HOUSE BUILDING IN SITE AND SERVICE SCHEMES:
some observations.

Paper for limited circulation

Date: June 1977
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Appendix 1 : Siteplans Langa Langa Phase II

Appendix 2 : Siteplans Huruma Estate.
This paper sets out a few observations about house building, which can be made after having interviewed house owners in two site and service schemes. The observations deal in particular with the cost of materials and of labour, with self-help and the use of skilled and unskilled labour and with the need among plot holders for information and advice. It is stressed here that the paper has a limited scope, containing insights, which reflect only the situation of the people who were interviewed. In each scheme about 10 house owners were interviewed.

The two schemes, Huruma Estate in Nairobi and Langa Langa Phase II in Nakuru, which differ from each other in important respects, will first be described. One of the intriguing differences noted between the two groups of house owners was that those in Huruma found it almost impossible to tell us exactly the amount of materials used, while those in Langa Langa could remember this very well. A possible explanation for this difference will be discussed in the last section of this paper. It centres on differences in income level and type of employment between the two groups of plot holders, and on the house design.

For various reasons the interviewed house owners are not representative of all house owners in these schemes. In Huruma Estate the majority of plot holders are organized in building groups, and are building houses for each other. Since we were interested in knowing how individuals manage to build alone, only those few people were interviewed who are not members of building groups, i.e. only 14 out of 307 plot holders.

In Langa Langa phase II different types of development have taken place: some house owners have built one double house on their plots, some built only one single house, and others completed both the single and double houses on their plots. A start was made with interviewing those people who had at least completed the single house. Although plot holders could remember the amount of materials used and their costs quite well, there was usually one item or other about which their memory failed. As a result, one aim of the project, i.e. to calculate the actual cost of the various building elements, was impossible to achieve. This was an important reason for discontinuing the interviews.
In addition, interviews were held with staff members of the National Christian Council of Kenya who have responsibility for supervising Huruma Estate; and with the Housing and Estate Officer of Naukuru.

The observations made about individual house building in the two schemes will be discussed together. Unless specific distinction is made between Langa Langa and Huruma, the observations refer to both schemes. Plans of the two schemes are attached to this paper.

2. Description of the schemes

2.1 Huruma Estate

The history of Huruma Estate goes back to January 1970 when a squatter settlement not far from the city centre, called Kaburini, was burnt down. The people were "temporarily" moved to Mji wa Huruma near Karura Forest, where the Salvation Army runs a rehabilitation centre for the disabled. The former squatters stayed there for over two years. In May 1972 Nairobi City Council (N.C.C.) together with National Christian Council of Kenya (N.C.C.K.) started a site and service scheme to resettle ex-Kaburini people. Huruma Estate is located in Nairobi east, is adjacent to Mathare Resettlement Scheme and stretches from Huruma Site and Service Scheme (a National Housing Corporation project) to Kariobangi market on Outer Ring Road. There are 507 plots, of which 307 are on the north side of the road, reserved only for ex-Kaburini people. The 200 plots on the south side are mostly for ex-Kibera and ex-Mathare Valley people. On this side a certain number of wealthy businessmen and city politicians have also obtained plots. Because of their better financial position, they were able to develop their plots more quickly than the people who were genuinely to be resettled. Only ex-Kaburini people on the north side of the road were interviewed.

Huruma Estate is a joint venture between N.C.C. and N.C.C.K. The City Council is responsible for the technical aspects, i.e. building the wet core on individual plots as well as public toilets and showers on the oldest section of the scheme; for providing building plans and giving technical assistance with house construction. The N.C.C.K. is responsible for the administrative, financial and social aspects. The social aspects entail the formation and encouragement of building groups among plot holders. Financial loans (Shs.7,500/-, interest free) are issued to individual...
types of houses

There are two types of houses in Huruma Estate. The first plan was withdrawn by the Council after it had been in use for about one year. This building consists of eight rooms. Residents use public toilets, showers and water taps. This plan featured back-to-back rooms and had a plot coverage of almost 75%. Moreover, the use of temporary materials, such as mud bricks was allowed. These three features were after all unacceptable to the Council.

The new plan, introduced in 1975, consisted of four rooms around two sides of a plot, with toilet, shower and water on the same plot. Most house owners built unofficially another set of two rooms along the third side. All toilet/shower blocks were at the same time installed by the City Council, before any house building activities had started.

The cost of building two rooms was Shs.7,500/- in 1975. The rent for one room with the use of public facilities was in January 1977 between Shs.100/- and Shs.150/- p.m. The rent for one room with use of facilities on the plot was between Shs.200/- and Shs.220/- p.m.

Some of the interviewed house owners had built according to the old plan, others had used the new plan. Since 1974 plotholders were allowed to live on their plots in temporary houses of wood or cardboard. Their presence on the plots facilitated and quickened house construction, according to the N.C.C.K., since the waste of time and money spent on transport, was eliminated.

employment

Those interviewed were mainly self-employed: owners of small shops in Huruma, or market traders; one was a taxi driver, but his car had broken down and he too had turned to trading. The income of all these people was below Shs.500/- p.m. All had lived in Nairobi between 10 and 20 years. Only one had land in the home village.
2.2 **Langa Langa Phase II**

Description Langa Langa II is located in the southern part of Nakuru, which has been set aside for low-cost housing. It is adjacent to Langa Langa phase I. Both Langa Langa I and II have been planned and implemented by Nakuru Municipal Council with loan funds from the N.H.C. Langa Langa II consists of 96 plots of 15 by 36 metres. The scheme is laid out in six rows of house type plots. The house plan is that of a conventional one-family unit of three rooms with internal toilet and shower. Each plot is large enough to accommodate three of such units, i.e. one single unit and two semi-detached units. All are built and owned by one plot holder. It was the intention of Nakuru Municipal Council that the plot holder would occupy the single unit, while renting out the two semi-detached units. In practice, however, most plot holders live elsewhere in Nakuru in cheaper accommodation. Each plot has its own septic tank to be installed by the plot holder once he starts building. Also the water connection to his private plot must be made by the plot holder. Plots were allocated in 1971. Title deeds were issued almost immediately with plot allocation, so as to enable plot holders to obtain commercial loans. The council did not make loans available.

Nine plot holders who had completed at least the single unit, were interviewed in this scheme. Most of the interviewed house owners, were employed by large, institutional employers (Nakuru Municipal Council, East African Railways Corporation, Marshalls (EA) Ltd.). Their incomes ranged from Shs.400/- to Shs.1,200/- p.m. Almost all of these house owners were living in institutional housing or cheap rental accommodation elsewhere in town. The rent for a one family unit varied in January 1977 between Shs.350/- and Shs.400/-.

Complaints were voiced by house owners.

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N.H.C.* National Housing Corporation.
<table>
<thead>
<tr>
<th>Huruma</th>
<th>Langa Langa Phase II</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>start of scheme</strong></td>
<td>1972</td>
</tr>
<tr>
<td><strong>responsible organization</strong></td>
<td>Nairobi City Council and National Christian Council of Kenya</td>
</tr>
<tr>
<td>land use</td>
<td>residential/commercial</td>
</tr>
<tr>
<td>plot size</td>
<td>12 by 10.5 metres</td>
</tr>
<tr>
<td>housetype</td>
<td>lodger-type single room accommodation</td>
</tr>
<tr>
<td>plot use</td>
<td>4, 6, or 8 single rooms</td>
</tr>
<tr>
<td>building costs</td>
<td>Shs.15,000/- to Shs.20,000/-</td>
</tr>
<tr>
<td>loans</td>
<td>Shs.7,500/- from NCCK* for construction of 2 rooms. Toilets, showers and roads built by NCC* free of charge.</td>
</tr>
<tr>
<td>ownership</td>
<td>majority are owner-occupiers.</td>
</tr>
<tr>
<td>employment</td>
<td>self-employed or unskilled-employed</td>
</tr>
<tr>
<td>income</td>
<td>less than Shs.500/- p.m.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Langa Langa Phase II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>start of scheme</strong></td>
<td>1972</td>
</tr>
<tr>
<td><strong>responsible organization</strong></td>
<td>Nakuru Municipal Council</td>
</tr>
<tr>
<td>land use</td>
<td>residential</td>
</tr>
<tr>
<td>plot size</td>
<td>app.15 by 36 metres</td>
</tr>
<tr>
<td>housetype</td>
<td>self-contained family unit, consisting of 3 rooms.</td>
</tr>
<tr>
<td>plot use</td>
<td>3 family units (each self-contained).</td>
</tr>
<tr>
<td>building costs</td>
<td>Shs.40,000/- to Shs.50,000/-</td>
</tr>
<tr>
<td>loans</td>
<td>No loan for house. Loan of Shs.1,571/- for construction of roads and water mains by NMC*. Toilet and shower installed by owner.</td>
</tr>
<tr>
<td>ownership</td>
<td>majority are absentee owners.</td>
</tr>
<tr>
<td>employment</td>
<td>skilled, clerical; employed.</td>
</tr>
<tr>
<td>income</td>
<td>Shs.400/- to Shs.1200/- p.m.</td>
</tr>
</tbody>
</table>

**Note:** * NCCK : National Christian Council of Kenya  
NCC : Nairobi City Council  
NMC : Nakuru Municipal Council
about the oversupply of this type of family-unit in Nakuru, leading to long vacancies and forcing the rents downwards.

2.3 Comparison of schemes

Langa Langa

The appearance of the two schemes, Langa Langa and Huruma, is totally different. Langa Langa is a quiet, clean well-maintained and orderly estate. The house types are conventional in the sense that several other housing schemes of Nakuru Municipal Council used the same type. The cost of building a single three-roomed house with all modern facilities like electricity, and running water inside the house, is between Shs.40,000/- and Shs.50,000/- in 1976/77. Outside Langa Langa, along the main road to town, Kanu Street, are properly licensed shops and workshops. No business may be carried out inside the scheme.

Huruma

Huruma is a much more lively estate. There is a great variety of structures, even though all plotholders have to use the same type plans. Since the houses can be occupied as soon as the minimum of two rooms are complete, the structures can remain for a long time in different stages of completion. It may cost a plotowner, between Shs.15,000/- and Shs.20,000/- in 1977 to complete his house. There are still many temporary structures in the Estate, made of wood or cardboard, whose owners are waiting till either the building group or they themselves acquire the funds to build all the permanent houses. Several people have converted part of their houses into small shops or workshops, while also small eating places in temporary structures have sprung up. Permission from the Village Chairman is essential for opening any type of business.

3. Cost of building the houses

3.1 Building materials

cement and corr.

The prices of cement and corrugated iron sheets are officially fixed. The only rebate possible is on transport costs. If large quantities are bought at a time, the agent may reduce the cost of transport or bring the material to the site free of charge. Those who buy small quantities have to look for their own means of transport, by bus, matatu (taxi) handcart or bike, depending on how much they want to spend.
Table II: Cost of building materials as paid by plotholders in Langa Langa II Nakuru

<table>
<thead>
<tr>
<th>Material</th>
<th>1972</th>
<th>1974</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>cement</td>
<td>13.50</td>
<td>23.00</td>
<td>p. pkt. excl. transport</td>
</tr>
<tr>
<td>c.i. sheets</td>
<td>1.98*</td>
<td>3.68*</td>
<td>p. ft. Gauge 28; 8/3&quot; corr.</td>
</tr>
<tr>
<td>stone blocks</td>
<td>200.00</td>
<td>320.00</td>
<td>per lorry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>325.00</td>
<td></td>
</tr>
<tr>
<td>crushed stones</td>
<td>150.00</td>
<td>180.00</td>
<td>per lorry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>200.00</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>60.00</td>
<td>80.00</td>
<td>per lorry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120.00</td>
<td></td>
</tr>
</tbody>
</table>

Table III: Cost of building materials as paid by plotholders in Huruma Estate in Nairobi

<table>
<thead>
<tr>
<th>Material</th>
<th>1972</th>
<th>1975</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>cement</td>
<td>14.00</td>
<td>25.40</td>
<td>p. pkt./excl. transport</td>
</tr>
<tr>
<td>c.i. sheets</td>
<td>1.96*</td>
<td>3.95*</td>
<td>p. ft. Gauge 28; 8/3&quot; corr.</td>
</tr>
<tr>
<td>stone blocks</td>
<td>1.20</td>
<td>1.50</td>
<td>per block</td>
</tr>
<tr>
<td></td>
<td>1.30</td>
<td>1.60</td>
<td></td>
</tr>
<tr>
<td>crushed stones</td>
<td>40.00</td>
<td>50.00</td>
<td>per lorry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60.00</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>80.00</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>100.00</td>
<td>240.00</td>
<td>per lorry</td>
</tr>
<tr>
<td></td>
<td>180.00</td>
<td>260.00</td>
<td></td>
</tr>
</tbody>
</table>

* Information given by Mabati Ltd., information given by plotholders varied too much (different gauges, different sheet sizes) to be useful for comparative purposes.
stone, sand A somewhat greater variation in prices is possible with respect to stones, sand and timber. Businessmen bring these materials from nearby forests and quarries to their yards in town from where they sell to customers. The price range of a lorry load, which includes transport to site, has been agreed upon by the businessmen among themselves. The individual customer finds therefore that, although there is room for bargaining, the discount he can get does not vary much from one trader to another. It is interesting to note the great differences in prices of sand and crushed stones between Huruma and Langa Langa. They are due to the differences in distance between source of materials and building site. A stone quarry for example is very near Huruma, while sand has to be transported from Machakos District which is 55 KMS. away.

Joinery

The cost of windows and doors shows the greatest variation. First of all there is a greater range of suppliers, from traders in the centre of town selling factory-made products, to small workshops in markets which do not necessarily use first class materials and have lower labour costs. Further price variations are due to different circumstances, such as the customer may provide his own wood or glass (from a cheap source); the door frame or glass panels may or may not be included in the price, even if supplied by one trader; fixing of doors and windows may be either done by the fundi who made them or by those building the walls at no extra cost or by a specially employed fundi; windows or doors may be more easily given as a gift or at a very reduced price than any other building element.

cheaper materials

It was only the Huruma house owners who mentioned that they had sometimes gone to great lengths to get cheaper materials. Having less income than the Langa Langa owners, Huruma houseowners just had to be more resourceful to make their meagre funds stretch farther. One person mentioned he had collected discarded blocks by handcart from large building sites; another bought the remaining blocks at a low price from neighbours who either had finished building or who needed money urgently for other purposes. Lorry loads of sand or stones were sometimes shared by friends neither of whom could afford a whole lorry alone. Timber was sometimes cut and transported from Karura Forest by the house-owner himself.
cost of completing "shell"

Since ordinary citizens are usually unaware of the complications of house building, many plot holders in Langa Langa II were surprised and disappointed to experience that the external shell of a house constitutes only a small part of the total building cost. They found that the cost of plumbing, wiring, sanitation, kitchen sink, painting and making the connection to the water main formed more than two thirds of total cost. This is the case in Langa Langa II. In Huruma these internal cost are much less, due to the lower standards required and the construction of toilet and shower by Council. The point to stress here is not so much the relatively high cost of finishing the house, but rather that people were not informed about how much they would have to spend on the various parts of the house.

3.2. Employment of labour

If the labour cost element in total building cost were to be compared, a large variation within one scheme would be found. One obvious cause is the increase in wages over the years. Fundi's wages have, however, increased more between 1972 and 1975 than labourer's wages over the same period. In Langa Langa II fundi's wages were raised from Shs.15/- to Shs.25/- per day; while those of labourers were raised only from Shs.6/- to Shs.8/- per day. In Huruma fundi's wages are about the same as in Langa Langa, but the labourer's were higher, i.e. Shs.10/- in 1975. A second reason for variation is the employment of small contractors. For most of the construction a plot holder acts as his own contractor: employing fundi and labourers per day or per week for as long as he has money to pay them. For certain tasks, however, a small contractor may be engaged who organizes and pays his own labourers. For an agreed sum a contractor may undertake to make the roof, to fix all windows and doors, to build or plaster one room, .. /10..
or even to build the whole house with the materials bought by the plotholder.

Table IV : Labour per day as paid by plotholders in Langa Langa and Huruma. (KShs.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fundi</th>
<th>Labourer</th>
<th>Fundi</th>
<th>Labourer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>12.00</td>
<td>6.00</td>
<td>15.00</td>
<td>8.00</td>
</tr>
<tr>
<td>1974</td>
<td>25.00</td>
<td>8.00</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>1975</td>
<td>-</td>
<td>-</td>
<td>25.00</td>
<td>10.00</td>
</tr>
</tbody>
</table>

Finally, there is the plotholder who engages a contractor to build the whole house. The contractor pays his own labour as well as purchases all the materials. This is the least frequent arrangement. Another reason for variation in labour cost lies in the manual self-help element. A few people admitted after insistent questioning that they themselves had worked on the house. They had done so when they had some spare time and when easy jobs had to be performed. The few houseowners who did take part in construction, did so as labourers: carrying water, mixing cement or carrying blocks. All other work was invariably done by fundi and employed labourers. Lack of time was usually given as the reason for not engaging in more manual self-help work. Earning an income was considered of greater importance. And this makes sense for people earning very low incomes, such as the residents of Huruma. Economically it made more sense to earn at least Shs.10/- per day, rather than save Shs.8/- by doing manual labour and risking to disappoint regular customers at the same time. This argument is even more true for plotholders with higher incomes, such as those in Langa Langa. Consequently houseowners in Huruma did not report substantially more manual self-help than those in Langa Langa II, although they are in different income groups. It should be noted that the building groups in Huruma Estate do not engage in this form of self-help either. They employ and pay fundi's and labourers, even if they are members of a building group.
The few plot holders who had chosen to employ a large-scale contractor had done so, because they were not able to supervise the workers themselves. The need for supervision was stressed by many people. There was suspicion that if left alone, those employed would not work hard enough, that they would steal material or use it wastefully. Because of this potential tension between employer and employee, some people thought it better not to employ friends who were fundis: it would kill friendship.

3.3. Expenditure and return

cost of gradual building

The sharp rise in building costs over the last few years has hit most severely the builder who has to build slowly, i.e. the builder who has to rely on monthly income from whatever source, for buying some materials and employing fundis for a short period. Budgeting, or the considered allocation of resources, can suddenly become a meaningless exercise when faced with unexpected price increases! Since wages increased less than building costs, less resources became available for house building. This slowed down the completion of houses, which in turn meant delays in getting incomes from houses. The plot owner with less resources is, therefore, hit twice: he has to pay more and has to wait longer for a return on investment, than the plot owner who has had the means to complete one or two buildings quickly at the same time of low building costs.

3.4. Technical advice

In both Humauna and Langa Langa II a site foreman was stationed on the scheme to help with essential tasks (e.g. setting out) and give technical advice whenever needed. This availability of technical advice was much appreciated. House owners in both schemes however, were obviously not the right persons to ask what types of advice had been particularly useful to them, because they were not present when the work was being done and the site foreman came to supervise. Those who did mention specific helpful assistance included reading of house plans, storing and using materials in efficient ways, and making cost estimates.

4. Income sources and building process

4.1. An extra source of funds

It appears from our observations that there is a relation between type of financial resources available to a plot holder and the manner and speed with which the house...
speed with which the house is built. The crucial link in this relation seems to be the existence of an extra source of funds apart from the main source of income from employment. This extra source can take two forms, i.e. (1) a regular, though small, additional source of income; or (2) the utilization of an available lump sum. The economic situation of the plotholder determines which type of extra source exists and in this respect the two schemes studied from a contrast.

4.2 Irregularity of income, buying and building

Huruma

The interviewed plotholders in Huruma Estate are all self-employed, small-scale traders with very low-incomes, estimated to be less than Shs.500/- per month. This income covers more or less the usual needs of the household. If savings exist, they have been accumulated with small amounts and are easily exhausted when emergencies such as illness occur. In the very low-income group savings can consequently not be relied upon to completely finance house building. If house building, which requires unusual expenses over a long time, is to succeed, an unusual source of income must be created.

Several women in Huruma admitted having resorted to chang'aa brewing and selling to increase their regular incomes. Having completed their houses, they stopped the chang'aa business. One person turned to black market trading as a sideline. Yet another person obtained small "loans" from people promising each of them the same room as soon as it was ready. By receiving many deposits in this way the house owner could complete the house. He later returned some of the deposits. All the means mentioned were illegal, but they served the purpose of enabling the plotholders to obtain legal means of income. That is, the illegal means made it possible to build a house, which later provided the houseowner with a legal income from subletting. After completion of the first two rooms, the rent received from them was used towards completing the remaining ones. Obviously this was only the case if the houseowner did not live in these rooms himself. Huruma house owners had also sometimes obtained loans from friends or money lenders, (ranging between Shs.800/- to Shs.3,000/-).
irregular buying and building house type 4.3.

As the flow of income is irregular and small, so does the buying of materials and paying of funds proceed in a piecemeal manner. For example, a few packets of cement or one lorry load of stones was bought one month, a few the next month, until enough material was collected to start a wall and finish a few courses. This type of process was made possible by the Huruma house design consisting of two or three sets of two rooms which could be built independently from each other. A small investment could soon give a small return.

Predictability of income, buying and building

Langa Langa A different pattern was observed among the interviewed plot holders in Langa Langa II. Almost all were employed by large institutions, earning between Shs. 400/- and Shs. 1,200/- p.m. And most of them lived in company housing with subsidised rents. All of these plot holders reported to have savings in the Bank. To get an extra source of funds for house building the plot holders in Langa Langa II did not turn to small scale, illegal business. Instead, they tried to obtain a large sum which would enable them to make substantial building progress without too much problems.

types of extra funds loans

The extra sources mentioned included own savings (between Shs. 6,000/- and Shs. 12,000/-), sale of other property, loans from friends (between Shs. 500/- and Shs. 2,000/-) and a retirement benefit.

A special source of loans are the commercial banks. It was mentioned earlier that title deeds were issued to plot holders to enable them to get bank loans. In the first Langa Langa scheme many plot holders obtained loans large enough to construct a complete house. The security of their title deeds was enough. At the time of plot allocation in Langa Langa II lending policy of the banks had become more strict, i.e. few people could borrow large amounts on the strength of their title deeds alone. Loans were more often available for the internal finishing of the house only, whereby the already completed part of the house provided an additional form of security. It should be added that some people did not want bank loans because of the heavy repayment obligations.

...

/14...
None of the large sums raised from extra sources sufficed for the whole house. People raised such sums at different stages of construction, and used them in different ways (i.e. to buy all materials for the whole house at once or to complete a certain part of the house by paying for materials as well as for labour). When such a lump sum was exhausted, people had to rely on their main regular source of income to do the rest. The building process slowed down.

With the larger funds available and the type of house to be built (a conventional one-family unit), the plot holders were both enabled and compelled to plan for the whole house, e.g. the number of blocks needed for all walls had to be calculated; all roof sheets had to be on site, before it made sense to start with the construction of a particular part of the house. This is in contrast to the building process in Huruma where it was sufficient to make calculations for needed materials for 2 rooms only. This difference in calculating, buying and construction practice was brought about by both the economic situation of the plot holder and the type of design. This in turn affected the house owner’s knowledge about the building process.

Conclusions

What is the value of these observations which are based on a small number of interviews? The answer is that it is certain that the described variations in labour, manual self-help and financing of house building exist. It is less certain, however, how widespread these variations are and under which circumstances they occur. The following conclusions can be drawn from this paper.

- When plot holders are allowed to live on their plots in temporary structures during the period of house construction, this speeds up the construction process. No time, energy or money is wasted in travelling.

- The lodger-type house is very suitable, because 1. there is a great demand for one-room accommodation, and 2. it can allow, if properly conceived, gradual construction and soon offer small returns. (It should be noted that the National Housing Corporation has based the house designs for the present site and service scheme programme on this lodger house-type principle).
The plotholder who is compelled by his personal economic circumstances to build gradually, has to spend relatively more on his house than the better-off plotholder. This is so because the former does not receive the advantages associated with buying large quantities and has to absorb the full impact of inflation.

Financial loans may be more advantageous for the plotholder than materials loans, provided he is able to get greater value for the same money through his own efforts. Stagewise issue of such loans could be linked to the stages of building inspection.

Manual self-help in building one's own house does not occur frequently. If it occurs, the houseowner works as a labourer, not as fundi, if he is not one by profession.

Information and advisory services are badly needed. At least two types of information are needed to be given at different times and to different people.

1. Information to plotholders e.g. about the financial implications of house building; and about efficient ways of organizing the building process in terms of timing and funds.

2. Technical advice to construction workers e.g. about properties of various materials and construction techniques.

Income level as well as access to additional sources of funds influence the speed and type of building process.
SITE PLAN

North/South

Doors

Window

R Room

K Kitchen

T Toilet (w.c.)

S Shower

LANGA LANGA PHASE II
HURUMA ESTATE TYPE PLANS

HOUSE PLAN TYPE 1

Scale 1:100

HOUSE PLAN TYPE 2