A CASE OF MINIMUM-GRADE HOUSING DEVELOPMENT
THE VILLAGE LAYOUT SYSTEM
MOMBASA

UNIVERSITY OF NAIROBI
HOUSING RESEARCH AND DEVELOPMENT UNIT
A CASE OF "MINIMUM-GRADE" - DEVELOPMENT //

The paper describes a traditional way of low-cost housing development at Mombasa, using private land, local building materials and skills. The erection of houses and provision of services allows for a stagewise building and improvement process, as finance and labor becomes available. Planning and approval procedures are reduced to a minimum, thus avoiding undue stress on scarce municipal planning and administrative capacities. Therefore this approach is called "minimum-grade" - housing development.

Guido Ast, Dipl.-Ing., Dip. Trop. AA
Architect - Planner, Research Fellow
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Housing Research & Development Unit
HRDU University of Nairobi
Ag. Director: J. Egyelaar
P.O. Box 30197, Nairobi, Tel. 27441-212
Housing the Lowest Income Group

During the next months discussions will once again focus on low-cost housing strategies to be incorporated into the National Development Plan 1979-83. The critical question is how to provide access to legal housing for people, earning the minimum income of 350 KShs. or less who at present often live in illegal squatter settlements.

In the past, self help and site and service programmes have been conceived as the only answers, since subsidising of rental housing was economically unfeasible. But more than one fifth of the urban population cannot afford repayments of the present minimum site and service loan of 14,000 KShs.

Therefore, the only answer would appear to be a programme providing less than site and service, namely sites only. Such an approach, the so-called "no-grade" or "minimum-grade" development can provide an orderly layout of demarcated plots as well as spaces needed for later development of infrastructure and social facilities.

"No-grade"-development, compared to uncontrolled squatting, facilitates the gradual introduction of services without the cost and social disruption of demolition. Legal occupation of a plot, even on leasehold terms, encourages people to improve their homes and to invest in a secure future.

"Build" printed in its December 76 issue the former Permanent Secretary's paper presented to the third USAID African Conference on Housing in Nairobi. Mr. G.M. Matheka concluded his deliberations with the following remarks:

"I would like to conclude my talk by a reference to those people who cannot even afford a site and service scheme. These people, who have mainly unstable incomes and whose employment is of an impermanent nature will be the prospective subtenants in these schemes. The Government's planners, however, are considering the problems attached to the provision of plots to this group, so that they too may not feel entirely excluded because of their low incomes. Although this may be a very basic approach, it has the merits of ensuring an element of control at the outset, thus avoiding some of the evils of indiscriminate squatting, as the means for providing services in the future, as and when these can be afforded, will have been planned for. One of the present constraints, however, is the availability of State land for the purpose.

Mombasa is one Local Authority where so called "no-grade" development is permitted (was permitted-the author), enabling a land owner to subdivide his plot on which a house, usually of the Swahili type, may be erected which does not conform to any particular building regulation. A similar development is now (was - the author) permitted in Nakuru and the response has been encouraging."
We take these remarks as an encouraging commitment of the Government to solve the lowest income group's housing problem. In both cited cases, unfortunately, the "no-grade" approach was suspended quite recently.

In the following chapter we will have a closer look at the Mombasa example.

"VILLAGE LAYOUT SYSTEM" - MOMBASA

In Mombasa large urban housing areas were developed spontaneously i.e. unplanned, while other areas received a minimal planning input from public authorities, known under the name "village layout system".

R. Stren, 1) describes this type of housing briefly as follows:

"Under this system, private plots of land, when designated by the Municipality as "village layouts" could be subdivided by the owner for dwellings constructed in an approved manner according to Swahili-house plans, using traditional materials. The subplots, however, could only be leased on an annual basis to the house owners. By the 1970's the village layout system, like Pumwani an early form of sites and services, accommodated at least a fifth of Mombasa's total population and a much higher proportion of its lower income population. (Government Town Planning Department, 1969). As compared to Nairobi, Mombasa restricted indigenous people much less through administrative regulation, at the same time offering them significant opportunities to own houses and other property".

Interest in the potential of this system is also documented in the research reports: "Mombasa: Costs and Techniques in Swahili House Construction" and "Mombasa: Kaloleni and Mwembe Tanganyika Improvement Study" both issued 1970 by the joint research project of the Universities of Lund, Copenhagen and Nairobi.

The advantages of this type of housing are seen on the one hand in the use of local resources (such as traditional building materials, techniques, self-help and fundi labour) and of private land and funds. On the other hand "no-grade" development avoids undue stress on scarce municipal planning, financing and building capabilities. It appears that where this type of housing development was permitted, a considerable contribution to the housing supply has been achieved in a short time and within the financial reach of low income groups. Mombasa had a special set of By-Laws for the "village layout system" 3).

1) "Low-Cost Housing & Squatter Upgrading Study", Vol. 4, P. 5, Waweru & Associate, Nairobi, 1976

2) The tenant was protected by the Eviction of Tenants (Control) (Mombasa) Act 1943

3) see Mombasa Municipality (Building & Subdivision) By-Laws, Chapter 136, 1948
In 1969 these by-laws were changed and some more specific rules were introduced:

(a) That before any new houses were permitted on these plots the Municipal Engineer visits the site to ascertain plot boundaries and the number of existing houses;

(b) That maximum density is limited to eight dwelling houses per acre;

(c) That the actual siting of new houses is made subject to the Municipal Engineer's approval in order to allow for the necessary alterations which may be required for future development;

(d) That land owner permits the laying of services in the road and path reservations;

(e) Demolition of all houses falling within the road reserve in the new layout.

The minimum plot size was then increased to 80' x 50' (approx. 24 x 15 m = 360 sqm), road reserves 50' (approx. 15 m), foot paths 20' (approx. 6 m), max. coverage 50%, temporary materials being initially allowed, to be changed to Grade II without time limit.

The following layout plan may illustrate an application of these rules in 1971:

PROPOSED LAYOUT FOR PLOTS No 804 50 & 806 SEC. I MN

[Diagram of proposed layout for plots 804, 50, and 806 in Section I MN]

[Signature] chief architect

[Signature] municipal engineer

Example of a layout approved in 1971
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The following layout plan may illustrate an application of these rules in 1971:
Historically these areas were zoned and planned first under the 1926 Town Planning Scheme on Mombasa Island. Minimum plot sizes, then applied, were 1/20 acres = 200 sqm.

The normal procedure is described as follows:

Individual landowners (property size normally one to ten acres) could apply to the Municipal Engineer's Department for a subdivision plan. A plan as shown in the above example, was prepared for a nominal fee at short notice, often without surveying the plots, and irrespective of physical constraints.

Planning standards were restricted to plot sizes and road reserves. Reservations for community facilities were only considered if already in existence in the urban development plan. Due to the existing irregular plot shapes problems of overlapping arose when the newly demarcated plots were drawn on a regular grid, as shown in the above layout plan. In these cases, it was left to landowners to arrange an adjustment of plot boundaries amongst themselves.

Since the Council prepared the layout plan no further official approval was necessary, and the landowner could start to peg out parcels and to rent them to individuals on a yearly renewable leasehold.

Individual developers then had to submit house plans, either designed by themselves or by hired draftsman. In almost all cases, these represented the traditional Swahili house plan consisting of one dwelling house averaging 4-6 rooms and services separated in the back of the plot, consisting of a pit-latrine, kitchen and storeroom.

The following combinations of local materials are in use, often a result of an improvement process over several years:

- Mud and wattle, thatched roof
- Mud and wattle, c.g.i. roof, walls reinforced with coral stone
- Mud and wattle, c.g.i. roof, walls externally and/or internally plastered
- Stone columns, filled with wattle and mud laid coral stone, c.g.i., roof
- Coral stone masonry in lime- c.g.i. roofs, plastered internally and externally, cement screed floor

Floors are improved in almost all cases, by using soil-cement. Openings are closed with materials ranging from wattle bars to glazed and shuttered windows and doors.

4) see example on page 11

The life span is said to be over 30 years depending upon maintenance. Most structures are found to be converted over the years from temporary to semi-permanent and in some cases to permanent materials.

Normally only minimum distances (front and side spaces) to plot boundaries and plot coverage were controlled, and a building permit was given at a nominal fee without lengthy administrative procedure. The erection of houses was observed to take between 6 months and 2 years, depending normally on their location. Wealthier developers built rental housing, often on more expensive plots near the town centre, in a very short time. Family owner occupants, on the other hand, tended to build their homes at a slower pace on cheaper plots at the outskirts of town. In the case of individual developers, who did not hold a land title, loan facilities could not be made available.

The extent of infrastructural services to the plots was limited by the availability of Council's finance and administrative capacity. The services were restricted in most cases to water mains feeding licensed kiosks, since individual connections were too costly for most developers. Water is sold at 15 cents/debe (approx. 1.8 l). Pit-latrines are emptied by specialized private enterprise. Refuse collection has to be provided free of charge by the Council (fees only chargeable where individual water connections exist).

In centrally located areas (Mombasa Island) less than 50% of the developers are said to live in these houses, this percentage being higher on the mainland. Similarly, occupancy rates are high near the centre (up to 4 persons or one family sharing one room), decreasing towards the outskirts (one family/house). Rents vary according to location. In the 1970 reports they are said to range from 15-50 KShs./room on the Island depending on the quality of the house. Today it is said to be difficult to find a room at less than 100 KShs./room in a central location and 40 KShs. on the mainland.

During my visit of two areas the observations of previous studies were confirmed. Physical conditions are widely varying according to location, even within one block. Houses facing main roads often have workshops and dukas, next to living rooms, and are often improved to high standards. Towards the interior of a larger area housing quality tends to decrease. Street alignments are generally respected so that access as well as future installation of infrastructure is no problem. As found in previous studies, surface drainage appears to be the worst problem of physical conditions. A large number of houses have been improved or rebuilt to relatively high standards.

As stated by R. Stren, village layout-schemes certainly do not lack identity and social life, which seems to be a major problem of publicly provided low-cost housing. The major deficiency thus appears to be lack of social facilities (schools and health centres, community halls) and infrastructural services (surface drainage and street lighting).
Developments of this type were going on at an increasing rate after 1969 until they were suspended under a directive from the Provincial Commissioner - Coast, recorded under minute 222/74 of February 1974. It would be interesting to find out the degree of correlation between this suspension, the increasing housing shortage, and the increase in rents.

However village layout-schemes are considered by members of the Mombasa Municipal Council as a workable approach to provide low-income groups with housing. Many problems could be solved if they were anticipated in overall urban development planning. A better integration of the village layout schemes into the urban fabric and the provision of social and infrastructural services could thus be secured.

It appears that presently a fresh look should be taken at this "minimum-grade" housing strategy. While preparing the Housing Chapter for the next National Development Plan, it will be once again realised that achievement rates, as compared to the planned housing programme, fell very short over the last plan period, in particular in the field of low-cost housing.

This was due to the limited implementation capacity of both government and local authorities and also to the technical unfeasibility of providing standard housing within the cost brackets affordable by the lowest income groups.

Thus, a new strategy has to be identified which is less demanding both on public planning and implementation capacity and within the financial reach of low income earners. The discussed "minimum-grade" strategy may prove to be a workable solution.

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RECOMMENDATIONS

If this type of housing development is to be applied on a larger scale in other urban centers of Kenya, the Mombasa Municipality (Building & Subdivision) By-Laws Chapter 136, 1948, (in their revised form of 1969, as cited above), should be amended to require the following provisions:

- Piped water to water kiosks within a maximum distance of 100 m, measured from any plot, to be provided by the developer.
- Surface water drains of an approved design placed in road reserves and footpaths to be provided by the developer.
- Pit-latrines to comply with the Building Code, The Local Government (Adoptive By-Laws) (Grade II Building) Order, 1968.

7) The WHO recommends that the maximum density should not exceed 125 persons per hectare, where pit-latrines are used. In the case of Mombasa the health-hazard caused by much higher plot coverages and densities is reduced by extremely favorable soil-conditions.
Inside a village layout area: A perfectly built house, standing next to a thatched roofed unplastered house, which can be easily converted to a similar standard.

Inside a village layout area: A footpath

Houses converted to permanent materials

Old swahili village layout houses facing main road and accommodating stores and workshops next to dwelling rooms

Old swahili village layout houses next to a major road crossing

This almost completed swahili house shows that construction quality can be high, although no standards were imposed.

For comparison: a Council financed & built low-cost housing scheme at Port Tudor, Mombasa Island. Eight dwelling units facing a communal courtyard, with collective services.

In the same scheme: more rooms are needed and temporary materials are being used to extend the two roomed unit into the communal courtyard.
Mombasa - planned and unplanned Swahili layout areas

Source: Mombasa Kaloleni and Mwemb Tanganyika Improvement Study 1971
MAJENGO - Mwembe Tanganyika - a planned Swahili layout area in Mombasa
Source: Mombasa Kaloleni and Mwembe Tanganyika Improvement Study, 1970

S = Shop
Plan and Section of a Typical Swahili House

Source: Mombasa - Cost and Techniques in Swahili House Construction, 1971
For further reference:

R. Stren  
Policy, Local Politics and Urban Development: A Study of Low-Cost Housing in Mombasa  
Ph.D. Thesis, University of California, Berkeley, 1971  
(in PPD-Library)

R. Stren  
A Survey of Lower Income Areas in Mombasa  
in J. Hutton, editor. Urban Challenge in East Africa, EAFL, Nairobi, 1972, pp. 97-115

Town Planning Department  
Housing in Mombasa, Nairobi, 1969

Town Planning Department  
Swahili House Construction, Mombasa, 1970  
(same material as consequently published in: Mombasa, Costs and Techniques in Swahili House construction, Joint Research Project, Universities of Nairobi, Copenhagen and Lund, 1970)

Mombasa Municipal Board  
Report by the Town Clerk on the Changamwe Housing Scheme, Mombasa, 1957

Mombasa Municipal Council  
Problems facing Mombasa Housing and 6-year Development Plan  
Report by the Town Clerk, 1969 (in PPD-Library)

PPPO (Coast)  
Land for Housing in Mombasa, 1967  
(copy in PPD-Library)

S.S. Yahya  
Low-Cost Land for Housing-Towards an Urban Land Reform  

S.S. Yahya  
Tradition and Modernity in Residential Investment - A Study of Investment in Mombasa Swahili Housing, Nairobi, 1971  
(in PPD-Library)

N.O. Jorgensen  
Kaburini Resettlement Scheme - An Economic Plan  
HRDU, 1971 also published in Mathare Valley - A Case Study of Uncontrolled Settlement in Nairobi  
see pp.76-77, Example of an improvable Settlement Scheme for 500 Families - Economic Plan, HRDU, Nairobi, 1971)

H. Morrison  
Popular Housing Systems in Mombasa and Nairobi - Kenya  