. The immigrants had perceived urban centers as offering better earning opportunities and amenities to improve social

conditions; they could even send surplus earnings to support families back home. It was primarily this hope which had nurtured their expectations and channelled their energies into immigrating to Nairobi.

Life in the home towns was difficult. Job opportunities were lacking, and the few jobs which did exist offered very small incomes. Often such income was insufficient for a man to live with the extended family. Those who owned farms found it difficult to make a decent living because of the small size of their farms as well as a lack of management and finance. Social responsibilities often demanded that the immigrants earn more in order to support the extended families. Other deficiencies in the home towns included inadequate community facilities such as education, health and entertainment.

Most of the immigrants happened to be young and were hoping to find an improved form of living. Many had heard "stories" about Nairobi as a place of abundance, plenty of money and other resources. Urban dwellers travelling to rural centers conveyed such images, a factor which contributed to the immigrants' hopeful expectations for finding themselves a niche in Nairobi. Some of the immigrants were married and they had also hoped to improve the quality of life for their children. The immigrants considered that their efforts may one day result in betterment of their children. After arriving in Nairobi, however, the reality of the urban situation turned out to be different from what the immigrants had conceived. The urban economy proved to be harsh. Many immigrants arrived in Nairobi with few exploitable resources such as education, savings, contacts or specific skills. Their lack of formal education or special skills did not permit easy entry to "formal job" opportunities. The

only resource the immigrants had was their own labour, a self-help resource.

It was in the context of these constraints that the immigrants' urban education seems to have taken shape. With every situation the immigrants faced, they were forced to respond on their own. The inevitable process of survival in an urban economy forced them to learn on their own how to earn a living through their own informal way of working--such as becoming hawkers, shoeshine boys, liquor brewers, and even pilferers.

Economic Realities

The first problems encountered by the newly arrived immigrants were a lack of opportunity in the formal job market, lack of housing and often an unpleasant sense of anonymity. Those immigrants who had no resources or skills, quickly found themselves to be "self employed" people. They conducted such businesses as selling secondhand clothes and vegetables or liquor brewing. For instance reported Warimu, a one time immigrant:

"I used to sell vegetables. Although I disliked this kind of job I had to do it since I could not get any other employment. I used to buy vegetables from a wholesaler and ferry around on foot. For this kind of work I used to earn about KSh.300/- per month. Almost all this money went towards upkeep of the family."

Similarly, reported Mwangi, another one time immigrant to Nairobi:

"I had no resources, education, skills or money. I had to resort to liquor brewing. Although this is an illegal business it was the only job that I knew. There were times when I may buy and sell second-hand clothes but this very much depended on the income from my liquor business. I used to work for many hours and earn about KSh.250/- per month. I have a wife and children and I would send whatever money I could save."

These are typical cases of the self-helping immigrants. This form of

self employment is the most common and the most basic in terms of survival. This is one of the first patterns. Most of the income is spent towards upkeep of the family, with a very small amount, perhaps, sent back home.

The second pattern of the immigrants' economic situation is based on one or both of two factors; luck, or the possession of education in conjunction with a sense of ambition. Where an immigrant was lucky enough he would be employed, often temporarily, in such jobs as attendants, sweepers, domestic worker and salesmen. For instance reported Joseph, an immigrant to Nairobi:

"A week later someone from the "Allsop Beer" came to the kiosk where I was residing and also having my meals and asked my cousin if he knew of anyone who would work in a butchery in Kariobangi. I showed interest and agreed to work for KSh.35/- per month, in 1968."

This is one of rare cases where an immigrant through some luck and contact managed to find employment. The income earned is quite low, compared to what one would earn in the "self employed" job. Immigrants working in such a job are often mistreated and also lack job security. As a result they find themselves moving from one job to another. The case of Joseph as reported further:

"I worked at the butchery until December 1968, following which owner's son decided to dismiss me for no apparent reason. I think he simply did not like me. I left that job in December 1968 after having worked for about eight months.

Some months later I got another offer, in April 1969, once again in a butchery shop. I now earned KSh.75/-. However, I changed this job a few months later since I had a better offer. This offer paid me KSh.95/- per month. I was again sacked after some time, following which I found a job as a domestic worker in August 1970. This job earned me KSh.160/- per month."

Similarly, the case history of Francis is worth mentioning. Francis had started with a temporary job in the Nairobi industrial area as a casual labourer for which he used to earn KSh.8/- per day. Out of this money Francis had to spend nearly half to bribe the supervisor at the job in order for Francis to continue working. Some three months later Francis was sacked by the supervisor and had to seek another job, once again as a casual labourer. This pattern revealed that almost every two months Francis had to change his job until luckily he found a permanent job at the Nairobi City Council as a cook. For this job he earns KSh.350/- per month.

A few immigrants had some education and a sense of ambition. Such immigrants "made it" at an early stage after arriving in Nairobi and were comparatively better off at the start of their economic development. The jobs taken by such immigrants generally were as trainees, apprentices in industrial and construction firms and simply as "white collar" employees in Government institutions.

The incomes of these immigrants varied. Where the immigrants were "self employed" as hawkers, vegetable sellers, liquor brewers, second-hand clothes sellers, the income ranged between KSh.250/- (US \$35) and KSh.350/- (US \$50) per month. Where another member of the family also had some sort of a job the total income would increase.

Where the immigrants held temporary or casual jobs their income was comparatively low, often between KSh.160/- (US \$20) and KSh.250/- (US \$30) per month. Casual labourer and servicemen belonged to this income bracket. The few who had permanent jobs, in the "formal sector" earned comparatively high wages. Income varied from KSh.550/- (US \$70) to

K Sh. 800/- (US \$100) per month.

On the whole, the incomes of those who were "self employed" fluctuated greatly, based upon their personal efforts and market conditions. Those who were employed in the "formal sector" had stable incomes. Those immigrants who were employed on a casual basis were "badly off". Often they were paid on a daily basis and the rates varied. Immigrants who managed to work on a longer term arrangement found that their terms improved according to the conditions of employment. However, wage increases were generally quite marginal.

Housing Situation and Options

During their initial stage of settlement in Nairobi, the immigrants' accommodation was of relatively little importance to them. Their priority was to improve earnings. They did not have the resources to seek accommodation other than some form of "minimal" shelter; the type which is often found in squatter areas. Rarely did one find accommodation provided by an employer.

The housing options faced by the immigrants to Nairobi can be categorized according to three main types. They are the "popular", the "formal" and the "public" housing systems. Table 3.1 shows the three housing options in more detail. Factors of income and housing affordability resulted in the "popular" housing system being the most suitable and common option for the immigrants. In fact, most of the actual settlements within the "popular" sector are squatter type dwellings.

The immigrants found accommodation in such squatter settlements as Embakasi, Kabete, Mathare Valley, Makadara, Shauri Moyo, Ruaraka and

Table 3.1 Housing Systems in Nairobi, 1970

Housing Type	Sector	Description	Estimated Population	Population %
Squatter	Popular	Unapproved housing on land which the developers do not have a legal right to occupy	97,200	18%)
)
) 37%
Companies & Dagoretti	Popular	Unapproved housing on land which the developers do have a legal right to occupy	102,600	19%)
)
Old Tenements	Private Formal	Primarily housing which was originally built for Asian extended families but is now occupied mainly by Africans	54,000	10%)
)
48 Employer Provided	Private Formal	Includes servants' housing as well as developments by large-scale employers	37,000	7%) 33%
)
Private Medium & High Cost	Private Formal	Approved housing which serves the middle and upper incomes groups	86,400	16%)
)
Sites & Services	Public	Serviced plots	16,200	3%)
)
Rental & Tenant Purchase Estates	Public	Public housing for rent and purchase	145,800	27%) 30%
)
)
)

Source: Appraisal of a Sites and Services Project in Kenya, Report No. 607a KE, April 14, 1975

Dandora. Figure 1.1 shows the locations of these squatter areas within Nairobi, and in relation to the Dandora Project.

A few lucky immigrants managed to obtain institutional housing, such as City Council flats, or Government quarters. These are part of the "public" housing system.

The squatter dwellings could be characterized as "substandard" from the Local Authorities' point of view. The building materials used in construction are "temporary" in nature. Typical materials used in construction are cards, polythene sheeting, tins, used timber, scrap pieces, and mud and wattle (a timber framed structure with mud filling). They are erected very rapidly, often in a matter of hours or a few days. Figure 3.1 shows the typical typology of the squatter dwellings occupied by the immigrants.

The average size of these units is 12 m.sq. in area. Compared to this the local Authority prescribes a "habitable" room of about 10 m.sq. in area. However, such units do not conform to standards for construction in Nairobi and are therefore viewed as "illegal". Even the land on which they are erected often is not tenured and as such the areas are termed, "illegal settlements". As a result, the local authority often demolishes such dwellings. In the process, most of the families lose their homes and established connections.

Not all the dwellings are built by the immigrants. Some are built by wealthy landlords for rental purposes. When the immigrant rents such a room an average rent of KSh.40/- (\$6) per month is paid. Other than minimal shelter there are no amenities, such as cooking space, water, electricity, or toilet facilities. Sometimes, a communal "wet core"

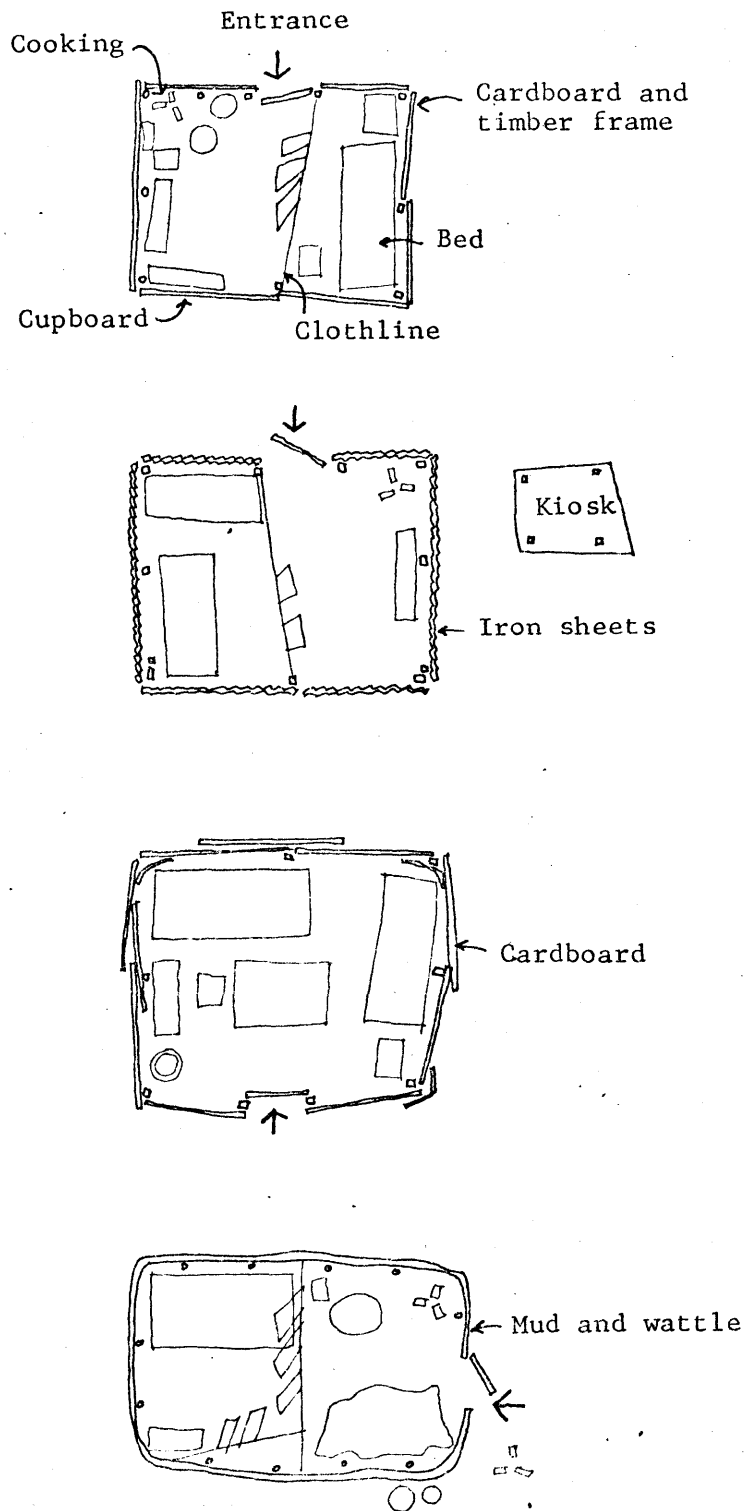


Figure 3.1 Typology of Typical Squatter Dwellings .
 Approximate area of a Dwelling 12 m.sq. (NTS)

Source: Author's field notes

exists which is provided by the Local Authority. Where there are no "wet core" facilities, the immigrants resort to nearby communal ones.

Some immigrants were lucky and managed to reside in places provided by their employers and built of "permanent" building materials, such as concrete blocks, stone, cement/sand plaster and concrete or iron roof. These places had utilities, and were built in accordance with the NCC by-laws. For such dwellings the immigrants paid no rent. Figure 3.2 shows the typology of this housing option.

Immigrants Discover the DCDP: Their Rationale for Acceptance

Although economic survival was of utmost priority and the "popular" sector provided a niche for accommodating the immigrants, they were sensitive to the problems they faced during their stay in the squatter settlements. The main ones were: lack of security from demolition teams resulting in loss of properties and harassment; difficulty in acquiring alternative accommodation, often ending up in another squatter settlement and; problems with opportunistic landlords.

In cases of employer-provided accommodation the immigrants suffered from instability of residence. For instance, reported Lucy, a resident of the Dandora Project:

"In 1967, Mwangi, my husband, was again shifted by the construction company to Kayole. The company provided Mwangi with one room, the type of room often used by construction workers on the roadside. This room was built in corrugated iron sheets, both the walls and roof. While the family lived in this room I set up a small vegetable kiosk next to the room.

In this room Mwangi and myself lived for about a year and a half after which the company shifted Mwangi to the Dandora location. At Dandora the company provided Mwangi with another room.

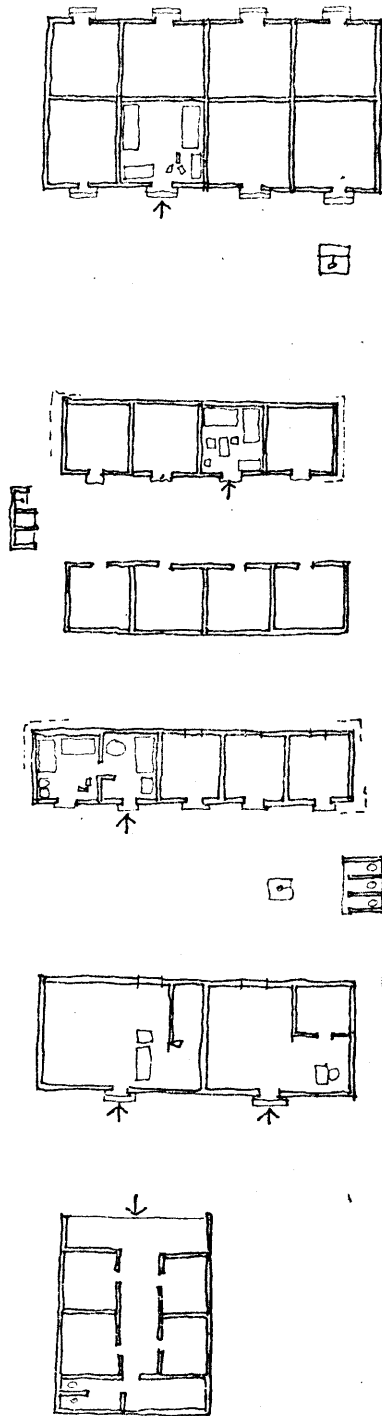


Figure 3.2 Typology of Other Alternative Dwellings Used by the Immigrants. Approximate area of a Room 10 - 12 m.sq. (NTS)

Source: Author's field notes

Around mid 1969 Mwangi was once again transferred on a job by the company, this time to Uganda. The family had barely stayed for about six months in this room when this transfer took place."

Similarly, when an immigrant was provided with accommodation at the place of work, he had to rely upon the employer's willingness to retain his services. Otherwise, upon dismissal, he had to look for alternative accommodation as well as a job.

An insecure job often resulted in insecure accommodation. Those who resided in insecure accommodation were faced with such problems as continuous changing of habitats, break-down in the social ties amongst families, increased expense and harrassment by the police. As a consequence the immigrants experienced a continuous process of seeking accommodation which would offer security of a type which could be afforded.

It is in this process of seeking improved security of accommodation that the other housing options emerge. Obviously, the "public" sector forms the next best choice after the "popular" sector. The immigrants either consciously or by sheer accident come to realise the "public" sector as a potential housing option to pursue for its more secure accommodation. Upon such realization, they build their hopes and then initiate the processes necessary to apply for plots in such a housing scheme as the Dandora Community Development Project.

Observations of the occupants of the Dandora Project suggest that many of them had come across the Dandora Project through sheer accident or information from second or third sources. Many of them had no idea about the Project and it's aims until they started to inquire further from the NCC.

In some cases the immigrants used to visit the NCC in an effort to look for jobs. On some of their visits they simply noticed the advertisements of the Dandora Project and persuaded further to learn more about it either through friends or relatives or NCC officials. Since the immigrants generally lacked formal education many of them could not comprehend the advertisements.

Discovery of the Dandora Project seems to have resulted in an overwhelming joy. Everyone felt "a natural and eligible candidate" to be considered for the plots in the Project.

Although the immigrants had gathered some information about the Dandora Project most of them rarely got the correct picture about the plots and dwellings. In particular, the applicants misunderstood the meaning of self-help in the Dandora Project, their role in the implementation of the dwellings, and the role of the DCDD in subsidising construction costs through "minimum" cash loans. Rather, they expected to get completed dwellings and to have no role in construction. They did not distinguish between the "wet core" unit, as the only provision on the plots, and the remaining plot, which had to be utilized by employing self-help methods.

During the waiting period a notion which many applicants developed was "how can one get a plot with an application fee of only KSh.20/-?" Since it was a small sum, many had given up hope from the beginning and feared of having lost the small application fee. Furthermore, many had heard about the "public" housing sector, or housing estates constructed by NCC. They built disappointments about them because they had been informed that although such estates were aimed for the low-income groups, the

allocations were made to the "better off" groups. In other words only the "rich would make it".

Plot allocation took about four to six months. The applications were processed by computer ballot. The results were sent to the applicants, by letter. Soon after the allocation of the plots, the successful applicants were to pay deposits of KSh.550/-.

The main rationale behind acceptance of the plot is: sense of security offered by the Project through tenureship and opportunity to invest in a house along with other assistance which the allottees are eligible for, in the form of "aid".

However, acceptance of the offers raised some immediate concerns. The first had to do with the deposits which the applicants were required to pay. A sum of KSh.500/- often could not be easily raised except by collecting on loans or selling possessions. Applicants found it sometimes necessary to delay payment of the deposits, at the risk of their plots being reallocated, until through extra work they could earn the required fees.

Upon paying the deposits the applicants were handed the keys to the "wet core" units and required to sign a lease. A rule of the contract was that construction of a permanent dwelling must be completed within 18 months. Other rules included conforming to building and planning standards of the Project, limiting the use of temporary shelter, utilization of material loans during the specified stages of house construction following approval from the DCDD, and repayment of the material and plot loans in a specified period. Another rule dealt with measures to be taken in case of defaults of any of the rules.

It was within this milieu of rules and regulations, alongside a set of pre-conceived notions, that the allottees occupied the plots. And now the Project revealed itself physically. When the actual plots, dwellings and various roles of the allottee and the DCDD became apparent, the applicants' previous notions about the Project tended to shift. How did the allottees commence occupancy of their plots and dwelling construction? Their experiences are discussed in the following chapters.

Chapter 4

Self-help in Planning and Construction of the Dwellings

Introduction

This chapter highlights, through a number of case histories, the situation of the allottees at the time of occupying the plots after their allocation.

In the Dandora Project there are two basic types of plots. Type (Option) A plot has the minimum facilities provided, a toilet and a shower. Type (Option) B plot has a kitchen in addition to a toilet and shower. The kitchen can be used as a room for accommodation purposes at the start of occupancy for the plot type B holders. Plot type A holders have no such accommodation and are therefore forced to reside either at their previous residence, commuting to the estate during the period of construction, or to erect a temporary dwelling and use it until such time as the permanent one is completed.

Soon after occupying the plot the allottees are faced with the first issue: how to commence construction of the dwelling in accordance with the prescribed construction specifications and the general planning and building standards. Given the individual's background and resources, the task of construction forms the initial challenge. In order to study the situation of the individual allottee families at the time of occupancy

and the manner in which they determine the method of construction, the participant-observation technique was used.

This chapter presents case histories of nine allottee families, focusing upon their situation at the time of occupancy, and characteristics of that situation which determine types of self-help methods adopted by the allottees. The method of selecting the allottee families is spelled out in Chapter I of this document. Summaries of the general characteristics of these cases are then presented. This is followed by a discussion of some principles on the forms of self-help which were adopted in order to plan and construct the dwellings.

Nine Case Histories

1. Warimu Kimani - Plot-holder of 202A.

Warimu was allocated a type A plot. It had a toilet and a shower. According to the DCDD she had to build two rooms within eighteen months.

Warimu lacked in technical skills to build, having had no prior experience in construction or even management of a construction project of any kind; she had hardly any savings. In addition, Warimu had found it very difficult to raise the deposits of KSh.550/- for the plot and water connection.

Warimu is an unmarried mother of four. She earns a meagre income of about KSh.300/- per month by selling vegetables. The income barely sustains the family.

At the time of occupying the plot Warimu was not able to build a temporary shelter since she had neither the time nor the ability to do so. Therefore, she resorted to residing at her previous place during the

building period. She decided to subcontract the construction of the dwelling with her role as a supervisor and regulator.

2. Mr. and Mrs. Mugo - Plot-holder of 272A.

Mr. and Mrs. Mugo are a young couple, and quite ambitious. The husband had trained as an apprentice in mechanical engineering. After the training he was employed in a full time job, earning about KSh.700/- per month. Mugo's wife has a business and earns a regular income.

Just prior to joining the Dandora Project, Mugo had completed his training and at that time he had also discovered about his "forced" savings which was retained by his employer. It amounted to about KSh.7,000/-, a sum which the couple felt would be well spent on the construction of the house. In addition, Mugo was also eligible for credit to finance construction of his house, an opportunity which was provided by his employer.

Mugo was eager to participate, himself, in the entire process of construction since he had a technical background, although not in construction. However, he was limited by time. He therefore had to subcontract the work, but decided to participate as much as possible with a view to learning some of the skills of actual construction and using them in future. At the early state of construction, therefore, Mugo limited his role to supervision, management and whatever participation he could manage.

3. Mwangi Kahia - Plot-holder of 298B.

Mwangi is an old man, about 60 years. He resides alone at Dandora and is occasionally visited by relatives. Mwangi was lucky to be allocated with a type B plot since he could use the kitchen for accommodation during the period when the construction of rooms was under way. He was required to build one room during the first eighteen months, according to the rules of the DCDD.

Mwangi's main constraints were that he is old and cannot contribute much to the physical work of construction. Neither does he know how to build. His income is quite meagre. He makes a living by selling second-hand clothes and sometimes even brews liquor, illegally. In order to earn enough income to maintain himself Mwangi has to work regularly.

With these constraints Mwangi resorted to subcontracting. His role was limited to supervision and controlling the management of the construction team within his financial means; an incremental approach was what Mwangi thought was most suitable.

4. Unice - Plot-holder of 524A.

Unice is a mother of six. Her husband works in a different town, Machakos, and commutes to Dandora once a month to bring supplies and visit the family.

At the time Unice got married, the husband's income was very low, at KSh.300/- per month. As a result, Unice had to earn as well. She decided to undertake a secondhand clothes business, a business which she still has today. The prospect of her business also influenced her

husband eventually and as a result he decided to undertake a similar business in Machakos. This was just before occupying the plot at Dandora.

Both the husband and the wife were occupied with their respective businesses and as a result had no time to devote to construction when they occupied the plot. Besides, neither of them had any building skills.

The family decided to stay at the plot during construction. Since Unice occupied a type A plot she had to erect a temporary shelter. This shelter served the purposes of accommodating the family, saving on rent and accommodating building materials during construction. This

temporary shelter was erected by the couple, although they did not know much about construction. Since this was a temporary "thing", they could build in any way with whatever materials they could obtain.

However, the family decided to subcontract the rest of the construction work. Since the family had neither the time nor the skills and moreover Unice had to attend to her children, subcontracting suited the family's situation.

5. Joseph - Plot-holder of 580A.

Joseph was very poor and he had hardly any income. Often he had to rely on his casual jobs which earned him very little money, often KSh.7/- per day. With this sort of casual income Joseph just managed to buy food.

At the time when Joseph was allocated a plot he had difficulties in raising the deposits for the plot and water connection, a sum of KSh.550/-. Ultimately he raised the money by selling one of the cows which he had kept in his rural town.

Since Joseph had no regular job or business of his own he had ample

time, and as a result he decided to build a temporary shelter soon after coming to the plot. He attempted to use whatever materials he could get, even grass for the roof. The temporary dwelling was a significant asset, in savings on rent, and provided instant accommodation.

Joseph had no skills in construction. He had no idea, even, how to commence and he had hardly any finances for starting on construction of the rooms. He thus required whatever assistance he could get either through the DCDD or building groups. He was advised by the DCDD to join a building group, at least for construction of the first room.

There were other allottees, as well, who were in a situation similar to Joseph's. Thus, one of the Community Development Officers began to organize a building group, the "Komo Rock" building group. The building group could pool financial as well as management resources, and work as a group to construct one room for its members. This provided a starting point and generated such benefits as income, through subletting. Some of this income could be saved and utilized on future construction of the second room.

However, the building group had to subcontract the actual construction of one room, since none of the members had any knowledge in construction, nor the ability to organize the process. Members of such groups were in definite need of assistance and the building group was one way to at least organize financing for construction.

6. Francis - Plot-holder of 682A.

Francis had been changing from one job to another quite frequently before he got a permanent one with the City Council of Nairobi. He got

a job as a cook and now earns a regular income of KSh.350/- per month. In between the temporary jobs and the permanent one, Francis got married and is a father of four.

Francis was allocated a type A plot. He was keen to erect a temporary shelter in order to save on labour costs of construction. Besides, the temporary shelter was beneficial as a dwelling to accommodate the family, save on rent, and provides a place to store some of the equipment and materials used during construction of the permanent dwelling.

However, when Francis had to build the permanent rooms he could not do on his own since he had no construction skills and moreover he had a full time job. He could not rely on his wife, either, since she did not know about construction.

Francis was enthusiastic to participate in the construction process as much as possible. As a result, he decided to subcontract the initial stages of construction but participated in digging the foundation trenches with some supervision from the subcontractor. Francis had hoped to save on the costs of labour wherever he could and also to get some satisfaction out of his personal manual involvement. Furthermore, he was of the opinion that some mutual help with a neighbour would benefit each of them and often Francis set out to collaborate on certain matters with a neighbour allottee. One occasion was in the purchasing of building materials and another was when there was need of a small loan Francis and the neighbour also shared costs of transportation.

7. Edward - Plot-holder of 749B

Edward had had a tumultuous economic background. He had not been able to settle in any particular town, due primarily to difficulties in getting a steady job.

One of Edward's personal dissatisfaction was his failure to obtain further education, a factor which considerably disillusioned Edward. He got married prior to getting a plot in Dandora, hoping to change his lifestyle. However, this was not much help. Edward had become quite indifferent to challenging situations. He had also developed a great reliance on his elder brother, both financially and morally. His brother assisted him in consolidating the house in Dandora.

Edward was lucky to get a type B plot since he found the kitchen very useful for accommodation purposes. However, having this advantage made Edward too lazy to start with the construction of the first room. It was his wife who ultimately had to undertake the responsibility of construction. However, she had no idea about construction and as a result Edward's brother prompted her to join a building group. He thought that through the group she would be able to get assistance in completion of the first room.

8. Lucia Wangari - Plot-holder of 761A.

Lucia and her husband, Mwangi, work on full time jobs and have regular incomes. Mwangi resides far away from Dandora and Lucy was therefore faced with the task of building the rooms when she got a plot in the Dandora Project.

Lucy has no skills in construction nor any previous experience in building. She could not even attempt to build the temporary shelter since she could not organize it on her own. As a result Lucy decided to subcontract the construction of the temporary dwelling, at a rather substantial price of KSh.1,500/-. The same sort of structure could have been built for about one-third the price, based on the cost of materials only. Similarly, Lucy resorted to subcontracting construction of the permanent dwelling.

9. Marry Wambui - Plot-holder of 989A.

Both Marry and her husband, Samuel, have steady jobs. At the time of getting a plot the couple was not in a position to raise the deposit. It had to be raised through friends and relatives.

Since the couple got a type A plot, Samuel decided to build a temporary structure in order to save on labour costs. He obtained some help from friends. The temporary dwelling was put up for accommodation purposes. It saved on rent and was useful for storing some of the construction materials.

Like many other allottees, the couple had no construction skills nor free time, except the weekends, and also lacked in ability to organize the actual process of building. As a result the couple resorted to subcontracting construction of the permanent dwelling. Samuel's role was supervision and management of the construction team.

Characteristics of the Allottees' Situation at the Time of Plot Occupancy

From the foregoing nine case histories several characteristics of the allottees' situation can be generalized. These determine the forms of self-help methods used in planning and construction of the dwellings.

In principle these are as follows.

1. Ability to Apply Oneself in:

- Techniques of construction, either the temporary dwelling or permanent dwelling,
- supervision of construction and financial management,
- organizing a construction team which may consist of hired labour (skilled or semiskilled), relatives and/or friends.

2. Constraints and Stresses of the Plot-holder Families, such as:

- Financial resources,
- size of the and responsibilities towards the young and the old,
- commitments to jobs and ensuring a regular income,
- availability of time to apply personal labour (skilled or semi-skilled) to supervise and to manage construction.

3. Attitudes of the Allottees at the Start of, During and After Construction:

- Savings on labour and materials, opportunity costs,
- rate of construction,
- sentiments attached to the value of the dwelling.

4. Impact of the Rules and Regulations on the Allottees' Resources:
 - Stages of construction and eligibility for the material loans,
 - the rôle of the temporary shelter,
 - enforcement of the standards during the construction phase.

5. Perceived Useage of the Dwelling:
 - Returns on investment,
 - match/mismatch with the allottee's purposes of coming to Nairobi.

6. The House Type-plan:
 - Complexity of the house design.

Principles on the Forms of Self-help

There is a basic distinction between the type A plot-holder and type B plot-holder. Generally, the former one undertakes to build a temporary structure which is used for several purposes; providing accommodation during construction of the permanent dwelling, saving on rent, providing a storage space for some of the construction materials and forming a natural surveillance point over the construction team. Type B plot-holders do not build any temporary structure. Their kitchen is used for such purposes as the temporary shelter provides type A plot-holders.

The decision to adopt a particular form of self-help is not determined exclusively by any of the above circumstances of the allottees' situation, but rather by the combination of them. Amongst the dominant ones are the ability of the allottee in the techniques of construction, general

constraints and attitudes. These characteristics are constrained by the necessity to conform to the rules of the DCDD in construction. The decision to adopt a particular self-help form is also based in large part on the hope to save at every stage of construction. In doing this there is no exclusive form of self-help, but rather a combination of several types. For analytical purposes, two predominant forms have been identified: (1) the allottee-built form of self-help, and (2) the subcontract form of self-help. In practice these two forms coexist.

The other form of self-help worth mentioning is the building group form. This is a combination of the allottee-built, subcontract and another, the mutual assistance form of self-help. For discussion purposes, this form of self-help will be treated differently since its essence lies in the organization of the allottees in the first instance, primarily to pool together their financial resources. It is then followed by the subcontract form of self-help.

Before going into detailed discussion of the various self-help activities let us define the three methods or types of self-help organization that have been observed.

1. The Allottee-built Form of Self-help.

This is a true form of self-help and self-reliance by the allottee in planning, constructing and managing the process of building. The decision-making process is a reflection of allottees attitudes towards maximizing savings on labour and utilization of such materials which may yield savings.

The ability of the allottee to apply his energies in construction, supervision and purchasing of materials is demonstrated throughout the building sequence. The organization of all activities which are allottee-oriented, are finely tuned with the allottee's own available time. The allottee is central to decision-making and although the allottee is responsible for all the operations, he may seek extra help. This sort of help is often "free", meaning not paid for in cash. The help is either skilled or semiskilled. The allottee returns the favour in an equivalent manner.

The case studies reveal that although allottee-built is a true form of self-help, it is conducted through such pressures and constraints as lack of finance at the start, commitment towards jobs or sometimes the sheer size of the family.

Financial stress turns out to be by and large the most pressing issue for the allottee and perhaps one of the major reasons for applying one's own labour. As a result, the allottee works on the project whenever possible. He seeks cheap materials, often reused ones. Transportation is on foot or by hand-cart, for rarely does one spend on the fares for public transport.

In this form of self-help the other constraint is the set of rules set by the NCC (and DCDD). Often the allottee-built form does not conform to the standards. For instance, the quality of construction, useage of building materials and types of finishes tend to require a higher form of construction skill than the allottee possesses. In other words, the allottee-built form of self-help falls short of the "benchmark" setout by the standards of the NCC.

Throughout the process of construction the best example of the allottee-built form of self-help is during the erection of the temporary shelter. The term temporary means a shelter which is built in such materials as cards, polythene, mud and wattle and reused materials. Construction out of such materials is not approved by the Local Authority. The term also means such a shelter is used for a limited period of time after which it has to be pulled down. In case of the Dandora Project, such a temporary shelter has to be pulled down after erection of a permanent dwelling which is constructed from such materials as stone, concrete blocks and iron sheets. These are specified by the DCDD. In the remaining text of this thesis the term temporary will be understood to mean according to this definition.

2. The Subcontract-built Form of Self-help.

Operationally, this form of self-help entails contracting out such activities as are not feasible by means of the resources of the allottee. Typically, such resources as skilled labour and manual labour are sought at various points during construction of the dwelling.

In the subcontract form of self-help there are two sets of actors -- the allottee and the "fundi". Together with the "fundi" there are generally some semi-skilled helpers, locally termed as "kibarua". The decision-making process is more complex in this form of self-help. The terms "fundi" and "kibarua" (plural is "vibarua") are Kiswahili words. "Fundi" means a semi-skilled contractor, an artisan. "Kibarua" means an assistant, an unskilled labourer. Both these terms will be understood to mean according to these definitions in this thesis.

On the technical issues concerned with construction of the dwelling, most of the decisions are made by the "fundi". These deal principally with building materials, types, quantity and stages of purchasing equipment for construction, and organization of the construction team. The latter involves such tasks as delegating responsibilities and tasks to the "kibarua". Inadvertently, the technical issues thus consume most of the costs of construction and the decisions made by the "fundi" result in the allottee following them, often without question. The allottee's role is to endorse the decisions made by the fundi during all stages of construction, supervise the construction team and ensure financial matters.

Since the entire setting for construction is arranged by the "fundi", little room is left for the allottee to involve himself in tasks or activities where his decisions may be more effective. As a consequence, the allottee is somewhat of an "outsider" in the construction team. The role of the allottee predominates at the start of the organization of the construction team, agreeing on remuneration, the general tasks of the contractual requirements and the period of engagement.

In the subcontract form of self-help the allottee is occupied with his usual routines at his job or business, for instance, and therefore cannot find adequate time to attend to the actual labour input during all stages of construction. Other constraints are lack of enough money to begin subcontracting, and lack of a formal contractual agreement with the "fundi". Yet another is family responsibility. Allottee families are often large enough to enable potential application of members' labour, but several of them would be earning a living through a job or business.

This form of self-help is further characterized by early signs of a lack of organizational expertise in the allottee. Towards the end of construction however, he acquires some understanding of the construction process, techniques of construction, labour requirements, material quantities and sources of materials. The educational value which the allottee acquires at the end of construction and his mental picture of the "critical path" of construction enhance the allottee's ability to organize the next construction phase.

Generally, at the start of construction the attitude of the allottee is to subcontract the "minimum" phase of construction in order to test his own abilities and learn from the process of subcontracting. The other objectives are to save on cost, sublet the "minimum" completed dwelling to earn an income and find adequate time to complete the next phase.

The relative success of the subcontract form of self-help lies in the allottee's ability to manage the construction team, financial availability, and the enforcing of contractual agreements. The best achievements of the subcontract form of self-help have been in the construction of the permanent dwelling.

3. Other Forms of Self-help.

Building group as a combination of the first two forms of self-help and mutual assistance as another form of self-help are worth mentioning. The former one, in particular, is one of the most important forms of self-help.

The purpose of a building group is to organize the financial

and managerial resources of plot-holders, whose basic aim is to build at least one room. Allottees who form building groups are often those plot-owners who are in real need of assistance. They are "helpless" in terms of initial financing of construction and setting up of a construction team. They generally lack ideas about construction. Once the building group has organized the financial component of construction and identified a construction team the rest of the building is undertaken as previously discussed.

Allottees who are members of a building group are often those who have no regular jobs, those who are unable to find jobs at all, or those who are too old. The earning capacity of such an allottee is zero, except for an occasional casual job. Allottees who are in such a situation have a definite feeling about utilization of their time in the hope of generating income through self employment on such activities as building their own house. They value their own potential involvement. The building group is thus an organization to help satisfy such aspirations.

"Mutual financial assistance", the principle upon which the building group is based, creates an organization whereby the allottee can build at least one room through the financial support of the group members. Once such a room is completed, the income produced by subletting is used to construct another room while the allottee continues to stay in either a temporary shelter on the plot or in the kitchen. The allottee continues to make his contribution towards the building group until such time as the other members of the group complete their rooms.

The best form of combined self-help is the building group, followed by the subcontract form, for actual construction. The combined form of self-help distinguishes the organization stage, from the planning stage. In planning, the building group assumes the responsibility. The subcontract form ensures completion of construction.

Chapter 5

The Allottee-built Form of Self-help

Introduction

In this chapter the allottee-built form of self-help is discussed with particular reference to the process of planning and construction of the temporary shelter. In particular, the following items are addressed: the need for a temporary shelter, characteristics of the shelter, the building process, utilization and benefits of the shelter and finally, the Nairobi City Council's views of the temporary shelter.

Determining the Need for Temporary Shelter

Type A plot-holders were provided with a "wet core" which consisted of a toilet and a shower. The allottees were expected to build two "habitable" rooms within eighteen months. These rooms were to be constructed in permanent building materials, as specified in the building specifications.

Type B plot-holders were provided with a "wet core" which consisted of a kitchen and a store, in addition to the other facilities provided to type A plot-holders. Type B plot-holders had the advantage of using the kitchen for accommodation purposes and as a result they did not find any need to erect a temporary shelter.

The plot Type A holders generally found it necessary to construct a temporary shelter to provide accommodation, savings on rent for previous accommodation and storage for the building materials. The temporary shelter also formed a "site office" during construction. For instance Mary reported:

"My first problem was to accommodate the family during the early part when the construction of these rooms was to commence. There was also a need to store some of the equipment and materials. After some debate Samuel and myself decided to erect one temporary shelter but decided against using it as an accommodation for residence but rather use it for storage purposes. The main reason for this was that the room in Ngara was much more closer to respective places of work."

Characteristics of the Temporary Shelter

Temporary shelter is recognizable by the building materials used and the general standard of construction, as described below.

1. Building Materials.

Building materials used for the temporary shelter are those which are easy to find, cheap to buy and easy to handle in construction. The most frequently used materials are mud and wattle, corrugated iron sheets and timber. Generally, the roof is built in corrugated iron sheets laid on timber rafters. Mud and wattle construction is common for the walls. For an entry to the dwelling, either a used door in timber or corrugated iron sheets on a timber frame or even a curtain hung in the doorway is used. There are no finishes, and the floor is left in murrum, although sometimes compacted to smooth the surface.

Table 5.1 presents the various building materials used in construction of the temporary shelter, the sources from which these were obtained and approximate costs.

2. General Standards of the Temporary Shelter.

General standards of the temporary shelter are "crude"; the construction is rough, often the walls are not aligned to suit the adjacent walls, the door fixed in the door opening is crudely fixed, there is no adequate natural lighting or enough air circulation. Generally, an average of 12 m-sq. floor area is built. The temporary shelter is located in one of the corners of the plot, generally on the entrance side of the plot. Figure 5.1 shows the typology of the temporary shelters.

The Process of Building the Temporary Shelter

The process of building the temporary shelter can be broken down into the following stages:

Stage 1. A rough marking is done to locate the position of the walls of the shelter. It is located in one of the corners of the plot so that during construction of the permanent shelter it is convenient to use the remaining space.

Stage 2. Building materials are brought in by the allottee. The quantity bought is determined by the amount affordable by the allottee, and the necessity of the materials during a particular stage of operation. For instance, during the erection of the walls just enough iron sheets are brought in together with the timber for the frames. The frame is erected, which takes about half a day, and the iron sheets are nailed or screwed

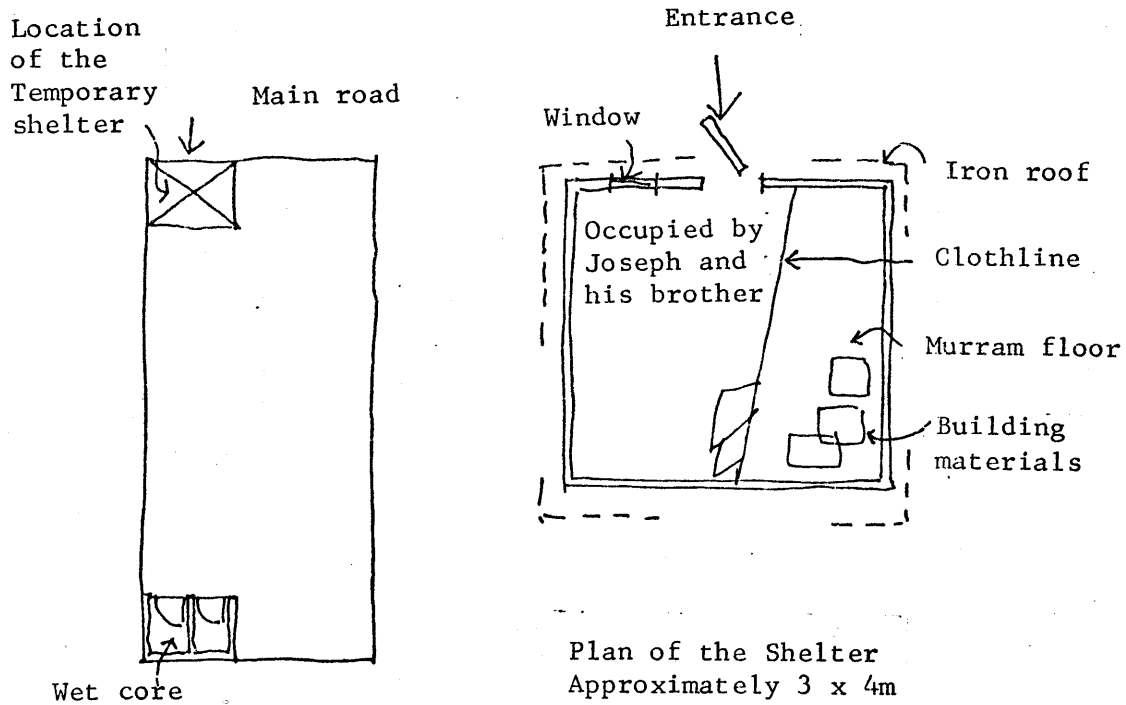
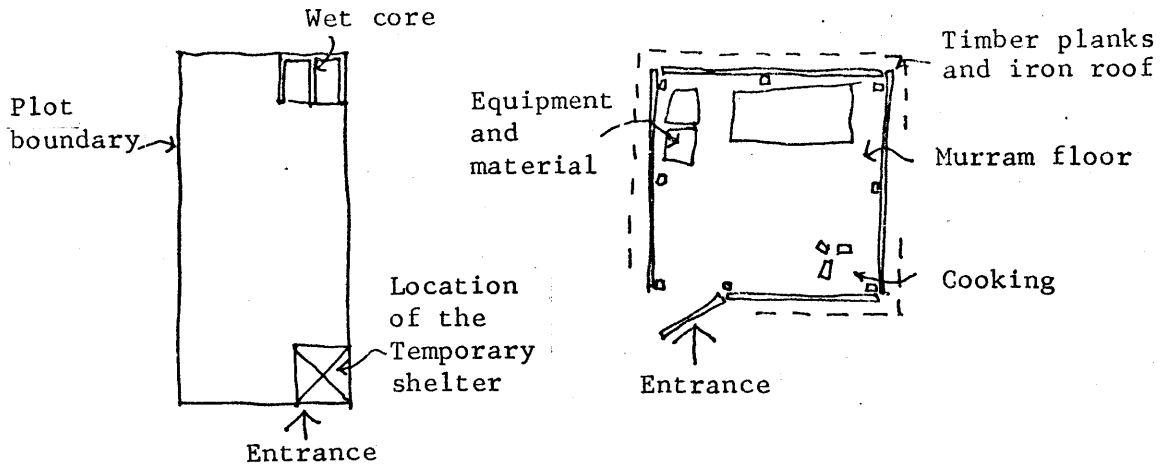


Figure 5.1 Two Typical Layouts of Temporary Shelters (NTS)

Source: Author's field notes

Table 5.1

Temporary Shelter - Materials, Prices, Places Purchased From
and Approximate Transportation Costs

Materials	Typical Places Purchased From	Price (KSh.)	Transport Cost
Mud	Within Estate, Ruiru, Njiru	Free	By foot
Wattle	Njiru, Ruiru Estate, Eastleigh	3/- per piece (about 5 feet long)	3/- bus fare, two ways
Corrugated iron sheet	Ruiru, Njiru Estate	45/- per piece, 26 gauge. Reused one about half this price	2/- bus fare, two ways
Nails	Eastleigh	6/- per kg.	2/- bus fare, two ways
String	Eastleigh, Ruiru	10/- a ball	2/- bus fare, two ways
Cement	Ruiru, Njiru Estate	28/- per bag	2/- bus fare, two ways
Sisal cuttings	Kayole village	Free	By foot
Reused timber pieces	City centre, Industrial area, Eastleigh	120/- for material used for a temporary dwelling approx. 12 m.sq. in area	4/- bus fare, two ways

Source: Author's participant-observation notes.

to the frame.

There are no specific ways in which the quantities are decided. Rather they are bought according to convenience of transportation and availability of money. Similarly, in the case of a shelter where mud and wattle is used for walls, materials are bought in stages. For instance Joseph reported:

"Since I had no money I went around to collect whatever material which could be used to construct the temporary room with. I went to a nearby village (the Kayole Village) to cut some sisal plants which I used to build the walls of the shanty. The material was brought by myself on foot over some two miles distance. I would make two trips every day to gather enough for the walls. The actual process of gathering the materials was started in December 1976 and managed to complete by the end of February 1977. The entire shanty was built by me without any assistance from anyone. For putting the roof I borrowed KSh.100/- from a friend and bought eight used iron sheets. It took about one day to put the roof. After putting the roof I applied wet murrum soil to the sisal material and the frame. By early March the shanty was ready for occupation."

This is a typical case of the allottee-built form of self-help, where incremental development is a dominant way of building.

Utilization and Benefits of the Temporary Shelter

Soon after erecting the temporary shelter the allottee family starts using it either for accommodation of the family, storage purposes or for combined use. In a room which measures about three by four metres there are generally one or two beds, a chair and a table. To create some privacy a clothline or curtain is tied across the room. Cooking is done both inside and outside the room.

There are several benefits accruing from this temporary dwelling:

(1) Savings on rent. Typically this amounts to about KSh.100/- per room, if valued at current market rates. By using the temporary shelter for accommodation purposes the family saves on rents at their previous residence.

(2) The shelter forms a storage space and also facilitates the presence of the allottee at the site during the construction period; the permanent room affords better security of the building materials and equipment.

(3) The self-help process yields such benefits as savings on the cost of labour and satisfaction from completion of a task like building a small room, an experience which results in valuable knowledge. Savings on the cost of labour, if computed on the basis of current market rates for semiskilled worker, would be KSh.15/- per day. If the opportunity cost of the allottee is assumed to be zero the net economic benefit would be computed to KSh.15/- per day. In cases where the allottee takes a few days of leave or the weekends this rate equally could be applicable.

(4) Although the temporary shelter is supposed to be demolished after completion of the permanent dwelling, according to the regulations of the NCC, it is often used either for residential purposes or as a kiosk to sell goods. Although this is a violation of the rules, observations reveal that many allottees of the Project have continued to use the temporary shelter long after completing construction of the permanent dwelling.

Once again, there is a net economic benefit from savings on rents. On the other hand such a shelter can be rented out. If computed at current market value of KSh.200/- per room, such a temporary shelter can yield a significant income which may then be channelled to subsidize the allottee's other costs; for instance, the repayment of the loan. Table 5.2 gives a simple economic cost and benefit breakdown.

From the Table 5.2 it can be seen that the break even point of allottee's costs occur just around the time the shelter is demolished, or after completion of a permanent room, assumed to be about two months. On the other hand, if it continues to be used as a rented accommodation, a net economic benefit of KSh.200/- accrues. If this is computed over a period of one year, the total economic benefits would be KSh.2,400/- (interest accrued on this amount is ignored since whatever income the allottee receives is presumably channelled towards construction costs.) This amount is enough for repayments of half the cost of the material loan borrowed initially by plot Type A holder.

DCDD's View and Impact of it's Rules on Allottee-built Shelter

From the outset the DCDD had viewed the first Urban Project in Kenya to be a model for future urban residential development. As a consequence, it enforced the prescribed standards of building and planning as laid down by the NCC. Some of the specific standards to be enforced are:

(1) The permanent shelter should be built in such materials as prescribed by the building practices of the NCC. A maximum of 50 percent of the plot could be developed.

(2) Any form of temporary shelter should be removed once the

Table 5.2

A Simple Economic Cost and Benefit of
The Temporary Shelter

(Assumed to be built in two weeks, working
on seven hours per day, five days a week)

	K.Sh.
<u>Total Cost of Materials</u>	600/-
Typically timber frame, iron sheets and other small items such as nails for a room size of 12 m.sq.	
<u>Total Cost of Labour</u>	200/-
Computed at 15/- per day. For ten days 150/-	
Transportation costs to and from place of residence, a distance of 5 km. 2/- per day. For ten days 20/-.	
Meal/day @ 2/50. For ten days 30/-.	
<u>Total Cost</u>	800/-
Benefits:	
<u>Savings from rent during Construction period, assumed to be two months per room</u>	
Computed @ 200/- per room per month	400/-
<u>Savings from Labour</u>	
Assume opportunity cost of the allottee labour is zero	200/-
<u>Re-use of materials, if temporary shelter demolished</u>	
Typically re-use of iron sheets mainly. Assume eight iron sheets	200/-

(From the above calculations the breakeven point of allottee's costs occur if the shelter is demolished, that is after a period of two months. However, if it is continued to be used as a rented accommodation a net economic benefit of 200/- per month accrues.)

Source: Author's participant-observation notes.

permanent shelter is completed.

The idea of the temporary shelter, in the first instance, was not favoured by the NCG. However, after some deliberations, it was agreed to allow erection of temporary shelter as long as the plot-holder demolished it after constructing the permanent dwelling.

(3) The DCDD's subsidy component, through a material loan, is to produce prescribed forms of building standards in permanent materials. However, such rules do not take into account inflation or allottee's ability to enforce prescribed standards on their own.

It was in the climate of such DCDD's views that the temporary shelters were erected. However, observations suggest that most of the plot-holders who had erected a temporary shelter violated the rule of demolition after constructing the permanent shelter for two principal reasons: (1) The benefits accruing from the temporary shelter were many and the allottee-built form of self-help was a true representation of allottees' performance in planning and construction of the shelter. The value attached to such shelter was comparatively high. (2) The role of the temporary shelter extended beyond the initial purposes, such as accommodation and storage during construction of the permanent shelter. Following permanent shelter completion the role of the temporary shelter was to subsidize the cost of the permanent shelter.

Chapter 6

The Subcontract Form of Self-help

Introduction

The subcontract form of self-help is the most popular. It is also at the extreme end of the self-help scale, opposite the allottee-built form, as discussed in the previous chapter. In the subcontract form the allottee's role is not excluded entirely, but it is rather marginal. Strictly speaking, his role is predominant in decision-making on planning matters, organization of the construction team and managing the financial matters of construction. The allottee also sets out the general contractual agreements with the subcontractor.

The bulk of the activities, especially in construction, are decided and organized by the subcontractor. The subcontractor decides on technical issues, overall construction related tasks and the day to day instructions to helpers (the "vibarua").

The subcontract form of self-help thus has two sets of actors, the allottee and the subcontractor. Inadvertently, this form of self-help also includes, to a lesser extent, the allottee-built form, especially where the allottee is enthusiastic to undertake some of the construction activities himself.

In this chapter the subcontract form of self-help is discussed in

depth, with reference to the construction of the permanent dwellings. Specifically, the characteristics of the permanent shelter are discussed, including: the building materials; and construction processes, house type plans, and decision-making during the process of construction.

Building Materials

The permanent dwelling is characterized by the types of building materials used. Generally, they are prescribed by the DCDD. The common ones are concrete blocks and stones for the walls and foundation. Stone is popularly used for the foundation walls. Concrete blocks are used for both external and internal walls.

The common material used for the roof is 24 gauge corrugated iron sheets. There are some instances where both asbestos and clay tiles have been used for the roof. Timber is generally used for the framing.

For the windows, metal frame and glass are popularly used while timber flush doors and batten doors are common for the doorways.

There is variation in finishes. Either there are no finishes, that is the walls and floor are left in natural material, or walls are simply plastered without paint. In some cases the walls are painted.

Reinforced concrete is limited to use in lintols, cast insitu over wall and door openings, and in strip foundations. Iron roof is used as reinforcement for the wall construction. A water-proof membrane is laid in either bitumenous felt or strips of plastic membrane at the foot of wall construction to prevent dampness from rising into the walls.

Table 6.1 gives a breakdown of the common building materials used in the permanent dwelling. It lists the materials, equipment, transportation and labour costs.

Construction Processes, House Type Plans and Decision-making

The overall construction process of the permanent dwelling is not a "one shot", smooth operation. In fact it is characterized by several stages of construction, each stage representing several decisions and activities. These stages can be divided as follows:

- Stage 1. Identification of the subcontractor and organization of the construction team. Verbal contractual agreements between the two sets of actors take place.
- Stage 2. Setting out of the rooms.
- Stage 3. First Phase of Construction -- Foundation trenches, construction of the foundation and the ground floor slab.
- Stage 4. Construction of the walls, external and internal.
- Stage 5. Construction of the roof.
- Stage 6. Fittings and finishes.
- Stage 7. Second Phase of Construction -- Repeat from Stage 1 to Stage 6.

The above stages are discussed individually in relation to inputs from the allottee and external sources (including the subcontractor), the role of the DCDD, problems encountered by the allottee at each stage and the general costs incurred at each stage.

Table 6.1

An Example of Various Costs for Building Materials, Equipment, Transportation
and Labour in a Permanent Dwelling

Date	Materials, Equipment, Transportation and Labour	Cost (KSh.)
1/4/77	Wheel barrow	210
1/4/77	Two spades	50
1/4/77	50 ft. water hose pipe	100
6/4/77	Sand, two lorries of stones each (including transportation cost)	600
6/4/77	Foundation stones, (9" x 8), 1 lorry	350
7/4/77	Ballast or kokoto, 1 lorry (including transportation cost)	210
9/4/77	Cement 15 bags, (including transportation cost)	402
9/4/77	Digging foundation trenches	150
9/4/77	Site measuring pegs wooden	35
11/4/77	Hardcore, 3 lorries (including transportation cost)	220
11/4/77	1 bundle steel straps	20
12/4/77	3 lorries of blocks, 9" x 6", 750 blocks, (including transportation cost)	1,685
13/4/77	Hardcore, 1 lorry (including transportation cost)	120
13/4/77	Foundation stone, 1 lorry, 9" x 9", (including transportation cost)	350
15/4/77	Expenses in transport to get some materials which were not available	50
16/4/77	Cement, 10 bags	293
19/4/77	Paid fundi and helper	45
20/4/77	Paid Mr. Munene, another fundi	200
20/4/77	5 bags of cement (including transportation cost)	140
20/4/77	2 three-eighth inch steel rod	70
20/4/77	Expenses for food and bus	10
21/4/77	Paid fundi	200
21/4/77	10 bags of cement (including transportation cost)	280
21/4/77	Personal expenses	15
22/4/77	Roofing wooden panels	253
22/4/77	1 kg of nails	5
22/4/77	Personal expenses	15
23/4/77	Iron sheets, gauge 26, 24 sheets (including transportation cost)	1,604
23/4/77	Roofing nails, 2 kg	10
23/4/77	Personal expenses	15
23/4/77	Paid fundi	300
25/4/77	Fitted 5 door frames @ 50/- each	250
25/4/77	Nails, 3 kg	18
25/4/77	Plumbing in the kitchen, paid for labour	10
25/4/77	Personal expenses	10
26/4/77	2 iron sheets, gauge 28	58

Table 6.1 continued

26/4/77	Fascia boards, 70 ft run	77
26/4/77	Personal expenses	10
27/4/77	5 T&G Doors (including transportation cost)	500
27/4/77	5 bags cement (including transportation cost)	140
27/4/77	Personal expenses	10
28/4/77	Window frames (including transportation cost)	500
28/4/77	Paint	40
28/4/77	Paid Fundi	305
28/4/77	Personal expenses	10
29/4/77	5 bags of cement (including transportation cost)	140
29/4/77	Red Oxide, 5 kg	36
29/4/77	Paid fundi	60
30/4/77	Personal expenses	10
30/4/77	5 mortice locks, each @ 85/-	425
30/4/77	Window locks	66
30/4/77	Personal expenses	10
3/5/77	Paid fundi	200
3/5/77	Nails, 2 kg	10
3/5/77	5 bags cement (including transportation cost)	140
4/5/77	Paid fundi	60
4/5/77	Cigarettes for the helpers	5
4/5/77	2 iron bolts	45
4/5/77	Hedges	30
4/5/77	Personal expenses	7
6/5/77	1 lorry sand, 7 tons	350
7/5/77	Paid fundi	300
10/5/77	5 bags of cement	140
12/5/77	11 ft of fascia board	17
13/5/77	Paid fundi	100
14/5/77	Ventilation block	5
14/5/77	Assigned a mason and a helper	40
17/5/77	Kitchen plastering	56
17/5/77	2 bags cement	56
18/5/77	Red Oxide	27
22/5/77	Paid fundi	20
22/5/77	Kitchen water fittings	330
22/5/77	Paid for carrying unwanted soil	50
23/5/77	Yellow oxide for spraying	100
25/5/77	Spraying charges	55
26/5/77	Glasses for window fittings	110
26/5/77	Labour for fitting window glasses	40
30/5/77	Outside pavement preparation	30
30/5/77	Completing store	30
30/5/77	Completing pavement	60
31/5/77	Paint	300
31/5/77	Labour for painting	100
2/6/77	Construction of the chimney, labour and material	250

Note:

- (a) Building material and labour costs during April and May 1977
 (b) Prices for Two Rooms and a Kitchen store

Source: Author's participant-observation notes. Extract from the personal diary of Mugo, plot-holder of 272 A

Stage 1. Identification of the Subcontractor and Organization of the Construction Team

At this stage the role of the allottee is to organize and plan the construction team, and decide who will do what, how and when.

The construction team, in principle, consists of a subcontractor helped by unskilled labourers ("vibarua"). The task of looking for the subcontractor, henceforth referred to as the "fundi", is not any easy matter. It involves establishing contacts with friends and acquaintances of the estate occupants.

Dandora allottees arrived to occupy their plots at different times during development of the Project. Those who arrived much earlier were faced with more severe problems in looking for subcontractors than those who came later. Allottees who arrived late had the advantage of observing self-help activities at neighbours' plots. By then there were already several subcontractors operating at the estate. This made the task of looking for a "fundi" relatively easier.

The identification of a "fundi" is informal. The allottee collects information from various sources such as friends and contractors at the estate and even from the DCDD. For instance:

"Wisdom is however, a strong part of Mwangi's character. Although Mwangi is illiterate he was observant about others performance and approach. He went around the plot on which neighbours had started to dig trenches, erect walls, buying materials and also saw fundi working. Mwangi was perceptive about this. Carefully, he assessed his needs through observations and worked out his approach."

Source: Author's participant-observation notes.

It is after assessing one's own situation that one begins to comprehend the nature of the resources one has to seek, matching those with the tasks that are to follow in construction. The identification process begins to reveal the allottee's perceptions on the nature of human resources that constitute this form of self-help.

"First, Mwangi felt, he lacked the knowledge of construction with permanent building materials or even what type and quantity of materials. Secondly, he did not know where to obtain the materials from. Thirdly, he did not know how to set up the walls and lastly but not least Mwangi was suspicious of people around since he felt perhaps someone may even cheat him with his money."

Source: Author's participant-observation notes.

The Allottee finds it difficult to assess all the needs for every stage of construction. In fact, he lacks an overview of the construction process. Rather, the allottee tends to make decisions in incremental stages. As a result, there are few cases where just one "fundi" is employed to construct the entire room(s). The allottee also changes the "fundi" from stage to stage of construction. Continuing with the case of Mwangi:

"After assessing, Mwangi befriended a fundi who was working at one of the plots nearby. Mwangi asked the fundi about sources where he could buy building materials from. One day the fundi took Mwangi to Njiru, a nearby trade centre to show some of the materials. The purpose was to gain some information on type of materials and prices."

Along with identification of the "fundi", the allottee begins to inquire about the building materials; their prices, sources and types. There is also an attempt to cross-check the information which the allottee gathers, with other sources:

"Next day, Mwangi went to DCDD for some more advice. Once again, he was inquiring about the materials and their prices. At the office he was advised to use concrete blocks, iron sheets and so forth. All these materials could be purchased from the city centre, was the advice given to Mwangi."

A comparative idea is thus obtained, and based on this the allottee begins to decide about the "fundi" and materials.

The role of the "fundi" is to ensure the construction of the dwelling. Generally, he organizes his own construction team, which has an average of two to three "vibarua". The number of "vibarua" varies from task to task. "Vibarua" help the "fundi" on all technical matters. They are expected to follow the instructions of the "fundi". On all construction matters the "fundi" assumes the role of a team leader, supervises the work, does manual work at certain stages of construction and coordinates with the allottee.

Negotiations and the verbal contract with the "fundi" deal with the tasks and general responsibilities which the "fundi" is expected to assume. They also deal with the "fundi's" daily rates or the amount to be paid on a lump sum basis. The negotiations are informal and there is no written contract. Two cases are quoted here to illustrate the procedure of negotiations:

"Mwangi's brother-in-law resided in Kariobangi. He knew of a fundi whose mother resided in Dandora. This fundi would be able to do at a special price. Mugo negotiated with this fundi at a rate of KSh.600/- per room. This was the price of labour agreed. It was up to the fundi then to bring whatever extra men required."

Source: Author's participant-observation notes.

Similarly in case of another plot-holder:

"Lucy negotiated with the fundi about the rate and days during which he would work and any additional sources of labour required. The fundi was paid KSh.40/- per day and since he was a full time employee

in the construction company he would work only during Saturday afternoon and whole of Sundays. The fundi also got two more fundis. Both of these were paid KSh.35/- per day. Both of them would work during the same days and hours as the main fundi. The two fundis were however, paid half the rates during the Saturdays since they worked half days."

Source: Author's participant-observation notes.

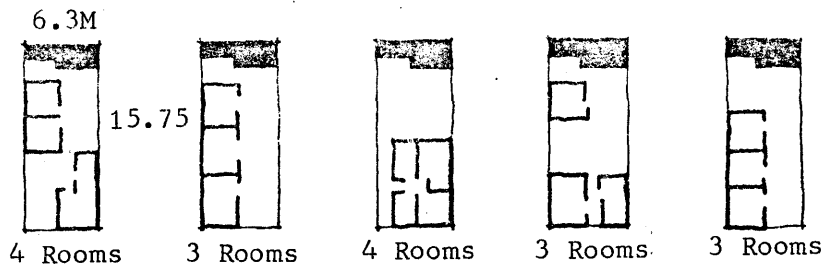
Such verbal negotiations are basic agreements between the allottee and the "fundi" about the rate and the method of payment. Agreements do not stipulate the definite tasks. Only the specific stages of construction are discussed. Defaults, delays and time schedules, as is the case in formal contractual agreements, are rarely discussed. As will be seen later in this chapter, deficiencies in such verbal and informal contracts often lead to loss of time, materials and labour to the allottee. Furthermore, there is no mechanism for enforcing the agreements.

Stage 2. Setting Out of the Rooms

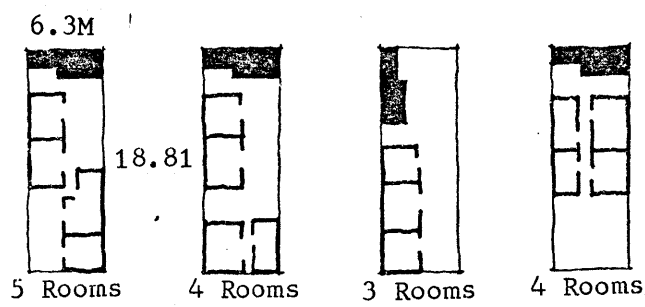
Figure 6.1 shows the typical house plans used by the allottees in the Dandora Project. These house plans are prepared by the Technical Division of the DCDD and sold to individual allottees at KSh.20/- for a set of drawings. A set of drawings consists of a house layout, location of the drains in relation to individuals' plots and details of the "wet core" facilities. Allottees are expected to conform to the specifications shown on the drawings. The individual plots are demarcated by the DCDD and the "wet core" forms a point of reference for setting out the rooms.

Generally, the setting out is done by the "fundi", although in some cases it is done by the plot-owner and a building foreman from the DCDD. The whole house is marked, including thicknesses of the external walls as

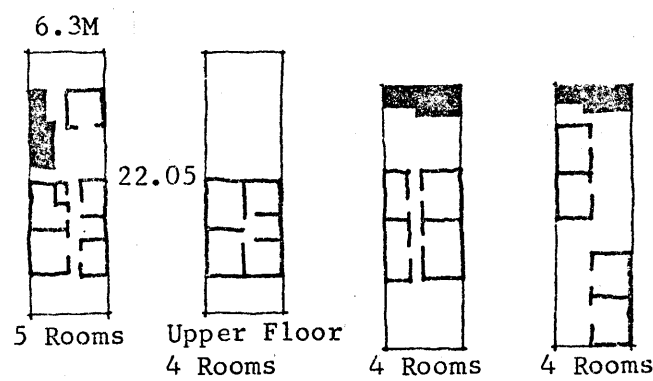
Plot Area
100 m.sq.



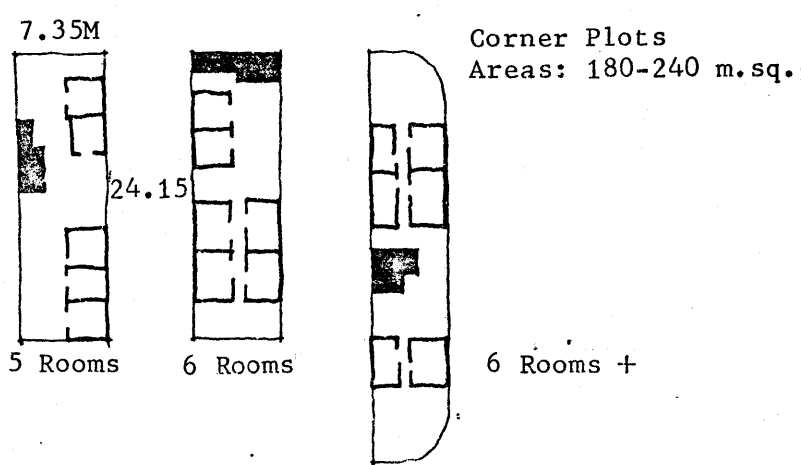
Plot Area
120 m.sq.



Plot Area
140 m.sq.



Plot Area
160 m.sq.



Corner Plots
Areas: 180-240 m.sq.

Figure 6.1 Typical House plans Prepared by the Technical Section of the DCDP (NTS)

Source: Monitoring and Evaluation Study of DCDP

well as the internal partitions. The location and the thicknesses are indicated by strings.

Where the setting out is carried out by the "fundi", it costs about KSh.50/- to be completed and takes about two days. When a "fundi" is hired for such a task, a lump sum amount is paid.

Some of the problems encountered by the allottee are the following.

1. The "fundi" has no tools, pegs, strings or "level". As a result, the allottee ends up buying such tools for the "fundi" at his expense. Such equipment may never be used again at a later date.

2. After the setting out is done, a building foreman has to be called from the DCDD to approve it. Observations suggest that it is often difficult to get the building foreman in good time. Foremen are occupied with other responsibilities and this leads to delays of two to three weeks. This sort of delay causes frustrations for the allottee, who is often a fulltime employee.

3. The responsibility of doing the setting out is not clear, since in many cases the building foreman does it for the allottees. Furthermore, the DCDD does not define the extent of setting out, that is, whether the whole house should be set out or only two rooms in case of type A plot and one room in case of type B plot. Since this is not clearly stated by the DCDD, the building foreman assumes authority by restricting setting out of the whole house. In an attempt to overcome this restriction the allottee who wishes to do the entire setting out offers "gifts" to the foreman.

Stage 3. The First Phase of Construction

After the setting out is approved by the DCDD, the next stage is excavation of the foundation trenches and construction of the foundation walls for the "minimum" number of rooms, generally two rooms in the case of type A plot and one room in type B. In the former case, one of the rooms is a kitchen. This stage of construction is referred to as the "First Phase" since the allottee commences with the "minimum" number of rooms.

Trenches for the Foundation

Trenches are excavated according to the foundation details provided by the building specifications. Generally, a depth of about three feet is excavated. There are some instances where the soil happens to be "black cotton" (not suitable for load bearing) and as a result the foundation trenches dug much deeper until solid rock is reached. In such cases the DCDD compensates the additional cost of excavation and construction of the foundation through an extra material loan.

Excavation is done either by subcontracting to a "fundi" or by the allottee. Subcontracting to a "fundi" is done because of the strenuous physical labour required for the excavation process. Generally the "fundi" is helped by two "vibarua". The method of payment is based on a lump sum, at an average of about KSh.100/- for excavation of foundation trenches for one room. The payment is made to the "fundi" who in turn has his own arrangement to pay the "vibarua".

Generally, the allottee prefers to get the trenches excavated for at least the minimum number of rooms required. There are also cases where the allottees have excavated the trenches for the entire house with a view to building the foundation walls accordingly.

Where the allottee decides to excavate the trenches on his own, he does so in order to save on a task which involves purely physical labour and to utilize the free time available, such as in the case of a member of a building group. Excavation made by the allottee generally takes an average of twice the time taken by the "fundi", per room.

During the excavation stage there are several problems which the allottee experiences with the "fundi":

1. Lack of enforcement of the contractual agreements in the overall completion of the excavation. The "fundi" may infringe upon the agreement, wherein a certain price is agreed upon, during the course of the excavation. Often the "fundi" asks for a raise and the allottee has no option but either to grant it, or to find a replacement. The latter happens when a "fundi" decides to disappear without informing the allottee.

2. A deficiency in the verbal contract is likely to be that it does not specify the task and responsibility of moving the soil from the site to a dumping spot. The allottee experiences this problem when, having excavated the foundation, the "fundi" refuses to move the soil because the agreement did not deal with this task. The allottee ends up moving the soil or hiring someone to do it, a task which often takes about three days. It often costs about KSh.100/- to remove the soil for one room.

3. The "fundi" is not well equipped to carry out the task of excavation. Once again, since not part of the verbal agreement, the allottee is expected to provide some of the implements, like a spade, wheelbarrow and hosereel. The allottee ends up either buying or hiring such equipment.

Construction of the Foundation Walls

Construction of the foundation walls starts after the excavation is made. The construction of the foundation and the footing involves purchasing building materials, preparing concrete for the footing and laying the foundation. Building materials used for this stage of construction are either solid concrete blocks or stones, reinforced concrete footing and cement/sand mortar.

On the organization side of construction, a new team has to be assembled at this stage, since the previous "fundi" often departs for one of the following reasons.

1) After the trenches have been excavated there is a waiting period of often up to four weeks, during which time the allottee is organizing the purchase of materials. The "fundi" therefore decides to find a job elsewhere, or

2) The allottee may have experienced problems with the previous "fundi" who did the excavation. For instance, there may have been an unanticipated increase in his labour charges.

Generally, the building materials are purchased by the allottee, a task which he prefers to do. This is with a view to save and look for cheaper or used materials. The allottee inquires and investigates from

various sources such as neighbours, friends and even the DCDD about different sources of building materials, price ranges and delivery arrangements.

There are suppliers operating at the estate. Often the allottees patronize these suppliers, primarily because of the convenience in delivery of the materials, a service provided by the suppliers. Furthermore, agents of the suppliers go around the estate to inquire personally about the needs of the allottees for any building materials. Generally, the building materials bought from suppliers at the estate tend to be 10 to 12 percent more expensive than material prices in Ruaraka and Njiru, each about 5 km. away.

Allottees attempt to get favourable prices. Bargaining is common and they tend to save on small items through this process. For instance,

"When they went to Njiru, the place from which Francis had bought the stones from, they had to bargain with the supplier. The stone was sold for KSh.1/40 per foot run. This was a high price. After prolonged bargaining they managed to buy at KSh.1/20 per foot run."

Source: Author's participant-observation notes.

Generally the "fundi" has no say in material purchases. Building materials are purchased in small quantities according to the situation defined by the subcontractor. Materials are stored at the site, in the open, except for cement which is kept in the store or in the temporary shelter.

Where mutual assistance is practised between neighbours, material is often bought in large quantities. This results in savings on transportation costs, better prices for large quantities and fewer visits to the supplier. On the other hand, two disadvantages experienced where material is bought in large quantities are 1) lack of control over the usage of

the materials and 2) risk of theft of the materials while stored.

In this stage of construction, a lump sum contract is not negotiated. The daily wage of the "fundi" is about KSh.30/- while that of each of the two "vibarua" is KSh.15/-. Thus the cost of labour totals KSh.60/- per day.

During the construction of the foundation the allottee assumes the role of supervisor. Often a relative or a friend of the allottee helps to supervise. The allottee's own presence at the site during the "working hours" tend to be minimum due to commitments at work. Generally, the "working hours" of the "fundi" and the "vibarua" are from seven in the morning until late in the evening, often until seven. The construction team takes a lunch break for about two hours.

There is a wide range of total time taken to complete the foundations. This is mainly because of the method of payment to the "fundi". The team works only on such days as the allottee is expected to pay. On the days when the allottee is unable to pay the "fundi", the team does not work. Meanwhile, the allottee seeks to raise some money.

For a typical room the team manages to complete the foundation in about two working days (assumed at about fourteen hours). Then about four to five days are required for the concrete footing to set before erecting the foundation walls.

In case of a room being built by an allottee who is a member of a building group, the entire labour cost is agreed upon by the organization of the building group from the start. There are therefore no variations in the labour costs at either this stage of construction or in the remaining stages. A lump sum is agreed upon to complete the construction

of a room, from excavation to roofing and finishes.

Once the foundation walls are built, the hardcore filling is compacted by the construction team. A building supervisor comes to inspect the foundation in order to approve the construction up to this stage and also to approve the first stage of the material loan which the allottee is eligible for. This material loan is intended to help the allottee towards the purchase of building materials for the next stage of construction.

At this stage of construction, those allottees who may have erected the foundation walls for more than the minimum number of required rooms are given material loans sufficient for only the two rooms in case of type A plot and one room in case of type B. As a result, many houses are completed to plinth level only, while the allottees wait for other finances to complete the rest of the rooms.

Some of the problems arising in this part of the second stage are due to lack of organizational abilities of the allottee to manage the "fundi's" performance through supervision as well as enforcement of the verbal contract. The problems experienced at this stage can be summarized as follows.

1. Delaying factors. These are several. First is the waiting period during selection and organization of the "fundi". This is particularly so when the first "team" of the "fundi" which was hired to do the excavation does not continue. The second factor which causes delays is when the allottee has to halt the team's work and seek money to pay the "fundi" and the "vibarua".

2. Lack of enforcement of the verbal contract and deficiencies in the verbal contracts. When the construction team is organized, the allottee

and the "fundi" enter into a verbal agreement, through negotiation. Generally, the agreement deals with the basic tasks required by the team and the amount and method of remuneration. However, the verbal contract does not stipulate more details such as tasks required to ensure completion of a construction activity. Furthermore, the verbal agreements do not deal with defaults caused by either party. Finally, the verbal agreement remains vague, often interpreted by the "fundi" to suit his convenience and performance.

3. Lack of technical knowledge in purchasing of building materials. The allottee purchases building materials after several attempts to find out about prices and the type of materials, in a hope to save. However, due to lack of technical knowledge about the materials and alternative sources to purchase from, the allottee's decision to purchase often turns out to be haphazard. Even the process of inquiring and finding out about materials is time-consuming.

Stage 4. Construction of the Walls

The general pattern at this stage of construction is for type A plot occupants to start construction of the walls for at least two rooms, one of which is a kitchen. Type B plot occupants build the walls for at least one room. The building materials used for construction of the walls, both external and internal are: concrete blocks, stones (about nine inches in thickness for the external walls and about four and six inches for the internal walls), iron hoof for reinforcing the walls, cement/sand mortar and reinforced concrete for lintol.

A typical cost range of these materials is given below for three rooms (one of which is a kitchen):

Sand	2 lorries (7 tons each) @ KSh.350/- per lorry. This also includes cost of transportation. Supplier from Ruaraka.
Stones	4 lorries. Each lorry carries about 350 ft. run of stones. Per foot run cost of the stone is -/80 cents.
Cement	15 bags @ KSh.27/20 per bag. This also includes transportation cost. Supplier from the Dandora estate.
Reinforcement bars	9 bars, three-eighth inch in diameter, @ KSh.1/30 per foot run.
Damp Proof	KSh.150/-.

Source: Author's participant-observation notes.

These materials are bought by allottees. Generally they are bought in small quantities as defined by the "fundi" and affordability of the allottees. There are some cases where, through mutual assistance, neighbouring allottees bought materials in bulk. This results in better prices, reduced transportation costs and fewer trips to purchase the materials.

In this stage of construction there are three variations in the organization of the construction team. In the first, the team involved in the previous stage continues with wall construction. On the second variation a new team is formed by the allottee. Or, having had some experience, the allottee leads the construction team himself. That is, the allottee assumes the role of a "fundi". In this case, the "fundi" is still hired to ensure allottee's performance is adequate.

Where the previous team assumes the task of constructing the walls, the allottee is already "used" to the "fundi's" ways of working. Observations suggest that the "fundi" and the "vibarua" continue to receive the same level of remuneration as before, that is KSh.30/- per day for the "fundi" and KSh.15/- per day for a "kibarua".

When a new team has to be assembled, there is a slight rise in the cost of labour, particularly for the "fundi"; KSh.35/- to KSh.40/- per day is common. The "vibarua" receive the same amount as before. In addition, a new working relation needs to be established between the allottee and the team. The "fundi" has to be oriented to the expectations of the allottee.

There are some instances where allottees have shown enthusiasm towards learning the process of laying blocks. Although some of these allottees are full time employees, they take some time off to participate with the construction team in the manual work of laying the blocks and building walls. However, in these circumstances there are no appreciable savings since the "fundi" is still retained to ensure the allottee's participation is adequate in construction matters. Besides, allottees tend to participate only during time when they are "free".

The process of wall construction involves -- first, laying of the water-proof membrane at the foot of external walls, with bitumenous paint. Second, erection of the external corner walls, followed by infilling parts of the walls. Door and window openings are left in approximate positions until finishing is applied. Cement/sand mortar is applied to bind the blocks or stones. When stone is used for the walls it is cut to size. This operation is carried out by a "kibarua". Edges of the stone

are cut at angles to take another course of stones at a "level". To reinforce the walls, iron hoof is laid either at alternate course or every third course. After reaching the wall plate level, a reinforced concrete lintol is cast insitu over door and window openings.

Reinforcement bars are laid in a skeleton form which in turn is placed in a wooden shutter, into which a cement/sand/aggregate mix is poured. The shuttering is held in position by supports for about five to six days to allow concrete to cure. This process is handled by the "fundi" with the help of "vibarua".

The allottee's role is to supervise the performance of the "fundi", purchase building materials when required and ensure enough money is available to pay the "fundi" on the daily basis.

Generally, the team works from seven in the morning until late in the evening. There is a wide range of total time taken to complete the walls up to wall plate level. Observations suggest about three weeks is an average time period for erection of the walls for three rooms. Rarely do the walls get built in one attempt. There are delays, waiting periods and problems in the organization of the construction team. There is also a lack of coordination between the allottee and the "fundi" in supplying the materials to ensure smooth erection of the walls. Some of the problems encountered by the allottees in this stage of construction are:

1. Delaying factors. When a new team is formed, the allottees experience prolonged delays in finding a suitable "fundi" and the "vibarua". Often "fundis" work at different plots in the estate, but are not available for several days at a stretch.

2. Problems arising from the weather. Rainy days tend to be very nasty. Allottees experience loss of some materials, particularly cement, in the rain. Also, walls which are left to cure are affected by rain. The "fundis" are not well equipped to protect newly erected walls from rain.

3. Lack of enforcement of the verbal contract and deficiency in the verbal contract. When hiring a subcontractor to build walls, a new verbal agreement is made by the allottees. Such agreement deals only with the basic requirement of the "fundi", which is to build the walls and for which the allottee would pay a certain amount of money on a daily basis. However, no other details are stipulated verbally. For instance, working hours, need for appropriate tools and equipment, variation in price of labour and expected time to complete the construction of the walls are not dealt with. Experience suggests that many allottees have encountered such problems as a sudden increase in cost of labour, irregular working hours, prolonged time for construction of the walls and in some cases, abuse of equipment which may be provided by the allottee.

4. Faults in the wall construction. There are technical problems in the construction of the walls. Often after their completion the size of rooms turn out to be grossly inaccurate. During inspection, the building supervisor from the DCDD insists upon demolition of some walls in order to rectify the errors. In such a situation, the task and responsibility of rectifying the error is not clear. The problem gets passed on to either the present or previous "fundi", to the allottee and also to the building supervisor who had approved the setting and the excavation. Generally, the allottee is left with the final burden of rectifying the

problem, often at his own expense. Once again, this problem is to some degree connected to the verbal contract.

5. Quality control in the construction of the walls varies. There are examples of both "good" and "bad" construction. Where the quality is bad, generally the performance of the walls is poor. For instance, cracks begin to appear at a very early stage. In one case, walls had even collapsed soon after erection, due to shocks from rock blasting in a nearby quarry.

Stage 5. Construction of the Roof

Construction of the walls represents a major activity in forming the shape of the room. After this, the allottees obtain their material loans. Type A plot occupants get a maximum of KSh.2,400/- for completion of the walls for two rooms, one of which is a kitchen. Type B plot occupants get a maximum of KSh.1,200/- for completion of the walls for one room.

This loan is generally channelled into purchasing building materials for the roof and paying for the labour costs. Almost the whole amount is spent on such roofing materials as iron sheets, timber rafter and purlins. In many cases allottees have subsidized costs of materials with their own incomes, or loans from other sources. A typical range of material is given below for two rooms:

Timber purlins and rafters	KSh.400/-.	Supplier from Ruaraka.
Corrugated iron sheets	30 sheets, 24 gauge. KSh.1,600/-.	Supplier from the estate.
Fascia board	KSh.80/-.	Supplier from Ruaraka
Source:	Author's participant-observations notes.	

For this stage of construction the materials are bought by the allottees and transported either by public means or on foot. Often allottees experience the need to travel on foot, over some two to three mile distances, carrying iron sheets on their head. This is in the hope of saving on transportation costs. Where mutual assistance is practised between neighbouring allottees, material is bought in bulk, with obvious advantages. Also, at this stage where the allottees practise mutual assistance, a bond of trust develops to the extent of relying upon one of the allottees to go around and do the "shopping" for the materials. In cases where the other allottees are full-time employees such an arrangement is convenient, and also saves in time, cost of transport and frequency of visits.

The organization of the construction team also varies. In this stage of construction either the previous team continues with the consent of the allottee or a new team is assembled by the allottee. The latter is the case when the allottee has to wait and prepare for financing the construction stage and the previous team decides to seek job opportunity elsewhere.

When a new team is organized, the allottee tends to negotiate payments in a lump sum. This is because of financial stress. The lump sum helps in saving when the time period for constructing the roof is not ascertained. Labour costs at this stage also begin to impose a more severe financial strain. Where the allottee decides to pay on a daily basis, the previous rates apply, that is KSh.35/- per day to the "fundi" and about KSh.15/- to a "kibarua".

In this stage of construction some of the materials, especially roofing sheets, from the temporary shelter are reused.

The process of laying the roof starts with timber rafters. This forms the basic structure and grid for the roof. In some cases even cross-members are also laid, the purlins. Iron sheets are then nailed. The underside of the roof is left as it is, without any ceiling. An average of about four days is taken for putting roofs on two rooms.

Some of the problems encountered by the allottees in this stage of construction are:

1. When a new "fundi" is hired for this stage of construction a main problem experienced is that the "fundi" works slowly, partly because of the need to become used to the work completed by the previous team, and partly because of an intent to earn more. This is true when the "fundi" is paid on a daily basis. In order to gain the confidence of the new team, the allottee has to spend more time at the site, supervising. When the team turns out to be performing poorly it is too late for the allottee to do anything. Observations suggest that when the team is new in this stage of construction, the roof is poorly laid. Assessment of this by the allottee is difficult, until the building supervisor inspects the roof. Invariably such a roof must be done again. The allottee has to foot the cost, mainly that of labour. This could be seen as part of the deficiency in the verbal agreement between the allottee and the "fundi", concerning defects and liability of the subcontractor.

2. Roofing represents a relatively expensive part of construction, especially the materials. Allottees experience two main types of financial stress in the construction process: 1) Payment to the "fundi"

for the backlog amount and 2) need to purchase materials for the roof.

In an effort to find individual compromises one of the following approaches is taken: 1) Wait until one has enough money to purchase materials and to pay the backlog amounts, 2) borrow from other sources and overcome both the strains temporarily, 3) just roof one room rather than all. The latter approach is the most common.

After completion of the roof the allottees receive their third part of the material loan. Type A plot occupants receive KSh.1,360/- for two rooms. Type B plot occupants must wait to complete the final stage of construction, that is fitting and finishes, before they are eligible for KSh.680/- for one room.

Stage 6. Fittings, finishes and Other small fixtures

In this last stage of construction the subcontractor carries out the tasks of installing doors and windows, plastering and painting walls and building the chimney in the kitchen. Although the activities involved in doing these last "bits and pieces" appear minor, in practice they consume a lot of time and often different subcontractors are required to do different jobs.

Installation of doors and windows is carried out by one team. Plastering and painting and construction of the chimney in the kitchen is done by another team. Different teams have to be set up each time by the allottee. This is because either the allottee is not able to finance labour costs and purchase materials, or the "fundis" are simply not skilled in carrying out all of these activities. These tasks in this

last stage of construction are seen as fairly "special". As a result, and because of specialisation required in the job, extra expense is involved for the allottee. The nature of the work requires setting up of work teams more often. The tasks which constitute the final stage in the completion however, accomplish no more than to give a "clean" appearance to the rooms. There are also many houses where allottees have applied decorations, a step beyond just painting, or even plastering, the internal walls.

This stage of construction is characterized by different teams of "fundis". Generally, the previous team, which completed the roof, does not continue in this final stage because the allottees are in the process of raising enough money and the team feels incompetent to do installation of doors or plastering. A different set of skills is then sought. The first new team generally installs doors and windows. The "fundi" is paid on a per installation basis, say KSh.25/- per door or window. Such fittings are bought at the following prices and places:

Windows	Metal windows @ KSh.180/- each. Generally bought from Eastleigh and Kariobangi. Sometime allottees also buy from the city centre, although the prices in the city are higher, by about 15 percent.
Doors	Batten doors, with frame @ KSh.190/- each. Also bought from places mentioned above.

Source: Author's participant-observation notes.

The subcontractors take about three to four days to install doors and windows for two rooms.

For plastering, another set of subcontractors is hired. The method of paying for plastering is based on the number of corners plastered. For plastering two corners of a room a "fundi" is paid about KSh.40/- and for screeding floor about KSh.35/-. Cement/sand plaster is the common form of finishing, both for the walls and floor. Painting is often done by the allottees themselves, a task which they seem to enjoy doing on their own.

The same team that does plastering also casts the insitu kitchen chimney. A labour cost of about KSh.35/- to KSh.40/- is paid at the daily rates. It takes about a week to complete construction of the chimney.

In this stage of construction allottees undertake the task of organizing two different teams of "fundis" for each activity and also enforcing the agreements, a process which is quite time-consuming and also inconvenient. Much time is spent looking for "fundis" who are skilled in different forms of construction. Because of the specialisation required at this stage, the labour costs tend to be higher, beyond the cost of just installing the doors and windows.

Chapter 7

Building Group as a Form of Self-Help

Introduction

One of the hallmarks of community development, both in spirit and in action, is collective organization of the allottees. Building groups are initiated both by the residents of the Dandora Project and the DCDD, through the Community Development Department of the Project. Their basic objective is to organize collectively, and through human and material resources, help the individual members of the group to build a room.

Building groups represent allottees who are in genuine need of assistance during the construction process. The dominant factors which characterize members of a building group are; 1) lack of technical and organizational abilities and 2) lack of finance to commence even the first stage of construction. These two factors tend to pull such allottees who have no sense of direction to commence construction. Furthermore, allottee members of the building group tend to be those who are either old or young and those who do not have regular incomes. Observations also suggest that building groups have more female than male members.

This chapter deals with the following aspects of the building group as a form of self-help: general objectives of a building group, its

organization, rules of the group, the role of an allottee and some advantages and disadvantages of a building group.

General Objectives of a Building Group

Basic objectives of a building group are to build at least one room for each of the members. There are sometimes other objectives, such as improvement of nutrition and assistance in growing food individually.

Building groups have other interests such as promoting the welfare of the community in cultural activities and so forth. However, construction of the rooms remains one of the prime purposes of most of the building groups.

Organization of the Building Group

A building group is organized on the principle of a financial rotation system. Under the system, group members contribute to a common fund which is then utilized in the construction of the rooms. Individual members rely upon their material loans as the source of their contribution.

There are a number of building groups in the estate. Table 7.1 shows the list of the several building groups that operate in the Dandora Project. Each consists of about fifteen members. Generally, building groups have their own organization patterns, methods of working, and their own rules and schedules. A typical building group has office-bearers who call meetings, keep accounts and delegate responsibilities to members. The office-bearers also subcontract construction of the rooms on behalf of the members. Generally, there is a chairperson, two

Group Name	Date contributions started	Total No of Members		No. rms planned	No. rms built Oct 78	Monthly Contributions KSh.	How Contributions Used	
		M	F					
Mwireri	March 1977	12	7	5	18	12	100 for 2 rms	Labour only
Giikaro		11	2	9	11	11	550/rm built	Labour only
Komo Rock		16	8	8	16	16	50 for 1 rm	Labour only
Mwako		8	2	6	16	16	120 for 2 rms	Lab & some materials
Baraka		13	7	6	13	13	100 for 1 rm	Lab & some materials
Mwangaza	April 1977	6	1	5	12	12	100 for 2 rms	Lab & some materials
Subira		13	2	11	26	24	100 for 2 rms	Lab & some materials
Kugeria		10	6	4	19	16	2,500 total for 2 rms	Lab & some materials
115 Upendo	July 1977	10	0	10	20	14	150 for 2 rms	Lab & materials
Muongano		11	8	3	11	9	150 for 1 rm	Lab & Materials
Bahati	August 1977	10	4	6	20	12	150 for 2 rms	Lab & some materials
Umeme		13	8	5	26	14	100 for 2 rms	Lab & some materials
Mwenge		10	9	1	20	11	110 for 2 rms	Lab & some materials
Rumwe	Sept. 1977	7	2	5	14	8	100 for 2 rms	Lab & some materials
St. John	Nov. 1977	8	2	6	15	6	110 for 2 rms	Lab & some materials
Total		158	68	90	257	194		

Table 7.1 Comparison of Building Group Performance on a number of Variables

Source: Monitoring & evaluation Study of the DCDP, March 1979

secretaries and a treasurer. The chairperson is responsible for calling the group meetings. Meetings are held twice monthly, at the beginning and middle of the month.

The secretary keeps all the records of those who contribute. Two secretaries are selected by the group to ensure its smooth functioning. One of the secretaries assumes the task of looking for a "fundi" and negotiates the rates and the responsibilities of the "fundi". Once again, the contractual agreements between the "fundi" and the building group are verbal. None of the agreements get written down formally. Generally, only one "fundi" is selected to complete construction of one room for each of the group members. An approximate time is also agreed upon for completion of one room. Generally, when a building group employs a "fundi", he is paid on a lump sum basis for either a particular stage of construction or for construction of the entire room.

The chairperson is elected by the members of the group. His role is to call meetings regularly, ensure functioning of the committee members and attend to matters affecting the general interests of the group. The chairperson more or less assumes a managerial position.

Frequently during regular meetings of the building group a representative from DCDD attends to assist the group in technical, organizational and financial matters.

A building group establishes its own rules and regulations, which the members have to follow. Generally, delinquent members are removed from the group. The process of removal is through unanimous decision of the members of the group.

Rules of the Building Group

1. Since there are about fifteen members in a group, a method needs to be devised for selecting the order in which the members' rooms will be built. Generally, alternatives are discussed in meetings, but the one most commonly employed is the raffle system. The raffle system works on drawing of numbers. For instance, fifteen serial numbers are mixed and each time a number is drawn. This is performed during the regular meetings.

Prior to this, a consensus is reached about which number will be considered first, which one second, third, fourth and so on. In case of a particular group, for example, the "Komo Rock" building group, the number sixteen was considered as the qualifying number for whom the first room was to be constructed. There are sixteen members in this building group. The allottee whose room was constructed second was the one whose raffle number appeared to be first. The third allottee was the one whose number appeared to be fifteen. The fourth allottee was the one whose number was two and so forth.

2. Each member of the group has to contribute a certain amount of money every month until every member's room is completed. For instance, in the "Komo Rock" group, each member had to contribute KSh.50/- every month. This money is then paid to the "fundi" for the cost of labour. During one month the contribution to the "Komo Rock" group would total KSh.800/-, an amount which is paid to the "fundi" for the labour cost. The "fundi" is expected to complete the construction of the room within a corresponding time period.

3. Whenever a room for any member of the group is to be commenced, every member must contribute a specific amount of money. For instance, a nominal amount of KSh.5/- in case of the "Komo Rock" group. A total amount of KSh.80/- is collected. This amount is paid to the allottee member who hires his own "fundi" specifically for the purposes of excavating the foundation trenches. The "fundi" who is hired by the allottee is different from the one which is hired by the group.

4. After formation of the group and organization of the committee, the members of the group collect their first material loan in the amount of KSh.400/-. In case of "Komo Rock" group it totalled KSh.6,400/-. Out of this sum, the building group offers a lump sum to the first and second allottees eligible to commence the construction of their rooms.

5. As construction of the room proceeds, the allottee receives the material loan at various stages, in small increments. Table 7.2 shows the disbursement of material loan through various stages, as laid down by the DCDD. All these loans have to be returned to the building group until the amount which the allottee had taken at the start of construction of the room is completely paid. For those who do not pay their contribution regularly, a small fine is imposed by the group. When a member fails to pay at all the committee may remove him from the group.

The Role of an Allottee

Members of the building group are expected to participate in the group meetings. Underlying their participation, the group hopes to increase the awareness of allottees in the organization and management of construction of their rooms. Allottees discuss these issues during their

Table 7.2

Material Loan Disbursement Schedule

Amount Disbursed (KSh.)

Loan Stage	1 room		2 rooms	
		Cumulative		Cumulative
Preliminary (trenches dug)	400	400	400	400
Stage 1: Foundation slab complete	600	1,000	1,200	1,600
Stage 2: Walls built to roof level	1,200	2,200	2,400	4,000
Stage 3: Roof complete	680	2,880	1,360	5,360
Final Stage: Finishes complete	0	2,880	400	5,760
Maximum Payable		2,880		5,760

Source: Housing Development Department, DCDP

group meetings. Such issues range from personal problems to technical matters.

Once the group hires the "fundi", the role of the allottee is similar to the one described in the case of the subcontract model. As in the case of the building group, the allottee's role is limited to purchasing building materials and general supervision of the subcontractor.

Some Advantages and Disadvantages of a Building Group

1. Most allottees have no money at the start of construction. At this stage, some money is required to pay subcontractors to do the setting and to excavate. The building group's financial rotation system and capability to pay in a lump sum for the construction of a room reduces the financial stress on the individual allottee. With a lump sum he is at least in a position to initiate the first stage of construction -- setting and excavation.

2. The building group also finds the subcontractors on behalf of the members of the group, a task which requires identification and negotiations before a suitable "fundi" is selected. The building group often has suitable skills and resources for identification and negotiation, and these are carefully applied by the committee members of the group.

3. Regular meetings of the group benefit the allottees. Allottees' experiences and situations are discussed and the group members attempt to find some solutions. For instance, how to approach the DCDD to seek some specific help, how to arrange for transport by using some friend's vehicles, what are the best times to judge the performance of the "fundi",

and so forth. Group meetings are very lengthy and they touch upon many issues. Those allottees who learn from other members find it useful when they construct their rooms.

4. Building groups being a typical representation of the needy allottees, the DCDD tends to have a sympathetic attitude towards assisting the groups and seeking ways to alleviate personal problems of the members. For instance, allottees are required to repay their loan money every month. However, many allottees run into arrears. According to the regulations of the DCDD, allottees who run into arrears for consecutive months are to be evacuated from the Project in order to recover the plot cost and the material loans through resale of the plot and any completed room(s).

In case of a such delinquent member the matter is often handled by the building group. For instance, the group often prepares the individual's case on its merits, with a view to seeking an extension for repaying the loans on behalf of the allottee member. The building group's strength induces listening by the DCDD on behalf of the allottee.

Disadvantages

1. Although the spirit and activity of the building group represents a true picture of self-help, the members often take undue advantage of the group. The building group also provides a political lever for some of the members.

There are no records available regarding the contribution and payments. Accounting systems are often poor. Knowing the general level of members' education as "illiterate", some of the more knowledgeable members have a better standing in the group; either in having access to the funds

or making better deals with the "fundi".

In the Dandora Project there are several building groups. Collectively, the group's overall output is relatively less than that of non-members. This is often viewed as a result of groups being grounds for wasteful meetings, lengthy discussions, gossiping and finding loopholes in the Project's system.

2. During the negotiations and verbal agreements between the building group and the "fundi", the range of discussions is still limited to simple tasks expected to be performed by the "fundi" and the associated remuneration. There are no specific stipulations about defaults, defects and liabilities, as in the more formal contractual agreements between client and a contractor or a subcontractor. Besides this, the agreement often reached is between the committee member and the "fundi". In practice, when the "fundi" is working at a plot of one of the members, he is in a better position to interpret the contractual terms with the allottee member often to the "fundi's" advantage. Committee members do not supervise, regularly, the "fundi's" performance and it is assumed that the "fundi" will take proper care of the site works.

3. There are many delinquent members within a group. Often, members do not turn up for the meetings, or pay their contributions. In a building group there are both active and dormant members.

It is the dormant member who often represents a liability to the group. Although the spirit of the group is to help even the dormant members, those who have no sense of direction in the construction process or who have an indifferent attitude, make it difficult for the group to draw a line

between giving assistance and showing reservations. In case of a delinquent contributor the group obviously initiates to remove him. However, with the member who may have paid a certain contribution, it becomes difficult for the group to value the member's support and to reimburse the share.

There is no prescribed methodology for assessing the performance of a building group and its constituent members, in terms of economic and social costs, and benefits.

4. With delays in contributions and decision-making during group meetings, which may not suit every member, there arise frustrations of waiting. Often members who had joined the group in good spirit decide to leave quite soon, just because nothing seems to happen.

There is also quick changeover amongst the committee members. Often, seeing slack performance of a group committee, members find it disappointing to continue. Looking after the group's interests and without any direct benefits, the committee members find building groups chaotic and also find it difficult to implement decisions.

Chapter 8

Uses, Costs and Benefits of the Completed Dwelling

Introduction

After completing construction of the dwelling, the allottees' next decision is to maximize useage of the dwelling for social and economic benefits. This chapter generalizes some of the social and economic costs and benefits resulting from useage of the completed dwelling. It is divided into two sections; factors affecting useage of the completed dwelling, and the social and economic cost/benefits of the dwelling.

Factors Affecting Useage of the Completed Dwelling

Participant-observations of the allottees reveal several factors which affect and influence useage of the dwellings. These can be summed up as, extent of dwelling construction, maintenance, and the appeal of subletting.

Extent of Dwelling Construction

There are three broad categories representing extent of dwelling construction. These are a fully completed dwelling, an average completed dwelling and , a partly completed dwelling.

A fully completed dwelling is one where the maximum permissible built-up area of the plot is utilized; about 50 percent of the plot area. The

number of rooms built average five, including the kitchen. They are constructed according to the building specification and house type plan provided by the DCDD. The entire construction is completed within 18 months. The plot is clearly defined by boundary walls and an entrance gate. Appendix three shows an illustration of a fully completed dwelling.

An average completed dwelling is one where the minimum number of rooms have been completed, as laid down by the DCDD. That is, two rooms (one of which is a kitchen) on type A plot and one room on type B plot. The plot-owner has commenced construction of more rooms with a view to utilize the remaining plot area. The outdoor space is not yet treated with any form of finish and the plot boundary is undefined. The interior of the rooms lack all finishes. Appendix four shows the illustration of an average completed dwelling.

A partly completed dwelling is one which falls short of the above established "benchmark" of minimum construction by the DCDD, within the specified 18 months. The plot-owner has barely completed this minimum construction. Appendix five shows an illustration of a partly completed dwelling.

Maintenance

The second factor which has a bearing on the useage of the dwelling is maintenance of the dwelling, plot and "wet core".

Broadly speaking, there are two observations on the level of maintenance. First is the case where the dwelling, plot and "wet core" are well maintained. This means that appropriate useage is being made

of the dwelling, plot and "wet core". The plot is well defined and care is taken of the outdoor space through some form of finishes and maintenance. Visual privacy is achieved by some means. For instance, a boundary wall is erected. The "wet core" is restricted to the use for which it was meant; the "core" is kept clean and so is the splash area. The private spaces (bed rooms) and public spaces (lounge) are well defined. A sample survey of the household possessions, as shown in Table 8.1, reveals well equipped rooms with furniture and other personal belongings. Illustration in Appendix three shows such a type of well maintained dwelling.

The second level of maintenance is comparatively poor. That is, the dwelling, plot and "wet core" are inadequately taken care of. For instance, the "wet core" is in poor state of condition, water from the "wet core" runs through the plot in an open drain. The splash area is unclean, with debris lying around. Often there is grass overgrown around the plot. There is no plot boundary and as a result there is poor visual privacy from the adjoining plots or the street. The outdoor space of the plot is often retained in murrum and not treated with any finishes. Remains of construction material lie around in the open. Very often, where a dwelling is partly completed the rooms lack the type of privacy as is often maintained in the fully completed dwelling. A sample survey of dwellings which are poorly maintained also reveals comparatively fewer household possessions. Illustration in Appendix five shows a poorly maintained house.

Table 8.1

A Sample of Household Possessions

1. Equipment

Pieces of timber plans
Concrete blocks
Wheelbarrow
Hosereel
Empty paper bags
Spade
Empty cans and drum
Gas cyliner
Kitchen utensils
Kerosene cooker
Kerosene lamp
Wash basin
Clothlines

2. Furniture

Cooking Space

1 table
1 chair
1 bed
1 cupboard

'Living' Space

1 table and six chairs
1 coffee table
2 easy chairs
1 sofa

Private Spaces

2 beds
3 cupboards
1 table

Subletted Rooms

3 beds
1 cupboard
5 chairs
3 tables

3. Ornaments

Photographs and pictures
Flower pots

4. Valuables

Clothes
Money
Radio

Source: Author's
Participant-observation
notes. Allottee of plot
number 272 A

The Appeal of Subletting

This factor is closely associated with the economic situation of the allottee family, the general needs of the family, the extent of dwelling completion and its maintenance. To some extent the allottee's attitude also influences the appeal of subletting, often as a result of the family's situation.

Observations suggest there are two basic motives for subletting a dwelling. First is the lucrative profit-making associated with complete subletting. In that case, the allottee resides outside the estate and sublets the entire dwelling. The second motive is to earn a subsidy to cover the economic costs of the dwelling, through partial subletting. That is, the allottee family resides in the same dwelling along with a tenant family. The number of tenants may vary in partial subletting.

The lucrativeness of the return from the dwelling is illustrated by the Table 8.3. The table illustrates the "internal rate of return" of an investment in a typical type B plot, 140 m.sq. in area, developed with four rooms, at a cost of KSh.14,400/-. The plot-owner is eligible for a material loan of KSh.2,880/- and it is assumed he borrows the difference of KSh.11,520/- from a commercial bank at 10 percent interest repayable over three years. It is also assumed that the rooms are built within three months of allocation and rented out at an initial rent of KSh.150/- per month. Rents are assumed to increase at a rate of 10 percent per year for 12 years. Monthly repayments are assumed to be zero. The initial rate of return of the investment is 100.8 percent over the first 12 years. By the fourth year the owner collects KSh.6,650/- per year. If this was his only income, he would automatically be better off than

Table 8.2

A Simplified Breakdown of the Main Costs of a Permanent Dwelling Consisting of Two Rooms (KSh.)

	<u>Labour</u>	<u>Material</u>
1. Setting up of the Whole Dwelling	50/-	-
2. Excavation of trenches	200/-	-
Removal of soil	200/-	-
3. Construction of foundation walls	240/-	2,000/-
4. Construction of external and internal walls	540/-	2,537/-
5. Construction of roof	180/-	2,080/-
6. Fittings	125/-	370/-
7. Plastering	240/-	-
Total	1,775/-	6,987/-

Source: Author's participant-observation notes

Table 8.3

Cash Flow for a Sample Plot Development
(KSh.)

Year	Rental Income	Payment to Project Agency	Commercial Construction Loan	Net Cash Flow
1.	5,400/-	3,024/-	4,632/-	-2,256/-
2	7,920/-	"	"	264/-
3	8,712/-	"	"	1,056/-
4	9,576/-	"	"	6,552/-
5	10,536/-	"	-	7,512/-
6	11,592/-	"	-	8,568/-
7	12,744/-	"	-	9,720/-
8	14,028/-	"	-	11,004/-
9	15,432/-	"	-	12,408/-
10	16,968/-	"	-	13,944/-
11	18,672/-	"	-	15,648/-
12	20,532/-	"	-	17,508/-

45 percent of Nairobi's population.

It is assumed, in the calculations, that the owner occupies the contractor-built kitchen, or that it is shared by the occupants of the four rooms. In fact, it is more probable that the owner will be an absentee landlord and sublet the kitchen as well. In this case, he will receive an additional KSh.200/- per month in the first year because the kitchen has its own water supply and chimney flue. If this extra revenue is taken into account in the example given, the "internal rate of return" jumps to 687.4 percent. Observations suggest there are some 25 percent absentee landlords in the Dandora estate.

Partial subletting is argued to be justifiable. This is on the grounds that partial subletting earns an essential income, an income which can be ploughed back into meeting the economic costs of the dwelling, a form of subsidy. The DCDD views partial subletting as "acceptable". Complete subletting is, on the other hand, not "acceptable" to DCDD. It is considered a violation of the rules, at least for the first five years while the interest is being recovered by the DCDD.

Social and Economic Costs and Benefits of the Dwelling

It follows from the preceding section that there are social and economic costs and benefits as a result of useage of the completed dwelling. Although several factors affect and influence the useage, generalizations can be made regarding some of the main social and economic costs and benefits. On the economic side there are economic costs of construction, material and labour, capital and utilities, savings and income. On the

social side there are security/stability, status, pride, educational value, social stress as a result of difficulties in repayment, lack of family privacy due to partial subletting and often break in family structure.

The Economic Costs and Benefits

These are based on the actual costs of construction and the economic benefits that the dweller derives. The main components of the economic costs are the material and labour. The latter component generally forms about 25 percent of the total cost of construction, as shown in Table 8.2. Other costs are those of capital and utilities.

On the economic benefits side the investment is viewed in terms of savings and the returns that the plot allottee gets. As seen in the Table 8.3 the high "internal rate of return" suggests one of the dominant economic benefits of the investment. There are multiplier effects as well. For instance, reports one of the local newspapers.

"an underground capital market has sprung up to finance the building with a flood of money from the rural areas to support (and eventually share the gains of) the lucky relatives whose two roomed council house envisaged by the planners has quickly become a six room lodging house."

Source: "The Nairobi Times" (Date not known)

On the other hand, where the dwelling is used primarily for accommodation purposes of the plot-holder the major economic benefit is the savings derived from rents that one would pay in any case. The opportunity cost of the capital thus realised in the absence of rent-paying is a singular economic benefit.

Social Costs and Benefits

These form important components of self-help, whether of the allottee-built or subcontract form. There are hidden costs as well as multiplier effects from the allottee's participation, which results in improving the social position of the allottee. Both the social costs and benefits are difficult to assess and yet they are vital in measuring the impact of the housing policy on an allottee.

Social cost is discussed on the basis of two interconnected issues: social stress on the allottee and the effects of residing in the estate on the social characteristics of the allottee.

Social stress is a result of financial need, change of income level and increase in responsibility for retaining the security of the plot-holder's investment. For instance, the repayment period of the loans borrowed by the plot-owner is thirty years, a significant length of time for the plot-owner to bear the responsibilities of financial stress.

Along with added cost for upkeep of the investment, the allottee also experiences change in income level. Generally, after moving into the estate, the income distribution of the allottee population changes and so does the income differential. It is the latter one which affects social costs.

There are two groups of allottees which are subject to the change in income differential. The first one experiences a rise in income due to income from subletting, in addition to other supplementary incomes. The second group experiences a fall in income level. This is because of unanticipated costs which the allottee has to bear or simply the change

of residence which causes change in jobs or businesses. It is this group of allottees whose drop in income causes significant social stress. Running into regular arrears, defaults in payments and most of all, lack of management in the use of the dwelling are some of the direct reflections of this stress.

The other social costs are experienced as a result of subletting to tenants. These occur in the form of rent payment defaults or leaving the rooms at short notice. Other noticeable costs are lack of privacy when the dwelling is partly sublet, and overuseage of the dwelling's facilities, often at the expense of the allottee family's useage or comfort.

There is another group of allottees which experience no income differential even after moving into the estate. Such a group manages to reach an "income balance" through appropriate useage and management of the dwelling.

On the social benefits side the singular benefit which the allottee family enjoys is the sense of security derived out of the investment. This sense of security multiplies into other forms. Climbing the social ladder in the urban context is the next step which the allottee begins to ponder about; social status, improvement in job opportunities and a "foothold" in the urban economy.

The allottee as an immigrant used to experience such problems as harassment from landlords, lack of services and utilities, unaffordability in rents and fear of being harassed from council's police. These are now

overcome, a relief which the allottee feels is worth the effort of moving into the estate at the cost of self-help practices. The once-upon-a-time immigrant now feels a sense of pride in possessing a dwelling in the city; "how many people can really have a house in Nairobi", remarked an allottee and "let's face it, it's not easy".

One of the most important benefits that the allottee derives is the educational value of the process of constructing his own dwelling, organization of the construction team, management of resources that one needs in order to build and the drawing of "critical path" for undertaking various activities.

Allottees have now a stable accommodation and generally manage to send some earnings back home. One of the early objectives behind immigrating to the city is now beginning to be fulfilled.

Chapter 9

Conclusions

Introduction

The final chapter examines the lessons learned from the self-help practices of the Dandora plot-owners. Specifically, this chapter deals with assumptions vs. the practice of self-help and the conclusions derived from the study on self-help practices in the Dandora Project.

Assumptions vs. The Practice of Self-help

Reference is made to Chapter 2, where the assumptions on self-help are set forth as an element of the planning process for the Dandora Project. These assumptions are now compared with the experiences of the plot-holders as presented in Chapters 4, 5, 6 and 7 of this study. This section highlights the points of convergence between the two as well as the areas of discrepancy as observed from the analyses.

Assumption 1: Immigrants' first Priority is to Seek some Form of Income, whether in the "Informal" or "Formal" Sector.

This assumption holds true for the most part. Case studies reveal that once house consolidation is completed the dweller's priority to continue to improve his income level is strongly maintained. This is substantiated

by the fact that the dwelling may be used for income generation.

One of the important uses of the dwelling is income generation. The relative success of the Project is determined by whether or not it serves the intended target population and this is measured according to income level. Observations suggest that the dwellings in Dandora are often occupied by Nairobi's "middle-income" group, while the intended "low-income" group, continues to reside in squatter settlements. In Chapter 8 it was shown that the return on investment is very high. It is this attractive profit which leads the dweller to sublet.

The case histories of the dwellers suggest that after coming to the city, their lessons on self-help methods for surviving in the city commence. The educational experiences derived from the stresses of living in the city drive the immigrants to "earn on their own". It is this inevitable process of economic adjustment that begins to shape the immigrants' hopes and priorities; an early one is to seek a job and have "enough". This shift from the early hopes for which the dweller had immigrated to the realities of urban living gives rise to the methods of self-help survival.

Assumption 2: Owner-dweller is left to Decide about Application of Own Resources; Either to Hire Others for all or part of the Work, or to do it Himself.

"Instalment construction" and "autonomous decision-making" are some of the terms used to define this important component of self-help practice where the owner constructs his own dwelling. These terms are understood to mean planning and constructing a dwelling step by step as and when

resources permit to suit a dweller's situation. The dweller is a main actor in the decision-making process of both planning and building. While this assumption generally holds true, it does not discriminate among the forms of self-help and the various issues faced by the owner-builder. These can be summed up as follows.

One of the contradictions about "application of own resources" observed is that the dweller does not necessarily apply his own resources. Rather, the resources are hired, borrowed or reused.

The decision-making process in construction is not a simple, one shot effort by the owner-builder. It is based upon several factors. These are essentially the techniques of construction commanded by the owner-builder; the amount of time at his disposal; insight into organization of construction processes; extent of technical knowledge about construction materials, their prices and sources, and organization of a construction team; drawing up suitable contractual agreements and enforcing them; dealing with defaults caused by the "fundi"; and managing the useage of the dwelling for its social and economic benefits. Deficiencies in these on the part of the owner-builder are likely to lead to the process of "instalment construction"

The case histories reveal that rarely does one construction team continue with all stages of dwelling construction. Typically, the foundation is done by one team, another team does the walls, another team does the roof and finishes are applied by a different team. It is this "instalment" of the resources that need to be understood in order to comprehend the form of dwelling construction.

Another problem is the lack of ability of the owner-builder concerning subcontracting procedures. The subcontract form of self-help, as described in Chapters 6 and 7, is an important option in owner-builder dwelling construction. The DCDD assumes that the owner-builder would hire a subcontractor to construct part of the work or to complete the dwelling. The divergence between the objective held by the DCDD and the actual situation occurs when the owner-builder cannot manage to identify hire and organize the type of subcontractor appropriate for a particular stage of construction.

Yet another divergence between the DCDD's objectives and actual observations at Dandora has to do with the types of tasks and responsibilities expected from the "fundi". Rarely does the owner-builder have a clear idea about the nature of the tasks and responsibilities he requires from a "fundi" at the time of hiring. Although the owner-builder attempts to undergo an exercise in observation and selection, rarely is the allottee equipped with the criteria to select a "fundi".

Another discrepancy between the assumptions upon which DCDD objectives are based and actual practice concerns the ability of the owner-builder to enter into negotiations with the "fundi". Whereas it is assumed that the owner-builder may hire skilled resources for dwelling construction, observations suggest that rarely are proper negotiations conducted. For instance, tasks, responsibilities, default liabilities, period of execution, labour costs and their variations, are rarely discussed or given forethought. The owner-builder who has no prior experience in the construction of a dwelling lacks an overview of the construction process.

The "fundi", understanding better the "critical path" of construction has an edge on the organization and control of the process. This knowhow in itself often places the owner-builder at the mercy of the "fundi" and his sudden increases in the cost of labour, abuse of construction material provided by the owner, undue delays, and so on.

Another divergence which warrants special mention concerns the broader assumption of "autonomous decision-making". It is implicitly understood by the DCDD that the owner-builder is central to all decision-making in planning and construction of a dwelling. However, in the case of subcontract form of self-help, the anticipated level of "autonomy" associated with the owner-builder's decision-making is far from what the observations indicate. They suggest that rarely does the owner-builder make decisions during actual construction of the dwelling. Most of the decisions are made by the "fundi". The role of the owner-builder is limited to the pre-construction phase, as described in Chapter 6. So then, during construction, control is generally wielded by the "fundi" rather than the owner-builder. The assumption of "autonomous decision-making" implies the role of the owner-builder as an actor throughout. But reality suggests that the owner-builder is more that of an observer cum participant.

The issue of "autonomous decision-making" is important since a decision-maker defines the nature, use and timing of the resources required and used. "Autonomy" in decision-making can also be viewed as "control".

Where the allottee-built form of self-help is adopted, in which the owner applies his own resources predominantly, observations reveal that the decision-making process is greatly influenced and so is controlled by

the DCDD. DCDD's view for instance, on the temporary shelter, is an example of the autonomy of the allottee not being recognized. Reluctance by the DCDD to accept the temporary shelter, removal of the shelter after completion of the permanent dwelling, and enforcement of the DCDD rules on the owner-builder as they pertain to the use of the temporary dwelling, are controls which limit the autonomy of the dweller.

Equally applicable to this argument is the case of the useage of a permanent dwelling. Where the useage of the dwelling is purely for income generation it is considered a violation of the rules set by the DCDD. Whether this should be permitted or not is a matter of further policy discussion. However, the phenomena goes to show that the plot-owner controls useage and thus has some degree of autonomy. To what extent limitation on this autonomy affects the third assumption concerning "channels of upward mobility" is a topic of discussion in the following section.

Assumption 3: Through Self-help Dwellers Improve Socio-economic Status After Joining the Housing Estate

Observations suggest that there are generally three groups of allottees which experience some kind of socio-economic change after joining the Dandora Project. This change can be compared with the dwellers' early hopes of immigrating to the city and conditions under which they had survived prior to residing in the Dandora estate.

One group of allottees in the estate experienced significant economic improvement compared to its previous economic status. This is mainly due to income generation as a result of subletting of the dwelling.

The second group of allottees experiences social stress as a result of economic costs of residing in the estate, or in other words, relative downward mobility. This is reflected in such forms as regular arrears with the DCDD, defaults in loan repayments and failure in meeting financial obligations to friends and relatives. The impact of financial stress coupled with lack of ability to manage the use of the dwelling lead the family to difficult circumstances. These are reflected by poor attendance of children at school, poor nutrition and often lack of positive attitudes towards maintenance of dwellings. Another possible result may be the illegal transfer of the plots, without the consent of the DCDD.

One of the other noticeable impacts on the social composition of the allottee family is the change in size of the family. There tends to be either an increase or a decrease in the size of the family. In the former case friends and relatives join the allottee family from the rural towns. The dwelling now offers a way for the new immigrants to seek similar opportunities for future mobility for their kin and clan who now reside in the estate.

On the other hand the size of an allottee family may decrease after moving into the estate. This is particularly so with those allottee families whose economic situations change for the worse and are forced to sublet for extra income. The available accommodation is utilized for tenants, while the members of the allottee family have to bear the consequences of either residing elsewhere in the city, returning home or sharing the dwelling with tenants.

The third group of allottees experiences no significant mobility or change. The impact of the Project on their socio-economic status is

little and it could therefore be said that on the whole, their status is the same as before joining the Project.

Assumption 4: Self-help System should be Self-financed at the Individual Level

This assumption suggests that the dweller has to mobilise his own resources, human as well as material. Attempted ways of achieving this, as observed, is through savings on labour, purchasing materials at competitive prices and also in the utilization of the dwelling.

A self-financing system at the individual level can be analysed at several stages. First, it can be examined at the construction stage. What are the issues related to savings and why is it difficult? Secondly, it can be examined at the level of construction team organization which also includes purchasing materials, seeking approvals and enforcing contractual agreements. Thirdly, at the dwelling utilization stage we can ask, how does an allottee view cost recovery and ensure returns and benefits for himself? What are the issues faced at this level?

At the construction stage the analyses presented in Chapters 5 and 6 suggest two basic forms of self-help, the allottee-built and the subcontract methods. The former form of self-help is characterized by savings on labour, but at the cost of the standards of the dwelling. The limitation of the allottee-built form of self-help is partly due to the standards that one has to adopt. The subcontract form of self-help, on the other hand, has a low factor of savings. For instance, the labour component constitutes about 25 percent of the total cost of a dwelling as compared to the allottee-built, in which the cost of labour is

minimal. Besides, the allottee needs to spend significant time and effort to buy the building materials, shop around, and assemble different construction teams over the construction period.

At the construction team organization stage the analysis presented in the previous chapter suggests that due to lack of organizational abilities, the allottee encounters costly problems, limiting his opportunity to save. Such problems as defaults caused by the "fundi" during construction or delays in completion result in a situation where self-help savings may not be realized at all.

Conclusions

In this last section of the chapter some major conclusions are drawn. In principle, they are intended to address some of the questions which are raised in Chapter One. That is, what does self-help mean as actually practised by the owner-builder? Does owner-builder undertake the process of construction, or does he subcontract? Who decides when and what type of activities will take place in house construction? What are the issues faced by the owner-builder when practising self-help? Is self-help a way of responding to the process of urbanizing in broader terms of savings? What are the practicalities of a project which induce or retard self-help? Some of the conclusions presented in this section also suggest, indirectly, improvements for self-help methods.

Conclusion One: The Concept of Self-help is born when the Owner-builder Decided to Immigrate to the City

Today's plot-holders are the first generation of the urbanized population. Their efforts to immigrate from the rural towns were a result of a desire to improve their socio-economic conditions, a hope which is not fulfilled at once after arriving in the city. This is due to lack of access to urban facilities, competition, lack of job opportunities and most of all, lack of resources of the immigrants. However, an important process is initiated when the immigrant decides to come to the city in the hope of improving. It is in this hope that the first determination to help one's self begins to be seen.

Conclusion Two: Self-help processes are inherent and are Evident from the point Owner-builder arrived in the City. The perceived image of the city held by the immigrant now shifts. The immigrant begins to respond to the urban situation, including economic conditions, shelter and other basic services. Case histories of the allottees reveal that during the early stages of residing in the city, the inevitable process of responding to the urban economy leads to self-help efforts in finding some form of an income, either through the "informal" or "formal" sectors. One of the only resources of the immigrant is labour, a resource with which the immigrant manages to survive. It is by earning income through his own labour that the immigrant begins to find a foothold in the urban economy.

This process of survival has other impacts: learning how to cope with different situations, revising some of the perceptions held prior to coming to the city, realizing the importance of secured tenureship, understanding that affordability is the main criteria for finding a foot-

hold in the city and that the role of a dwelling is important in improvement of social status. Urban living thus exposes the immigrant to new values.

All during this period the immigrant develops such resources as finances, contacts and determination to continue improving. Self-help processes are inherent in such an effort.

Conclusion Three: Seeking a Foothold in an Urban residential Project is a Continuous Effort for the Self-helping Immigrant

The case histories reveal that in the second part of the immigrant's adjustment, concern with economic improvement gives way to seeking an improved form of shelter. In an effort to achieve this, the immigrant attempts different means. One is to get a plot in one of the urban residential projects, the policies for which are geared to help the urban poor. Either through accident or otherwise the immigrant realises the potential of seeking a plot in such a project. Studies reveal that once the immigrant comes to know about a project such as site and services, he applies for a plot with tremendous zest and expectation. However, rarely does he realise the implications of living in a site and services project. Specifically, his own role as an allottee is overlooked.

Housing ownership is especially desirable, based on experiences which the immigrant has had concerning lack of security and harassment. At the news of getting a plot the immigrant is extremely happy about the idea of residing in the estate. There is, however, a mixed reaction when the allottee finds out about the role he is expected to play and the

implications of applying his own resources to construct the dwelling. It is from this point on that yet another set of resources becomes essential to ensure construction and planning of a dwelling. This the immigrant lacks in.

Conclusion Four: Self-help Methods are Determined by the Resourcefulness of the Owner-builder and His General Attitude Towards the Construction and Planning of the Dwelling

Soon after realising the role required of the allottee in constructing his own dwelling, he faces a new set of situations -- identifying resources to construct the dwelling, the construction process, general costs and conformity with the standards set by the DCDD.

In each of these situations the dweller attempts to organize appropriate resources. For instance, identifying a "fundi", gathering information on building materials, seeking approvals, supervising a construction team and attending to cost control and paying wages. All these activities require understanding, and expertise. Studies reveal that the allottee is rarely equipped with all the expertise required to deal with such matters. Instead the allottee resorts to other sources, both for labour and advice.

Conclusion Five: Subcontract Form of Self-help is one of the Only Feasible Ways of Constructing a Dwelling

Two basic forms of self-help identified in this study are the allottee-built and the subcontract forms. The first is a true reflection of self-help, if savings is one of the main criterion for self-help. An example

is the construction of the temporary shelter, where the allottee demonstrates self-help methods as determined by whatever limited resources he possesses. However, since the allottee-built form of self-help does not match the anticipated standards of construction, the allottee has to resort to subcontracting as the only way to implement construction of the dwelling.

Subcontract form of self-help suggests that the allottee assembles the construction team, which consists of a "fundu" and two or three "vibarua", and lets the team construct the dwelling while his role is limited to some supervision and purchasing of building materials. Rarely does the allottee participate in the actual construction. His supervision is also limited. Once again, if savings is one of the main criterion for self-help, then the subcontract form of self-help reveals a poor record.

Conclusion Six: Although the Owner-builder Attempts to Apply Whatever Efforts and Resources he can in the Process of Planning and Construction, Additional Resources are Needed to Ensure Completion of Construction.

Although the allottee resorts to the subcontract form of self-help, his role to supervise, purchase materials and attend to financial matters is central to ensuring completion of construction. However, studies reveal that the allottee lacks in ability to manage such tasks.

The allottee needs such information as type of materials to purchase, sources of materials, prices and arrangements for delivery of goods. The allottee lacks in ability to draw up contractual agreements with the "fundu" and enforce agreements during supervision, and he lacks in the correct

procedures for responding to the DCDD about approval of the various stages during construction. There is a need to keep basic accounts of costs incurred for materials and labour in order to allocate finances during construction. Performance of this task is significantly lacking amongst most of the allottees. Rarely do they remember the precise costs of construction. Lack of ability to write is perhaps one of the reasons why an allottee does not keep accounts.

Identification of resources required at different stages is an important consideration in planning. This is totally lacking. Although incremental building is an acceptable way of constructing a dwelling, studies reveal that it is often a result of lack of foresight in planning resources.

Besides "aid", other "help" is necessary to complement the "aid". Resources such as demonstration units which illustrate typical inputs at different stages in the construction of a dwelling may prove useful for educating owner-builders.

Along with this, there should be an information center disseminating information on technical matters such as materials, prices and sources, in simple and understandable ways. Information on technical matters should be brought to the owner-builders rather than they spending time collecting it.

Some form of simple contractual agreement should be devised which is understandable by the owner-builder and the subcontractors at the time of hiring. Such an agreement should specify tasks, responsibilities, roles, time schedules, defaults and liabilities and method of remuneration.

Also, a simple form of cost-accounting should be introduced with a view to control cost. Although this may be difficult, the DCDD could play some role in management of the basic costs through designing standard formats to account for labour, materials and transportation costs.

Conclusion Seven: Costs and Benefits of Self-help Practice Stretch beyond the Simple Economics of Self-help Methods. They include Social Costs and Benefits. Social Costs and Benefits are Considered at least an Equally Important Component of the Self-help Policy.

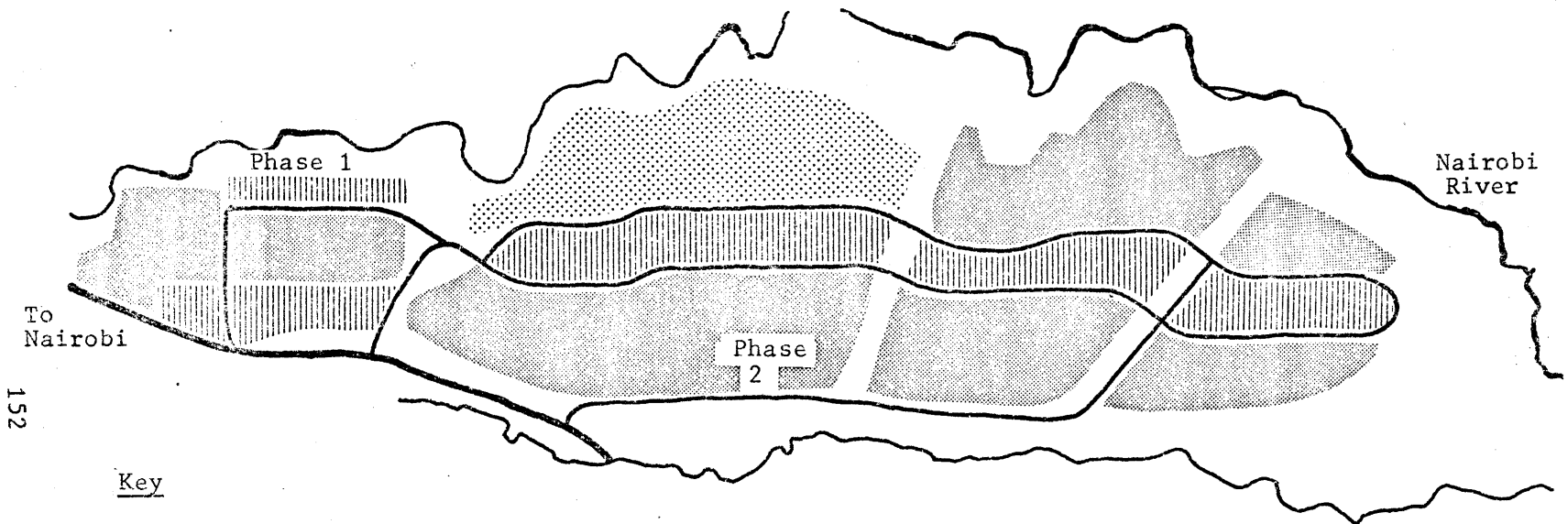
The economic costs of the dwelling are mainly those of construction, capital, utilities, land and other incidental costs. On the other hand the main economic benefits are savings yielded through labour-saving construction methods and rents, and income generation by subletting. The other most important economic benefit is the investment in itself. A dwelling which was built in 1976, say at about KSh.15,000/-, can today fetch some three to four times this amount at market value!

However, at least equally important are the social costs and benefits, which have far-reaching consequences. In fact, the whole notion of self-help is broadly based on what it does to the life of the owner-builder. Although it may be difficult to quantify some of the answers to this question, observations suggest clear indications of both social costs and benefits.

In summary, on the social cost side there are breakup in the social composition of an extended family, need for some members of an extended family either to return to hometowns or share rooms with tenants at the




cost of privacy, social stress as a result of economic costs, difficulties in repaying loans borrowed from friends and relatives, and frequent changovers of tenants to whom dwellings are sublet.

On the social benefits side there are the sense of security, a sense of pride in owning property, the ability to send some earnings back home and help the family economically as well as socially, an educational value derived out of undertaking planning and construction of a dwelling, and an opportunity to improve the social status in the urban context through well established contacts within the estate and generally in the urban context.



152

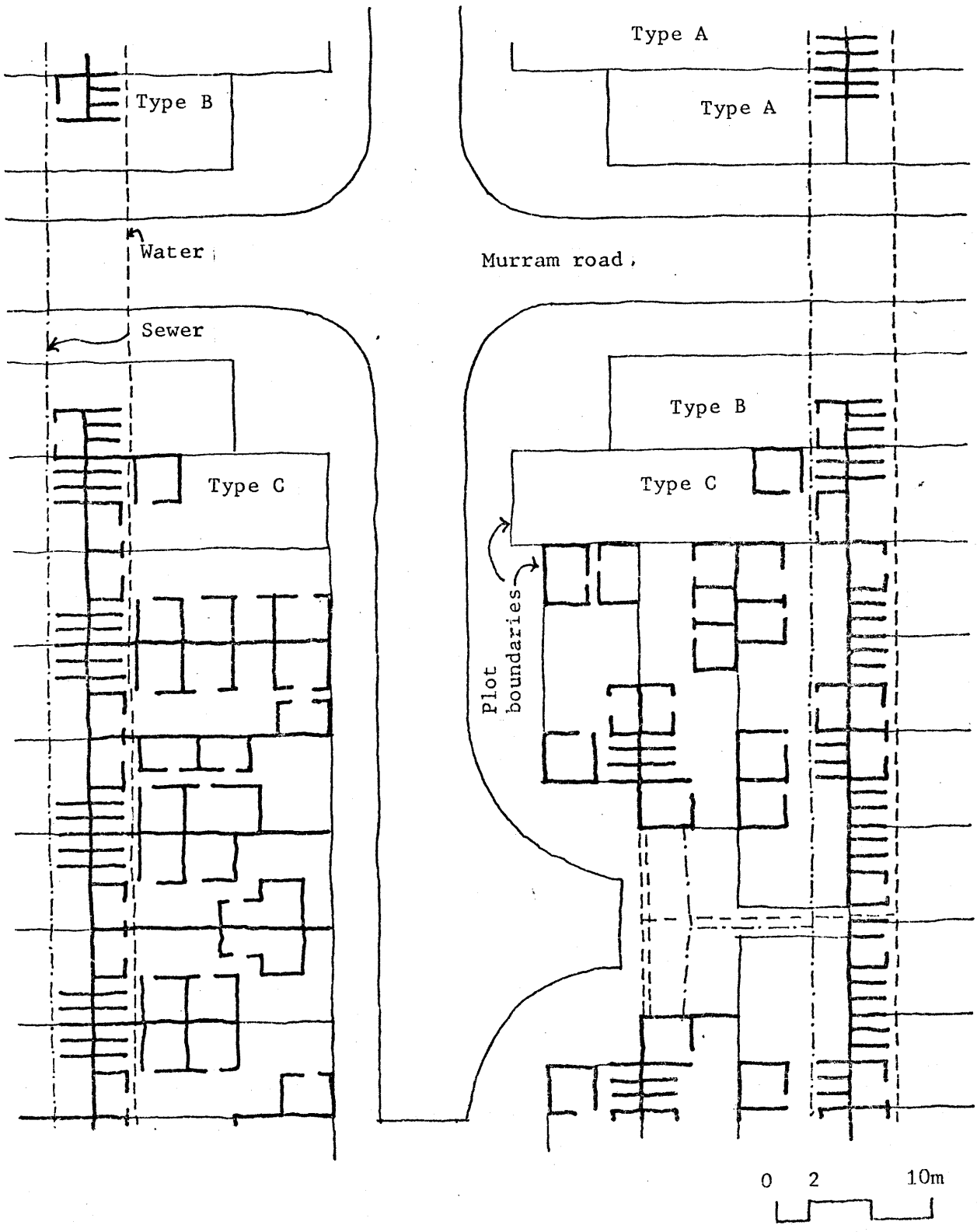
Key

-  Residential
-  Community Facilities
-  Future Residential

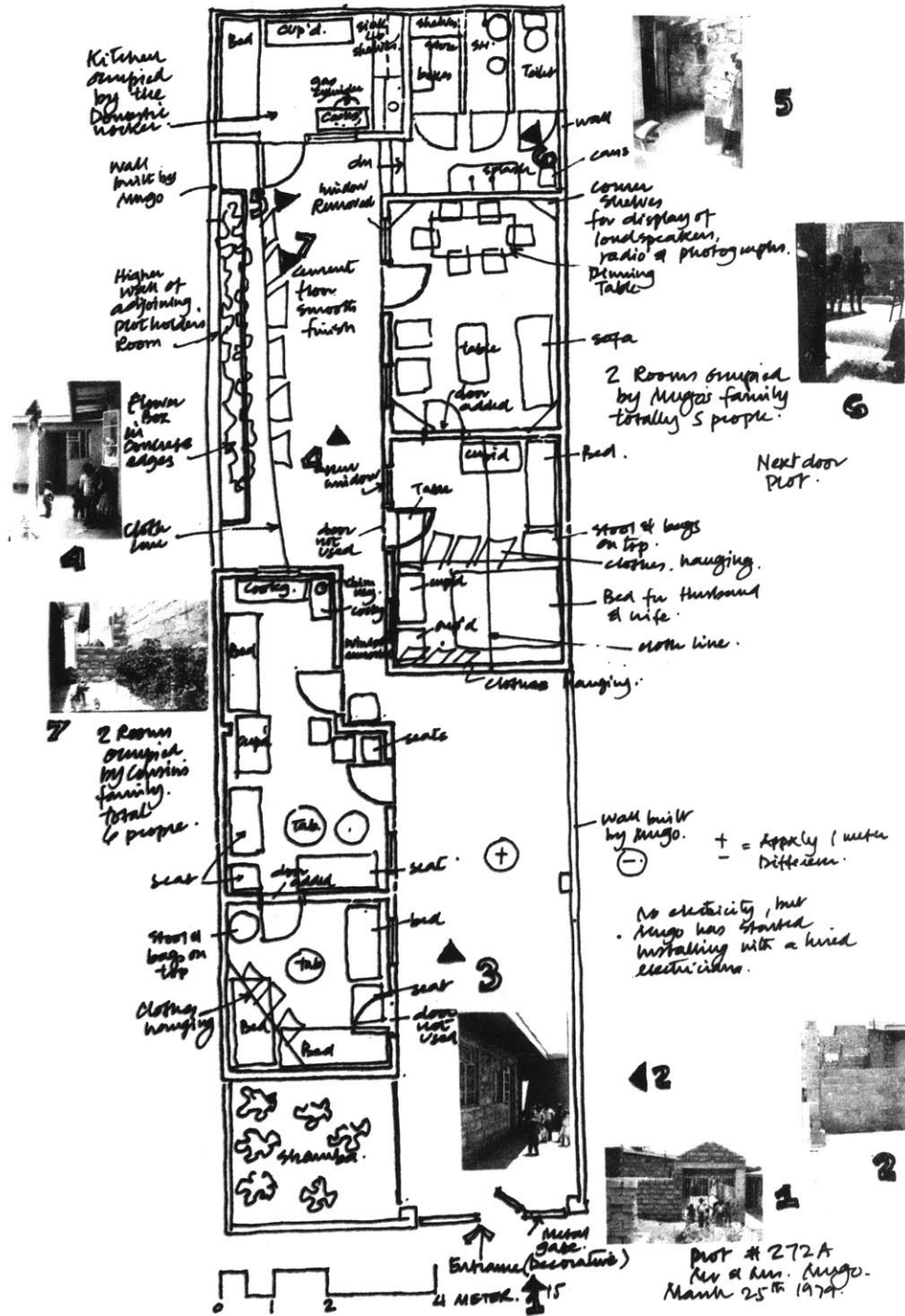
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Scale: 1: 10,000

Appendix 2: Cluster Layout

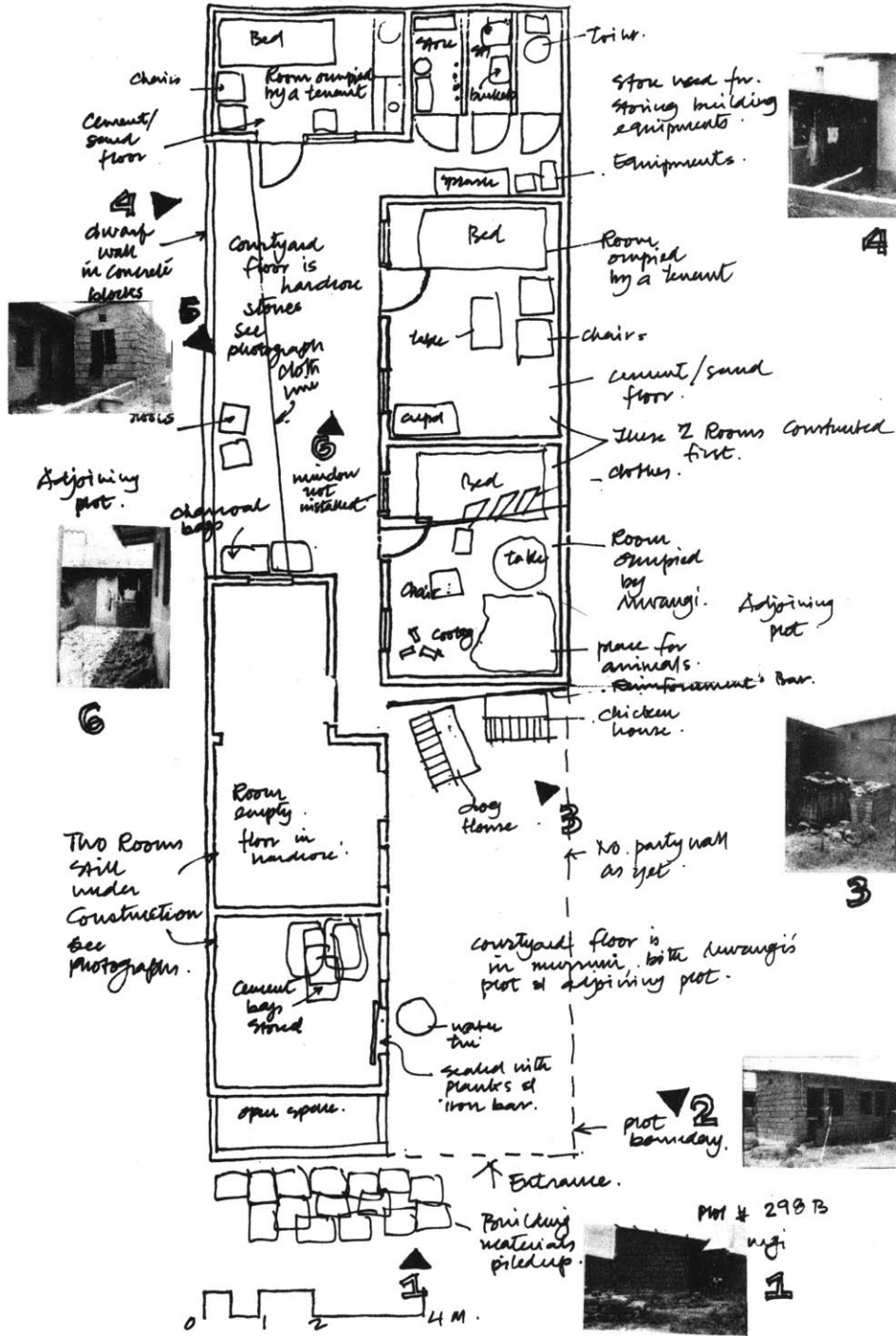


Appendix 3: A Fully Completed Dwelling



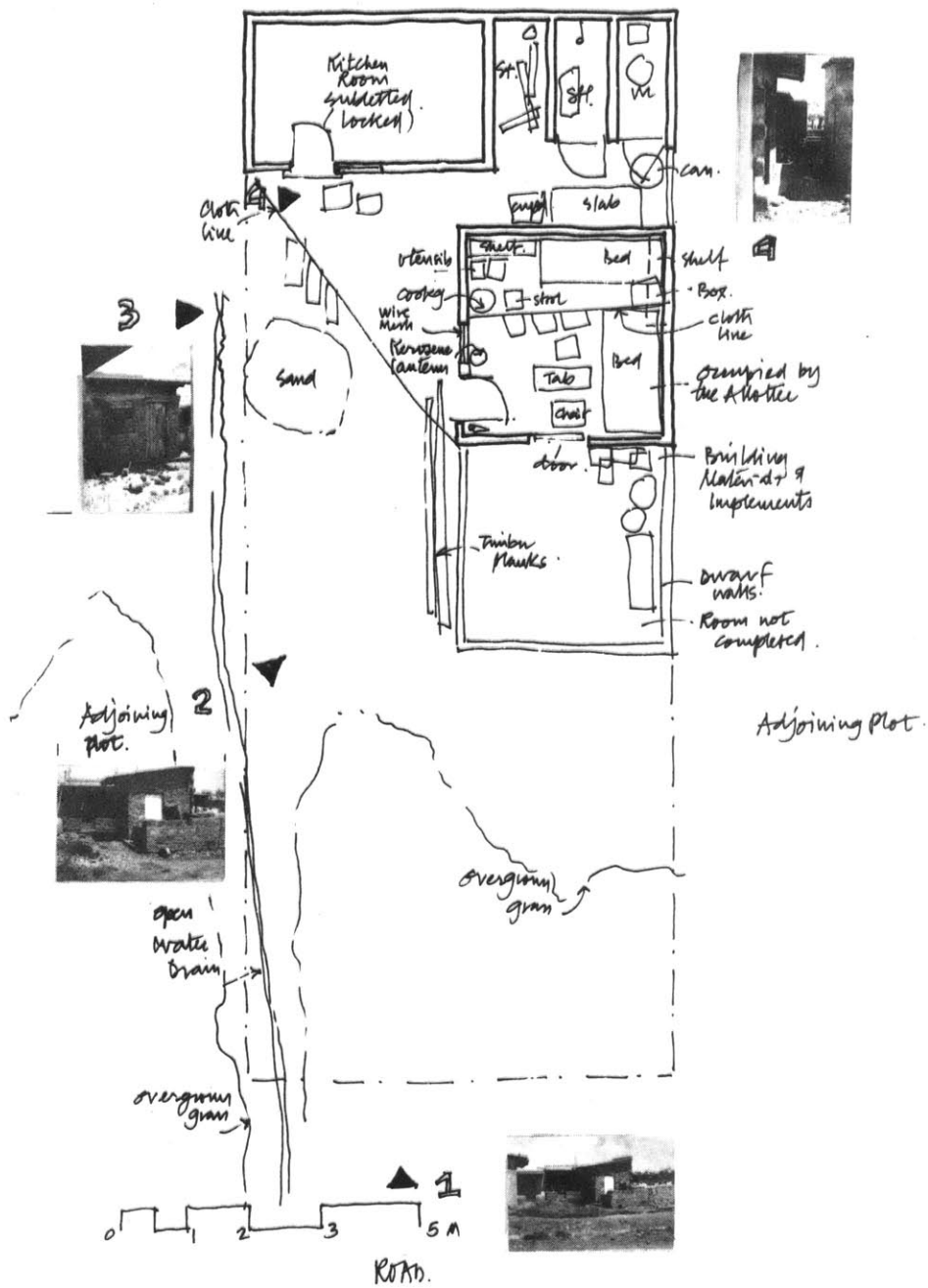
Source: Author's field notes

Appendix 4: An Average Completed Dwelling



Source: Author's field notes

Appendix 5: A Partly Completed Dwelling



Source: Author's field notes

Appendix 6: Bibliography

I. Third World Urban Development -- General

- Abrams, Charles, Man's Struggle for Shelter in an Urbanizing World, Cambridge, Mass: MIT Press 1964
- Camino, H. and Goethert, R., Urbanization Primer, IBRD, Washington D.C., 1976
- Department of Economics and Social Affairs, UN., Improvements of Slums and Uncontrolled Settlements, New York, UN, 1971
- _____, Housing in Africa, New York: UN Publication (EC/N/14/HOU/7) 1965
- Gutkind, P.C., Urban Anthropological Perspectives on Third World Urbanization and Urbanism, IBRD, Washington D.C. 1974
- Grimes, Orville, Housing for Low Income Urban Families, Baltimore: John Hopkins University Press, 1976
- International Bank for Reconstruction and Development, Sites and Services Projects, Washington D.C., April 1974
- _____, The Task Ahead for Cities of Developing Countries, Working Paper, 209, Washington D.C., July 1975
- _____, Site and Services Projects, Survey and Analysis of Urbanization: Standards and On Site Infrastructure, A Divisional Paper -- Preliminary Draft, Washington D.C., August 1974
- Jorgensen, N.O., Housing Finance for Low Income Groups, Rotterdam: Bouwcentrum, 1975
- Madavo, C. and D. Haldance, "The Serviced Site Approach to Urban Shelter", Ekistics, October 1974
- McGee, T.G., The Urbanization Process in the Third World, London, G. Bell, 1971
- ✓ Peattie, L and William Doeble, Some Thoughts on Sites and Services, unpublished mimeo, Cambridge, MIT, October 1976

Perlman, Janice, The Myth of Marginality, Berkley: University of California Press, 1976

Sudra, Thomas, Low Income Housing Systems in Mexico City, unpublished PhD Thesis, MIT, 1976

Turner, John, "Barriers and Channels for Housing Development in Modernizing World", JAIP, vol 33, no. 3, pp 167 - 181, May 1967

_____, "Architecture that works", Ekistics, vol 27, no. 158, pp 40 - 44, January 1969

_____, "Housing Priorities, Settlement Patterns and Urban Development in Modernizing Countries", JAIP, vol 34, no. 6, pp 354 - 363, November 1968

✓ _____, "Uncontrolled Urban Settlements: Problems and Policies", in G. Breese (ed.), The City in Newly Developing Countries, Englewood Cliffs: Prentice-Hall, 1969

_____, and Robert Fitcher (eds), Freedom to Build, New York: MacMillan Company, 1972

World Bank, Housing Sector Policy Paper, IBRD, Washington D.C., 1975

II. Self-help

Department of Economic and Social Affairs, Self-help practices in Housing: Selected Case Studies, UN, New York, (St/ECA/183), 1973

_____, "Housing Through Co operatives and other Non-profit Associations" in Human Settlements, vol 4, no. 1, UN, New York, January 1974

_____, Manual on Self-help Housing, UN, New York, (64.IV.4)

Foundation for Co operative Housing, Co operative Housing for Low Income Workers, Report for the Ministry of Co operative Development and the Central Organization of Trade Unions, Kenya, Nairobi, June 1978

Harms, Hans, "Limitations to Self-help" in Architectural Design, April 1976, p 230

Lewin, A., Self-help Housing Through Co operatives - Problems and Prospects for Urban Africa, Privately Published, Cologne, 1976

Muller, M.S., Housing Co op Societies in Kenya: Performance and Potential, unpublished mimeo, Nairobi: HRDU, May 1978

Seeling, Y.M., (ed.), The Architecture of Self-help Communities, The First International Competition for the Urban Environment of Developing Countries, New York, Architectural Record Book, 1978

Turner, John and R. Goetze, "Environmental Security and Housing Input", *Ekistiks*, vol 23, no. 135, February 1967

_____, Housing by People: Towards Autonomy in Building Environments, New York, Pantheon Books, 1976

World Bank, "The Lessons of International Assistance", Housing Sector, Washington D.C., May 1975

_____, "Introduction and Summary" in Urbanization, Sector Working Paper, Washington D.C., June 1972

III. Kenya -- General

Bennet, George, Kenya, A Political History, the Colonial Period, London: Oxford Press, 1963

✓ Bloomberg Lawrence and Charles Abrams, United Nations Mission to Kenya on Housing, prepared for the Government of Kenya, Department of Economic and Social Affairs, UN, New York, December 1964

Gertzel, Chenry, The Politics of Independent Kenya, Evanston: Northwestern University Press, 1970

Harlow Vincent and E.M. Chivler (eds.), History of East-Africa vol 2, New York, Oxford University Press, 1965

Hutton, John (ed.), Urban Challenge in East Africa, Nairobi, EAPH, 1972

✓ International Labour Organization, Employment, Incomes and Equity, A Strategy for Increasing Employment in Kenya, Geneva, 1972

✓ Kenya, Building Code, Nairobi, Government Printer, 1968

_____, Development Plan for Period 1965/66 to 1969/70, Nairobi, Government Printer, 1966

✓ _____, Development Plan for Period 1970 - 1974, Nairobi, Government Printer, 1969

- ✓ Kenya, Development Plan for Period 1974 - 1978, Nairobi, Government Printer, 1973
- ✓ _____, Sites and Services Schemes: Guidelines for an Administrative Procedure, Nairobi: National Housing Corporation, 1976
- Laurenti, Luigi and J. Gerhart, Urganization in Kenya, New York, International Urbanization Survey, Ford Foundation, 1972
- Sorrenson, M.P.K., Origins of European Settlements in Kenya, University Press, 1968
- Wachtel, Andy and K. Janmohamed, Ali Mermon, Eleanor Wachtel, (eds), Bibliography of Urbanization in Kenya, Institute of Development Studies, University of Nairobi, Nairobi, February 1974
- Weisner, Thomas S., One Family Two Households: Rural Urban Ties in Kenya, PhD Thesis, Harvard University, 1972
- Yahya, S.S., Urban Land Policy in Kenya, unpublished PhD Thesis, University of Nairobi, Nairobi, 1976

IV. Kenya Urban Development

- ✓ Beardmore, Richard, Sites and Services: A Strategy for Kenyan Urban Development, unpublished MCP Thesis, MIT, May 1978
- Chana, T., Dwellings and Land Models: Nairobi, Kenya, unpublished MAAS Thesis, MIT, 1974
- ✓ _____, Sites and Services Housing Projects in Kenya, unpublished MCP Thesis, MIT, 1974
- ✓ Etherton, David (ed.), Mathare Valley: A Case Study of Uncontrolled Settlement in Nairobi, Nairobi: University of Nairobi, HRDU, 1971
- ✓ Eygelaar, J., Housing By-laws in the Kenya Building Code, Nairobi, HRDU, 1975
- ✓ Harris, John, Some Thoughts on a Housing Policy for Nairobi, mimeo, Institute for Development Studies, University of Nairobi
- ✓ Houlberg, P and N. Jorgensen, Site and Services Schemes, Analysis and Report, Nairobi, HRDU, August 1977

- ✓ Hoek-Smit, Marja, Socio-economic Characteristics of Low Income Groups in Relation to Their Housing Demands, Nairobi, HRDU, 1977
- ✓ _____, Institutional Constraints in The Development of Informal Housing Areas, Nairobi, HRDU, 1975
- ✓ Jorgensen, N., National Housing Corporation, it's Aims and Activities, Nairobi, HRDU, February 1968
- ✓ Lewis, Ch., and K. Otterbin, The Kibera Experimental Self-help Programme, Cologne, A Demonstration Low cost Housing Scheme in Nairobi, July 1975
- License, G., Design Standards and Code Enforcement in Low Cost Housing, unpublished mimeo, Nairobi, May 1977
- ✓ Marshall, A., Housing for the Low Income Groups - The Government View, mimeo, Nairobi, NHC, May 1977
- Morgan, W., (ed.), Nairobi, City and Region, Nairobi, Oxford University Press, 1967
- Nairobi City Council, Nairobi Metropolitan Strategy, vol 1 and 2, Nairobi
- Njau, G.J., Housing for the Low Income Groups - A Challenge for the City, mimeo, Nairobi City Council, May 1977
- ✓ Patel Praful and Gattoni, Residential Land Utilization, Case Study: Nairobi, unpublished MAAS Thesis, MIT, 1973
- ✓ Stren, Richard, "Evolution of Housing Policy in Kenya" in Hutton (ed.) Urban Challenge in East Africa, Nairobi: EAPH, 1972
- _____, Low Income Urban Settlements in Kenya: An Overview, Progress Report No 4, Low Cost Housing and Squatter Upgrading Study, Waweru and Associates, Nairobi, August 1976
- ✓ Temple, F., Politics, Planning and Housing Policy in Nairobi, unpublished PhD Thesis, MIT, 1973
- ✓ Van Straaten, J.J., Sites and Services Schemes in Kenya, mimeo, Nairobi NHC, May 1977
- Wanjohi and Chana, Strategies for Housing the Low Income Groups in Dandora Community Development Project, unpublished mimeo, Nairobi, HRDU, May 1977
- White, L.W, Thornton and P. Anderson, Nairobi Master Plan for a Colonial Capital

Werlin, H.H., Governing an African City - A Case Study of Nairobi,
New York: Africana Publishers, 1974

V. Dandora Community Development Project

Mutiso Menezes International, Dandora Community Development Project
Phase II, unpublished report, Nairobi, June 1976

Nairobi City Council, Dandora Community Development Project, Housing
Summary, Project Submission to IBRD, unpublished report prepared
by the Urban Task Force, NCC, Nairobi, May 1974

_____, DCDP, Housing Design, Project Submission to IBRD,
NCC, Nairobi, May 1974

_____, DCDP, Appendicies, Project Submission to IBRD,
NCC, Nairobi, 1973

_____, DCDP, A Project File, NCC, Nairobi, September 1973

_____, Annual Report of the DCDP, A Report from the
Project Manager, Mr. I.G. Wanjohi, NCC, Nairobi, June 1976

National Christian Council of Kenya, Dandora Sites and Services Housing
Project: A Proposal for Management and Community Organization,
mimeo, May 1977

Senga, Ndeti, and Associates, MEDIS 1, unpublished mimeo, Nairobi,
April 1977

_____, MEDIS 2, unpublished mimeo, Nairobi,
July 1977

_____, MEDIS 3, unpublished mimeo, Nairobi,
March 1978

_____, MEDIS 4, unpublished mimeo, Nairobi,
1978

World Bank, Appraisal of a Site and Services Project in Kenya, IBRD,
Urban and Transportation Department, Washington D.C.,
(Report 607 a KE), April 1975

_____, Kenya - Second Urban Project, IBRD, Urban and Transportation
Department, Project Implementation File, vol 1 and 2, 1978

Appendix 7:

Glossary of Abbreviations and Terms

DCDP	Dandora Community Development Project
DCDD	Dandora Community Development Department
Fundi	This is a Kiswahili word. It means an artisan, a semi-skilled contractor
KSh.	Kenya Shillings. 1 US \$ equals approximately KSh.7/15
Kibarua	This is a Kiswahili word. It means an assistant, an unskilled labourer
NCC	Nairobi City Council
NHC	National Housing Corporation