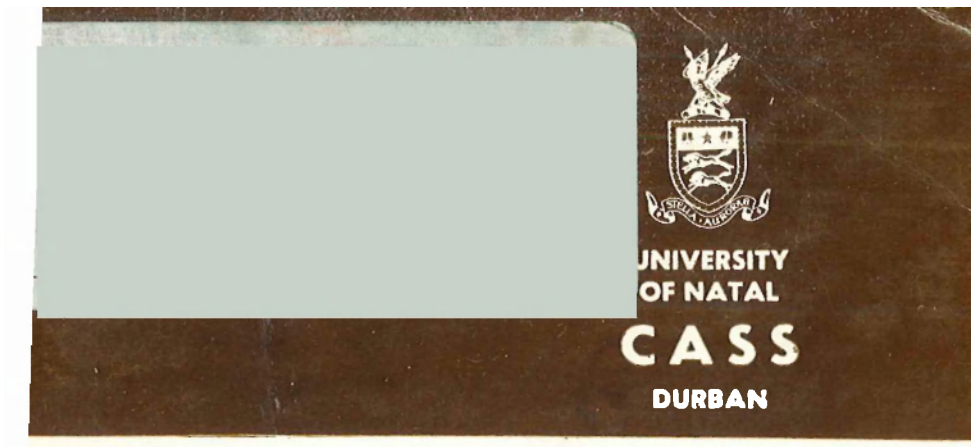

PROFILE OF THE BLACK POPULATION IN A SPONTANEOUS URBAN SETTLEMENT NEAR DURBAN

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PROFILE OF THE BLACK POPULATION IN A SPONTANEOUS URBAN SETTLEMENT NEAR DURBAN

A report facilitating the statistical analysis of the sample survey conducted in Malukazi by the Centre for Applied Social Sciences, 1977.

P. STOPFORTH

(with a contribution by E.J. Haarhoff)

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PREFACE

This sample survey of Malukazi, an informal black settlement contiguous with Umlazi Township and consequently within the wider Durban Metropolitan Area, conducted and reported on by Peter Stopforth of the Centre for Applied Social Sciences, coincides with the recently-growing interest in the topic of black urban housing and the issue of "squatting". The detailed analysis of our survey will necessarily be a lengthy procedure, but the topicality of the subject matter has prompted us to make this preliminary contribution to the debate based on key findings and population values. Although this is a preliminary report, all estimates and statistics appearing in the text are based on the total sample cases and these values are "final" in the sense that they will appear unchanged in the consolidated report.

Originally, the initiative and financial sponsorship for the project came from the Natal region of the Urban Foundation. In the early planning stage of research the Department of Economics and the School of Architecture and Allied Disciplines at the University of Natal associated a proposed study at Malukazi of their own with the one in the Centre, so making a joint exercise possible where the design as well as some of the research tasks involved in the survey benefited from contributions by all three university departments. This inter-disciplinary approach to a survey of informal settlement has meant a substantial increase in the scope of our original conceptions, created depth in certain areas of study and increased the amount of funding available for research. We wish specifically to acknowledge participation in the survey by Dr. G.G. Maasdorp and Mr. P.N. Pillay of the Department of Economics, Mr. E.J.

Haarhoff (a contributor to this paper) and his assistant Mr. K. Lalloo from the School of Architecture and Allied Disciplines, and Dr. V. Møller in the Centre. Responsibility for the views expressed in the text however must rest with the authors of the paper.

The survey of Malukazi was conceived as a study of a so-called "squatter community". During the course of the research, however, the concept of "squatting" perforce has had to give way to a more complex definition of the problem which emerged directly from the substantive survey findings. Our demographic, sociographic and tenure data are simply incompatible with the denotations of the terms "squatting" and "squatter settlement", which the authors consequently have eschewed. A perusal of the literature has yielded the concept of "spontaneous urban settlements", which is far more compatible with the facts as they have emerged from the survey.

It might very well be argued that reconceptualisation of the "squatter" phenomenon cannot be validated on the basis of one study and that the views expressed in this paper are specific to Malukazi. While more studies in a selection of different areas are undoubtedly required, the authors would be quick to point out that other studies of informal settlement (some of which are cited in the text) suggest very strongly that the nature of the settlement at Malukazi is not an isolated phenomenon. Indeed, from the references to relevant literature and from the author's discussion of key terms, it would seem that the use of the term "squatting" in the mass media and in public debate has been positively misleading in many instances. The term may have surprisingly little relevance to patterns of informal housing in Greater Durban or even Natal.

More broadly, the findings reported in this paper direct attention to the need for a comprehensive reappraisal and rédefinition of the operational concepts used in the field of housing studies in South Africa; a task which E.J. Haarhoff and P. Stopforth have resolved to undertake in the near future. There is a great need to reassess the often restrictive or misleading categories devised by early administrators and passed on unthinkingly over the decades. A more subtle problem of Western middle-class bias in the perception of housing and in policy formation also deserves critical attention.

This is the third publication in the Fact Paper Series in the Centre and it is written as research to be applied to the issue of black housing and urban settlement patterns. At this preliminary stage we have made no definite recommendations concerning the future of housing policy in the country, but we have supplied precise and reliable information which should weigh in the balance of policy decision-making if any realistic approach to housing and urbanisation in South Africa is attempted. It has been our intention to contribute a case study to the expanding amount of literature available in the field of black urban settlement and to assess - in an introductory fashion - the new alternative images emerging from a variety of research projects in this field. It is anticipated that the findings, which will appear in the final report of the Malukazi project, will allow us to enlarge in a more substantive way on the issues raised in this preliminary paper.

In the context of the Greater Durban Area, we believe that the implications of these results and their interpretation are fairly specific, and should be of immediate interest to planners and policy-makers at the local level and

in the relevant Provincial and KwaZulu administrations. The findings show that the population of Malukazi contributes very substantially to the labour resources of the city, that it is not transient, that it is overwhelmingly composed of people classified as KwaZulu citizens, that it is an expected response to the city's growth and to the not uncommon trend for formal housing to lag behind the tempo of growth, that it is not socially deviant or "pathological" in any significant way, and that it does not have "slum" characteristics. It is a population which is in the Durban area to stay. For administrators and planners who are sufficiently realistic to accept the unlikelihood of formal housing being able to meet short to medium-term demand, the critical questions are, "How and where will this population stay?" It is also crucial for those whose actions and policies can contribute to peace and harmony in our city to consider carefully the policy alternatives suggested in this report.

The fieldwork was conducted by Messrs. M.V. Mabaso, S.G. Mavanini, T.R. Mdletshe, J. Meyiwa, C. Ngcobo and H.T. Ntombela. Mrs. U. Bulteel processed the data and Mrs. K. McGrath undertook the typing of the manuscript. Mr. E.J. Haarhoff very kindly supplied all the illustrated material in the report. Without the cooperation of 278 households in Malukazi, the research for this paper would never have been conducted. We are very sensible of our debt to the community at Malukazi and to those people who responded to our requests for interviews in a situation where demolition of their settlement is known to be imminent. We hope that our research reports repay a small part of this debt by describing their plight in an objective fashion.

Professor Lawrence Schlemmer
Director
Centre for Applied Social Sciences

SYNOPSIS

1. The Survey. A sample survey was conducted during the last quarter of 1977 in a black spontaneous urban settlement contiguous with the southern part of Umlazi Township and using a sampling frame dated June 1977.

2. Population Estimates. Of 1 843 identifiable physical structures, 1 708 proved to be inhabited dwellings containing 3 416 households representing a population of 14 176 persons.

3. Population. An unexpected masculinity ratio of 0,99 was recorded and, with a few exceptions, was consistent through fifteen age cohorts.

4. Households. Eighty-two per cent of households are headed by a male, eighteen per cent by a female, and only 3,4 per cent of households comprise one person.

5. Marital Status. The predominent form of union is marriage (eighty-five per cent of unions) and the social context is the family.

6. Education. Attendance at school is unusually high both for boys and girls (3 204 attend school in Umlazi); many adults have nine years of schooling or more.

7. Unemployment. The rate of employment in the formal sector is very high for men and surprisingly high among women.

8. Formal Sector Employment. Both men and women are distributed over the full range of urban occupations; 5 707 people are in formal employment.

9. Informal Sector Employment. Landlord functions and sellers of liquor and foodstuffs occupy the majority of workers in the informal sector.

10. Origins. Fifty-five per cent of all people were born in town or in the nearby peri-urban area; only twenty-three per cent recorded a clear rural origin as place of prior residence before moving to Malukazi, and fifty-seven per cent have spent all their lives in or near town.

11. Tenure. Thirty-eight per cent of dwellings are occupied by "owners" (builders) only, forty-one per cent of owners share with tenant households and twenty-one per cent of dwellings are occupied by tenants only.

12. Type of Dwelling. Dwellings can be described as:

Linear - external doors to single rooms	16%
Linear - interleading doors between rooms	19%
Compact - external doors to single rooms	9%
Compact - interleading doors between rooms	44%
Single rooms	4%
Other (unclassifiable)	8%

13. Construction and Materials. A variety of materials is used for walls, roofing, flooring and finish. The houses in the majority of cases are judged to provide adequate and durable shelter.

14. Cost of dwelling. The mean cost of dwellings is R211.

15. Spatial Standards. The mean dwelling area is 48,53 square metres, comparing favourably with the area of the four-roomed 51/6 official township houses at 48,7 square metres. The range of rooms per dwelling in Malukazi is, however, from one to eight, with only forty per cent of dwellings having four rooms.

16. "Squatters?" Our findings suggest that the residents in Malukazi are not squatters in the usual sense of the term - they are spontaneous urban settlers already locked into the urban system and economy.

17. The Problem. The spontaneous settlement is not a problem in itself but a response toward the solution of the greater structural problems of urbanisation, of which insufficient public housing is a manifestation.

18. Conclusion. A change in urban housing policy is indicated, where a package of alternative strategies simultaneously pursued can maintain and develop the present stocks of housing, both in the formal and informal housing sectors, by using the demonstrated skills of the lower income group.

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INTRODUCTION

This fact paper constitutes a first report on some of the data collected in a sample survey conducted in Malukazi by the Centre. There are two reasons for publishing what is in effect an interim report: of more urgency is the wish to communicate, at the earliest opportunity, objective empirical information regarding the type of settlement - often referred to as squatting - that has become so contentious an issue on the South African urban scene; of less urgency, but a necessary procedure, is the commitment to record the context of the community under study in order to enable a full survey report on our findings to be given. A reading of this paper will reveal that only a limited amount of general information available to us is reported here. The consolidated survey report can only appear once the very heavy load of back room processing and analysis has been completed which we hope will occur in time for publication before the end of 1978.

In the body of this paper, we describe the location and attempt to educe the meaning of settlement in Malukazi. We take the opportunity of an introductory piece to reflect on the vicissitudes of land tenure current in Malukazi. The nature of land tenure at the present time is transient. In the past a tribal communal area in the district of Umbumbulu, Malukazi has recently been proclaimed and is destined to be developed as a formal section of Umlazi Township (Durban) at a projected date, which to the best of our knowledge is probably 1982. The exact date and the procedure for expropriation of the land for this purpose is not known, but at present, as in the past, land is held by kraal-heads by virtue of allocation by a tribal chief (the late Chief Sikhwama Cele) in accordance with tribal procedure. This

is one statement of the position. The original use of the land would have been agricultural; now it is given over largely to residential use, at present (May 1978) occupied by something in the region of two thousand dwelling structures. This development requires a further statement of the land tenure situation.

The status of tenure of land held by Malukazi residents, except for those included in the original tribal homesteads, is moot indeed - and since proclamation, the provisions of the Prevention of Illegal Squatting Amendment Act, No. 92 of 1976 probably make most land holdings "illegal" in Malukazi. The question of legality of settlement is a crucial one as it defines to a greater extent whether informal settlement constitutes squatting or not. We should also be very careful of how "legality" is defined and consider whether in the case of settlements like Malukazi it should be an absolute definition based on the letter of recent enactment. In general there are two ways to achieve residence in Malukazi: either to pay a "traditional landholder" for the right to build on his holding, or to rent a dwelling - either built by a tribal landholder, or from someone who has already acquired permission to build from a landholder. Most residents have entered then into a form of contract to secure shelter. At the same time, however, it must be recognised that traditional landholders have allocated and received payment for land in contravention of customs of communal tenure in that there has been little, if any, consultation with the hierarchy of tribal authority. We can conclude though that residents have not usurped land to their own use by flagrantly disregarding "property rights".

It might be argued that the question of tenure is

irrelevant, as residence rights will fall away when the land is expropriated by the political authority, leaving all householders occupying land in Malukazi as illegal settlers. But the position at present is one of at least quasi-legal occupancy and after expropriation the political authority will inherit the same quasi-legal settlement situation established at this very moment in time. It would therefore be peremptory to dismiss Malukazi and its residents as a "squatters' camp" - as illegal occupants on public land who could be shifted expeditiously by invoking and acting on empowering legislation. At the present time we are speaking about more than sixteen thousand people.

The term "squatter settlement" denotes a collectivity of people occupying land or buildings to which no title is held: it is an illegal activity, a crime against property. The connotation of the term is that of a problem for society - a "social pathology", something which should be overcome, eradicated or punished. When the present research project was first conceived, our thoughts were influenced by this general conception of "squatting" and only very slowly, first as we became familiar with the community, and finally when we began to study the data, did we come to the realization that we were dealing with something other than urban squatters. This realization led to the literature on housing and a reformulation of ideas for interpreting what the settlement at Malukazi really means and what type of problem they present in the process of urbanisation.(1) We have found that our data are consistent with the definition of "spontaneous urban settlements" and

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1) For a very good recent synthesis, see Dwyer, D.J. 1975, People and Housing in Third World Cities. London and New York, Longman.

that the settlement at Malukazi can be viewed not as a problem in itself but as a "solution to wider structural problems" evident in many third world urban contexts.[1] We pursue this argument throughout the paper and will not repeat what is to be found in the text here, except to say that the material we adduce to this problem area is sociologically convincing of the interpretations made about Malukazi.

The burden of our analysis, even at this preliminary stage, is that the advocates of the "bulldozer philosophy" of "solving" social ills will have to reconsider their position and seek alternative approaches to urban settlement if any pretence to recognition of the facts is maintained. This is not the first attempt to discredit the "bulldozer philosophy",[2] nor is it an attempt at this time to choose a viable alternative policy, though it is hoped that it will contribute to the voice urging a reconsideration of alternatives which have already appeared in various publications in South Africa.[3] To be blunt, we are confronted not only with a housing problem but

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1) Dwyer, op. cit. Dwyer referring to Turner's work on this issue.

2) A most succinct evaluation is available in Maasdorp, G. 1977, Alternatives to the Bulldozer: An Economic Approach to Squatter Housing, with Lessons for South Africa. Occasional Paper Number 6, Durban, Department of Economics, University of Natal

3) Ibid., and inter alia, Maasdorp, G. and Pillay, N., 1977, Urban Relocation and Racial Segregation: The Case of Indian South Africans. Research Monograph, Durban, Department of Economics, University of Natal; Ellis, G. et al., 1977, The Squatter Problem in the Western Cape, Johannesburg, S.A.I.R.R.; and Haarhoff, E.J., 1977, Towards a Redefinition of the Housing Situation, in An Urban Needs and Resources Survey, The Urban Foundation for the Natal Region.

with a humanitarian and material problem of vast proportions of which Malukazi is only a conspicuous effect. As far as Durban is concerned, the educated observer can ascertain that spontaneous settlement is a continuous and escalating process that can be witnessed in Inanda, Mariannhill, Umbumbulu and elsewhere. Data presented in Chapter 3 reveals that this settlement is unlikely to be a consequence of in-migration from the rural areas only, but that many spontaneous settlers originate in the city where they have become refugees from an inadequate provision of public housing. We pursue the notion of a total urban settlement problem and policy alternatives in Chapter 5.

We have produced this paper with the busy administrative official in mind: the chapters are relatively discrete and can be read for the most part as separate entities. The scanner can find a synopsis of research findings at the very beginning. Those interested in the reliability of the survey findings can read Chapter 1 and Appendix A. Estimates of population values are found in the short Chapter 2. A longer Chapter 3 contains details of the population resident in Malukazi. Chapter 4 describes the dwellings people live in, the use to which they are put and different categories of occupancy. In the final chapter we approach the subject of public policy in the light of our research findings.

CHAPTER 1.

PRÉCIS OF THE SAMPLE SURVEY IN MALUKAZI, 1977.

A detailed account of the technical aspects of this study is to be found in Appendix A: The Scope and Reliability of the Sample Survey in Malukazi, 1977. We provide a précis of that appendix here for the convenience of those readers who are unused to assimilating technical writing on research projects. Readers who wish to be convinced about the worth of our preliminary research findings should however consult Appendix A, more especially readers with the authority to act on these findings in an official and applied way. As a first word of warning it should be remembered that our survey results are already somewhat dated as the sample is based on a frame dated June 1977 and field research was conducted during the period October to December 1977.

The study area can be readily identified by referring to the location plan map in Appendix B and a map of the study area itself in Appendix C describes the distribution of buildings in Malukazi. The study area comprises 135 hectares and lies on the road to Umbumbulu due south and contiguous with Umlazi Township. A City Engineer's map (No. H.U. 200/4) shows our study area as part of the now proclaimed unit 22 of Umlazi Township separated by a tarred section of the Umbumbulu road from the already developed unit 21 of the Township. Scrutiny of the location plan (Appendix B) reveals that Malukazi is well within the boundary of the Greater Durban Area and that it is in fact part of the Durban Metropolitan Area where the same transport routes serve both Malukazi and one area of Umlazi Township.

The sample survey is conceived round four aims or

goals which, very briefly, are as follows:

1. To provide a sociographic record of a spontaneous urban settlement in Durban.

2. To study the performance of informal housing in conjunction with other requisites of urban life and the attitudes, preferences and priorities of Malukazi residents regarding their present conditions.

3. To collect data relevant to second stage applied research, for example cost-benefit analyses, directed at alternative trajectories for the community.

4. Finally, we wished to study migration, household composition and selection procedures, which we made allowances for in our research instrumentation

The content of the sample survey, in accordance with the aims presented above, is wide in scope and diverse in nature. However, only a lesser moiety of the content is reported in this publication and comprises:

1. Population estimates - that is, estimates reflecting the total number of people, dwellings, households, etc.

2. Conventional sociographic variables (age, sex, education, marital status, occupation, place of birth, etc.,) from the sample of individuals included in 278 sample households.

3. Physical measurements of ninety sample houses in the study area as well as interview material reflecting usage of dwellings - sleeping arrangements, etc.

Further, we made provision for collecting the following material which will be reported in subsequent publications:

4. General household information - tenure, rents, housing, etc.

5. A detailed interview with the head of household including such variables as place of previous

residence, mobility, rural links, attitudes to present life conditions, preferences and priorities among community facilities, income and alternatives in housing.

6. A replication of 5) directly above among randomly selected adults in sample households.

Our sampling design was based on aerial photographs of the study area and informed by the requirements of probability selection. A simple random sample of dwelling roofs was drawn, providing primary sampling units and the size of the sample, three hundred units being determined by a formula accepting a confidence interval at the ninety-five per cent limit. The second stage of selecting elements, in this case households, provided us with a problem in that our probability selection was abrogated as a result of greater multiple household occupancy of dwellings than we anticipated. This unenviable error was corrected by a procedure of inverse weighting which is reported in detail in Appendix A (see especially Table A.3). The third stage of selection was automatic in that we interviewed heads of household - the possible effects of cluster selection at this stage was recognised and a further random selection of one adult per household was made for comparative purposes. Altogether, 278 household interviews were conducted for the sample survey. Our resources did not stretch to conducting three hundred exercises of measuring buildings (nor was this necessary as the range in building type is narrow). Consequently, we drew a simple random sub-sample of one hundred dwellings from the primary sampling units. Altogether ninety sub-sample units were utilised in the survey analysis and married with corresponding household interviews.

The field research for the sample survey was conducted during the period October to December 1977 by seven black men recruited for the job and trained in the Centre. Two aspects

of this phase of research detract somewhat, but not in any final way, from our survey: a gap between expectations of research staff and the performance by field staff was sometimes evident, and because research staff did not have free access to Malukazi, some mistakes in identification of sampling units occurred. The first problem is not as serious as it sounds because the questionnaire schedule was designed to include a number of built-in checks and repetitions. We are also satisfied that misidentifications, where they occurred, were not made in any tematic way. The field staff, however, proved their mettle in a very important respect: the non-response rate among householders (the main part of the survey exercise) was a very low 1,2 per cent. It is not unusual to record a five per cent non-response rate in sample survey research and an expectation of a rate of ten per cent in an informal area such as Malukazi would not be excessive. We can relate therefore with confidence that the residents of Malukazi responded positively to our survey - earning our direct and heartfelt appreciation for which thanks is a very small reward.

The reliability of sample statistics (as estimators of population values) breaks down into two considerations determined by the sampling design. Where estimates are derived from primary sampling units, the ninety-five per cent confidence level can be accepted and a precise sample where the values of standard error are more than satisfactory for the requirements of the survey objectives is achieved. Where we refer to data corresponding to clustered elements in the sampling design, however, (e.g. heads of household) we can only say that the standard error computations are very satisfactory, yielding precision at this level - we cannot however guarantee the ninety-five per cent confidence level for sample statistics, although large sample size encourages us to accept that fluctuations in confidence level will be small. We have reported on non-sampling bias

both here and in detail in Appendix A and this must be taken into account by the reader who wishes to make a judgement about total error in the research procedure - a close reading of Appendix A will be necessary in that event. By and large, the results of the sample survey are reliable and the error statistics we provide show an acceptable level of precision. At the end of Appendix A we provide a Table (A.5) which can be used as a ready reckoner for ascertaining likely sampling error for the various research exercises.

CHAPTER 2.

ESTIMATES OF POPULATION VALUES

The first task is to estimate the number of inhabited dwellings among the 1 843 structures identified on the listing of sampling units for Malukazi. Sample proportion statistics appear in Table A.1 (Appendix A) where the various uses of physical structures is analysed: for this purpose we have recourse to the total sample drawn (three hundred units) and not to the effective samples of 278 dwellings and households. In the total sample of three hundred units (roofs), 92,7 per cent were identified as dwellings inhabited by households, 2,7 per cent were vacant but habitable dwellings, 3,3 per cent were given over to non-residential use (shops, workshops, shebeens, religious meeting places, etc.) and 1,4 per cent were either latrines, kitchens, or errors on the listing. Inferring from proportion statistics the estimated use of physical structures in Malukazi is set out immediately below.

Estimated Number of Dwellings

Inhabited Dwellings	= 1708 (Prop. 92.6 ; S prop. = 0.015) CI, 95 = 89,7 - 95,5 per cent At June 1977 the estimate is between 1653 and 1760.
Vacant Habitable Dwellings	= 50
Shops	= 42
Other Non-residential Use	= 18
Balance: See Text	= 25

It must be emphasised that the estimates above refer to the dat[illegible]une 1977, and that construction in the area has continued

since then. It has increased recently as residents from the demolished settlement at Bhekithemba have settled in the western part of Malukazi. There can be little doubt that the upper limit of the estimate of 1 760 inhabited dwellings is an underestimate of the situation at the time of writing (May 1978). It would not be excessive to anticipate that the current population value (if known) would equal ca. two thousand inhabited dwellings. (It would be as well to recall this qualification at every step of estimation if interest in the current situation is uppermost.) Errors are not reported here for the balance of the estimates for the stock of physical structures, as the distribution reflects small proportions: the errors are very small, however, and Table A.5 (Appendix A) gives a guide to their magnitude.

Only 2,7 per cent of the available stock of housing (excluding non-residential uses) was not occupied at the time of the survey, which is low when compared with a more usual figure of five to seven per cent in formal housing. There appears to be one "shack-shop" for every forty inhabited dwellings and when other service-use structures are included, the figure drops to one for every twenty-eight dwellings. This does not account for the whole of the informal service and occupational sector in Malukazi, which is large, and about which we will have further to say in subsequent reports. The small proportion of latrines appearing in the sample reflects the property of the population listing (roofs) and not the available amenities, which at this early stage of survey analysis appear to be informal in the extreme (open structures).

Estimated Number of People.

This estimate is based on the number of people per dwelling from the effective sample of 278 inhabited dwellings

in June 1977. As the sampling units, dwellings, at this level of analysis are also sample elements, (as in the section immediately above) no weighting procedure is required and the confidence limits of sample statistics are theoretically certain (SRS without replacement). The mean number of people per sample dwelling unit is 8,3 with a wide range between one and forty-four persons (grouped distribution shown in Table I, Appendix F). The distribution is positively skewed (compare a median statistic of 6,5 persons per sample dwelling unit with the mean of 8,3), associated with the distribution of size of dwellings. The standard deviation on the distribution is 5,25 persons, only 0,25 more than anticipated in the sampling design. Inferring from sample statistics, the estimate of the population in Malukazi is:

> 14 176 persons ($\bar{x}$ = 8,3; $S_{\bar{x}}$ = 0,32; (7,7 - 8,9))
> At June 1977 the estimate of the population in Malukazi is between 13 152 and 15 200 persons.

If we are correct in projecting an approximate figure of two thousand dwellings as the current development in the area and assuming that our sample statistic holds, then we can anticipate a population of 16 600 persons with a range of error between 15 400 and 17 800 persons. For planning purposes, we would urge that the higher estimate of the projection be taken as a base-line, as growth is likely to continue and surveys such as this one have a tendency to underestimate population values.

Estimated Number of Households

The social entity household is defined here as the co-resident domestic group - consistent with Hammel and Laslett's comparative definition.[1] The household, then, is defined as

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1) Hammel, E.A. and Laslett, P., 1974, Comparing Household Structure Over Time and Between Cultures, Comparative Studies in Society and History. Vol. 16, 73 - 103 (pp. 76 - 77).

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"those who share the same physical space for the purposes of eating, sleeping and taking rest and leisure, growing up, child-rearing and procreation". Three main considerations make up this definition: sharing of space (location), sharing a number of activities (function) and consanguinal or affinal relationship (kinship) - with the proviso that households sometimes do contain people who are non-kin. Now although we recorded the number and size of households in each dwelling unit, interviews were conducted within one household per dwelling only. This means that the validity of the definition of household can be checked for only some of the households which appear in this estimate (half the number of households as it turns out); the returned detail of household structure appears to confirm that our definition was adhered to during the field work.

Within the sample of 278 dwellings, we recorded a total of 557 households, which represents a mean of two households per dwelling. Most dwellings contained only one household (56,5 per cent), almost twenty per cent contained two households, seventeen per cent contained three or four households, with the balance providing a positive skewing to a total of fourteen households (one case) with some empty cells in the range. The estimate of the number of households inhabiting dwellings in Malukazi is:

> 3 416 households ($\bar{x} = 2$; $S_{\bar{x}} = 0,09$: (1,82 - 2,18))
> At June 1977 the estimate at the 95 per cent confidence level is between 3 109 and 3 723 households.

This is a particularly important estimate of a population value as housing units in the public sector are usually designed to be occupied by separate households. At the present time it is likely that the number of households exceeds the four thousand mark.

Many of these households are small in their present form (see below), but where households comprise one man living in single status, the tendency will be for such units to form more common consanguinal and conjugal structures when more opportunities for accommodation arise.

Estimated Size of Households

The distribution of household size (number of people per household) over 557 households recorded in the sample of dwellings can be scrutinized in Table A.2 (Appendix A). The mean size of household is 4,16 persons with quartile deviation statistics showing Q_1 = 1,64 persons, Q_2 or median = 3,22 persons and Q_3 = 5,13 persons. The mean is considerably lower than means for African households in general,[1] the main influence being the number of small households. Detailed analysis of the potential for household growth will only be available when the survey data has been fully analysed.

The sample mean of 4,16 persons per household should be treated with more caution as a statistic than the estimators above. The element (household) n is greater than the unit (dwelling) n and therefore incorporates a cluster effect. That means that the confidence interval at the ninety-five per cent level could be greater or smaller than expected under strict

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1) The mean size of African households in Durban is 5,7 persons (Maasdorp, op.cit., p. 19). In nearby Adam's Mission the mean size is 8,9 (Stopforth, P.,1976, The Feasibility of a Black Community Health Centre Proposed for a Site at Macayama, Document and Memorandum Series, Durban, Centre for Applied Social Sciences, University of Natal). In a peri-urban region west of Durban the mean African household size is also 8,9 (Stopforth, P. (forthcoming) Changes in Household Structure from 1958 to 1972 in an African peri-urban Area near Durban).

SRS conditions. For the record, the standard error of the mean is equal to 0,11 and the confidence interval of the mean statistic is between 3,94 and 4,38 persons.

Summary

Table 2.1 Summary of Estimates of Population Values

Estimated Entity	Sample Statistic	CI	p	Estimate of Population Value
Number of Inhabited Dwellings	Prop. = ,926	,897 - ,955	0,05	1 708 (1.653 - 1 760)
Number of People	$\bar{x}$ per D = 8,3	7,7 - 8,9	0,05	14 176 (13 152 - 15 200)
Number of Households	$\bar{x}$ per D = 2,0	1,82 - 2,18	0,05	3 416 (3 109 - 3 723)
Number of People per Household	$\bar{x}$ per Hh = 4,16	3,94 - 4,38	0,05	4,16 (3,94 - 4,38)

CHAPTER 3.

CHARACTERISTICS OF THE POPULATION

In this chapter, we provide an outline, derived from sample statistics, of some of the characteristics of the population settled at Malukazi. These characteristics are reported as estimates of population values reflecting the weighting (raising factor) procedure adopted, which can be scrutinized in Appendix A. The information is drawn from the household sample of interviews (278) and for the most part, we draw on Section 1 of the questionnaire schedule shown in Appendix D. Two aggregate estimates comprise the boundary within which characteristics are described here: total number of people and total number of households in Malukazi. Reference to Chapter 2 reveals that we estimate that there are 14 176 persons residing in 3 416 households in Malukazi. Below, these aggregates appear as 14 116 persons and 3 437 households respectively. The difference is one of convenience and easily accounted for. In rounding the raising factors derived from the weighting procedure (merely to facilitate computation), small discrepancies accrued; these cause insignificant deviations from estimates based on unweighted probability statistics. The inconvenience of making an exact correction is considerable and the raised variable categories and aggregates as they are produced on the computer, are accepted confidently for the purposes of analysis below (and for analyses that will appear at future dates).

To our mind, the most dramatic characteristic of the population in Malukazi is the equitable masculinity ratio at 0,99 (49,8 per cent males and 50,2 per cent females). Scrutiny of Figure 1.1 below and Table II in Appendix F reveals further points of interest, which we enumerate briefly:

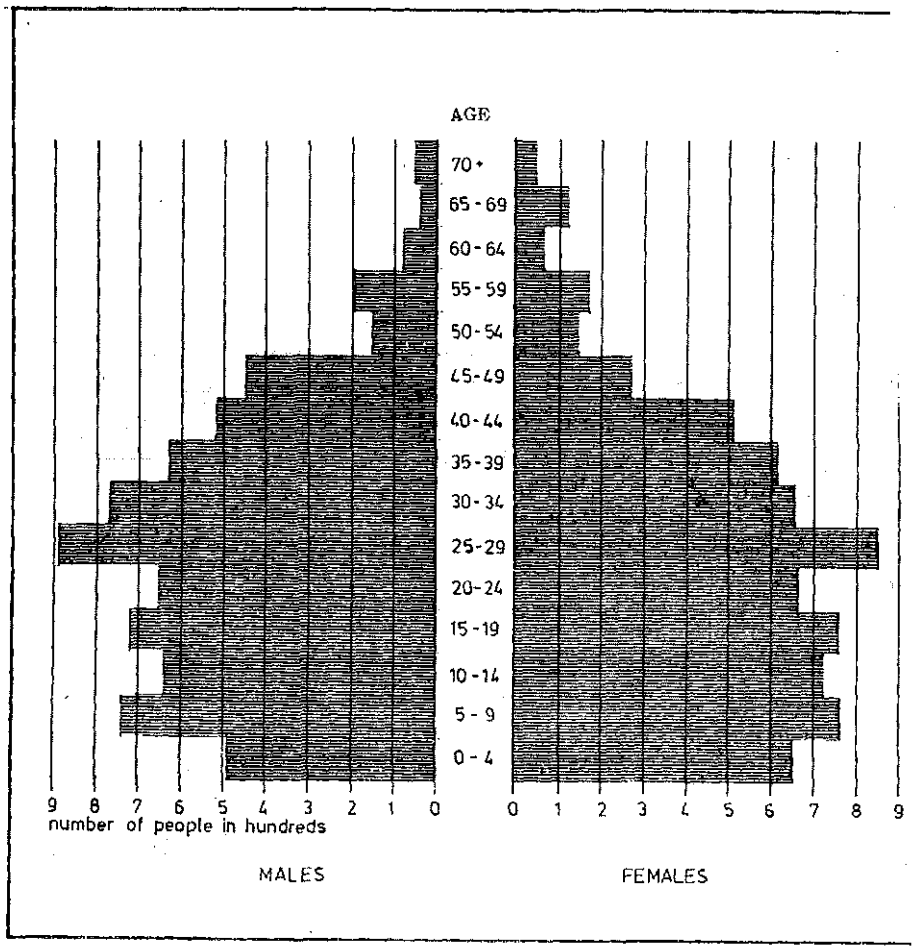

FIG 1.1 AGE/SEX PYRAMID FOR MALUKAZI (Population Estimate)

i) The equitable masculinity ratio holds for most of the age cohorts. Basing analysis on probable percentage error (Table A.5 (Appendix A)), significant differences in the ratio are apparent at the age cohort forty-five to forty-nine years, where males outnumber females with a ratio of 1,62, and at sixty-five to sixty-nine years, where females outnumber males, revealing a ratio of 0,31. There are other deviations from the overall ratio, notably more males in the cohorts thirty to thirty-four years and sixty to sixty-four years, but they are unlikely to be significant.

ii) In common with most urban African population pyramids (and other types of recent settlement patterns) infants in the cohort nought to four years are either under-enumerated or really not present. Uncommonly, however, the taper of the pyramid toward the senior cohorts is not as short and shallow as the usual pattern associated with recent urban settlement. Both characteristics are explicable.

iii) Characteristically, the pyramid bulges in the adult age cohorts - there are, however, three aspects worth noting: the bulge is not as pronounced as it might be, the preponderance of males over females is absent and the usually noted absence of females in the cohort fifteen to nineteen years has not occurred.

The essential point to be made as an inference from the age/sex structure of the population settled at Malukazi is that there is no feature which suggests this to be a transient

population. True, there are more males than females in the optimum working period of the life cycle twenty-five to forty-nine years, but this is not exaggerated and the manifest presence of women and children suggests that the phenomenon of the male "living in single status" as a migrant labourer is largely absent and that it is unlikely that the in-migrant "squatter" pattern holds for this community. This inference will inform the analyses we make of other characteristics of the population, at the end of which the resulting profile should tell us whether we are correct in our thinking or not.

Before proceeding, it is wise to make two points about the age/sex distribution. It is common in many parts of Africa for infants to be under-enumerated in censuses and surveys (the reasons do not concern us here). There is still a high infant mortality rate among Africans and there is a tendency for women with young children to live at their fathers' homes until marriages are finally consolidated. Probably all of these effects are present and should be weighed when considering the meaning of the difference in proportion between infants and older children in the age/sex structure. The second point concerns the presence of a number of elderly people. This should not be construed as an indication of stabilization in a spontaneous urban settlement. Until recently, Malukazi was a communal tribal area, accommodating approximately 260 homesteads. The original population, many of whom are old, reside there yet, and marriage would have brought in women who might have been there for many years. Twenty-seven per cent of people aged sixty years and above, living at Malukazi, were born in the area. The balance have come for the most part from other parts of Natal at sometime during their lives.

Only 3,4 per cent or 475 of all households comprise one person (single households). Of these, seventy-four per cent

(350) are male households and twenty-six per cent (125) female households. Most males in single households (200) fall in the age cohorts between twenty and thirty-four years and eighty per cent of females living in single households are aged between twenty and thirty-nine years. One strange feature of the age distributions is that twenty-nine per cent of males and twenty per cent of females living in single households occur in the age cohort fifty-five to fifty-nine years. These elderly solitary dwellers comprise only 0,9 per cent of the total population, which is a small proportion if they are to be considered in any way as a social problem.

The majority of households are headed by a male: eighty-two per cent of household heads are male and the balance of eighteen per cent are female. A detailed scrutiny of the estimates describing the distribution of male and female heads according to household size, reveals no startling finding regarding the distribution of female heads. There are somewhat more females of fifty years and over heading households between four and six people than males of that age, and in general, as age increases toward sixty years and above, the distribution of male and female household heads tends toward parity. We have yet to analyse the detailed structures of household composition in Malukazi. At this stage of the project, we can report that heads of household comprise twenty-four per cent of the population and of the eighty-two per cent of male heads, approximately eighty per cent have wives, or someone accorded the status of a wife, living with them (sixteen per cent of the population). Children of heads of household comprise 43,5 per cent of the population, the balance being made up of other conjugal relatives (13,5 per cent related to heads and two per cent related to "wives") and less than one per cent of the population living in households where they have no relative.

Guide to Marital Status Among the Population in Malukazi

Never Married (0 - 19 years)	5484 (38,9%)		
Never Married (20 years and over)	1927 (13,7%) (1028 or 53% at age 20 - 24 years)		
Married	4753 (33,7%)	Married: wife in rural area; irregular union in town	185 (3,9%)
Widow(er) 644 Divorced 142 Separated 25 Deserted 40	851 (6,0%)	Of those previously married: now with irregular unions	83 (9,6%)
Living Together: Firm negotiations for marriage	423 (3,0%)		
Irregular Union	637 (4,5%)		
Other Forms of "Marriage"	34 (0,2%)	People with very complicated arrangements	6
	14 109*		

* No information in seven cases.

It is notoriously difficult to reflect an absolutely accurate picture of marital status among African populations by means of a survey questionnaire/interview technique. This is so because the activity of getting married is often a fairly long process, rather than a particular date entered on a formal contract (indeed marriages are often not completed until a number of children have been born). Despite the recognition of this problem, we did try to map marital status among Malukazi residents, taking the precaution of allowing different definitions of the unions between men and women to be recorded, as well as asking a separate question designed to qualify any marital status - for example in the case of an obviously married man whose wife lived in the rural area whether he had commerce with a woman who would live with him as a town wife (irregular union). The results of our questioning are reported below as a guide to the marital status among Malukazi residents.

Only fourteen people (girls) in the age cohort fifteen to nineteen years are "formally married" - that means a regular marriage or something so close that it is recognised as a marriage. Using the same definition, 4 753 men and women in the population are formally married. Among these, 185 men (3,9 per cent of married persons) have irregular unions with women who live with them as "wives" in town - the figures have been checked against sex and marital status and the statistic appears to be a sound one. There are 851 men and women who comprise the category widowed, divorced, separated and deserted, and eighty-three or 9,6 per cent among these conduct irregular unions. Just over four hundred people living together in anticipation of a marriage - anticipated to the extent that family negotiations for the marriages are well advanced - and occur mostly in the age group

twenty to thirty-four. There are 637 people who have declared that they live in Malukazi with a man or a woman in an irregular union (whether some of these will become marriages is not known). A very few people have complex marital arrangements that defy ready categorisation. There are 1 927 people categorised as never married; fifty-three per cent occur in the age cohort twenty to twenty-four years and by the age of thirty-four years there are very few people who have never been married.

So far, we have presented marital status derived from statistics on people, but marriage and other forms of sexual union involve two people - a group. By presenting estimates of people and estimates of unions side by side, we can produce a clearer picture of marital arrangements among the adults in Malukazi. In this reconstruction of marital status below, it can be seen that seventy-seven per cent of all sexual unions which involve cohabitation can be described as proper marriages. A further eight per cent are either complex marriages or near marriages. The balance of sexual cohabitations are irregular unions, either among unmarried persons or persons who are already married, but have a "wife or husband of convenience". We can express estimates of irregular cohabitation sexual unions in Malukazi, then, either as involving ten per cent of all adults of twenty years and above or fifteen per cent of all unions. It should be noted, however, that by far the most common union is marriage (seventy-seven per cent), with some unions approximating marriage bringing the proportion to eighty-five per cent.

Marital Status

Adults in Malukazi (8625 persons 20 years and older)		Unions in Malukazi	
Never married	1927 (22,3%)	-	
Widowed, Divorced, Separated, Deserted	768 (8,9%)	-	
Married	4568 (53,0%)	2284	(77,0%)
Living together: Negotiating Marriage	423 (4,9%)	212	(7,1%)
Other forms of Marriage	34 (0,4%)	17	(0,6%)
Irregular union: 637 Married - with Irregular union: 185 Previously Married - now Irregular union: 83	905 (10,5%)	453	(15,3%)
	8625	2966	

The presentation of profile material on age/sex structure, household particulars and marital status from our survey is the first step toward determining a typification for the aggregate or community settled at Malukazi. There are many types of social pattern associated with settlements in and around cities[1] (especially developing new cities, which is our particular interest here): so far, we have established a balanced sex ratio and, for the most part, a family context for the people living at Malukazi. The description of two further contingencies - urban participation and place of

1) See Dwyer, op. cit., throughout.

recruitment - will greatly facilitate the construction of a type for the settlement at Malukazi. In the matter of urban participation, it is essential to discover whether the people of Malukazi are merely an addendum to the urban environment, or whether they are locked into the social economy of a functioning system. The sources of recruitment - rural, peri-urban, urban - will direct attention to the overall structural problems that have given rise to the development of a spontaneous settlement (and it might be argued that spontaneous settlements provide a contemporaneous solution to the larger structural problems - in the short term at least).

The distribution of formally conceived daily activities of the population at Malukazi will reveal the extent of their participation in the institutions commonly available in urban centres - in this case, the Durban Metropolitan Area. A summary of formal daily activities is shown in Table 3.1. The youngest members of this community, from nought to six years, are designated as pre-school, although a few would already be attending school at Umlazi Township. Moving to older boys and girls, it is immediately apparent from the summary in Table 3.1 that the majority are at school, undergoing formal education. Turning to boys first, Table 3.2 can be consulted for a refinement of their school-going incidence. It is clear that in the age cohort seven to fourteen years, seventy-eight per cent of boys are at school, but more important, only seven per cent are not at school and not working (the fifteen per cent who are gainfully employed in this group are drawn from the older boys/men). A surprising number of men continue their formal education at a post-adolescent age - twenty-three per cent of the cohort twenty to twenty-four years, and a few even beyond this age. Approximately the same proportion of girls as boys in the age group

seven to nineteen years are to be found attending school (see Table 3.3). However, they seem to begin later and to leave off earlier, and are certainly not as prone to continuing schooling after adolescence (see discussion on standard of education attained). Fewer of the older girls are employed (six per cent) compared with older boys (fifteen per cent). The proportion given for household duties (fourteen per cent) for girls in Table 3.3 suggests that, combined with a tendency to leave school earlier, girls seek work earlier than boys (unemployment) or are retained for household duties by the family, or both.

Table 3.1 Distribution by Sex of Formal Daily Activities Among the Total Population of Malukazi.

Formal Daily Activities	Male		Female	
	N	%	N	%
Pre-school (0 - 6 years)	726	10,3	845	11,9
At school	1789	25,5	1858	26,2
Not at school (7 - 18 years)	134	1,9	128	1,8
Unemployed (19 years plus)	212	3,0	122	1,7
Household duties	14	0,2	1096	15,5
Formally employed only	3166	45,0	1761	24,9
Formally as well as informally employed	629	9,0	159	2,3
Informally employed only	336	4,8	1042	14,7
Pensioned	23	0,3	69	1,0
Total	7029	100,0	7080	100,0

Table 3.2 School Attendance Among Boys Aged Seven to Nineteen Years.

Age	Number of Boys	Percentage at School	Percentage not at School	Percentage Gainfully Employed
7 - 9	499	93,8	6,2	-
10 - 14	640	91,7	8,3	-
15 - 19	721	77,9	6,9	15,2
Total	1860	86,9	7,2	5,9
20 - 24	654	22,8		
25 - 29	892	2,6		

Table 3.3 School Attendance Among Girls Aged Seven to Nineteen Years.

Age	Number of Girls	Percentage at School	Percentage not at School	Percentage Gainfully Employed	Percentage Household Duties *
7 - 9	577	88,0	12,0	-	-
10 - 14	729	95,6	4,4	-	-
15 - 19	763	74,6	4,7	6,3	14,4
Total	2069	12,6			
20 - 24	668	12,6			

* 42 per cent of this category is actually recorded as unemployed.

Table 3.4 Standards of Education Attained by Males in Malukazi, Reported as Percentages in Age Cohorts.

Age (men)	Number of Years of Schooling								
	Nil	1-2	3-5	6-8	9	10	11	12-13	Post Matric
5-9	36	32	29	3					
10-14	-	9	44	39	6	2			
15-19	-	-	6	33	23	13	19	6	
20-24	-	1	5	27	14	24	12	16	1
25-34	7	1	12	25	13	21	11	10	
35-49	12	2	16	31	8	12	11	8	
50+	39	4	27	22	-	7	-	1	

There are 3 647 boys and girls (men and women) who live at Malukazi, attending school. Certainly, there are no formal educational institutions within the confines of the settlement area. Where do all these children go to school? With Umlazi Township adjacent to Malukazi, it will come as no surprise to learn that eighty-eight per cent or 3 204 children from Malukazi attended school in that township. The balance attend schools in the Isipingo/Umbogintwini area (five per cent), in other African townships in Durban (four per cent) and there are three per cent in other places in the Greater Durban Area. Tables 3.4 and 3.5 describe the standard of education attained by males and females respectively in the Malukazi population (the description is in terms of number of years derived from the raw data expressed as standards, forms, etc. - see Appendix F, Table III). It is clear that, except among older people, fifty years and over, the proportion of people without any education is low. Substantial proportions of the population between the ages of fifteen and forty-nine have nine or more years of education, which is above the bar of Standard Six for both the old and new incremented years of education. Further, as remarked earlier, women appear to get less education in general than men, though this may be changing among younger women. Marginally more younger women appear to have nine years or more of formal education than men, but at present, as age increases, so the educational performance of women decreases relative to men.

Table 3.5 Standards of Education Attained by Females in Malukazi, Reported as Percentages in Age Cohorts.

Age (women)	Number of Years of Schooling								
	Nil	1-2	3-5	6-8	9	10	11	12-13	Post Matric
5-9	34	35	28	3					
10-14	3	2	56	36	3				
15-19	4	2	9	18	20	25	11	12	
20-24	7	-	-	43	16	14	8	12	
25-34	6	4	11	33	13	12	18	3	
35-49	7	2	25	39	4	11	7	5	
50+	42	10	19	25	2	2			

Percentage of Men and Women with Nine or More Years of Education.

Age	Men	Women
15 - 19 yrs.	61	68
20 - 24 yrs.	67	50
25 - 34 yrs.	55	46
35 - 49 yrs.	39	27

Of the greatest interest is the question of gainful employment and occupations of adults in the population of Malukazi. Table 3.1 gives a general view of this profile, which we now analyse in more depth. We have already seen in Table 3.1 that the rate of unemployment is low - the very low rate of unemployment among men is surprising, given present economic conditions. In Table 3.6 we show that unemployment among men in the category twenty-five to forty-nine years - peak earning years - is particularly low, and that the incidence of unemployment (still at a very low proportion) tends to be higher among both young and older men. In the same table, we show proportions for unemployment recorded for women - that is, women who considered themselves to be unemployed. These proportions are very low, but should be read in conjunction with the category "Household Duties" (adjacent column) - women responsible for running the home. Even these summed proportions show that many women are employed (analysed below) and that it is likely that women in the age group thirty-five to forty-nine years are most likely to be employed: this fits a situation where women have already established their families and are able to seek employment, while they have not yet reached the stage where they will be caring for grandchildren.

Table 3.6 Percentage Rates of Unemployment Among Males and Females.

Age	Males Unemployed		Females Unemployed		Household Duties; Females	
	N	%	N	%	N	%
15 - 19	0	0	46	6	64	8
20 - 24	54	8	15	2	153	23
25 - 34	90	5	30	2	415	27
35 - 49	25	2	7	0,5	296	21
50+	37	7	24	4	159	28

The pattern of employment in the "community" is a crucial variable describing the link between the population and the urban system. As unemployment is generally low, we can expect rates of employment to be consistently high: Tables 3.7 and 3.8 describe the rates of employment among men and women respectively, differentiating occupation between the formal and informal sectors. Inspecting Table 3.7, it is immediately apparent that of some 5 158 men over the age of fifteen years, 4 131 or eighty per cent are gainfully employed in one or other capacity. Seventy-four per cent (3 795) are engaged in occupations in the formal sector of employment, though sixteen per cent of these practise informal occupations as well. Altogether, 18,7 per cent (965) of men are engaged in informal employment, but only 6,5 per cent or 336 men in the population rely solely on this sector for their gainful activities. The rate of employment in the age cohort fifteen

to nineteen years is understandably low - it is a "mixed activity" cohort where many men are still to be found in school. The rate of employment rises very steeply through the cohort twenty to twenty-nine years (82,6 per cent) to form a plateau of employment at a rate between 96,7 and one hundred per cent for men in the age category thirty to fifty-nine years (see Table 3.7). Thereafter, the rate of employment declines, though 60,5 per cent of men between sixty and sixty-nine years, and fifty per cent over seventy years, remain employed in some capacity.

The rate of employment among women is substantially and consistently lower than that for men, though the overall pattern is very similar - as a rate for females in gainful employment the incidences are high, though care must be exercised to differentiate between formal and informal sector occupations. From Table 3.8, we read that of 4 929 women over the age of fifteen years, some 2 945 or sixty per cent are gainfully employed in some capacity. Thirty-nine per cent (1 920) are employed in formal sector occupations and of these, 8,3 per cent (159) practise occupations in the informal sector. However, twenty-one per cent or 1 025 women rely solely on the informal sector for their gainful activities - recall that the same proportion for men is 6,5 per cent. Like men, the age category thirty to fifty-nine years among women produces the most active employment moiety with a consistent rate of seventy-six per cent through the three ten-year intervals. Employment among women is lower both between fifteen to twenty-nine years and sixty years and over, when compared with men (compare Tables 3.7 and 3.8).

Table 3.7 Rates of Employment Among Males in the Formal and Informal Sectors.

Males					
Age	N	Employment 1 %	2 %	3 %	Percentage Employed
15 - 19	721	14,0	0,0	1,1	15,1
20 - 29	1546	74,1	3,0	5,5	82,6
30 - 39	1401	73,2	19,5	4,0	96,7
40 - 49	970	60,7	24,2	12,5	97,4
50 - 59	347	77,8	13,3	8,9	100,0
60 - 69	119	29,4	18,5	12,6	60,5
70+	54	0,0	13,0	37,0	50,0
Total	5158	3166	629	336	4131
Percentage	100,0	61,4 (73,6)	12,2	6,5 (18,7)	80,1%

1. Formally employed only
2. Formally as well as informally employed
3. Informally employed only

Table 3.8 Rates of Employment Among Females in the Formal and Informal Sectors.

Females					
Age	N	Employment 1 %	2 %	3 %	Percentage Employed
15 - 19	763	6,3	0,0	0,0	6,3
20 - 29	1522	51,8	1,0	14,0	66,8
30 - 39	1280	47,6	3,2	25,5	76,3
40 - 49	794	34,4	10,2	31,4	76,0
50 - 59	325	10,8	6,8	58,8	76,4
60 - 69	194	3,6	0,0	19,6	23,2
70+	51	0,0	0,0	15,7	15,7
Total	4929	1761	159	1025	2945
Percentage	100,0	35,7	3,2 (38,9)	20,8 (24,0)	59,7%

1. Formally employed only
2. Formally as well as informally employed
3. Informally employed

The outline of the pattern of employment for the population in Malukazi is as follows: 5 715 men and women are gainfully employed in formal sector occupations and supply labour at this rate to the Durban Metropolitan Area and of these persons, 788 engage in informal sector occupations as well; altogether some 2 149 men and women engage in informal sector gainful employment in and around their community, providing, among other things, services usually associated with public or formal occupational sectors - 1 361 men and women rely solely on the informal sector for their gainful activities. As many persons, such as landlords of various descriptions, are passive in the informal sector, the estimates above should be read in conjunction with the detailed report on informal sector activities mentioned below (see Table 3.11).

We are already aware that a substantial proportion of adults works at occupations in the formal sector of employment in the metropolitan area, which informs us that the settlement at Malukazi is very much more than an accidental aggregate of people collected at the fringe of the city. We can now build onto the concept of incorporation into the urban process by studying the detail of occupational involvement set out in Table 3.9. Taking men in formal sector occupations first, it is clear that, while approximately forty per cent are engaged in the more menial occupations of labourer and gardener (the latter in small numbers), the balance are distributed among occupations requiring skills of more or less sophistication. At the top of the occupational ladder is a small number of professionals - teachers and so on - and owners of their own businesses, with a few persons in the managerial, executive and administrative categories. A robust 13,5 per cent of the males in formal sector occupations are employed in

clerical or sales capacities and the second largest occupational group (28,5 per cent) fills routine non-manual jobs such as drivers, cooks, waiters, safeguards, etc. Over three hundred male employees in Malukazi (8,5 per cent) have some skill in a manual occupation.

Table 3.9 Distribution of Employed Males and Females Among Formal Sector Occupations.

Occupation	Males		Females	
	N	%	N	%
Professional	176	4,6	322	16,8
Owner of Business and M.E.A.	79	2,1	9	0,5
Clerical and Sales	512	13,5	295	15,4
Routine Non-Manual	1078	28,5	86	4,5
Semi-Skilled Manual	321	8,5	121	6,2
Labourer	1472	38,9	414	21,5
Domestic Service/ Gardener	37	1,0	504	26,3
Other	112	2,9	169	8,8
Total	3787	100,0	1920	100,0

Women employed in the formal sector are more inclined to work at less skilled occupations - either as labourers or domestic servants (forty-eight per cent). Malukazi does, however, supply the labour market with skilled women employees as is shown in Table 3.9. There are many more women professionals than men - some 16,8 per cent, who fill jobs as teachers,

nurses, social work persons, etc. Many work in clerical and sales capacities (15,4 per cent), and some have manual skills usually associated with women such as machine operation, knitting, dress-making, etc.; (these occupations are registered in two categories: "semi-skilled manual" and "other" (fifteen per cent)).

The data in Table 3.9 takes us in a very firm direction: the range of employment in which both men and women are occupied in the formal sector of the urban system indicates clearly that the population of Malukazi is not an indigent rural population seeking relief from the city, a situation characteristic of the developments in very many third world cities. If the bulk of the Malukazi residents is not resident urban in-migrants, who are they and where do they come from? We will adduce evidence shortly which will indicate that the population of Malukazi is substantially an urban one seeking refuge in informal settlement, because the services provided by public bodies have not kept up with overall growth of the urban system. However, the fact of living in a spontaneous urban settlement provides opportunity for informal employment, which we analyse before proceeding with the origins of the Malukazi population.

Fourteen per cent of employees in formal occupations derive some income from informal sector occupations (Table 3.10). A large majority (eighty per cent) are landlords of one or other description - letting land, accepting sums of money for building rights, letting dwellings or rooms, etc. The proportion of eighty per cent among formally employed persons is almost double a proportion of forty-five per cent of persons who derive an income from a landlord function and who are involved in the informal sector overall. The landlord function is therefore not necessarily a sole source of support where it

occurs, and in fact thirty per cent of all landlords hold formal sector occupations as well. There are likely to be two general types of landlord: persons holding rights to land under communal tribal tenure, and new entrepreneurs who have aquired building rights from tribally settled inhabitants, and who then let houses they have built or part of a house that they inhabit. An analysis of the full spectrum of tenure in Malukazi cannot be undertaken here, and awaits the consolidated survey report which will follow (see however Chapter 4 of this paper).

Table 3.10 Males and Females Formally Employed and Who Also Operate in the Informal Sector of Employment.

Formal Employment Occupation	Number Formally Employed	% Deriving an Income from Informal Employment	Type of Informal Employment			
			Landlords (Land and Houses)		All Other Types (see Table 3.11)	
			N	%	N	%
Professional	498	11,0	46	84	9	16
Owner Business and M.E.A.	88	19,3	17	100	0	0
Clerical and Sales	807	8,6	61	88	8	12
Routine Non-Manual	1164	14,3	99	60	67	40
Semi-Skilled Manual	442	11,3	50	100	0	0
Labourer	1886	16,0	281	93	21	7
Domestic Service or Gardener	541	20,9	60	53	53	47
Other	281	11,4	32	100	0	0
Total	5707	14,1 (804)	646	80	158	20

Table 3.11 *Distribution of Males and Females Among Informal Sector Occupations.* (Figures in Parentheses Indicate Number Added When People With More Than One Informal Occupation Are Recorded on Both).

Occupation (Informal Sector)	Males		Females	
	N	%	N	%
Sellers - foodstuffs	100 (0)	10,5 (8,9)	319 (22)	26,2 (21,9)
Sellers - clothing and related goods	23 (7)	2,4 (2,7)	47 (51)	3,9 (6,3)
Artisans - mechanics, builders, carpenters, painters	84 (15)	8,9 (8,8)	0 (0)	0,0 (0,0)
Brewers/sellers of liquor, shebeen keepers	54 (30)	5,7 (7,5)	447 (62)	36,7 (32,6)
Handymen/cleaners	6 (0)	0,6 (0,5)	0 (0)	0,0 (0,0)
Entertainers, gamblers, prostitutes, etc.	0 (0)	0,0 (0,0)	0 (0)	0,0 (0,0)
Barbers	33 (0)	3,5 (2,9)	0 (0)	0,0 (0,0)
Tailors, shoemakers, dressmakers	0 (0)	0,0 (0,0)	200 (57)	16,4 (16,5)
Taxi operaters, deliverymen	15 (17)	1,6 (2,8)	0 (0)	0,0 (0,0)
Herbalists, prophets	8 (7)	0,8 (1,3)	32 (6)	2,6 (2,4)
Laundry operators	0 (0)	0,0 (0,0)	0 (0)	0,0 (0,0)
Landlords (land or houses)	562 (103)	59,3 (59,0)	174 (143)	14,3 (20,0)
Other informal employment	63 (0)	6,6 (5,6)	0 (0)	0,0 (0,0)
Total	948 (1127)	100,0	1219 (1560)	100,0

In Table 3.11 we describe the range and distribution of occupations occurring in informal sector employment: some of the occupational descriptions are superfluous for our data, but are retained as the items in the table are a standard format, used for the analysis of informal sector occupations by another department in the University.[1] Free-standing numbers and percentages in Table 3.11 represent the first informal occupation recorded, and numbers appearing in parentheses show the incidence of two informal occupations performed by the same individual (only five individuals had more than two informal occupations and this data is not reported here). Table 3.11 is rather difficult to read at a glance and as a matter of convenience, a rank order of the frequency of informal occupations performed by men and women in Malukazi is produced below.

Rank Order (High to Low) of the Frequency of Performance of Informal Sector Occupations.

Males	Females
Landlords (land or houses)	Brewers/sellers of liquor, shebeen keepers
Sellers - foodstuffs	Sellers - foodstuffs
Artisans - mechanics, builders, carpenters, painters	Landlords (land or houses)
Brewers/sellers of liquor, shebeen keepers	Tailors, shoemakers, dressmakers
Barbers	Sellers - clothing and related goods
Taxi-operators, deliverymen	Herbalists, prophets
Sellers - clothing and related goods	
Herbalists, prophets	
Handymen/cleaners	

1) The stubs in Table 3.11 are derived from the categories used by the Department of Economics at the University of Natal to analyse informal sector occupations.

The rank ordered profiles show immediately that the functions of landlords, sellers of liquor and sellers of foodstuffs are the most prevalent informal occupations performed in Malukazi (within the first four ranks and first three ranks for men and women respectively). The landlord function is contingent on many factors in the situation: rights in communal tenure, entrepreneurial possibilities, the demand for shelter, convenience of the site, etc. Selling of food - open stalls, shack shops (an estimated forty-two shops) hawking and purveying from the home - reflect the complete lack of formal retail outlets in the area. Alongside the Umbumbulu Road in Malukazi, there is an outlet which supplies African beer (the actual status of this business is difficult to determine). Informal sector occupations dependent on liquor have a high incidence involving fifty-four men and 447 women. The most usual practice is for women to buy beer (iJuba) and to resell it at a profit. The very high incidence of this trade suggests that Malukazi caters for Umlazi residents as well as for the population in Malukazi.

Artisans, involved in the erection and construction of buildings, are a common sight in Malukazi. Taxi-operators are also very evident as they ply their trade. What is not evident in our data, but which undoubtedly occurs, is the type of informal activity which is categorised under the title "entertainers, gamblers, prostitutes, etc." (and may one add "thieving") in Table 3.11. The obvious reluctance of respondents to report such activities leaves us with little more than conjecture in this matter: further, it is undesirable to guess and run the risk of being totally incorrect. However, we might remark that there are at least two contradictory factors which would bear on "vice" in Malukazi: the first is the family context, which might tend to depress prostitution,

for example, and the second is the large liquor trade, which might well be associated with "less desirable activities" (bearing in mind that alcohol consumption correlates with a wide range of sociological phenomena, including poverty).

Table 3.12 Geographical Distribution of Work Place for Formal Sector Employees Living in Malukazi.

Place Employed (Formal Sector Occupations Only)	N	%
Town (Durban)	1545	27,0
Jacobs, Merebank, Montclair, Clairwood	1252	21,9
Isipingo	1029	18,0
Umlazi	471	8,2
Bayhead, Maydon Wharf	414	7,2
Congella	386	6,8
Prospecton, Reunion	359	6,3
South of Amanzimtoti	110	1,9
Amanzimtoti, Umbogintwini	82	1,4
Other	67	1,2
Total	5715	100,0

The estimate for people in formal employment occupations exceeds 5 700. Table 3.12 shows the distribution among geographical locations of where people from Malukazi are employed. The core city and southern industrial areas account for sixty-three per cent of formal employment among Malukazi workers (Town, Jacobs, Merebank, Montclair, Clairwood, Bayhead, Maydon Wharf, Congella). The balance work at Isipingo,

Umlazi, Prospecton, Reunion, Amanzimtoti (thirty-four per cent) and south of Amanzimtoti or elsewhere (three per cent). Sixty-seven per cent of workers are employed in town, in the southern industrial area (excluding Prospecton) and at Isipingo. There can be little doubt that employment, in all its facets - type, rate, place - links the people of Malukazi to the Durban Metropolitan Area. They depend on formal employment in Durban for a primary livelihood; the fact of the settlement provides abundant opportunity for informal employment; and, not to be forgotten, the metropolitan area derives cheap labour, in the sense that the residents at Malukazi enjoy little from the public revenue necessary to house urban people - schooling and possibly transport aside.

In common with many parts of the third world, Africa, as well as South Africa, has experienced migration of population from rural locales to urban centres in recent decades. Leaving aside the reasons for these movements, the fact is that few, if any, countries have been able to cope with rising urban populations in an organised, formally planned way in the short term. The most readily apparent consequences of these developments are the informal settlements that have sprung up in and about cities where new and often established urbanites seek shelter. These new settlements have given rise to varying interpretations of the urban process in the third world: the rub is that political policies are pursued in accordance with the type of interpretation accepted in any place for informal settlements, and unless the interpretation is informed by a theory which has been empirically tested, the likelihood of exacerbating housing problems increases. Some of the ideas associated with informal and spontaneous urban settlements divide, if rather too neatly, into dichotomous categories which are, however, not to be thought of as mutually exclusive in any particular case, nor are the several dichotomies necessarily connected to each other in a

continuous fashion. Although it is beyond the scope of this paper to test theories about new urban settlements, we present very briefly some of the ideas associated with them, and take up the important matter of the origins and rural-urban status of the population at Malukazi.

Some Dichotomous Categories Used to Interpret the Status of Spontaneous Urban Settlements.

In-migration to the city from rural localities	Out-migration from city centres to city peripheries
"Bridgeheaders"	"Consolidators"
"Slums of despair"	"Slums of hope"
Spontaneous settlements are problems to be eradicated in the urban process	Spontaneous settlements provide solutions to greater structural problems in the urban process

It is worth repeating that the dichotomies are not mutually exclusive and very unlikely to be "pure" for any substantive situation, and that they do not necessarily constitute separate theoretical or real syndromes. At the same time, however, it is possible to educe two different strands of thought on the subject of urbanisation in the third world, and in South Africa in particular: one is a traditional view, often preferred by administrators, the other an emerging view deriving from research in the field of housing the urban poor and not-so-poor in many parts of the world. The traditional view would go something like this: rural poverty drives people to the city where they squat or overcrowd the poorest

accommodation; as soon as they gain a foothold in the "urban economy", they recruit rural members of the family to the urban centre, so exacerbating the housing situation; the consequences are "slums of despair", where the "culture of poverty" syndrome paralyses community initiative, leaving the administrative authorities with the burden of putting things to rights, usually in the face of insufficient public revenue. In contrast with such a view, another view is emerging, which attempts to grapple with the real developments revealed by research within spontaneous settlements. This is the recognition that wherever people may come from (and in many cases some come from within the city itself), they very often bring with them, or are able to develop, skills sufficient to provide themselves with shelter. In the case in which people are already part of the urban process - by virtue of urban experience, educational attainments and job histories - they can build their own communities, utilizing such basic infrastructure as transport facilities to commute into the city centre. Many alternative schemes for raising the physical standards of such communities have already been tried with some success; the point of this view of spontaneous settlement is that if fostered by planning authorities, such communities can progressively improve their living conditions, and become incorporated as part of the urban complex. They provide a part of the solution to the wider problem of rapid urbanisation, rather than constituting an unwanted effect of the same process.

With these views in mind, we might now make a beginning by asking, "Where do the residents of Malukazi come from?" Not all the residents of Malukazi are newcomers to the study area. It can be established that approximately 260 families have lived in the vicinity of the study area under communal tribal tenure: it is not certain how many households these

constitute, nor are the exact boundaries, within which these families occur, known. Certainly our unweighted sample statistics show that 21,6 per cent of heads of household (sixty individuals) claim to have been born in the general area - we take up the matter of this proportion below. Settlement in Malukazi has not been all of one piece: in-migration has occurred at various dates, with a trickle in the 1930s and '40s, a few more in the '50s, building up to a steady increment during the 1960s, with substantial in-migration during 1969 and 1970; throughout the '70s, settlement has taken place at a substantial rate, speeding up during 1976 and peaking during 1977 (the year of our study). After a lull in growth during early 1978, building has once again started and a recent trip to the area (April 1978) confirms a westward expansion of the settlement (in the face of official attempts to halt building). The origins of the settlers at Malukazi might best be described by considering seriatim their places of birth, their residence prior to settlement and the proportion of their lives spent in town.

We report place of birth in Table 3.13, moving from detailed information to a three-fold categorisation of geographical place. Possibly the most striking single estimate is that of 38,8 per cent of people recorded as being born in Malukazi and the immediate surrounding area. This figure is explicable if we take age, period during which settlement has occurred and a probability that people return to claim rights in a peri-urban area, into account. The data in Table 3.14 allows us an informal control on the factor of age: the youngest age group, from nought to fourteen years, contains almost fifty per cent of all people born in Malukazi, and within this group, these people account for sixty-six per cent of the raw total. Seventy-five per cent and more of all people born in Malukazi are under the age of thirty years (compared with sixty per cent of all people in this age category).

Table 3.13 Distribution of Place of Birth for the Total Population of Malukazi.

Place Born	Detail		Summary		1)Urban 2)Peri-Urban 3)Rural	
	N	%	N	%	N	%
Durban	377	2,7			1)	
Cato Manor	471	3,3				
Umlazi, Glebeland	527	3,7	2078	14,7	2078	14,7
Lamontville	202	1,4				
Clermont	222	1,6				
Kwa Mashu	144	1,0				
Chesterville	135	1,0				
Malukazi	5481	38,8	5481	38,8	2)	
Mariannhill	45	0,3				
Inanda	86	0,6	263	1,9	5744	40,7
Pinetown	60	0,4				
Bhekithemba	72	0,5				
Umzinto, Umkomaas, Umfume, Umbumbulu, Umthwalumi, Mgugu	1826	13,0	1826	12,9	3)	
North Natal	2021	14,3				
Mid-Natal	937	6,6	3975	28,2	6287	44,6
South Natal	1017	7,2				
Transkei	455	3,2	455	3,2		
Rest of R.S.A., Swaziland	31	0,2	31	0,2		
Total	14109*	99,8	14109	99,9	14109	100,0

* No information for seven individuals.

As settlement in the area has occurred at a slow rate for many decades, it can be expected that many people in the age range thirty to forty years were born there. Research in other peri-urban regions near Durban suggests that with increasing

difficulty of obtaining residence in town, there is a contra-flow of people back to "accessible rural areas" where they re-establish communal rights and then commute to town. It has already been remarked that the length of the age/sex pyramid reflects elderly people born in the area.

Table 3.14 Estimate of Age Distribution Among People Recorded as Having Been Born in Malukazi.

Age	Column Estimate and Percentage		Total in Age Group and Row Percentage Born in Malukazi	
	N	%	N	%
0 - 14	2660	48,5	4022	66,1
15 - 29	1536	28,1	4552	33,7
30 - 44	829	15,1	3715	22,3
45 - 59	342	6,2	1402	24,4
60+	114	2,1	418	27,2
Total	5481	100,0	14109	

Scrutinizing the distribution of the population by their places of birth as a whole, we see that fifteen per cent were born in town (Durban), thirty-nine per cent in Malukazi or the immediate region, two per cent near Durban, thirteen per cent in rural areas close to Durban, twenty-eight per cent in more distant rural locales and just over three per cent in Transkei. The estimate for people living in Malukazi but born in Transkei is 455 individuals, which is remarked here because the figure is low and very much below that anticipated by some of the authorities concerned about the settlement at Malukazi. In terms of place of birth, 14,7 per cent of the population at

Malukazi originate in town, 40,7 per cent derive from the immediate peri-urban area of Durban and 44,6 were born in rural areas at greater or lesser distances from Durban.

Table 3.15 Distribution of Residence Prior to Moving to Malukazi (Total Population).

Prior Residence	Detail		Summary		1)Urban 2)Peri-Urban 3)Rural	
	N	%	N	%	N	%
Durban	694	5,1			1)	
Cato Manor	237	1,7				
Umlazi, Glebeland	2581	19,0	4653	34,1	4653	34,1
Lamontville	395	2,9				
Clermont	289	2,1				
Kwa Mashu	355	2,6				
Chesterville	102	0,7				
Malukazi	5425	39,9	5425	39,9	2)	
Mariannhill	72	0,5				
Inanda	62	0,5	344	2,5	5769	42,4
Pinetown	44	0,3				
Bhekithemba	166	1,2				
Umzinto, Umkomaas, Umfume, Umbumbulu, Umthwalumi, Mgugu	1105	8,1	1105	8,1	3)	
North Natal	949	7,0				
Mid-Natal	471	3,5	1997	14,7	3186	23,4
South Natal	577	4,2				
Transkei	84	0,6	84	0,6		
Rest of R.S.A., Swaziland	0	0,0	0	0,0		
Total	13608*	99,9	13608	99,9	13608	99,9

* No information for 508 individuals (3,6%).

More pertinent than place of birth is the origin of the population recorded in terms of the place of residence immediately prior to settlement at Malukazi. These data are more pertinent because they direct attention to the scope of the overall problem of which Malukazi is a function. Table 3.15 is set out in the same manner as Table 13.13, except that prior residence replaces place of birth. While there is little difference in the incidences of place born and prior residence recorded in the distribution of peri-urban geographical area (approximately forty per cent very dependent on the constant number of Malukazi-born individuals), the urban and rural categories of recruitment show dramatic shifts when prior residence is compared with place born. Certainly many people born originally in the rural area have migrated to town before settling in Malukazi. Thirty-four per cent of all residents in Malukazi came there directly from a place in Durban - mostly from Umlazi - and only 14,7 per cent have arrived in Malukazi directly from distant rural areas (an additional eight per cent from nearer rural areas). Over seventy-five per cent of people now living at Malukazi come either from the city proper (34,1 per cent) or areas immediately adjacent to the city (42,4 per cent). The balance are from rural areas in Natal and eighty-four people or 0,6 per cent are from Transkei.

The picture of recruitment into Malukazi can be clarified if we refer to place of previous residence among heads of households in our sample. Reporting from unweighted sample statistics (data assembled by hand), 52,2 per cent of sample household heads came to Malukazi directly from the city, Durban (raised as an estimate, this would be approximately 1 783 heads of household in Malukazi). The percentage of heads born in Malukazi compared with all people born there is much lower at 21,6 per cent (compare thirty-nine per cent). The

balance of 26,2 per cent come from a variety of places, some of which might be urban (e.g. Ladysmith, Newcastle), many of which are peri-urban such as Adam's Mission and Inanda, and the rest are from the rural areas of Natal (only one household head in our sample came from Transkei). It is a matter of interest that approximately twenty per cent of household heads coming to Malukazi from town and ten per cent of all household heads were previously resident in men's hostels in Durban.

Table 3.16 *Percentage Distribution by Age of Proportion of Life Spent in Town for the Total Population of Malukazi.*

Age	% of the popul.	Years in town: 0 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 +	% with less than 10 yrs.' urban exp.
0-4	8,1	100															100
5-9	10,7	99	1														100
10-14	9,7	10	13	77													23
15-19	10,5	17	10	8	65												27
20-24	9,4	18	14	9	8	51											32
25-29	12,4	9	17	13	9	3	49										26
30-34	10,1	7	9	19	15	3	3	44									16
35-39	8,9	3	13	12	17	11	5	2	37								16
40-44	7,3	4	9	15	13	17	4	2	2	34							13
45-49	5,2	8	6	6	13	5	15	7	-	4	35						14
50-54	2,2	3	5	-	12	3	10	13	8	-	-	49					7
55-59	2,6	-	13	4	5	4	30	7	16	-	4	6	11				13
60-64	1,1	6	6	5	12	-	9	4	11	18	-	-	-	30			12
65-69	1,2	26	4	9	14	5	-	5	8	5	-	5	-	4	13		30
70+	0,7	-	-	6	16	-	13	-	-	-	8	-	-	-	-	57	0

N=14116

In order to discover life proportions of urban experience among people settled at Malukazi, we cross-tabulated age in years with years spent in town (including Malukazi as part of town) in the conventional five-year age cohort intervals

(this means that proportion of years spent in town is not absolutely accurate). This cross-tabulation is shown in Table 3.16, expressed as percentages within each age cohort. Overall, 56,9 per cent of the residents at Malukazi have spent all (a within cohort measure) their lives in town or on the fringe of Durban. The pattern is quite clear: all children from nought to four years were either born in town or came to town soon after birth: only nine per cent of children from five to nine years were not born in town; people from ten to twenty-nine years reveal high proportions of total urban experience (seventy-seven to forty-nine per cent), but there are also relatively high proportions with fewer than ten years of urban experience (an age limiting effect). It would appear that the older people become after thirty years of age, the greater is the likelihood that they will have more than ten years' urban experience. The proportions of older people of thirty to fifty-four years who have spent all their lives in town is not inconsiderable, ranging from thirty-four to forty-nine per cent among the relevant age cohorts. One unexpected estimate is the recent inflow of elderly people between the ages of sixty-five and sixty-nine (now), thirty per cent of whom have come to town or to Malukazi during the past ten years.

During the course of this chapter, we have been leading evidence to support a particular view of the spontaneous urban settlement in Malukazi. In essence, this view, informed by the empirical tests above, comprises the notion that the population settled at Malukazi, far from being a parasitical development on the urban fringe, is an integral part of the development of the city and a response at the peri-urban interstice to both regional and structural dislocation and the material inability, for one or another

reason, of the city to provide for its human population. Our limited stated goal in this chapter is to produce a typification - the construction of a type of the settlement at Malukazi: these data are reported in a positive manner above, but before we affirm the consequents of our own thinking, it seems wise to say what the settlement is not - in typical form. It is standard logical procedure that false consequents of an idea are more definite than affirmed consequents and that propositions proven false narrow down the alternative explanations of a phenomenon, the phenomenon in this case being the spontaneous settlement at Malukazi.

With due consideration of the variable distributions of our data, we make four propositions about the settlement at Malukazi, in an attempt to narrow the alternative explanations which can be adhibited to its presence. In effect, we attempt to eliminate the following four views which might be advanced as sufficient explanation from the stock of received wisdom usually associated with the emotive term, "squatter(s)". The propositions are dealt with seriatim.

1) The settlement at Malukazi does not conform to a pattern of in-migration from rural localities to the city where the inmates of the settlement squat in the hope of starting a new life.

   - Firstly, the population at Malukazi is not a squatter one; they have not illegally expropriated land to their own use and settled without the permission of people with rights to the land (proclamation of the area might now alter the legal status).

   - Place of residence prior to moving to Malukazi as well as the number of people born in the

area comprise seventy-seven per cent of the population.

- Occupational activity within the city is established and the rate of employment is high.

2) The people of Malukazi cannot be said to be at the beginning of the process of urban settlement involving the phenomenon of "bridgeheading" into an urban system (though some people from the rural areas will be bridgeheaders for others, and more established families will provide - as they do in all urban areas in Africa - a bridgehead for a limited number of rural kinsmen).

- There is a dearth of the male "living in single status" in the settlement.
- Family settlement is the norm and marriage is the dominant household institution.
- Most people have already established urban activities and are locked into the urban system.
- Fifty per cent of household heads have moved from the city in search of shelter (probably to enjoy a more settled family life).

3) Malukazi cannot be described as a "slum of despair" - in fact, it is not a slum at all; what it lacks is services, especially water points.

- Children attend school and the rate of attendance is high.

- The rate of male employment is high and there appears to be a thriving informal sector.

- People live in a family context for the most part.

- The "shacks" that are built are substantial and perform well as shelter (as the following chapter will show).

- The constraints to development either at Malukazi or at an alternative site derive more from political decisions than lack of potential within the community.

4) Malukazi is not a primary problem settlement to be eradicated from the urban fringe - at worst, it constitutes a tertiary problem for community development. It is a function of greater regional and urban structural problems common in many parts of the third world.

In conclusion, we might provide a profile of the characteristics of the population which typify the settlement at Malukazi. Included in the profile - in summary form - are those data of which we feel the enlightened planner should take cognizance at the outset, when considering alternatives for the future of the spontaneous urban settlement at Malukazi; a matter we enlarge on in the ultimate chapter. (Bear in mind that this is an interim report and that the consolidated Sample Survey Report will contain much more information on a wide range of topics concerning the people of Malukazi).

Profile of the Characteristics of the Population settled at Malukazi.

- Balanced sex structure, masculinity ratio equal to 0,99.
- Only 3,4 per cent of households contain one person - out of an estimated population of 14 116, only 350 men "live in single status", other than unmarried men living in families.
- Female heads of household are in a minority at eighteen per cent.
- The primary context of settlement is the family household.
- The institution of marriage unites eighty-five per cent of conjugal relationships.
- There is a high rate of participation in urban institutions.
- Eighty-seven per cent of children between the ages of seven to nineteen years attend school.
- Children attend urban schools, mostly in Umlazi Township.
- There is little illiteracy among adults and substantial proportions of the adult population have nine years of education and more (Standard Six and above).
- Unemployment among men and women is low.
- Only 6,5 per cent of men rely solely on the informal sector for employment.
- Sixty per cent of women are employed, and nearly forty per cent of all women are employed in the formal sector; the balance derive an income from informal employment.
- Malukazi provides Durban with 5 715 workers in the formal sector of employment.
- Both men and women are distributed over a range of formal employment from professional status through to unskilled manual occupations.
- Informal employment is characterised by landlords, sellers of liquor and sellers of foodstuffs.
- Sixty-three per cent of those in formal employment work in town (Durban) and the southern industrial area of Durban, the balance in the areas of Isipingo, Umlazi, Prospecton, etc.
- Of all individuals in Malukazi 14,7 per cent were born in town and a further 40,7 per cent near town.
- Thirty-four per cent of all people in Malukazi lived in town prior to moving there and a further forty-two per cent were living in local peri-urban areas.

- Only 23,4 per cent of people came to Malukazi from the rural area.
- Fifty-two per cent of heads of household in Malukazi came there directly from town.
- At the present time, fifty-seven per cent of all residents at Malukazi have spent all their lives in town.

The data presented in this chapter confirms the view that the population in Malukazi is an urban participant one locked into the major institutions which provide for urban survival.

CHAPTER 4.

SHELTER IN MALUKAZI.

(Contributed by E.J. Haarhoff)

By definition, shelter in a settlement like Malukazi can be viewed as a "spontaneous" reflection of housing need within a framework of constraints of various kinds. Of importance here is the manner in which inhabitants provide housing for themselves without official assistance and in terms of how people optimise needs according to material, financial and other resources. Housing, however, must be seen in relation to economic, social and physical factors acting together, and the purpose of this chapter is to provide a physical description of shelter in Malukazi as a complement to what has been discussed in the preceding chapters.

A physical survey of dwellings in Malukazi was undertaken simultaneously with the socio-economic survey, and based on a sub-sample of a hundred roofs drawn on a random basis from the master sample. Reference should be made to Appendix A for detailed information on this physical survey and its relationship to the study as a whole, but it should suffice to say here that from the original sample, ninety schedules and questionnaires from the physical survey married with units in the master sample.

The aim of the physical survey was to obtain detailed information on materials used in the construction of dwellings, constructional techniques, costs, and data on the size of dwellings. A scaled plan of each sample dwelling was recorded, and a questionnaire was administered to each discrete household inhabiting the dwelling.

Reporting in this chapter is restricted to the basic physical characteristics of dwellings in the survey and is derived from a partial analysis of results obtained. It should be noted that all reporting refers to sub-sample survey statistics and not to population estimates.

General Characteristics.

The outward appearance of Malukazi has much in common with spontaneous settlement in general, where building is not subject to formal control. Similarities also exist in the inadequacy of conventional amenities such as water and sanitation. The visual appearance of the dwellings is dominated by the use of freely available natural materials (such as mud), scrap packaging material (packing cases, plywood) and second-hand corrugated iron.

Although first impressions, gained from observations made prior to survey work being undertaken, led to the belief that the predominant form of dwelling was a discrete rectilinear unit accommodating families, survey results have revealed a higher proportion of lodgers and tenants than was expected (see Appendix A). Table 4.1 below gives the dwelling distribution by the number of households accommodated under each roof in the physical survey.

Inspection of the table shows that only forty-four per cent of dwellings have one household, the remainder providing accommodation for between two and six households.

Table 4.1 Distribution of Households per Dwelling.

Number of Households	Number	%
One	40	44,4
Two	17	18,9
Three	21	23,3
Four	7	7,8
Five	2	2,2
Six	3	3,3
Total	90	100,0

A total of 193 households was recorded in the sub-sample of ninety dwellings, and the preponderance of tenants in these dwellings can be seen in Table 4.2 below.

Table 4.2 Distribution of Dwellings by Tenure.

Tenure Type	Frequency	Percentage Distribution
Owner/occupier	34	37,8
Owner/occupier with sub-tenants	37	41,1
Rented accommodation (tenants only)	19	21,1
Total	90	100,0

The table shows that although seventy-nine per cen of dwellings are owner/occupied, just over half of these

(forty-one per cent of the total) provide accommodation for sub-tenants or lodgers under the same roof. Slightly over one-fifth of the dwellings provide accommodation exclusively for tenants. Thus, although the original impression of single family accommodation is not entirely dispelled (almost eighty per cent of the total), substantial numbers of owner/occupiers are either renting out a portion of their dwellings on a sub-tenancy basis, or renting entire dwellings for the same purpose. Clearly, all of these have an important interim function in providing shelter for an ever-increasing demand in the urban context.[1)]

The inference from Tables 4.1 and 4.2 above is that the forty dwellings accommodating single households comprise thirty-four owner/occupiers and six discrete households that rent dwellings. As an aside, it can be noted that with over twice as many households as dwellings, any policy to rehouse the population on the basis of discrete household entities would require roughly twice the number of dwelling units currently in the settlement.

Dwelling Types.

The types of dwellings found in the settlement are discussed immediately below, but it can be noted that all dwellings recorded in the sample survey were cellular in

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1) For discussion on the potential role of informal builders in housing supply, see E.J. Haarhoff, "Housing as a Human Concern", Natal Provincial Institute of Architects' Newsletter, No. 2, 1977.

nature and rectilinear in form.[1)]

A preliminary and generalised classification of dwelling types has been prepared from the physical survey, and the distribution is given in Table 4.3 below. Some elaboration on the dwelling classification shown in this table is necessary. Broadly, there two generalised typologies:

a) "Linear" dwellings, represented by dwellings in which rooms are arranged in a single row or terrace, with the length ranging from two to eight rooms in the sample dwellings. Roofs are predominantly mono-pitched. (See Figures 4.1 and 4.2.)

b) "Compact" dwellings, in which rooms are arranged two deep with lengths varying from four rooms that approximate a square, to eight rooms. Compact dwellings have a greater potential for internal connections between rooms and minimise perimeter walling relative to floor area. Roofs generally are double-pitched. (See Figures 4.3 and 4.4.)

Difficulties in classification are experienced in a number of cases. Two-room dwellings, for example, could

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1) The traditional form of the Zulu dwelling is circular, which is derived from the vernacular, but fast disappearing, grass dome (the "Indlu"). Professor Biermann has noted that the scarcity of thatching grass, together with the problem of fire, and the availability of timber from wattle plantations, have encouraged the building of conical roofs based on the principle of rafters and battens on wattle and daub walls, as is more common with the Xhosa and Sotho. Rectangular materials, such as corrugated iron, together with the use of furniture, makes a rectangular form of construction more practical. Biermann, B., 1971, "Indlu: the Domed Dwelling of the Zulu, in Oliver, P. (Ed.), Shelter in Africa, London, Barrie and Jenkins.

expand by the addition of rooms into either the "linear" or the "compact" form, but for the purposes of this preliminary analysis, they have been classified as the former.

Table 4.3 Distribution of Dwelling Types in Malukazi.

Dwelling Type	Distribution of sample		Distribution of each type by single and multiple occupancy			
	No.	%	Single Occupancy		Multiple Occupancy	
			No.	%	No.	%
Linear dwelling with external doors to single rooms	14	15,6	4	28,6	10	71,4
Linear dwelling with interleading doors between rooms	17	18,9	14	82,4	3	17,7
Compact dwelling with external doors to single rooms	8	8,9	0	0,0	8	100,0
Compact dwelling with interleading doors between rooms	40	44,4	18	45,0	22	55,0
Single rooms	4	4,4	4	100,0	0	0,0
Other (unclassifiable)	7	7,8	2	28,6	5	71,4
Total	90	100,0	42		48	

Dwellings composed of single rooms are listed separately, as are the small number of dwellings not typified in any particular form.

An examination of Table 4.3 shows that the majority of dwellings (fifty-three per cent) are of the "compact" type, with thirty-four per cent listed as "linear", with the balance comprising either single-room dwellings or an unclassifiable category. The table further distinguishes between dwellings having exclusively external access to rooms, and those that, in addition, have internal interleading doors. Furthermore, each dwelling type is distributed according to whether single or multiple households are accommodated.

Inspection of these aspects, for example, shows that in the case of "linear" dwellings, those with exclusively external access accommodate predominantly multiple households, whereas of the seventeen "linear" dwellings with internal doors, eighty-two per cent are single households. There are four dwellings with single households that have only external doors to rooms.

In the case of "compact" dwellings, those with exclusively external access accommodate multiple households only, whereas in the case of dwellings with interleading doors, there is a close equal distribution between single and multiple households.

Clearly, in the case of single households, preference is given to dwellings with internal access (eighty-nine per cent), whereas in the case of multiple households with a single dwelling, fifty-eight per cent have internal access with forty-two per cent having external doors only. It is presumed that where multiple households occur, the relatively high per cent with exclusively external access are probably tenants, but verification will await a more detailed analysis.

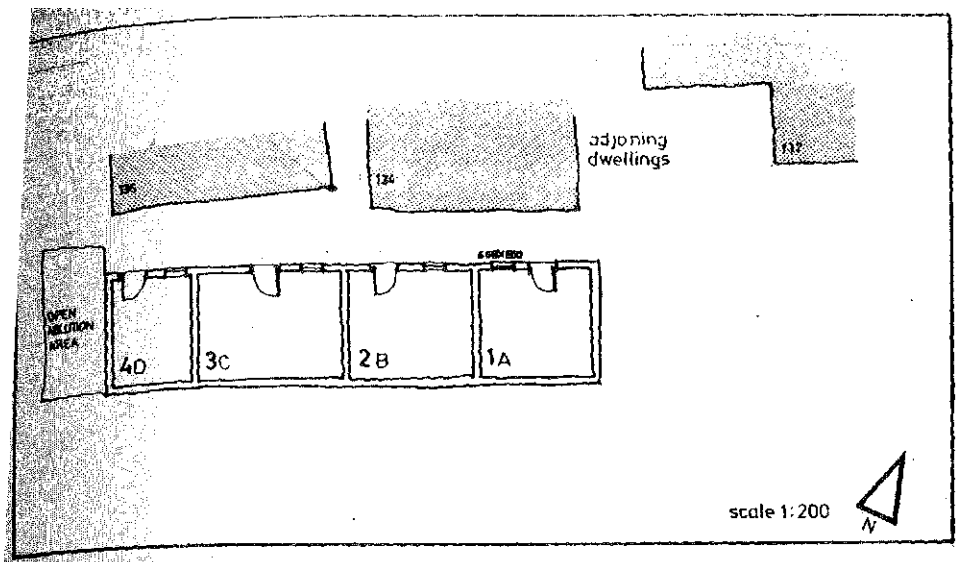

FIG 4.1 LINEAR DWELLING WITH EXTERNAL DOOR ACCESS

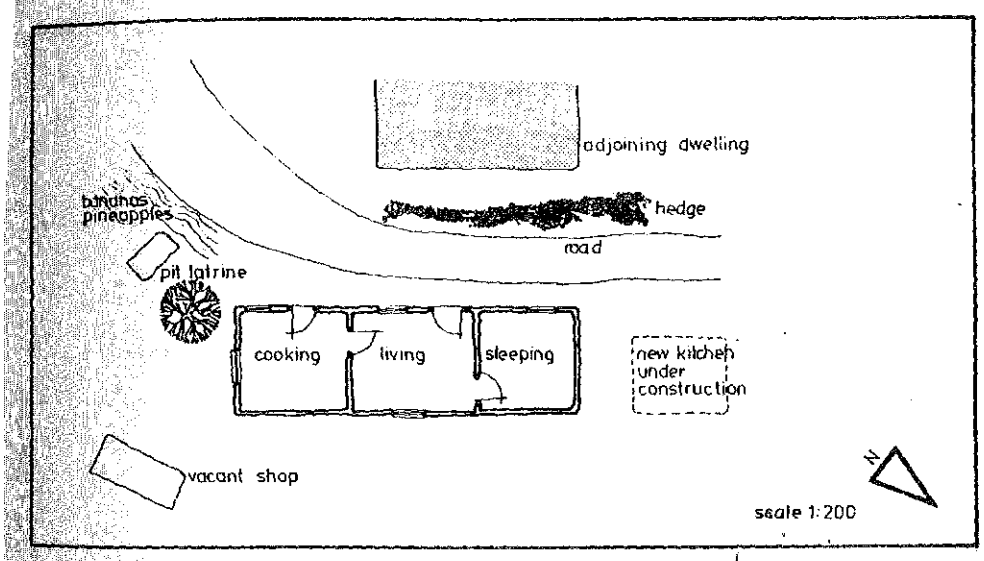

FIG 4.2 LINEAR DWELLING WITH EXTERNAL AND INTERNAL DOOR ACCESS

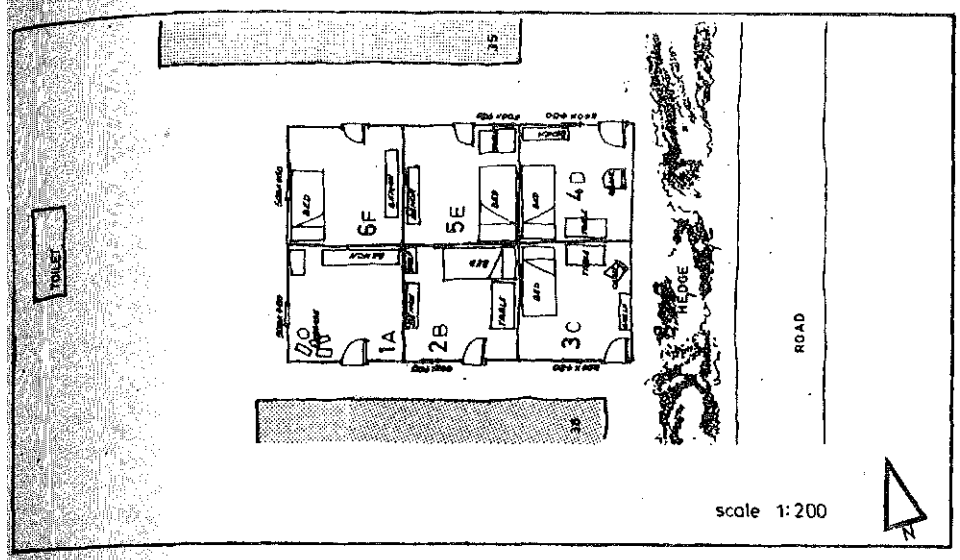

FIG 4.3 COMPACT DWELLING WITH EXTERNAL DOOR ACCESS

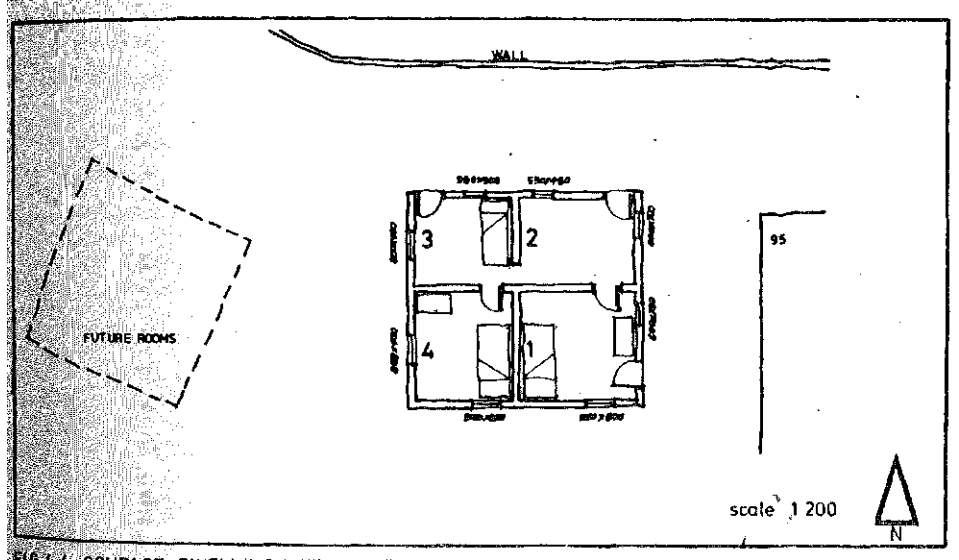

FIG 4.4 COMPACT DWELLING WITH EXTERNAL AND INTERNAL DOOR ACCESS

Materials and Construction Techniques.

Three generic wall-construction methods are discernable, namely, frame with infill, frame and panel, and load-bearing. Sixty-eight per cent of dwellings had wall constructions that fell in the first category, the frame being constructed from timber poles set in the ground with horizontal members fixed to these uprights. Just over half of these dwellings had mud infilling, ("wattle and daub") eleven per cent had stone or sand-clod infilling, whilst thirty-six per cent made use of discarded beer cartons filled with sand and set within the timber frame to form the walling.[1] All walls, irrespective of infilling material, are finished with either a mud or cement plaster, the latter providing a more durable surface for weathering. Thirteen per cent of dwellings had load-bearing walls, constructed in equal numbers either from concrete blocks or sun-dried mud blocks. Walls in thirteen per cent of dwellings were constructed from panels of plywood boarding fixed to a timber framework. Informants in Malukazi have indicated that this material can be obtained from factories in the nearby Prospecton industrial area, and generally dwellings in this category are qualitatively the poorest and least permanent.[2] Over half of all dwellings were painted, nine per cent on the interiors only.

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1) "Wattle and daub" is not a traditional form of construction amongst the Zulu people and is a relatively recent adaption. (Biermann, op. cit.)

The writer of this chapter has observed the increasing use of beer cartons as infilling in framed construction in spontaneous settlements in the Durban area in recent years. The large consumption of sorghum beer (iJuba), which is packed in waxed paper cartons, has made this material available in great quantities in black residential areas, and it is estimated that over 500 000 cartons have been used in the construction of these dwellings in Malukazi.

2) Where percentage distributions do not sum one hundred per cent, the difference is represented by a lack of information from the survey.

Second-hand corrugated-iron sheeting was used as roofing in fifty-seven per cent of dwellings, with the bulk of the remainder using a bituminous or P.V.C. sheeting fixed to plywood. Sixty-three per cent of floors were constructed using cement, the remainder being mud, and three quarters of all floors in dwellings were covered either with linoleum or grass matting. Over seventy per cent of dwellings incorporated glazed windows, the balance having opening windows made from timber boarding. (Fourteen per cent of the total number of rooms had no window openings.)

Whilst it can be said that constructional techniques are similar to the traditional ones, albeit a tenuous link, there is little doubt that methods employed illustrate inventiveness and ingenuity in providing shelter both quickly and cheaply. The survey, for example, reveals that over half of all dwellings in the sample were erected in a maximum of two weeks, with the frame and infill structure (the most predominant type) being the quickest (median of two weeks' construction time). Load-bearing structures had a median construction time of four weeks by comparison.

The mean cost of dwellings is R211. Frame and panel construction (plywood) was shown to be the least expensive (mean R152), load-bearing structures the most expensive. (The mean cost for concrete and mud block dwellings is R380 and R296 respectively.) Frame and infill structures ranged from a mean of R165 for beer-carton infill to a mean of R221 for daub (mud) infilling. It should, however, be noted that figures on cost and time should be treated with some caution. Tenants who had no knowledge of the dwelling history, were obviously unable to provide this information, and even in the case of owner/occupants, recall of the information was not entirely reliable. Nevertheless, in the case of costs, checks made indicated these

figures to be reasonable estimates of true values (and if anything, an over-estimate of cost). For the same reasons, similar caution is recommended with regard to information on who built the dwelling, and how long this took. Responses obtained indicate that half the dwellings were built using hired local labour, almost forty per cent being owner-built, with the remainder being constructed by relatives of the present owner. Eighty per cent of dwellings were reported to have been constructed during week days, the balance over week-ends.

Spatial Standards.

Tabulated below is a summary of some key data derived from the physical survey.

Table 4.4 Summary Data on Spatial Standards.

Aspect	Dwelling	Households
No. of persons in 90 sample dwellings	718 persons	-
No. of households	-	193 households
No. of rooms in sample dwellings	343	-
Mean no. persons per	7,98 persons*	3,72 persons
Mean no. households/ dwellings	-	2,14**households
Mean no. of rooms per	3,81	1,78
Mean floor area(m^2) per	48,53 m^2	22,63 m^2
Mean density m^2/person per	6,08 m^2/person	6,08 m^2/person

* Master sample figure 8,3 persons/dwelling
** Master sample figure 2,0 persons/household
(See Appendix A for an explanation of these differences)

The mean dwelling area is 48,53 m^2 and contains on average 3,81 rooms. These figures are congruent with the 51/6-type house that has four rooms with an area of 48,7 m^2 that is commonly found in African townships. Forty per cent of dwellings in the physical survey have four rooms, and the mean area is slightly smaller than for all dwellings (45,07 m^2). Almost a quarter of the sample dwellings have more than four rooms, ranging up to eight. In terms of area, thirty-seven per cent of dwellings exceed forty-eight square metres. The mean dwelling density is calculated at 6,08 m^2 per person. In terms of households, the mean area is 22,63 m^2, and in only eighteen per cent of cases are there more than three persons per room, and in thirty-eight per cent of cases more than two persons per room.

It would thus appear on preliminary analysis that dwellings in Malukazi are not unduly overcrowded when compared with formal townships. Indeed, in sixty-two per cent of dwellings, the mean average number of persons per room is one. The survey does reveal that dwelling density varies with the number of persons per dwelling, as is shown in Table 4.5.

Table 4.5 Dwelling Density in Square Metres per Person by the Number of Persons per Dwelling.

No. of persons per dwelling	f	%	Mean dwelling density m^2/person
1 - 3	11	12,2	18,88 m^2
4 - 6	28	31,1	8,04 m^2
7 - 9	20	22,2	6,29 m^2
10 - 12	20	22,2	4,43 m^2
13+	11	12,2	3,34 m^2
Total	90	100,0	

The table indicates a linear relationship between the number of persons inhabiting a dwelling, and the dwelling density expressed as m^2 per person, and ranges from 18,88 m^2/ person in dwellings accommodating one to three persons, to 3,34 m^2/person where this exceeds thirteen persons. Clearly, the sizes of the dwellings in terms of area are not increasing commensurate with the number of persons being accommodated. Furthermore, it can be noted that the range of dwelling sizes (both by area and number of rooms) is far greater than the limited options in a formal township. The spontaneous nature of such settlements allows a greater flexibility in obtaining shelter according to differing individual resources and needs, and in adding extra rooms as demand dictates. For example, the occupants of almost half the dwellings in the sample have made extensions to the original dwelling at some time, and the mean number of rooms added by this proportion is slightly over three rooms per dwelling.

Room usage was another aspect analysed in the physical survey, and rooms used for sleeping purposes were not unexpectedly in the majority. In most cases, such rooms were, in addition, used for other purposes such as cooking, eating and as living rooms, and the extent to which multiple use is made depends on the size of the household and the number of rooms at its disposal. This, however, is not analysed in detail here. The number of rooms used exclusively for non-sleeping purposes was investigated. It was found that thirty-seven per cent of dwellings had separate rooms used for cooking/eating activities, and that eighteen per cent had separate living rooms. In both cases, it was expected that only the larger dwellings in terms of numbers of rooms could afford the comparative luxury of segregated room usage, but this is not

the case. There is no relationship between the size of the dwelling (number of rooms), and the occurrence of rooms used exclusively for non-sleeping purposes.

This, and other similar instances, have raised a question about treating dwellings in a spontaneous settlement of this kind as a homogeneous entity. Tenure, for example, appears to be an important variable, and in the case of dwellings with separate living-rooms, the distribution by tenure is as follows: owner/occupants (sixty-three per cent), owner/occupants with sub-tenants (twenty-five per cent) and tenants only (twelve per cent).

Sleeping arrangements by rooms used for sleeping purposes are given in Table 4.6 below and are largely self-explanatory.

Table 4.6 Sleeping Arrangements in Room Used for Sleeping Purposes.

Sleeping Arrangement	f	%
No information	11	3,9
Male adult only	42	14,7
Female adult only	17	5,9
One male and one female adult	84	29,4
Male adult and child(ren)	15	5,2
Female adult and child(ren)	16	5,6
One male, one female and child(ren)	53	18,5
Child(ren) only	33	11,5
Other groupings	15	5,5
Total	286	100,0

Conclusion.

The qualitative assessment of dwellings in a spontaneous settlement is difficult, and depends largely on the yardsticks used. Clearly, any comparison with formal township housing will show dwellings such as those in Malukazi to be deficient in material standards that include amenities like running water and sanitation. However, many writers on this subject caution against making direct comparisons of this kind.[1] Firstly, the existence of spontaneous settlements must be seen within the overall context of housing problems, and it is well known that the rate of formal housing supply is not keeping pace with demand; in part, this leads to overcrowding in townships, and to the growth of spontaneous settlements.[2] Secondly, the establishment of minumum standards for construction suffer from a certain degree of arbitrariness, and represent rather what authorities feel standards ought to be, and not what can be afforded by those being housed. Although the idea of minimum standards in itself is well-intentioned, unless they are carried out with a realistic assessment of what can be afforded, the overall effect will tend to be counter-productive. There are no clear guidelines for ranking in importance service and structure standards.[3] Thirdly, spontaneous settlements serve a wide range of accommodation needs that in Malukazi vary from owner/occupant households who are seeking to establish a measure of permanence in the area, to tenants who may be transitory, or who are in the process of establishing themselves in the settlement. The survey, for example, has shown that in the case of owner/occupants, whilst fourteen per cent of respondants were resident

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1) Grimes, O.F. 1976, Housing for Low Income Urban Families, Baltimore and London, The John Hopkins Press (for the World Bank).

2) Maasdorp, 1977, op. cit., pp. 40 - 42.

3) Grimes, O.F., op. cit., pp. 40 - 42.

in Umlazi during the construction of their Malukazi dwellings, sixty-four per cent were living as tenants in the settlement.

Lastly, it should be remembered that the establishment of spontaneous urban settlements is more often than not regarded as illegal by officialdom, and Malukazi is no exception in this regard. The willingness of occupants to invest both time and money in their dwellings must be constrained as a consequence of the insecurity that prevails under those circumstances. Any qualitative assessment of dwellings should therefore attempt to measure the degree to which inhabitants optimise their housing needs in terms of resources at householders' disposal.

CHAPTER 5.

HOUSING POLICY IN THE LIGHT OF SURVEY RESULTS.

We have yet to analyse survey data returned by respondents in Malukazi concerning their own perceptions of the context in which they live: whether they in fact wish to relocate either to a formal township or one or other type of aided self-builder scheme on the one hand, or to remain where they are with possibilities of public and self-help upgrading on the other. Notwithstanding the present absence of such an analysis, we might anticipate trajectories for the community at Malukazi with the contingencies of relocation and upgrading in mind. Before embarking on this course, however, it seems wise to reconstruct the consequences of present public housing policy for the community of Malukazi, because if the policy is inexorably implemented, the outcome for the forseeable future is one of spontaneous settlement "musical chairs". To illustrate this point, we can tell a story about another spontaneous settlement that existed near Umlazi Township. Thinking to increase the scope of our research at little cost, we decided to replicate our study in a nearby settlement, which takes its name, Bhekithemba, from the region. We did know that the authorities planned to build an extension to Umlazi on the site, but were very surprised to find that the settlement had disappeared when we went to locate it at the end of April 1978. It will come as no surprise when it is mentioned that as early as the end of 1977, 166 people in Malukazi had already removed there from Bhekithemba (see Table 3.15). However, reliable and knowledgable informants in Malukazi relate that the new westward expansion of Malukazi is being effected almost exclusively by former Bhekithemba residents, who are not bothering to get any kind of permission to

build. Where will the nearly four thousand households in Malukazi go when their community is razed (for development)?

Present public housing policy appears to combine two correlated and contradictory effects. The first is in the provision of what Turner[1] called the "minimum modern standard" of housing which is necessarily costly and slow (even with abundant funds); the second is the idea, if not the actuality, of destroying existing stocks of informal housing without making adequate provision for people displaced from such housing (action in terms of the "bulldozer philosophy" has not been much evident in Natal as yet, though demolitions at Clermont and Bhekithemba are stark reminders of the anonymity of official decisions). The effects are correlated in the sense that the "minimum modern standard" - erection of complete houses with most of the usual services in a township context - never copes with rapid rates of urbanisation, causing people to develop their own alternatives - spontaneous settlement - whatever the stringency of control. The contradiction in this process is evident when the bulldozers move in to destroy the shelters of informal settlement: they destroy what constitutes a solution, even if imperfect, to the problem of shelter in an urbanising context, and further, there is no evidence that the proponents of the "bulldozer philosophy" consider the consequences of their acts further than removal of people to some other jurisdiction. This of course results in the "musical chairs" effect, where harassment sends people from one spontaneous settlement to another.

We show in Chapter 3 that many assumptions

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1) Turner, J.C. 1970, "Barriers and Channels for Housing Development in Modernising Countries", in Mangin, W. (Ed.) Peasants in Cities: Readings in the Anthropology of Urbanisation, Boston, Houghton, Mifflin Company.

underlying present housing policies just do not hold for the community of Malukazi. To reiterate, in the light of our survey findings, administrators might take a new look at important facets of the community such as origin, household type, urban stabilisation, urban employment, standards of education, etc. To proceed with a policy that assumes that people settled informally, such as those at Malukazi, are indigent, new immigrants to the city, seeking in vain to establish a new life by squatting in proximity to a city, is misguided. On the contrary, we have argued that the population at Malukazi is already locked into the urban system and that their present plight is more the consequence of failure on the part of the urban sector to develop rather than merely migration in recent time (given that rural-urban migration has been a dominant feature of this problem in the long term). The equivocality of the intransigence of public housing policy for blacks in South Africa rests on fallacious thinking, as we have argued throughout this paper. The fallacy is a simple one - putting the cart before the horse - reversing the direction of causal imputation, where the victim is blamed rather than the cause recognised. The irony of this intransigence is that the very cart (spontaneous settlement) is providing solutions to a large problem (housing) which the horse (policy) cannot fathom. If this intransigence comes under review - as it should in the light of something like twenty-five research projects on housing at Universities in South Africa - there are already established alternatives which provide a guide to other directions for policy.

Dr. Maasdorp crystalises the basic elements of alternative as well as mutually related housing policies in a paper entitled "Alternatives to the Bulldozer":[1] he considers not only the general viability of policy options but relates

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1) Maasdorp, 1977, op.cit.

their relevance to the South African situation. Following Dr. Maasdorp's thinking, we would do well to anticipate likely trajectories for the people of Malukazi in the light of options that could be taken up by political authorities. Because of the immediate threat of demolition to Malukazi, we add this "official option" to Dr. Maasdorp's categories, and with minimal re-ordering of categories, we arrive at a five-option list of alternative strategies for approaching the present housing shortage, epitomised in this case by the spontaneous settlement at Malukazi.

1. Demolition
   - 1.1 Demolition and removal of population to rural jurisdiction ("repatriation").
   - 1.2 Demolition with no provision of alternative housing.
2. Passive option - no official action
3. Upgrading (at present site)
4. Relocation (implies demolition at present site)
   - 4.1 Relocation - site-and-service scheme
   - 4.2 Relocation - core housing
   - 4.3 (and possibly) Relocation - with a passive mode.
5. Public Housing Estates

These alternatives are not mutually exclusive and except for the first, could, as has been emphasised by other authors, be implemented simultaneously in a complementary way. Recall that a central contingency in the case of Malukazi is demolition consequent on its proclamation for development as part of the "public housing estate", Umlazi Township.

1. Demolition.

Demolition of existing stocks of housing in spontaneous

settlements has been the primary reactive mode by authority to informal attempts at solution of the housing shortfall, despite the fact that this is based on fallacious thinking, contradicts the very problem seeking solution, and takes little account of what will happen to the displaced humanity. Concomitant with demolition, we can discern both an active and passive mode - "repatriation" and "no further action" - by responsible authorities.

1.1 Repatriation is a still-birth in the case of the majority of residents at Malukazi. In Chapter 3, we show that only twenty-three per cent of people came to Malukazi from the rural area, fifty-two per cent of heads of household came there directly from an urban residence and that fifty-seven per cent of all residents have spent all their lives in town. Given the high rate of participation in the urban economy, there is no reason to suppose that an attempt at repatriation would work any better at Malukazi than in the Western Cape.[1] Repatriation is simply untenable and at best can only result in spontaneous settlement at a further remove in the peri-urban area or as for 1.2 below.

1.2 No provision of alternative housing is the passive mode most likely to accompany demolition. The result is completely predictable: our own example of the demolition at Bhekithemba and spontaneous removal to Malukazi is a contemporaneous example of what will attend the demolition of existing housing at Malukazi. We have pointed out the inherent contradiction of demolition without provision above.

2. Passive Option (no official action)

Many of the present residents in Malukazi would elect to remain where they are, given an open choice: among

1) Ellis et al., 1977, pp. 46 - 49.

these would be "tenants at will", who have erected substantial dwellings, those who have no documentation for access to public housing (e.g. the many female heads of household) and people with large households who have already moved out of the cramped accommodation available in Umlazi Township. The passive option as an alternative housing policy is not outside the bounds of possibility in Malukazi: demolition will mean that something of the order of four thousand households will then be homeless and this might be too sensitive a political issue (especially as it concerns the KwaZulu government). Maasdorp quotes a World Bank Study of the passive option adopted in Brazzaville,[1] where it is reported that "squatters" have provided their own streets and erected durable dwellings, and despite lack of services have avoided endemic disease. The community at Malukazi have not built their own roads but they certainly have erected durable structures (see Chapter 4) and as far as is known, and against conventional expectation, no epidemics have broken out there. This is consistent with our expressed view that Malukazi is performing the functions usually associated with township or estate development, except that services are either non-existent or supplied informally.

The passive option can very easily be augmented by a positive public posture assumed by the authorities and by minimal inputs from official or unofficial sources. Were it to be known publically that the authorities would not threaten the tenure of spontaneous settlers at Malukazi, many residents would improve standards, which they will not attempt under threat of demolition as it is suggested in Chapter 4). This might also give the community an opportunity to explore communal and self-help potential in the improvement of their settlement (e.g. the building of roads). Official passiveness is all very well, and in this case almost desirable, except that a very small effort could improve some "qualities of life" immeasurably for the Malukazi residents. It is a monstrous crime against

1) Maasdorp, 1977, op. cit., p. 8.

humanity that fourteen thousand people (fourteen thousand as a dated population estimate - this is probably approaching twenty thousand by now) rely on one pump for their water supply. This issue is now exacerbated as water has become ratable in Umlazi Township and this source of handout will quickly disappear. The matter of supplying more water points for the community is an urgent priority, even if demolition is certain, and failure in this respect by officialdom can quite easily be overcome by the action of aid agencies (e.g. The Urban Foundation) which could intervene in one way or another in such a pressing matter.

3. Upgrading

Upgrading existing spontaneous settlements requires a positive qualitative step along a continuum suggested by the passive option: a recognition of and commitment to the rôle spontaneous settlement plays in search of solutions to the housing problem. It requires that some authority responsible for the provision of housing recognise the settlement, ensure security of tenure, supply a suitable modicum of public services and, most important of all, make available finance, technical services and arbitration machinary to facilitate the operation. We outlined above a case for the fact that many would choose to remain in Malukazi: upgrading would conserve the investment already made in housing stock and encourage improvement. Leaving aside for the moment the physical aspects of an upgrading exercise at Malukazi, the mocro-social economy of the settlement is a paradigm for the upgrading option. The houses are relatively durable, urban lifestyles are well established, employment rates in the urban economy are high, children have secured places in nearby schools and the family household is the established pattern of settlement. We reiterate an earlier statement, where we have argued that the community at Malukazi

is not at the beginning of a process of urbanisation but at a penultimate, and for many an ultimate, stage of urban settlement. This makes the upgrading option a very attractive one.

The attractiveness of the upgrading option for Malukazi should not, however, lead to a unilateral motivation for the appropriate authority to pursue such a policy. Many other factors must weigh in the feasibility of such a decision as they should when all the alternatives come under open scrutiny The suitability of the physical site must be considered, other planning activities must be taken into account (e.g. there is a railway corridor bisecting Malukazi) and most important of all, cost-benefit analyses of alternative solutions should inform the final decisions. Recall that one of the stated aims of our survey is to provide some of the pertinent data for such a cost-benefit analysis: this will be computed by the Department of Economics at the University of Natal. The advantage that upgrading seems to enjoy is that the responsible authorities can count on the utilization of existing stocks for an accountable number of households (our estimate of 3 416 at Malukazi) without the headache of having to conjure up accommodation for thousands of households in the short term.

4. Relocation

Relocation of spontaneous urban settlements is, in effect, a positive approach to the needs arising from demolition (demolition which, one hopes, will be based on enlightened planning priorities) where the authorities take responsibility for the consequences of their actions regarding solutions to the housing problem. The schemes we record under this heading are admirably reviewed by Dr. Maasdorp and we shall not attempt descriptions here. The schemes, site-and-service, core housing and "surveyed plots" are of course viable in their own right,

and not necessarily subject only to relocation of existing settlements. In the light of present trends for cities to aggregate increasingly larger populations (both as a result of natural increase and rural-urban migration) these alternatives should loom large in forward policy ideas for housing the urban poor and not-so-poor. However, if Malukazi is demolished, the hard fact is that some thousands of households will have to be rehoused whether they relocate themselves on an ad hoc basis or are officially relocated on a "prepared" site. We investigate the tolerances involved in this exericse for the settlers at Malukazi.

4.1 Site and Service. In his discussion of site-and-service schemes, Maasdorp emphasises the flexibility of such schemes with regard to alternative standards of service which may be supplied.[1] This type of scheme is attractive both to the housing administrator and to many spontaneous settlers: to the administrator because it can be linked both with upgrading schemes and the development of formal housing estates, allowing control of sanitary standards (which are important for the total urban community in the long run) and planning; and to those spontaneous settlers who wish to establish tenure, build houses to suit their households and have enough money to invest in building. Clearly, not all spontaneous settlers fit this description, which in the case of Malukazi seems to indicate the tenant-at-will (those who have established some form of leasehold and have built their own houses). Leaving aside the investment already incurred by building a house in Malukazi, the tenant-at-will category has manifested its ability to acquire and pay for shelter, which should encourage consideration of such

1) Maasdorp, op. cit., p. 10.

schemes as alternatives in low-cost housing. Local conditions dictate the feasibility of any scheme and the ratio of cost of supplying services to building houses could be so high in the hilly terrain of the Umlazi Location area as to minimise the difference in cost between site-and-service schemes and housing estate schemes. It cannot be emphasised enough that spontaneous settlers are not necessarily a homogeneous group, as the data for Malukazi demonstrates, and that therefore housing policy should be based on a flexible programme incorporating viable alternatives, and not on one alternative scheme thought to provide a panacea for all housing ills.

4.2 Core Housing. Referring again to Maasdorp's paper, core housing is an alternative that lies midway between site-and-service and the estate house option. As such, it is relatively expensive. However, not all spontaneous settlers are from the lowest income group as the spectrum of formal employment among Malukazi reveals. Further, a forthcoming publication from the Centre[1] reveals that many households relinquish township housing and move to the urban periphery because, inter alia, the standard township house does not provide adequately for the family situation - that is, that the "Pretoria house" is too small. Scrutiny of the housing data of our survey (Chapter 4) reveals a similar group in Malukazi. The core house as an adjunct to the estate approach is ideal for the household with sufficient money and the motivation to acquire a larger house in an estate but which is unable to participate in the

1) Møller, V.(forthcoming) Mobility on the Urban Fringe, Durban, Centre for Applied Social Sciences, University of Natal.

very advanced owner-builder schemes now gaining momentum in Umlazi, among other places in South Africa.

Considerable skill by planners is required if core housing schemes are to take off: it is erroneous to believe that all formal provision of housing will automatically be saturated because of the on-going demand. The demand for site-and-service and core housing can easily be established. The ability to pay and income elasticities directed at housing as a priority are more difficult to determine. If required standards are aimed too high there is a good chance that people will continue to find their own solutions to the problem by informal spontaneous settlement. By and large, however, judicious planning for upgrading, site-and-service and core housing alternatives can satisfy both the priorities of the people seeking shelter and the administrators providing shelter. Typically, the priorities for lower income third world urban dwellers are security of tenure and housing which will accommodate the household through its developmental cycle. The priorities of administrators are centred on control, standards, services, population, etc. The more open-ended approaches to low-cost housing can accommodate what is only a seeming contradiction in the provision of low-cost housing.

4.3 The Passive Mode of the site-and-service alternative referred to as "surveyed plots" by the World Bank[1] and which consists of demarcated plots, security of tenure and minimal services, is a particularly attractive alternative in the present state of housing in South Africa. Next to upgrading, it is the closest

1) Maasdorp, 1977, op. cit., p. 10.

approach to utilising the already established processes of spontaneous settlement. Precise estimates of "urban squatters", spontaneous settlers, houses needed, etc., are difficult to come by, but the enormity of the problem is presented in a review by Maasdorp[1] and the recurring six-digit figures and occasional seven-digit figure attached to the overall black housing shortfall now and in the future are sufficient testimony to the urgency with the problem must be approached.

In the particular case of Malukazi - failing upgrading - relocation seems inevitable. The finance required to accommodate 3 400-plus households in fully-serviced areas is unlikely to be found. It is therefore very probable that the "surveyed plots" option is the only viable alternative other than demolition without responsibility. If Malukazi goes to the bulldozer and the population is relocated as a settlement on "surveyed plots" then the two absolute requirements are a transport link with the areas of formal employment in Durban and the provision of sufficient water for the population. We have argued all along that Malukazi is not a problem in itself but a reactive solution to the greater problem of insufficient housing. We have backed this up with empirical information revealing high rates of participation in the urban system, self-generation of durable housing and an informal sector providing certain needs in the community. Malukazi is simply another case of a spontaneous settlement shown to operate adequately in an urban environment, if at standards which are

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1) Maasdorp, op. cit., pp. 17 - 20.

depressed. The idea of using the proven energies within spontaneous urban settlements and supplementing them with any of the constructive options mentioned above is hardly new and the relative successes achieved elsewhere should pave the way for their acceptance in the republic.

At this juncture between flexible and fixed (Estate) planning approaches to low-cost housing, the question of standards in housing, amenities and services seems pertinent: the former denoting (though not in all alternatives) lower standards than the latter approach. A passage in Dr. Maasdorp's paper contains a succinct analysis, which we quote in full, of the context of standards in the provision of low-cost housing:

> "Many developing countries may view up-grading and site-and-service schemes as second-best solutions; this is a sensitive area for governments which may not want to be accused of providing second-class housing and service for second-class citizens. But these second-best solutions are the only means by which sufficient housing units can be provided for the low-income groups. It is therefore preferable, on welfare grounds, for governments to opt for schemes which ensure improved physical conditions for even the poorest households rather than for those which provide standard dwellings for fewer low-income families. These second-best solutions also approximate closely to the spontaneous solutions found by the low-income groups themselves. In actual fact, therefore, the second-best solutions may well be first-choice solutions."[1)]

The idea of absolute standards or "minimum modern standards" is in any event outmoded, though it persists as an ideal for

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1) Maasdorp, op. cit., p. 12.

the housing programmes in many countries - not all of which are underdeveloped. In the wake of studies conducted by the United Nations[1] the notion of "relative standards" in housing is commonplace. It remains for us to use the recognition that South Africa straddles the interstice of the developed third world dichotomy in a way that will determine standards appropriate to the variable realities that confront us on the housing issue. This is not to say that more public revenue is not required to finance housing projects in South Africa.

5. Public Housing Estates

That there will always be a demand for public housing is self-evident and not in contention here. Just as many households leave townships for sound reasons, many others seek entry or return to places like Umlazi Township. (In Malukazi, many households comprising young married people have actually been displaced from parental houses in Umlazi through overcrowding.) Apart from the provision in townships for high-cost owner-builders (and now an increasing momentum in buying township houses) the mass-produced box is the norm, which, as a homogeneous entity, has to perform the function of shelter for heterogeneous households which vary considerably with regard to size and composition: this is true at any point in time as well as for any individual household in the longer term if the developmental cycle of the domestic unit is taken into account. The point of stating the obvious is to draw attention to the fact that the "minimum modern

1) See for example United Nations (ST/ECA/173) 1973, Social Indicators for Housing and Urban Development, Department of Economic and Social Affairs: Report of the Ad Hoc Group of Experts, Dublin, Ireland, 1971, New York, U.N.

standard" approach as it has been implemented in past decades in South Africa is not only inflexible but somewhat inadequate for the purpose for which it is intended. It should also be borne in mind that the much vaunted standard of the typical South African black township is not as high as some officials would have us believe - witness recent unrest in some of these very same townships. Excessive control of the population inhabiting formal townships also makes them unattractive.

It is not our suggestion that improving public housing estates is going to solve the low-cost housing problem and eradicate spontaneous settlement. On the contrary, any realistic appraisal of resources indicates that this is just not feasible. What could be urged is that in the same way that there is a now-growing literature in South Africa directed at alternatives other than the official housing policy, there should be a concern with the very official policy itself and alternatives for flexibility within its present structure. It would be incongruous to incorporate alternative options for the low-cost housing we have been discussing into official planning and policy, without regard for extending this thinking to present estate development. In fact we could turn the argument round and say that it would be feasible to begin immediately with more flexible development of present townships to which the other alternatives could be related and articulated.

Certainly in Durban, a township like Umlazi provides a focal point for a wider area of development as it is the object of accumulation of transport links, education, services such as water, sewerage and lighting, and community facilities like churches and functions of official administration such as police. Recent observations in the peri-urban area westward of Umlazi reveal an increase in housing density - it is not a threat but an almost certain prediction that the area between

Umlazi and Adam's Mission will develop into a continous sprawl of spontaneous settlement. If this is a credible forecast then the option for the policy-makers is clear: either ignore, demolish, harass, "repatriate", etc., or come up with a co-ordinated programme for low-cost housing which incorporates appropriate features of the available alternatives. Umlazi Location is not the only peripheral area of Durban where spontaneous settlement has occurred.

In the estate option we might briefly mention "hostels", provision of living room for men (and women) living in single status in town, though we cannot provide an analysis at this stage. Suffice it to say two things: i) ten per cent of heads of household in Malukazi had previously resided in hostels in and around Durban; and ii) while the labour migration system in South Africa is probably an absolutely necessary condition for the survival of a great many rural households, the differential productivity between rural and urban sectors of the economy will require continued rural-urban migration - the implication being a reversal of the policy of under-urbanisation in order to allow a more normal situation where workers' families can take up urban residence.

If the inferences about the spontaneous settlement at Malukazi based on our interim data are credible and if Durban as well as other cities in South Africa are going to be heirs to the spontaneous settlement phenomenon - and it would be against the trend if they were not - then we have to accomplish three definite things in order to avert a catastrophe. It would be ironic indeed if a relatively developed country were unable to come to terms with a large structural problem that many third world countries have already incorporated into their planning for inevitably rapid urban expansion.

1) Change in Policy. The whole of this chapter is devoted

to this subject and in South Africa there is a growing literature and debate directed at the inadequacy of housing policies to meet low-income needs.

2) Consultation. Consultation among various agencies responsible for urban planning is an undoubted priority; but as regards the housing of low-income groups in South Africa, a crucial area which is often ignored is consultation with the communities seeking housing. The initiative assumed in some projects of the N.B.R.I., where housing planning has emerged from the results of consultation between planners and community leaders, needs urgently to be emulated.

3) Applied Research. Applied research can play two roles in the housing crisis: it can provide empirical evidence on which to base decisions among policy alternatives and it can evaluate, in time, the success or failure of the programmes set in motion by policy decisions.

APPENDIX A

APPENDIX A.

THE SCOPE AND RELIABILITY OF THE SAMPLE SURVEY IN MALUKAZI, 1977.

The study conducted in Malukazi by the Centre for Applied Social Sciences is essentially a base-line study of the population, housing, circumstances and some attitudes in a spontaneous urban settlement. Base-line studies are, as a rule, objects of straightforward research design. In the present case, however, a variety of research interests had to be catered for, which has tended to complicate design. These interests are represented by the Centre itself, The Urban Foundation, The Department of Economics and The School of Architecture at the University of Natal. The advantages of amalgamating the various interests and funding in one research project are to be found in the maximization of cross-tabulation from a single sequence of data that otherwise would have appeared as a number of discrete studies. Clearly, we expect a number of research reports to emerge from this particular study: it is therefore convenient to provide a document describing, in the study, the technical components which can readily be incorporated or referred to in future research reports. Further, as the results of the present study are relevant for application to pressing urban social problems, a full description of the project is necessary in order to allow independent and objective judgements to be formed about the confidence with which our findings can be accepted.

THE LOCUS OF THE STUDY.

Argument for conceptualizing the population of

Malukazi as a spontaneous urban settlement rather than a "squatter camp" is presented elsewhere and will not be repeated here. This question aside, the number of houses, and consequently people, has grown rapidly in recent times and, despite official attempts to curtail expansion, might well do so in the future even in the face of a projected date of 1982 for the development of the area as an extension to Umlazi Township, the corollary of this being the demolition of existing structures. Clearly, the study we have made reflects only a stage in the developmental process of Malukazi (already somewhat dated) and it is therefore encumbant on us not only to locate the study area but to give an indication of the population limits of the study. (The latter would assume great importance if further surveys are to be conducted in Malukazi).

To facilitate the aims of locating and describing the population being studied, two maps have been prepared and included as appendices in the report: a location plan map (Appendix B) and a map of the study area (Appendix C). Reading the location plan, we can place Malukazi as lying on the road to Umbumbulu, due south and contiguous with Umlazi Township. More specifically, the study area forms that part of proclaimed unit 22 of Umlazi Township that is separated by a tarred section of the Umbumbulu road from the already developed unit 21 of the township. The northern boundary is fixed by the road. The area is bounded in the east by an established Indian spontaneous settlement previously known as Malakazi but now known as Isipingo Farm since the recent incorporation of this area as part of Isipingo Township. Due west, along the Umbogintwini River and the road to Umbumbulu, the territory is populated by homesteads established under Tribal Communal Authority (as was Malukazi until proclamation). Our impression is that this territory is becoming more densely populated (somewhat confirmed by a recent flight over the area) and an educated guess is that more "spontaneous settlement"

will occur at places along the road to Umbumbulu. Some four or five kilometres to the south-west, we find the township of KwaMakuta and the established community at Adam's Mission. Immediately south of Malukazi is a further proclaimed section for Umlazi Township, unit 23, (see City Engineers' Map No. H.U. 200/4).

The location plan shows that Malukazi is geographically part of the Durban Metropolitan Area (our survey results show clearly that the people participate as members of the urban society) and well within any definition of the Greater Durban Area. Except for the territory due west, it is surrounded by townships (African, Indian, White) and accessibility to the big new industrial township of Prospecton is merely a function of already established transport routes. Accessibility to the city of Durban is accomplished as easily as for those people living in adjacent sections of Umlazi Township.

Although our field research was conducted during the period mid-October to mid-December 1977, the definition of the study area is pegged at June 1977, the date corresponding to our aerial photography record. Altogether we counted 1 843 roofs unevenly dispersed in an area measuring 135 hectares. The dispersal of roofs is shown in the map of the study area (Appendix C). The distribution of roofs reveals three notable features of settlement in Malukazi: firstly, the highest, most continuous density is found in a band along approximately one and half kilometres of the Umbumbulu road; secondly, the cluster effect of greater or lesser densities throughout the area suggests the practice of building (with permission of landholders) on particular tribally allocated landholdings; and thirdly, following on from the previous two points, that total density (over the whole area) is moderate, with many open spaces. (One of those in the centre of the map and not included as part of

the study area is land held by a religious healing sect known as "Makhehleni".) In fact, densities in the study area range from 0 (zero) to 475 persons per hectare with a mean gross density of 130 persons per hectare.

Since the date of the photographic record, more shelters have been erected and at the present time (1978), building proceeds at a steady pace but not as rapidly as for the period August 1976 - June 1977. (We have comparative photographic records for these two dates.) A recent observation flight (February 1978) over the study area leaves an impression of a community housed in relatively stable structures (borne out by the survey of housing in our design) where buildings are prone to be densely clustered but with many open spaces between clusters.

AIMS AND CONTENT OF THE SURVEY.

A base-line study or survey denotes a research design which is essentially directed at a primary level of investigation: the provision of a data-base or record, much as a census of population is a record, for a particular community. The question round which everything orientates is "What?" - number, size, shape, attitude, preference, circumstance, etc. The decision on which data to collect is informed by the various aims or purposes initiating the study and are somewhat diverse in the present case. The anticipated use of our survey data reflects four types of aim with which we approached the design of the project; these are enumerated below.

Four aims of the survey:

1. To provide a sociographic record for a population sheltering in a spontaneous urban settlement.

2. To investigate, in depth, the shelters erected in the study

area and to assess both their adequacy as housing and performance associated with other requisites of urban life (transport, jobs, accessibility to services, etc.) and attitudes and preferences emerging with trade-off between spontaneous and "authorised" urban settlement.

3. In the longer term, to provide information to be used in applied research directed at alternative trajectories for the community. Cost-benefit analyses of upgrading, re-siting, provision of public housing, etc., are pertinent here.

4. While conducting this survey, the opportunity was taken of furthering three research interests being pursued in the Centre. The first interest is central to the present survey, viz., migration and physical mobility among blacks. Our aim is to provide a migration model for spontaneous urban settlers. The second interest, variation in household composition, is also germane to the study. The aim is to compare households under conditions of spontaneous settlement with other conditions of settlement in order to determine independent effects of housing and tenure "policy". Finally, we took this opportunity to begin testing the consequences of probability selection of respondents in household surveys among blacks. Chiefly, we wish to determine whether it is sufficient to interview heads of household only.

While the emphasis of research design has fallen on the need to produce descriptive statistics, care has been taken to re-inforce the applied nature of the project by making provision for analytic and hypothetical construction (ante hoc and post hoc) concerning some of the characteristics of a spontaneous settlement population.

Content of the survey:

The sample, which is discussed under a separate sub-heading below, was drawn from a listing of buildings in the study area. The survey is composed of two "observation instruments": one, a questionnaire schedule administered as an interview with a member(s) of one household in each of 278 sample dwellings; the other, a two-part physical survey and questionnaire schedule completed for ninety of the 278 sample dwellings and for all households in each of the ninety sub-sample dwellings. The range of variables available from the survey is best described by reference to the content (questions and tasks) of the schedules. It is convenient to refer to the first-mentioned schedule as the "Household Schedule" (Appendix D) and the other schedule as the "Physical Survey Schedule" (Appendix E).

The Household Schedule consists of four sections, with the addition of a table for recording information designed to provide basic population estimates.

Population Estimates.

These estimates are arrived at by manipulating the number of households and size (number of people) of household in each sample dwelling; so that although interviews were conducted in one household (survey unit) per dwelling (sampling unit), the number of people per sampling unit is known and it is an easy matter to compute population estimates.

Section 1: Individual Information.

In Section 1, we have collected, on conventional socio-graphic variables, information for each individual in the sample

household. We are therefore in a position to provide a profile for the total sample population and not only for specific respondents in the study. Further, by analysis of variables within each household, we can attempt to measure co-variation between cluster conditions in households as well as other variables: e.g., the relationship between number of earners per household and household heads' aspirations for housing: or, the dependence of household compostion on measures of rural ties and responsibilities of the head of household.

Section 2: General Household Information.

Because the Household Schedule represents a lengthy interview and the Physical Survey was conducted on a sub-sample basis, this section was designed for the accomplishment of three tasks in the research process.

i) The main part of the Household Schedule (Section 3) refers to variables peculiar to the head of household. We required some information both about the antecedents of the household in general as well as information providing our field staff with an introduction to the part of the interview reserved for the head of household only.

ii) There were many questions of a purely descriptive nature (e.g. tenure, rents, garbage disposal, etc.), the answers to which could be supplied by any member of the household (as in Section 1). Much of this data was elicited in Section 2 in order to lighten the interview load for the head of household (Section 3).

iii) The Physical Survey covers detailed information on housing, but as this is available for a sub-sample only, we thought it prudent to cover some general housing

variables for the complete sample. This is done in Section 2.

The informed critic of the questionnaire / schedule/ interview approach, especially among transitional or displaced populations, will recognise in Section 2 a "ready reckoner" in the form of a check on information supplied in Section 1 as well as in Section 3. The latter is described immediately below.

Section 3: Head of Household.

While any responsible adult member of the sample household (usually the head's wife) was acceptable as a respondent on Sections 1 and 2, the head of household, whether male or female, is invariably the respondent on Section 3. As Section 3 comprises the core data for the Household Survey, it was necessary to standardise the source of the information - the usual convention being to elicit the data from the head of household. (Section 4 describes an attempt to convert this within-household purposive selection to a within-household probability selection - see section on sampling as well.) Conventionally, the head of household is the person who makes the decisions and, if not the main breadwinner, one who has considerable control over material resources in the household. The list of the type of data sought in Section 3 and appearing immediately below, explains why heads were chosen as the target respondents for the survey.

List of the Type of Variable Elicited in Section 3.

i) Sociographic data for head brought forward from Section 1.

ii) Arrival, mobility within and reasons for coming to Malukazi as well as mode of entry.

iii) Attempt at life-history of mobility (migration) up until the date of arrival in Malukazi.

iv) Advantages and disadvantages to living in Malukazi as well as views on alternative options and indices on rural connectedness.

v) Forced-choice attitudes to the relationship between size, cost, tenure of housing and accessibility and cost of transport.

vi) Preference and priority with regard to community conveniences, facilities and services.

vii) Head of household's income

viii) Finally, an attempt to elicit a choice of housing among the possible (if not yet likely) alternative policies for providing public housing (from spontaneous settlement to the present official township developments).

Section 4: Randomly Selected Adult.

Section 4 is a duplicate of Section 3 and is replicated for randomly selected adults (eighteen years and above) in sample households where the selected adult is not the head of household (as Section 3 suffices). The purpose of this section is to provide data for analyses of variance between purposive selection and probability selection of respondents in households. This is not only a technical nicety, because the problem of providing shelter for urban dwellers is a pressing humanitarian problem, and differences, if they exist, between a sample of present heads of household and a sample of all adults (some of whom will be founding new households) could well reflect differential longeval aspirations for urban dwelling. Alternatively, no difference in variances would reinforce inferences from our data which might then be considered to reflect a homogeneous range of opinions.

The Physical Survey Schedule (Appendix E) consists of

two very different tasks: in Part 1 a selected dwelling is physically measured and building materials are recorded; in Part 2 questionnaire interviews are conducted within each discrete household inhabiting the dwelling.

Part 1: Physical Survey.

The physical survey was conducted among a sub-sample of ninety dwellings. A scale plan of each sample dwelling was sketched from metric measurements made in situ. Each sketch showed position and dimension of walls (within and without), windows, doors, verandahs, etc. Distance from other dwellings was measured and external area use (gardens, tanks, etc.) was shown. The dwelling was located in context of roads and footpaths and an elevation sketch provided to show pitch and height of roofs. Materials used in construction (both original and successive construction) of the dwelling were recorded with regard to walls, roofs, flooring, ceilings, doors, windows and window frames, finish and paints.

Part 2: Questionnaire Schedule.

The questionnaire schedule was administered to a member of each discrete household inhabiting a dwelling for which a physical survey was completed. In addition to general information about coming to live in Malukazi, data on usage of each room in the dwelling was elicited and the sleeping arrangements of household members recorded. Among respondents who built their dwellings themselves, detailed information, regarding costs of labour and all materials in the construction of the structure, was sought. Respondents whose households inhabited an already-constructed dwelling were questioned about ownership of the dwelling and rents paid for occupation.

SAMPLING PROCEDURE.

A map of the study area (Appendix C), referred to earlier, was drawn to a scale of 1:2 500 from aerial photographs dated mid-year 1977. The aerial photographs were produced for the purpose of making a listing of all physical structures in the area - the primary content of the map. What we have at our disposal then is a listing of the population of roofs in the study area, not to be confused with a listing of habitable dwellings. Under hypothetical conditions of limitless time, finance and resources, it would have been possible to construct separate listings of habitable dwellings, households distributed within all habitable dwellings, and individuals in all households in all dwellings - that is, a procedure which would make sampling elements synonymous with sampling units at each step of the research design. Our time scale in which to complete field work was considerably less than six months, our budget a mere R2,000 and our resources confined to the participation of already fully employed academics. Clearly, as with all large samples, compromises increasing the complexity of the probability basis of selection had to be made. A multi-purpose research design calls for particular deviations from the EPSEM model; given our basic listing, the procedures set out below reveal the compromises and mistakes made in an attempt to maintain samples which would meet the criteria of unequal probabilities of selection.

Primary Sampling Units.

The primary sampling units in this survey are roofs of structures in the study area. Various sample designs were considered before the decision was taken to draw a simple random sample of roofs. Possible, more complex designs were discarded because criteria on which to base procedures for

decreasing variances were not readily available and too expensive to investigate. Initially, the sample had to perform two functions for our study: reveal the proportion of habitable and inhabited dwellings among 1 843 roofs in the listing, and provide estimates of the human population and their distribution in the area. We guessed, correctly as it turned out, that the proportion of non-habitable dwellings would not be unduly large, but were in somewhat of a quandary when called on to gauge the likely order of variance for the distribution of number of people per inhabited dwelling. We anticipated, wrongly as it turned out this time, that there would be little multiple occupancy of households within dwellings, but that the range of household size would be large (fortunate in this case), suggesting a guess of a dispersed variance statistic. We proceded to draw a simple random sample of roofs.

The sample size was determined by accepting a confidence interval at the ninety-five per cent limit, a guessed standard deviation of five individuals and an arbitrary error of 0,5 of an individual. The result from the square of 1,96 x 5 ÷ 0,5 equalled 384 roofs which was reduced considerably to 317 roofs when the finite population correction was applied (on the basis of 1 843 roofs) - a sample size of 300 roofs (fractionally above sixteen per cent) was accepted as more than adequate for our purpose. Anticipating that the proportion of non-inhabited dwellings would be low, we decided not to replace vacant dwellings, shops and other non-residential-use structures in the selection, with the exception of latrines when they appeared as a sample element. Scrutiny of the map of the study area will reveal many small roofs (and the random selection contained a number of these) and the decision to replace latrines was taken to circumvent too great a decline in sample size if the listing contained too many outbuildings in the guise of dwellings. In fact, only two sample cases were replaced - a latrine and a kitchen (this could

be an underestimate due to faulty identification of sample elements; the matter is pursued below).

In Table A.1, we show how effective samples were arrived at as the problems arose in the field: i) a sample of habitable dwellings; and ii) a sample in which household interviews were conducted (the latter is further complicated by multiple occupancy of households - see below). In the case of a sample count of inhabited dwellings, exceptions (uninhabitable, vacant, non-residential use and listing errors) were eliminated. For the household interview sample, we replaced uninhabitable dwellings(2) and listing errors(2). Vacant dwellings, non-residential use and non-responding sample cases were not replaced. The proportion of inhabited dwellings in the total sample and the proportion of interviews conducted coincide fortuitously as they are made up of different conventions (although difference in sampling from this source is small). To illustrate, if non-responses to the interview had been more numerous then the effective household interview sample would have been smaller than the count of inhabited dwellings. The effect of the dual sample rationalization shown in Table A.1 is that when statistics on the population of physical structures in the study area are being inferred, the sample base is three hundred of a population of 1 843 units; when statistics are inferred from the interview schedules the base is 278 cases of a population of 1 843 sampling units (with qualifications noted below). The sample of physical structures (roofs) is a simple random sample and while statistics are inferred directly from this effective sample, (for example, number of households per dwelling or total number of people housed per dwelling) the rules of inference coincide with an EPSEM model. This is not the case when inferring from household interviews.

Table A.1 Rationalization of the Effective Sample:
i) Proportion of Habitable Dwellings in the Total Sample
ii) Number of Interviews (Household Questionnaire Schedule) Conducted From the Total Sample.

Properties of Sampling Units	i) Proportion of Habitable Dwellings*		ii) Number of Interviews Conducted*	
	n	%	n	%
Total Sample Drawn	300	100,0	300	100,0
Uninhabitable Sample Element (Latrine and Kitchen)	N-R 2	-0,6'	R 2	0,6'
Vacant Habitable Dwelling	N-R 8	-2,6'	N-R 8	-2,6'
Shop	N-R 7	-2,3'	N-R 7	-2,3'
Other Non-Residential Use	N-R 3	-1,0	N-R 3	-1,0
Errors in Unit Listing**	N-R 2	-0,6'	R 2	0,6'
Unable to Respond to Interview	N-A		N-R -2	-0,6'
Refusal of Interview (Non-Response)	N-A		N-R -2	-0,6'
Number of Units Eliminated From Sample***	22	-7,3'	22	-7,3'
Effective Sample	278	92,6'	278	92,6'

* R = replaced N-R = not replaced N-A = not applicable

** Two errors: i) Two sample structures on listing revealed to be one structure.
ii) Two sample structures on listing amalgamated as one structure since June 1977.

*** The coincidence of proportion does not reflect invariable association of interview with habitable dwelling count - see text.

The Physical Survey Sub-Sample.

Before proceeding with a commentary on aspects of the household sample (schedule, Appendix D), we turn to the procedure for drawing a sub-sample for the physical survey of structures (schedule, Appendix E). Clearly, it was important that the physical survey be married to the household survey, the only problem being that resources did not allow for three hundred cases in this exercise - a sub-sample was indicated. The largest sub-sample that could be afforded was one hundred cases. Again, there were no apparent criteria for stratifying the sub-sample, except possibly the size of roof from the master sample of units. In order to maintain a probability referent for the sub-sample, we selected one hundred roofs from the master sample, using a simple random procedure. The selection is therefore an unequal probability one because inclusion in the master sample determines possibility of selection at the second stage.

In all, ninety-four completed physical exercises were returned, a gratifying response given the order of difficulty of the task and the inconvenience that had to be accepted by people inhabiting the dwellings. Of these cases, ninety married with the household survey - a small gap occurred due to non-response, listing and clerical errors in the household survey. A check from the raw data made between a summary statistic from the sample of 278 household schedules and the ninety physical schedules shows agreement on mean number of people per dwelling (roof) to one decimal point (8,3). Subsequent rationalization of the sub-sample data (a few incomplete household interviews) for computational analyses lowered the "usable" number of cases and in sub-sample physical survey analyses, a mean of 8,0 persons per dwelling unit is the referent. Other estimates will also be lower when/reporting

physical findings. Small inconsistencies were recorded when the direct comparison between ninety linked cases were made, but these were explicable when closely scrutinized. The fact that in the physical survey, all households in the sample dwelling were interviewed, was of great assistance in rationalising the master sample of households where only one household was interviewed - we were able to check the reliability of reporting on number and size of household. In the end, the sub-sample of ninety physical cases proved adequate as the distribution showed repetitive features toward the end of the exercise: an expected result for a relatively homogeneous variable such as housing, and more so for very low-cost housing.

Selection of Household Sample Elements.

It is at this stage in the sampling design that the probability nature of selection in our survey is abrogated. The mistake occurred, not because of ignorance in probability selection methods, but because we failed to pilot the survey (essentially lack of time and finance) and instead relied on impressions of occupancy in dwellings. Observations made during frequent visits to the study area prior to the survey, revealed a distribution of discrete rather than terraced structures, as well as a resident population of women and children (scrutiny of the map of the study area (Appendix C) confirmed the former). We considered what appeared to be a more lodger-oriented settlement of "squatters" residing in rooms in large, long narrow structures in Clermont,[1] Durban, and made an intuitive judgement that multiple household

1) Research has been undertaken in Clermont by the Department of Economics at the University of Natal within the Low-Cost Housing Research Project. The results will appear in a forthcoming publication.

occupancy of dwellings would be low. This judgement is erroneous as the survey results reveal a mean of two households per dwelling with a wide range.

Fortunately, two aspects of the research design allowed for correction of selection of household elements into the sample by means of inverse weighting. Because we wished to estimate the number of households and the total population in Malukazi, this information was elicited at the beginning of the interview. [The section for population estimates in the household schedule (Appendix D) reveals that we expected some multiple occupancy: one idea was to investigate all households where this occurred, provided it was not too frequently - accepting the cluster consequence; another idea was to select households randomly within dwellings if we were wrong about multiple occupancy, as we were - this proved too difficult once in the field. We subsequently issued an instruction to attempt first to interview the "main household", failing which, any other.] The physical survey schedule supplied a provident ninety sub-sample cases where detailed information was available for all households within each of the selected dwellings. It then became an easy matter to compare number for size of household among the household sample elements, with number for size of household among all households recorded in the master sample from which weights could be computed.

The difference between comparative mean sizes of all sample households and sample element households shown in Table A.2 reveals that interviews are over-represented among larger households. The different percentage distributions recorded in the table reinforce the occurrence of this bias in selection, particularly under-representation of single and dyadic households. The total number of 557 households occurring in 278 sampling units (dwellings) and the distribution of the size of these households appear to be statistically reliable: a sub-sample of detailed

interviews of all households in ninety of the 278 sampling units (physical schedule questionnaire (Appendix E)) reveals, when compared with the data from the same ninety household schedules (Appendix D), a correspondence in mean number of people per dwelling - 8,3 people (see qualification above); and the distribution of number of households per sample unit, number of persons per household and number of persons per dwelling coincide except for small, explicable deviations.

Table A.2 Comparison of Number and Percentage Distribution For Size Between All Households Recorded in the Sample Survey and Household Elements Selected for Interview in the Survey.

Household Size	All Households Recorded in the Sample Survey		Sample Survey Household Elements (Interviews)	
	n	%	n	%
1	76	13,6	19	6,8
2	99	17,7	26	9,3
3	82	14,7	33	11,9
4	93	16,7	37	13,3
5	60	10,8	40	14,4
6	54	9,7	42	15,1
7	39	7,0	30	10,8
8	20	3,6	18	6,5
9	11	2,0	11	4,0
10	9	1,6	9	3,2
11	5	0,9	4	1,4
12	3	0,5	3	1,1
13	2	0,4	2	0,7
14	1	0,2	1	0,4
15	1	0,2	1	0,4
-	-	-	-	-
17	2	0,4	2	0,7
Number	557	100,0	278	100,0
Mean Size	4,16		5,37	

This consistency encouraged a weighting procedure based on proportions of sample element households to all sample unit households on the criterion of number of people (size) per household.

The data of the survey is to be processed by computer, where it is more convenient to use a raising factor rather than a unitary weighting system. If we use raw proportions, the raising factor has a very small range, 4 - 2, which is inadequate for our long distribution. It is, however, an easy matter to estimate the total population of households in the study area (3 420) and to compute the estimated proportions of household sizes (percentage distribution of all households in the sample differentiated by size x 3 420). Table A.3 shows this exercise together with the computation of the raising factor used to weight the survey data. In raising household data by the factors appearing in Table A.3, we attempt to approximate what a probability selection of household elements from primary sampling units would yield in the way of distribution, had we proceeded more cautiously with the sampling design. There are further selections of sub-elements within households, viz., the individuals interviewed. For the main part of the household interview, Section 3 (Appendix D), the selection is a standard status - head of household - and this target is invariable whether the head be male or female. The selection here has the same sampling status as the weighted sample of households. Other conventions were employed for respondents on different sections of the household interview - one, for Section 4, is discussed immediately below, the others being discussed under the heading of "Field Work".

Selection of Random Adult per Household.

Under the heading, "Aims and Content" above, we

explained that we wished to measure differences in variance between purposively interviewing heads of household and interviewing a randomly selected (probability) adult in the household.

Table A.3 Weights for Household Elements in the Sample Survey: Raising Factors Computed From Proportionate Selection Among Household Sizes (Household Size Treated as a Post Hoc Stratum.

Household Size (Stratum: h)	N Households (Pop. Est.)	n_h (Sample Elements)	f_h $[n_h/N_h]$	Raising Factor (Reciprocal of f_h)
1	465	19	0,040	25
2	608	26	0,043	23
3	502	33	0,066	15
4	570	37	0,065	15
5	369	40	0,108	9
6	331	42	0,127	8
7	239	30	0,126	8
8	123	18	0,146	7
9	68	11	0,162	6
10	55	9	0,164	6
11	31	4	0,129	8
12	17	3	0,176	6
13	14	2	0,143	7
14	7	1	0,143	7
15	7	1	0,143	7
-	-	-	-	-
17	14	2	0,143	7
Total	3420	278		

The selection was accomplished by using Kish's "Summary of Eight Tables for Selecting One Adult in Each Dwelling",[1] reproduced with minor modifications on the first page of the household

1) Kish, L. 1965, Survey Sampling, New York, John Wiley and Sons Inc. p. 399.

schedule in Appendix D.[1] The convention of numbering all adults of eighteen years and over in order of age by sex, males followed by females, was observed, and selection was completed by choosing the appropriate Kish Table indicated by an alphabetical code recorded on the household schedule in Section 1. Kish supplies proportions for the use of the eight tables and this allocation was made in the office prior to the survey. Two sources of miscarriage in this operation can be imagined: a bias resulting in allocation (and returned allocations) and mistakes made in numbering individuals in the field (not to mention the dishonesty that can arise when field staff recognise the advantage of manipulating household composition).

Table A.4 Comparison of Household Survey Returns with Probability Allocations Derived from Kish's Table (for Selecting One Adult per Household).

Table	Defined Probability Proportion	Allocated Proportions n = 278	Number Allocated n = 278	Returned Proportions n = 263	Number Returned n = 263
A	0,16	0,179	50	0,19	50
B	0,063	0,079	22	0,08	21
C	0,083	0,079	22	0,084	22
D	0,16	0,162	45	0,167	44
E	0,16	0,158	44	0,152	40
F	0,083	0,086	24	0,084	22
G	0,08	0,079	22	0,072	19
H	0,16	0,176	49	0,071	45

Table A.4 describes the relative success of returned allocations when compared with the defined probability allocatio Allocated proportions differ from defined proportions because of

1) This table was used to select one adult per household and not one adult per dwelling, the primary sampling unit.

the effective shortfall from three hundred sample cases. Returned proportions reflect a shortfall of fourteen cases from 278 due to inaccessibility and inability or refusal to respond (this does not take account of the separate issue of misidentification treated below). The returned proportion of 263 cases does not imply that there are 263 interviews for Section 4 of the schedule. Heads of household were included in the household listing of adults and were selected in 134 households (forty-eight per cent of 278 or fifty-one per cent of 263). As Section 4 is a duplicate of Section 3 (head of household), the 134 head-of-household selection interviews are carried over to Section 4, i.e. they are included in the randomly selected distribution. The random selection of one adult per household (including heads of household), given the non-response value above, is not a perfectly random sample. Mistakes were made in the field, mostly as incorrect listing of adults, and have been condoned as no consistent bias is apparent. Detailed scrutiny of each random selection reveals fifteen mistakes or an error of 5,4 per cent calculated on the base of 278 cases (5,7 per cent of 263 cases). Together, the non-response rate plus errors sum to a shortfall of marginally over ten per cent (10,4), which is viewed as acceptable, as Section 4 is a tertiary aspect of the sample survey and more complex to administer. The non-response rate to the main part of the survey is gratifyingly very low. Because the random selection of adults is tied to the non-probability selection of households, the data from Section 4 is weighted on the same basis as that for the main part of the survey.

FIELD WORK.

Field work on the project commenced on the 20th October, 1977 with a practice run on non-sample cases. The

last schedule was recovered on the 20th December, 1977. Eight African men ranging in age from approximately twenty to thirty-five years were originally recruited for the job. One was eliminated before commencement as unsuitable and another (successful fieldworker) left two-thirds of the way through the work to take up permanent employment. Training occupied approximately ten days, in which all three interested departments in the university contributed their expertise. Despite rigorous training, it is probably fair comment to relate that a gap between the expectations of research staff - and indeed the requirements for standardised survey research - and the comprehension as well as the performance of field staff, was never completely bridged. This is in no way an attempt at ad hominem denigration; it is simply a piece of information which goes into the balance of reliability of the survey and reflects the very common difficulty of obtaining field staff of a desirable standard on small budgets. However, as mentioned earlier, there are many checks and repetitions in the instrumentation of the survey and this has allowed us a counter at the coding stage where omissions could quite easily be rectified.

The listing of sampling units (Appendix C) is divided into nineteen arbitrary sections for purposes of ready identification of the selected cases. Sample cases were allocated to field staff on a restricted distributive basis: that is, all field workers received some cases in most of the sections. There is no part of the sample that was covered by one field worker only, though the range of returns among field workers was from thirty-four to fifty schedules. Observation biases that might emerge from among the seven field workers should therefore be distributed throughout the sample and not be confined to any single sector of households in Malukazi. There are in the field work observation biases which will be reported upon in the texts of future research reports. More

difficult to account for are sampling biases arising from misidentification of sample cases in the field. That unselected cases were drawn into the effective sample by way of errors in identification is certain - how many such cases is, however, not certain. A guessed error of ten per cent in sample unit identification would tend to exceed the likely error. The problem of identification arose on the one hand because the listing was dated and more construction had appeared by the time of the survey, and on the other, because, for various reasons, research staff were not free to roam the study area and make positive identification of the selected sampling units. There is no evidence that errors occurred in any systematic or selective way.

The total non-response rate among householders in inhabited dwellings is a very low 1,2 per cent (Table A.1). Four heads of household were excluded from the effective sample: two were outright refusals, (genuine non-respondents) one was intoxicated on every occasion of contact and the other appeared to be unable to respond due to a mentally disturbed condition. The effective non-response rates among randomly-selected adults is five per cent and for the physical survey sub-sample, six per cent. These latter rates are not pure non-responses and include failures to return for reasons such as difficulty with contact and listing errors respectively. All in all, the response to the field staff and the survey was excellent and far exceeded our expectations. A usual and acceptable level of non-response to surveys among black populations often exceeds five per cent (compare our household survey non-response of 1,2 per cent). We anticipated a hostile reaction to the survey and were preparing for an approximate ten per cent of non-response - clearly, the people of Malukazi reacted very positively to our overtures and full credit must go to our field workers for their public relations

efforts. Non-response does not present a serious bias in the survey.

RELIABILITY.

The sampling design is a complex multi-phase selection procedure with differential random components for alternative observation units in the survey. The initial stage is a simple random sample (without replacement) of primary sampling units (roofs or physical structures). Although a multi-stage sample, at each stage the selection procedure yields observation units in the survey and the design is not only a means of selecting final elements. The primary sampling units are therefore also observation units, and, as elements, are synonymous with sampling units - an important SRS characteristic as basic population values are derived from sample statistics in this first stage. Recall that sample size was determined by a ninety-five per cent confidence level, an ad hoc standard deviation value of five persons (on the distribution of number of people per sampling unit) and an acceptable error of 0,5 persons. Analysis of this variable (number of people per dwelling) reveals a standard deviation of 5,25 and a standard error (of the mean) equal to 0,32: that is a precise sample where the value of the standard error is more than satisfactory for the requirements of this part of the survey objectives.

While the selection of the primary units corresponds to equal probabilities for sample elements, the second phase of selection, a random selection of dwellings for the physical survey as a sub-sample of the primary sampling units, reveals unequal probabilities, as the effective sample of ninety dwellings is drawn from an effective SRS of only 278 dwellings and not the total population of 1 843 dwellings. In fact, this complexity

of the random procedure appears to have had only small effects. The sub-sample mean statistic (number of people per dwelling) is equal to the same sample statistic to one decimal point (8,3 persons), in the raw data the standard deviation over the distribution of ninety cases is 3,67 and the standard error is a very acceptable 0,39; again a precise (sub-)sample in terms of survey objectives. The analysis of the element households within this sub-sample is, however, another matter: the treatment of all households in each dwelling produces a cluster sampling effect which will affect the level of confidence in a way that can only be known if a series of complicated calculations is made and which, for reasons of parsimony, we avoid making here.

This latter problem in the sub-sample carries over to the third phase of selection, viz., selection of element households from within the primary sampling units. We have explained above that, due to erroneous assumptions about the population of households, the probability nature of sampling incurred some damage at this phase. We avoided one cluster effect by "selecting" only one element per unit but fell into the trap (unavoidable once we had commenced field work) of arbitrary selection - that is no random selection method. This we attempted to correct by means of raising factors (see Table A.3). We have at our disposal then both unweighted (non-probability) statistics, and weighted (to approximate probability distribution) statistics. The unweighted mean household size, sample case, (number of people per household) is 5,3 persons with a standard deviation of 2,83 persons and a standard error equal to 0,17. The weighted mean is 4,2 persons with a standard deviation of 0,82 persons and a standard error equal to 0,014. The problem with these computations is that we cannot be certain that analyses of estimates from the sample statistics can be interpreted at

the confidence limit of ninety-five per cent. These computations must therefore be used cautiously and with less confidence than SRS procedures would allow. The magnitude of dispersion and error values are, however, in keeping (if a bit low) with the more certain computations from the primary units, and they suggest less bias than non-probability procedures usually produce. This phase of sampling is precise but not necessarily accurate.

Statistical reliability in the fourth phase, selecting a respondent in the household, is somewhat complex. On parts of the schedules where data was elicited from any responsible member of the household (uncomplicated and objective information - demographic and circumstantial variables) - the reliability reflects that of the third phase. The invariable selection of the head of household for the core part of the survey is a standardised procedure and reflects the selection problems encountered at phase three, but confines variability to one status within households. The random selection of one adult within a household procedure, while also dependent on the probability demerits of phase three, seeks to distribute variables in a random way over the population of household adults and not one household status designation. The outcome of this final procedure has not been analysed yet and reporting of the significance of reliability and accuracy statistics must await this exercise.

A note of caution for the unwary is recorded here. So far, we have been discussing the reliability of our selection method as reflected by one concrete sample, employing only the standard error of a sample statistic or estimator. We have not placed a measure on sampling bias or on non-sampling bias and therefore cannot determine finally the total error of our specific sample in Malukazi. We have, however,

drawn attention to the non-sampling biases above and as standard errors are relatively small, indicating that our sample means are close to expected sample statistics, we anticipate that the sampling bias (difference between expected sample statistic and population value) will not be of an extraordinary dimension. The effect of non-sampling bias will have to be gauged by our finding in this report and future texts on inconsistencies in field research, a matter that will not be shirked. In general, it appears that we have a reliable sample at, and in some cases reasonably near to, the ninety-five per cent confidence level.

As a matter of convenience, we include a rough guide to sample error, based on sample size and related to percentage values, together with a significant reliability index for three sample sizes.

Table A.5 Sample Error in Pairs of Percentages.

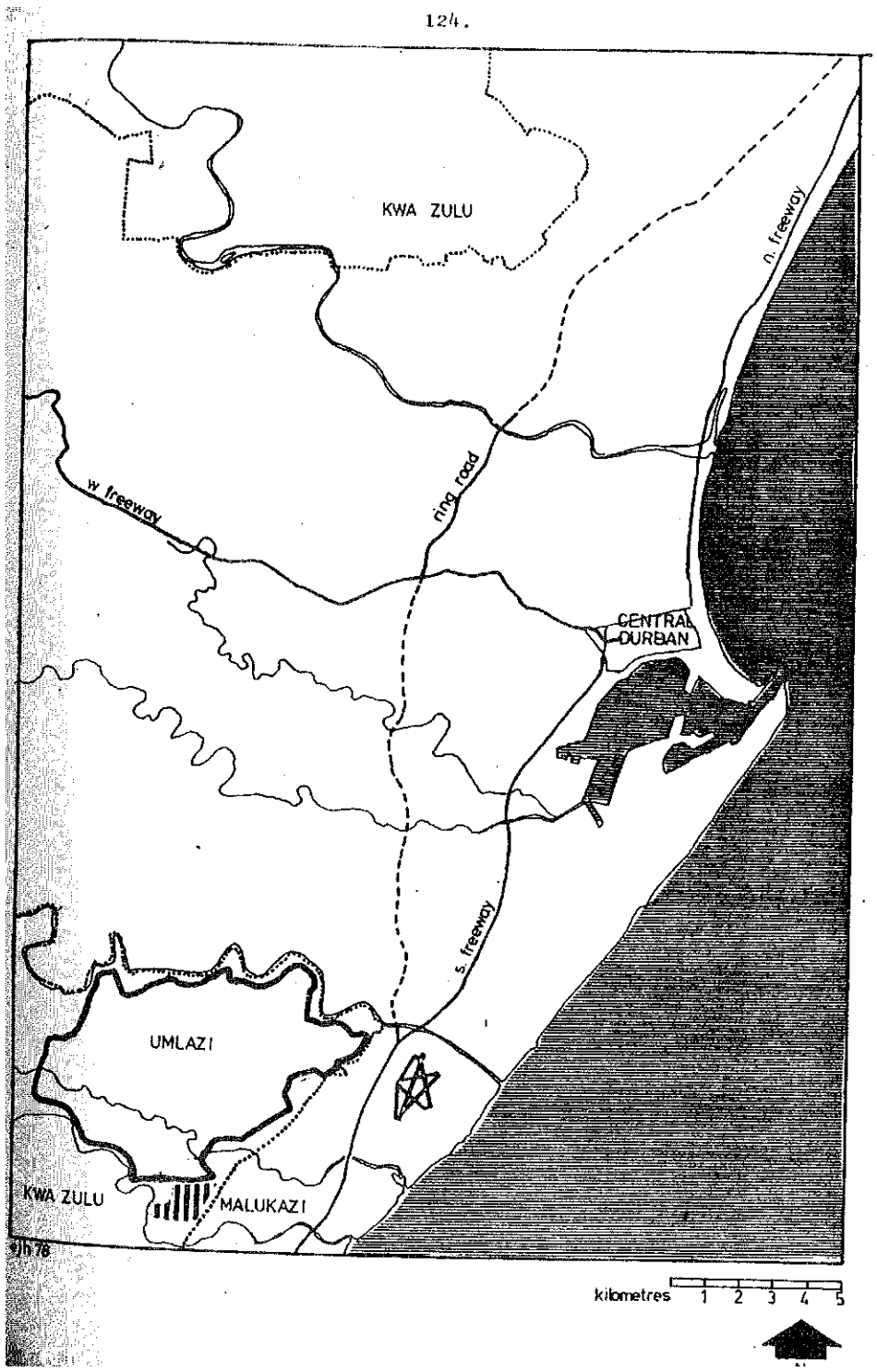
Sample Size	Error Shown for Pairs of Percentages									
	95 5	90 10	85 15	80 20	75 25	70 30	65 35	60 40	55 45	50 50
90*	4,7	6,4	7,7	8,6	9,3	9,8	10,2	10,5	10,7	10,7
278**	2,7	3,6	4,3	4,8	5,2	5,5	5,8	5,9	6,0	6,0
300**	2,6	3,4	4,2	4,6	5,0	5,2	5,4	5,6	5,8	5,8

* Percentage values at or exceeding 35 are statistically reliable at (or about) the 95 per cent level of confidence.

** Percentage values at or exceeding 20 are statistically reliable at (or about) the 95 per cent level of confidence.

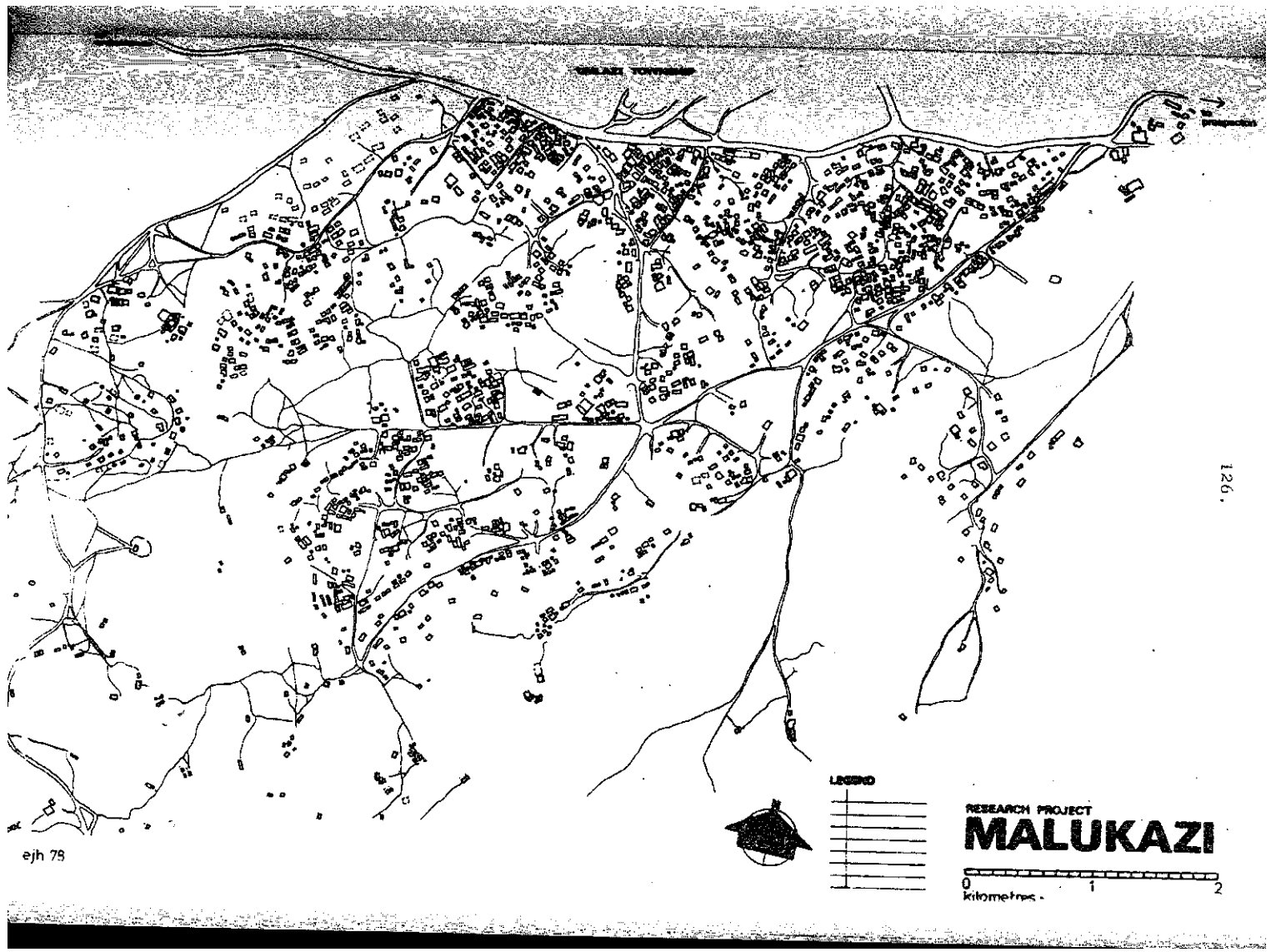
APPENDIX B

Location Plan Map


KWA ZULU
n. freeway
w freeway
ring road
CENTRAL DURBAN
s. freeway
UMLAZI
KWA ZULU
MALUKAZI
9h78
kilometres 1 2 3 4 5

APPENDIX C

Map of the Study Area


LEGEND
RESEARCH PROJECT
MALUKAZI
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APPENDIX D

Specimen: Household Questionnaire Schedule

MALUKAZI

CENTRE FOR APPLIED SOCIAL SCIENCES
UNIVERSITY OF NATAL,
DURBAN

SPONTANEOUS URBAN SETTLEMENT STUDY: MALUKAZI

KISH'S TABLE FOR SELECTING ONE ADULT PER HH.

Table No	If the number of adults in household is:					
	1	2	3	4	5	6
	Select adult numbered:					
A	1	1	1	1	1	1
B	1	1	1	1	2	2
C	1	1	1	2	2	2
D	1	1	2	2	3	3
E	1	2	2	3	4	4
F	1	2	3	3	3	5
G	1	2	3	4	5	5
H	1	2	3	4	5	6

1. Original selection is: (√) | Dwelling | Latrine | Shop | Vacant | Other |

If latrine replace by nearest dwelling.
If shop, discover if also used as dwelling, if so, conduct interview.
If vacant or other non-residential use do not replace.

2. No. of households in Sample Dwelling: [ ]
If more than one household (see definition) in sample dwelling and only one interview schedule is administered (verbal instructions issued) ensure that number of people per household (per sample dwelling) is entered in the table below:

Household	1	2	3	4					Dwelling
Number									

3. If household extends to a non-sample dwelling give a brief description of the spatial arrangements:

Date of Interview	Section(s)	Signature of Fieldworker

Section 1.

1. All members of the sample household usually resident at Malukazi.
   - Include all co-residents whether related or not.
   - The head of the household is entered at the top.
   - The respondent must be indicated by a √ on left.
   - Record of kin relationships in the household all refer to the head of household.
   - There is a preferred order of recording household composition: first the family of the head of household, then the families of kin of the head of household, followed by other kin and finally unrelated members of the household.

     Adult No. and Table No.: Table No. supplied.
   - Number adults 18 years and above in this order (1-M): Oldest male through youngest male, followed by oldest female through youngest female.
   - Marital Status: Write Married, Widow(er), Divorced, Separated, Deserted, Never Married, Irregular Union, Firm Negotiations for Marriage.
   - Comment: Establish number of wives/husbands/irregular unions and where resident.
   - Description of Occupation: Write Pre-school, At school, Not at school, Household duties, Informal employment, Unemployed, Pensioner, if not wage or salary employed.
     If wage or salary employed, describe job and indicate with a [X] in the place provided.

2. Include individuals who join the household in Malukazi at week-ends - this might even include the head of household.

3. Identify, from the above, those members of the household who usually absent themselves at week-ends. Note where they go and for what reasons.

4. Identify regular visitors to the household in Malukazi: Note where they come from, reason for visit and if possible, how long they usually stay.

SECTION 1.

INDIVIDUAL INFORMATION FOR MEMBERS OF THE SAMPLE HOUSEHOLD. (IDENTIFY RESPONDENT: ✓)

Relationship to Head of H.H.	Sex	Age	A.No. T.N.	Std.of Education	Marital Status	Comment	Description of Occupation (school,etc.)	X	Place employed At school	Born	No. of yrs.in town	U.S.
Head of H.H.												

Section 2: General Household Information.

Identify Respondent:

1. When did the household come to Malukazi? Year:_____ Month: _____

2. Short history of residence in Malukazi:

---

3. Where did various members of household come from immediately before moving into Malukazi?

Members:	Place:
_____	_____
_____	_____
_____	_____

4. Who "owns" land that dwelling is built on?

---

5. Who "owns" house that household inhabits?

---

6. IF 1st Occupier of Shack:

6.1. Who built the house: (Specify: members of household, landlord, hired labour, help of relatives, local work party or any other source of labour.)

6.2. If house was built by a variety of people: Who built which section (e.g. Head and family built walls, hired man built roof)?

Who built	Part of House
_____	_____
_____	_____
_____	_____
_____	_____

6.3. When (what time of day and when, week-day/week-end) was the house built? (When: day-time - week-days; evenings - week-days; week-end and public holidays):

When built	Part of House
_____	_____
_____	_____
_____	_____

6.4. How long did it take to build house? (Attempt a general estimate indicating whether construction was done on a full-time or part-time basis, or combination.)

	Time (Days/Hours)
Full-time:	_____
Part-time:	_____

6.5. IF Occupiers succeeded others into the house indicate this here by a cross (X) [ ]

Delete Question 6 with a stroke; then attempt to get the information on the house for Questions 6.1. to 6.4. if possible.

7. Has house been extended since household moved in?

YES | NO (0)

What has been added? _____

_____

Who built the extensions? _____

_____

8. How much rent is paid for land? R_____per week/month/year (0)

9. How much rent is paid for house? R_____per week/month/year (0)

10. Where does household get its water? _____

_____

11. How is "garbage" disposed of? _____

_____

12. Is there a latrine used by the household?

YES	NO	(0)

Yes: Type: _____
Distance from house: _____
Share with (No. of households): _____

No: How do people manage? _____

13. Where do members of the household wash/bath?

Inside	Outside

What is used? _____
What time of day? _____
Share with: No. of households: _____

14. Who does shopping for:
Clothing? _____ Where? _____
"Perishables"? _____ Where? _____
"Dry groceries"? _____ Where? _____

15. How easy is it to get medical attention in Malukazi?

_____
_____
_____

16. Number of rooms occupied: _____ Whole/Part of house.
Are more people expected to join the household?

YES	NO	(0)

If yes: How many? _____

17. Is there any intention to build on to house?

YES	NO	(0)

If yes: What extensions?

_____
_____
_____
_____

18. If the household moves to a place where houses are provided or where there is an opportunity to build a better house with more space, water, proper roads, etc., will everyone in the household go to one house or will more than one house be needed to accommodate all the members?

Record response:_____

_____

_____

_____

_____

_____

_____

_____

Section 3: Head of Household

Confirm:

Sex	Age	Education	Marital Status	Other Spouses	Occupation	Place Employed	Born and No. of yrs. in Town

1. Date of arrival in Malukazi: Year? _____ Month? _____

History of residential mobility in Malukazi: (e.g. First lodger then own house with family.)

---

2. Why did you come to live at Malukazi?

---

3. Where else could you have gone to live?

---

4. How did you learn (come to know) about the possibility of living at Malukazi?

---

5. Who did you approach for a plot/house in Malukazi?

---

6. Who allocated this plot/house to you?

---

7. Where did you live immediately before coming to Malukazi?

8.1. Why did you leave (previous residence) to come to Malukazi?

8.2. Why are you not living in a township house?

---

9. History of Mobility:

Confirm Respondent born: _____(19...)

Moved to	Date	Residential Status	Reason for Move
1st			
2nd			
3rd			
4th			
5th			

Link until place of residence before Malukazi is reached.

10. If employed. Do you intend to continue working in town?

YES	NO	(0)

If unemployed. Do you intend to continue living in town?

YES	NO	(0)

11. How do you travel to work?

---

12. How much does it cost you? R _____per day/week/month (O)

13. If you leave Malukazi where will you go?

---

14. If you could choose, where would you like to go and live?

---

15. Are there any reasons why you might want to leave Malukazi?
1st response:_____

2nd response:_____

---

16. Do you have a "home" in the rural area? YES/NO (O)

If yes: Who looks after it for you? _____

17. Do you have rights to land in the rural area? YES/NO (O)
Do you have stock (cattle) in the rural area? YES/NO (O)
Do you have a wife/husband in the rural area? YES/NO (O)
Do you send money to the rural area? YES/NO (O)
Do you visit your kin in the rural area? YES/NO (O)
If yes: How often? _____

---

18. Who is dependent on you for food or shelter or schooling etc., living elsewhere?

Relationship to Head	Place of Residence	Money paid for

19. If you had a bigger house who would come and live with you?

Relationship to Head	Where would they come from?
----------	----------
----------	----------
----------	----------
----------	----------

20. Does anybody living elsewhere contribute anything to the welfare of anybody/child in this household?

Relationship to Head	Receiver of Contribution	Residence of Contributor
----------	----------	----------
----------	----------	----------
----------	----------	----------

21. Are there any "Big Men" in Malukazi?

Who	Description of Status
----------	----------
----------	----------
----------	----------

22. Does your "landlord" take any interest in the welfare of his tenants?

Example: ----------

Example: ----------

23. Do you know of any "committees" that have developed in Malukazi to help people with their problems?

Which Committees?	Who belongs?
----------	----------
----------	----------
----------	----------

24. Which part of Malukazi is the best to live in?

Name: ---------- Rough Map ref. Section: -------

Why is this the best part?

What is the area of Malukazi called where you live?

---

25. What are the "GOOD things" about living in Malukazi?

LIST: ---

---

26. What are the "BAD things" about living in Malukazi?

LIST: ---

---

27. What things could be put right in Malukazi?

LIST: ---

Who could do this? ---

---

28. Is there any particular advantage to you in living at Malukazi that you would not get living anywhere else?

29.1. Which is better (0)

A. To occupy a ready built house (four rooms) that can only be rented in town?

B. To "own" (buy) a plot of land in town and slowly build a house?

Comment: ---

29.2. Which is better: (0)

A. To pay a lot of money for a big house in a township (say five rooms)?

B. To pay much less money for a small house in a township (say two rooms)?

Comment: _____

_____

29.3. Which is better: (0)

A. To have a house in a "nice" neighbourhood but where the house cannot be extended?

B. To have a house in a "poor" neighbourhood but where you can build on if you want to?

Comment: _____

_____

30.1. Which is better: (0)

A. To have a "nice" house but be a long way from transport (roads, buses, trains, etc.)?

B. To have any house you can get (a "poorer" house) that is near to transport?

Comment: _____

_____

30.2. Which is better: (0)

A. To have a "nice" house but pay a lot for transport to work and to the "city"?

B. To have a "poorer" house but pay little for transport to work and to the "city"?

Comment: _____

_____

31. If you already had a house, which is the most important "CONVENIENCE" - the one you would like to have before the others: (0)
(Indicate a second choice by a tick on right.)

1. Proper roads?
2. Running water in the house?
3. Electricity in the house?
4. Water borne sewerage?
5. Other (specify)? /.....

Comment: _____

_____

_____

32. You are living in town: what is the most important "COMMUNITY FACILITY" you would like: (0)
(Indicate a second choice by a tick on right.)

1. Community Centre?
2. Crèche?
3. Beerhall?
4. Clinic?
5. Other (specify)? .....

Comment: _____

_____

33. Which is the most important "SERVICE" to be near when living in town: (0)
(Indicate second choice with a tick on right.)

1. Shops?
2. Buses/transport?
3. Schools?
4. Police station?
5. Other (specify)? .....

Comment: _____

_____

34. If you were making up your mind to live in one of two places, what would be the most important "ASPECT" of the living place that would "INFLUENCE YOUR DECISION": (0)
(Indicate second choice with a tick on right.)

1. Size and cost of house? (Probe)
2. House near to cheap transport?
3. Good household CONVENIENCES (water, electricity, toilets, etc.)?
4. Good COMMUNITY FACILITIES (crèche, beerhall, clinic, etc.)?
5. Good SERVICES (shops, schools, buses, etc.)?

Comment: _____

_____

_____

_____

35.

Head of Household's Income (or for Section 4):	Income Received Per week or month	R	C
A. From Employment:			
Formal sector occupation	.....	.....	....
Informal sector occupation	.....	.....	....
B. As Contributions:			
For lodging	.....	.....	....
For board	.....	.....	....
For support of kin	.....	.....	....
C. In kind: (Estimate cash value)			
Specify:	.....	.....	....

36. Taking all things into account, what sort of housing do you think would suit you best? (O)
(Indicate second choice with a tick on right.)

1. Live in present shack.
2. Live in present shack and be allowed to improve it yourself with the "AUTHORITIES" providing building loan, water, streets, sewerage, etc.
3. Be allowed to build your own dwelling in another area in Durban with authorities providing land, building loan, materials, water, lights, sewerage, streets, etc.
4. Live in a township house completely built by the authorities like at Umlazi.
5. Live in a township house partly built by the authorities but with your being allowed to build extra rooms.
6. Other (specify):_____

_____

_____

Comment:_____

_____

_____

37.1. How much money (maximum) would you be prepared to pay to house your/this household (per month)?

R _____ _____

_____

37.2. How much money do you think you SHOULD pay/should be paid to get a (proper) house for your/this household (per month)?

R _____ _____

_____

Section 4: Randomly Selected Adult (if not household head).

Relationship to Head of Household: ..... Adult No. .....
(Respondent selected according to rules for use of Kish's Tables.)

The content of Section 4 is a duplication of Section 3 administered to randomly selected adults in households and is not shown here again. (See Appendix A for a discussion on this section of the questionnaire schedule.)

APPENDIX E

Specimen: Physical Survey Schedule

UNIVERSITY OF NATAL
DEPARTMENT OF ARCHITECTURE
DEPARTMENT OF ECONOMICS

MALUKAZI PROJECT

PHYSICAL SURVEY AND QUESTIONNAIRE : 1977

All information will be treated as confidential

The information will be used solely for statistical purposes;
individual returns are required to arrive at totals for this particular community and will not disclose the affairs of any individuals or families.

AREA NUMBER	UNIT NUMBER	OFFICE REF. Nº

Interviewer's name _____

Time survey started _____ Time completed _____

Date _____ Call back, time and date _____

For Office Use

Survey No.

Questionnaire cross Ref. No.

Checked by _____

Edited by _____

Coded by _____

Instructions to interviewer

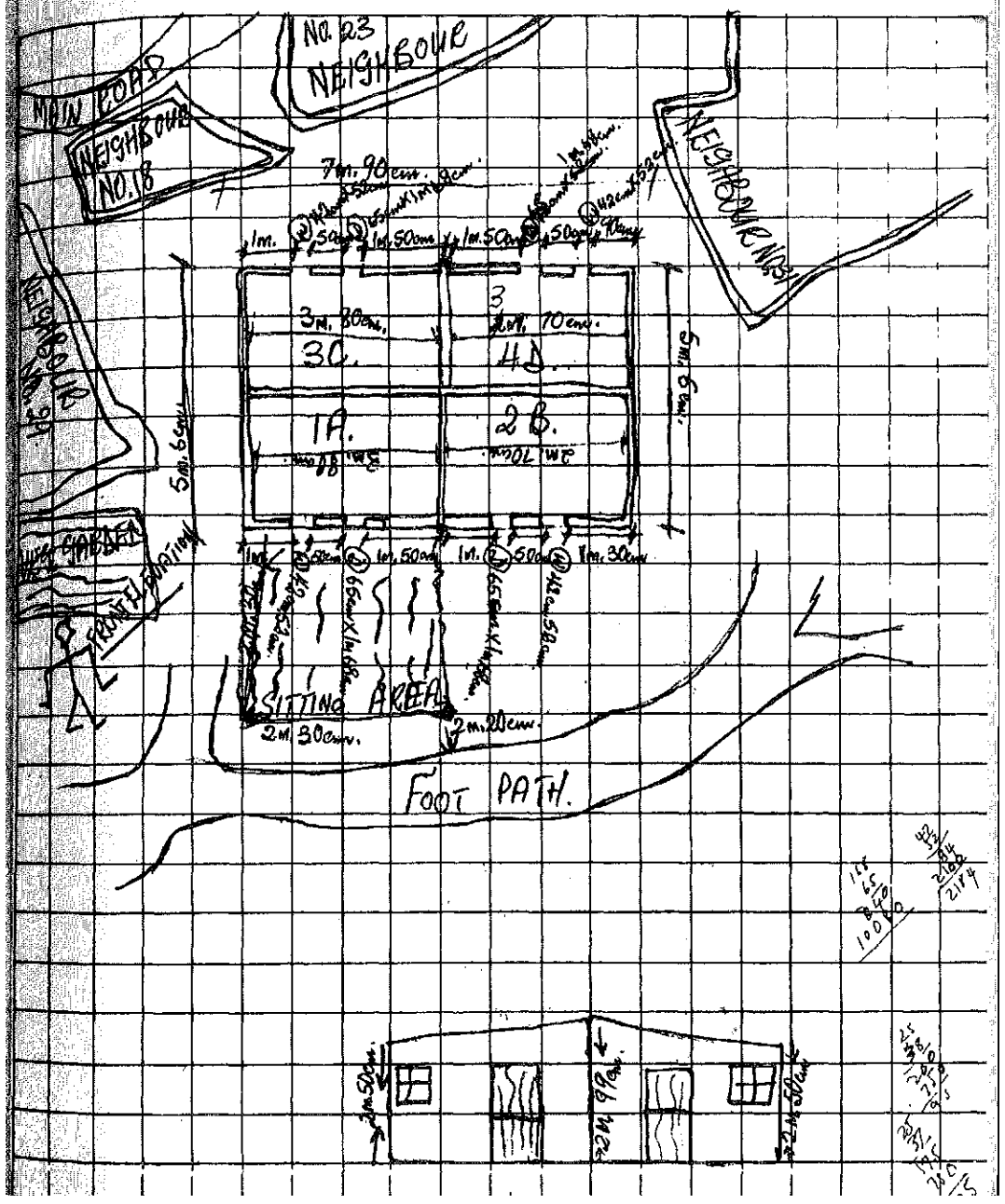
PART 1. PHYSICAL SURVEY

Complete one for each unit (house)

INTERVIEWER'S NAME

HOUSE	AREA NUMBER	HOUSE NUMBER
	3	27

DATE _____ TIME STARTED _____ TIME COMPLETED _____



INTERVIEWER'S NAME _____ Date _____

1.0 Check list of information to be recorded on PLAN

1.1 Sketch the PLAN of the house, write in outside sizes of house

1.2 Show position of all OUTSIDE DOORS and write D

1.3 Show position of all WINDOWS and write W

1.4 Give SIZE of all windows

1.5 Show position of all INSIDE OPENINGS

1.6 If inside opening has a DOOR write D

1.7 Number each room on the plan

1.8 If there is a VERANDAH draw on plan and write V

1.9 Find out if the house was built all at once

If YES, tick here

If NO, use RED pen and put a line around that part of the house that was built first

use BLUE pen to show that part of house built second (if this applies)

1.10 On plan show distance to all other houses from the outside walls

1.11 On plan show any other information such as

WATER TANKS

GARDENS used by people who live in house

OUTSIDE sitting areas

CAR parking space

ANY OTHER USEFUL information

1.12 Show the position of the nearest footpath or road and write in this distance in metres to the house.

1.13 Draw an elevation of the house to show the pitch of the roof

1.14 Show the roof height(s) on the elevation.

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2.0 Fully describe the materials used in the house

2.1 WALLS

2.2 ROOF

2.3 FLOOR

2.4 CEILINGS If there is a ceiling on the inside, describe

2.5 DOORS

2.6 WINDOWS What is the window frame made of?

Is glass used in the window Yes ☐
No ☐

If NO, describe

2.7 Are Outside walls painted Yes ☐
No ☐

2.8 Are Inside walls painted Yes ☐
No ☐

2.9 Is there more than one family who stays in the house? Yes ☐ No ☐

3.0 If YES, write down the following information

Code	Number of rooms occupied by each family	No. of persons in each family
A		
B		
C		

4.0 Write down Code on appropriate rooms on plan

PART 2. QUESTIONNAIRE

AREA NUMBER	UNIT NUMBER	*FAMILY CODE	OFFICE REF N°

* "Family Code" to be filled in only if there is more than one family living in the same house, e.g., A, B, C.

If there is more than one family living in the same house, complete a separate questionnaire for each.

1.0 How long have you lived in Malukazi? _____

2.0 How long have you lived in this house? _____

3.0 If you have lived in another house in Malukazi, did you

stay with friends

stay with family

rent a room(s)

rent another house

build another house

other (specify

_____

_____

4.0 Why did you move to this house? _____

_____

_____

5.0 (i) Do you want to add extra rooms to this house?

Yes ☐
No ☐ (tick)

If YES, describe below

_____

_____

_____

(ii) Who will build these extra rooms ? _____

(iii) What will it cost (Rands) ? R_____

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ROOM SCHEDULE

Room number as per plan	USAGE OF EACH ROOM (tick)							SLEEPING ARRANGEMENT							TOTAL FOR EACH ROOM	NO. OF BEDS IN EACH ROOM
	Sleeping	Cooking	Washing	Sitting	Eating	Bathing	Other Use (specify)	Head	Wife	Other Adults		Children				
										Male	Female	Male	Female			

7.0 *Was the house built by the present occupant, either by himself or with the assistance of his family or someone else?*

☐ Yes
☐ No

8.0 If YES, complete Question 9

If NO, complete Question 10.

9.0 To be completed ONLY if answer to Question 7 is YES

(i) How were the following built?

	built it yourself (tick)	built by a member of your family (tick)	paid someone else (tick)	Other (specify)	COSTS (Rands)			When was it built?		
					Materials	Labour	Cartage	week days	after work	weekends
Walls										
Plastering										
Floors										
Roof										

(ii) Can you estimate the total cost of your house R _____

(iii) Ask about windows and doors

	New(tick)	Secondhand(tick)	Scrap (tick)	Cost(Rands)	Where did you get them? (write in)
Windows					
Outside Doors					
Inside Doors					

(iv) While the house was being built, where did you stay?
(Describe fully) _____

_____

_____

Was this: on your own? 1 ☐
with your family 2 ☐ (tick)

(v) How long did it take to build your house? _____

(vi) Do you sub-let rooms? Yes ☐
No ☐

(vii) What rent do you receive? R _____

10.0 To be completed ONLY if answer to Question 7 was NO

(i) Who owns the house? _____

(ii) Where does he stay? _____

(iii) Who built the house? _____

(iv) When was it built? _____

(v) What rent do you pay? R_____

(vi) Do you sub-let rooms? Yes ☐ No ☐

(vii) If YES, what rent do you receive? R_____

(viii) Do you know how much it cost to build this house? ☐ Yes ☐ No

If YES, how much? R_____

APPENDIX F

Appended Tables

Table I Number of People per Sample Dwelling (Grouped Data).

Number of People	Sample Dwellings	
	n	%
1 - 3	36	12,9
4 - 6	81	29,1
7 - 9	77	27,7
10 - 12	46	16,6
13 - 15	20	7,2
16 - 18	6	2,2
19 - 21	4	1,4
29,5 ($\bar{x}$)	8	2,9
Total	278	100,0

$\bar{x} = 8,3$

Table II Age/Sex Distribution in Malukazi.

Age in Years	Males		Females		Total	
	N	%	N	%	N	%
0 - 4	490	7,0	654	9,2	1144	8,1
5 - 9	741	10,5	768	10,8	1509	10,6
10 - 14	640	9,1	729	10,3	1369	9,7
15 - 19	721	10,3	763	10,8	1484	10,5
20 - 24	654	9,3	668	9,4	1322	9,4
25 - 29	892	12,6	854	12,1	1746	12,4
30 - 34	770	11,0	662	9,4	1432	10,1
35 - 39	631	8,9	618	8,7	1249	8,9
40 - 44	519	7,4	515	7,3	1034	7,3
45 - 49	451	6,4	279	3,9	730	5,2
50 - 54	152	2,2	151	2,1	303	2,2
55 - 59	195	2,8	174	2,5	369	2,6
60 - 64	80	1,1	68	1,0	148	1,1
65 - 69	39	0,6	126	1,8	165	1,2
70 plus	54	0,8	51	0,7	105	0,7
Total	7029	100,0	7080	100,0	14109*	100,0

* No information for seven cases.

Table III Rationalization of New and Old Standards of Education in Terms of Number of Years of Schooling.

Number of Years of Schooling	New Standard	Old Standard
0	Nil	Nil
1 - 2	Sub A and B	Sub A and B
3 - 5	Std 1 - 3	Std 1 - 3
6 - 8	Std 4 - 6	Std 4 - 6
9	Form I	Std 7 (J.C. I)
10	Form II	Std 8 (J.C. 2)
11	Form III	Std 9 (J.C. 3)
12 - 13	Forms IV and V	Std 10 (2 yrs. M)

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