

UNIVERSITY OF NAIROBI
HOUSING RESEARCH AND DEVELOPMENT UNIT

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THE KIBERA SELF-HELP SCHEME

Plotsize and plotuse in an urban low cost housing scheme.

preliminary paper //

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date: April 1974

Classification: DOCUMENTATION

activity: 8

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The Joint Advisory Board of the HRDU has approved a research activity listed thus:

DOCUMENTATION:

Plotsize and Plotuse in Low Cost Housing Schemes.

Phase 1: Nairobi Region.

The aim of this activity is to find the relations between different types of layouts and developments and the impact of the use of infrastructure and private plots. To reduce costs by balancing minimum layouts and infrastructures against the family and community development.

This paper does in no way pretend to be a complete analysis but aims at visualizing the first results and the method of analysing the first of a series of schemes. It is for internal and limited circulation only.

Staff:

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M. Mulili, social interviewer.

HRDU, April 1974

Jon Skakke

DIRECTOR

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One project, the KIBERA SELF-HELP TENANT PURCHASE SCHEME, designed by the National Housing Corporation has been surveyed and analysed.

The scheme consists of 210 dwelling units on 210 plots.

1. THE HOUSES

210 dwelling units - 144 house type Nr. 94/39/II
 - 66 house type Nr. 94/39/III

64 units Nr. 94/39/III - S.D. - plinth area 75 m²
 2 units Nr. 94/39/III - Det. - plinth area 75 m²
 140 units Nr. 94/39/II - Det. - plinth area 53 m²
 4 units Nr. 94/39/II - S.D. - plinth area 53 m²

2. THE PLOTS:

Out of 210 plots, 201 plots are standard sized (96%):
 12.19.m x 21.34 m = 260 m²

The remaining 9 plots are irregular shaped but rather the same size.

The total area of 120 plots = 54.600 m² (100% of bruto)

The maximum area available for cultivation = 42.018 m²
 (bruto area - plinth area) (77% of bruto)

The total area of private plots covered with double seal (house access) = $\frac{770 \text{ m}^2}{41.248 \text{ m}^2}$
 (75% of bruto) (75% of bruto)

3. SURVEY RESULTS AND CALCULATIONS

Total area available for cultivation: = 41.248m² (75% of bruto)

Total area which has been developed = 12.170m² (22.5% of bruto)

Part of the private plots available for cultivation - 12.170 : 41.248. = 29.078m² (30% of net)

Plot use:

Out of 210 plots

- 47 plots are unused (no cultivation) (22.5% of total nr. of plots)
- 9 plots are used for flowers only (nr. of plots)
- 56 plots are not usef for crop cult. (26.5% of total nr. of plots)

154 plots are used for cultivation (73.5% of total nr. of plots)

Total area under cultivation - 12.170 m²

flowers - 418 m²

Total area crop cultivation - 11.752 m²

- Average amount of crop cultivation / plot = 55.3 m² / plot
- Average amount of crop cultivation / plot on those plots which are used for cultiv. = 75.6 m² / plot

Cultivated area (m²) / plot and number of plots with a similar amount of cultivation (See Chart 2)

- 30% (29.4%) of the utilized plots cultivate less than 70 m²
- 60% (59.5%) of the utilized plots cultivate between 70 and 120m²
- 10% (11.0%) of the utilized plots cultivate more than 120 m²

4. RELATIONS AND CROSS RELATIONS

1. Relation depth of frontgarden and use of frontgarden

In the project are 98 plots (47%) with an undep frontgarden (4.5 m')

" " " " 108 plots (51%) with a deep frontgarden (7.5 m')

The said 97 unddep frontgarden cultivated 523 m²
- average 5.32 m²/plot

" " 108 deep frontgardens cultivation 576 m²
- average 5.32 m²/plot

12 undep frontgardens were used for vegetables (289 m²)
- average 24 m²/plot

12 deep frontgardens were used for vegetables (390 m²)
- average 32.5 m²/plot

2. Relation depth of backgarden and use of backgarden

In the project are 96 plots (45.5%) with a deep backgarden (9.00 m')

In the project are 104 plots (50.%) with an undep backgarden (6.00 m')

104 undep backgardens - developed 40.15m²-av. 40m²/plot

96 deep backgardens - developed 60.12m²-av. 63.5m²/plot

67 deep backgardens out of 96 were used (70%)

-av. 91.5m²/plot

(83% of area available)

66 undep backgardens out of 104 were used (63.4%)

- av.63 m²/plot

(85% of area available)

- 3a. Relation total amount of cultivated area on plots with an undeeep frontgarden (4.5 m) and consequently a deep backgarden (9.0 m')

6734 m² was cultivated on 96 plots - average 70.2m²/plot.

- 3b. Relation total amount of cultivated area on plots with a deep frontgarden (7.5 m) and consequently an undeeep backgarden (6.0 m')

4862 m² was cultivated on 108 plots - average 45m²/plot.

- 4a. Relation semi-detached houses and the total amount of cultivated area.

4463 m² was cultivated on 68 plots with semi-detached houses:- average 65.7 m²/plot

On these plots are 180 m² available for cultivation - 36% used.

- 4b. Relation detached houses and the total amount of cultivated area:

7607 m² was cultivated on 142 plots with detached houses: - average 53.6 m²/plot

On these plots are 200 m² available for cultivation - 26.8% used.

- 5 . Relation plots along a public area and use of garden

3290 m² was cultivated on 38 plots along a public area - average 86.5 m²/plot.

6. Relation orientation of the plot (backgarden) and amount of cultivation.

16	backgardens facing	West	81.5m ²	cultivated/plot	(40.7)
10	"	" S.West	79.6m ²	cultivated/plot	(39.6)
15	"	" East	71.2m ²	cultivated/plot	(35.5)
10	"	" W.S.West	66.1m ²	cultivated/plot	(33%)
42	"	" N.West	64.5m ²	cultivated/plot	(32.3)
12	"	" E.S.East	63.8m ²	cultivated/plot	(31.8)
9	"	" N.East	62.1m ²	cultivated/plot	(31.2)
12	"	" W.N.West	55 m ²	cultivated/plot	(27.5)
10	"	" E.N.East	52.3m ²	cultivated/plot	(26.2)
19	"	" S.S.East	50.8m ²	cultivated/plot	(25.4)
35	"	" S.East	49.5m ²	" /plot	(24.7)
19	"	" N.N.West	45.2m ²	" /plot	(22.6)

More than 35% cultiv. East/South-West/East

30%-35% cultivated - West-South-West/North-West/East-South-East,
North-East

Less than 30% - West-North-West/East-North-East/S.S.E/S.E/
N.N.W

West orientation of the garden gives highest amount of cultivation.
Directly followed by South-West and East orientation.

(See CHART 4)

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Fencing:

79 plots out of 210 are fenced	= 37.5%	(Slightly more than 1/3)
mashed or linked wire	16 plots	
barbed wire	6 plots	
cypres trees	21 plots	
bamboo	27 plots	
hedge	3 plots	
bamboo + cypres	2 plots	
wooden fence + cypres	1 plot	
mashed wire + cypres	2 plots	
preparing	<u>1 plot</u>	
Total	79 plots	

Relation 7 fencing and use of garden

The 79 plots cultivated (Flowers + Vegetables) in total 4716m²
 in average $\frac{4716m^2}{79} = 56.8 m^2 / plot$

Relation 8: Type of fence and use of the garden

a) -Bamboo fence and use of garden:

The 27 bamboo fenced plots cultivated 1298 m²

$$\frac{1298}{27} = 48.0 m^2 \quad (24\%)$$

b) -Cypres fence and use of garden

The 21 cypres fenced plots cultivated 1119 m²

$$\frac{1119}{21} = 53.3 m^2 \quad (25.2\%)$$

c) -mashed, linked and barbed wire fenced plots and use of garden.

The 22 plots cultivated 1882 m²

$$\frac{1882}{22} = 85.5 m^2 \quad (42.7\%)$$

Relation 9: Fencing for security + visual privacy and use of garden

- a) (Bamboo/barbed, mashed or linked wire + cypres/hedge)
The 35 plots cultivated 1671 m²

$$\frac{1671}{35} = 48 \text{ m}^2/\text{plot} \quad (24\%)$$

- b) Fencing for visual privacy only and use of garden (cypres)

The 21 plots cultivated 1119 m² = 53.3m²/plot (25.3%)

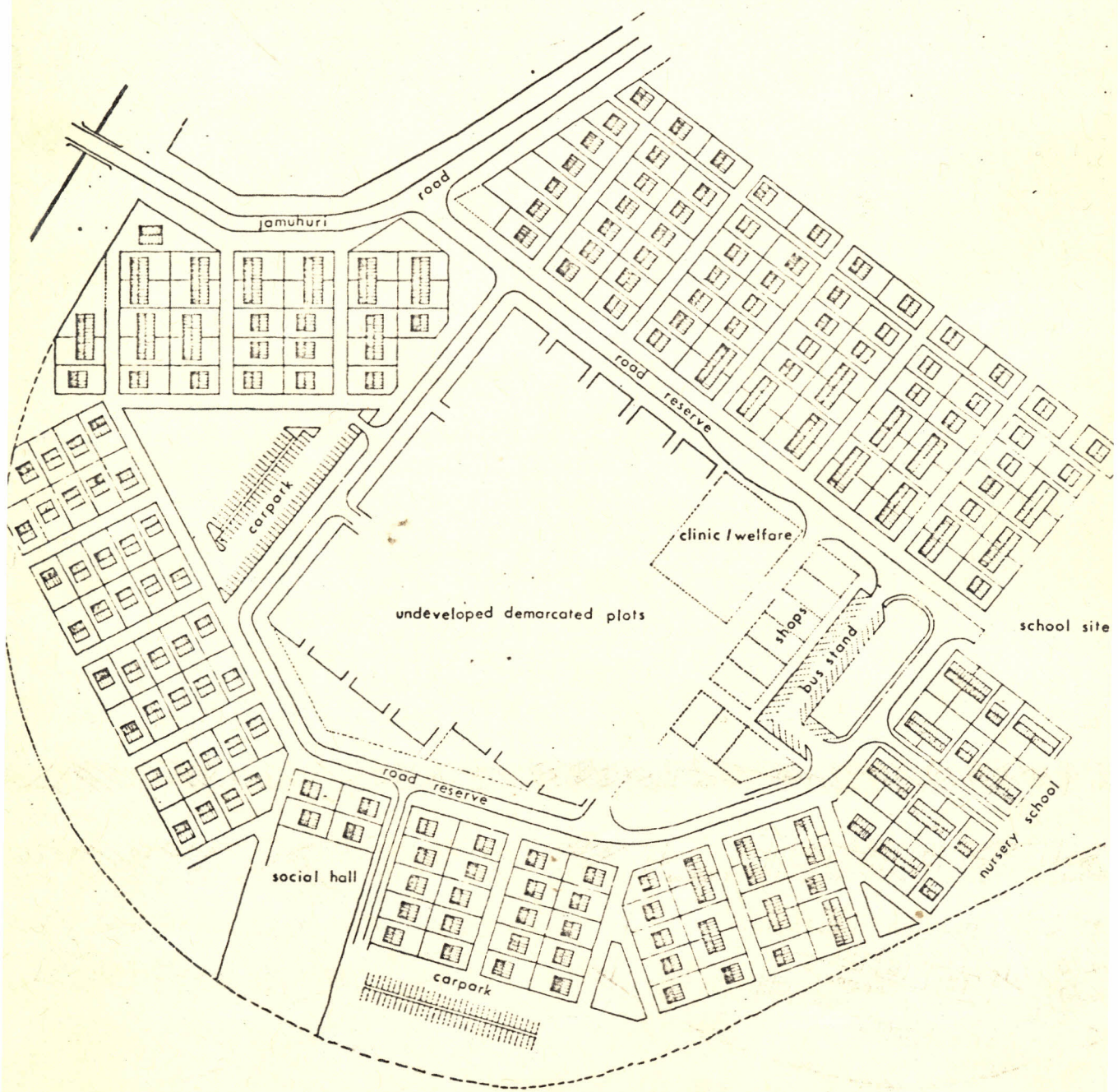
- c) Fencing for security only and use of garden

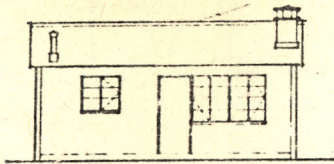
(Mashed, linked and barbed wire)

The 22 plots cultivated 1882 m² /plot (42.7%)

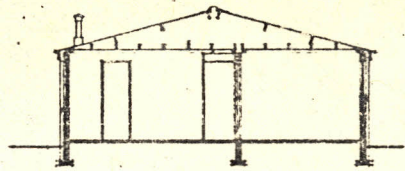
General conclusions: from relation 8 and 9

- There is no obvious relation between fencing and use of garden for cultivation (vegetables) in this scheme.
- Fencing for privacy + security seems to lower the amount of cultivated area. These gardens are mainly for childrens' play area etc.
- Fencing for privacy only shows neither increase nor decrease in cultivation compared with the average amount.
- Fencing for security only (wire) seems to rise the amount of cultivated area.

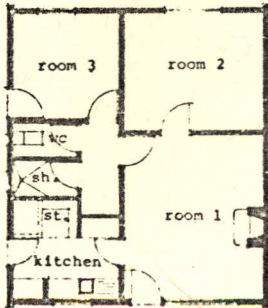




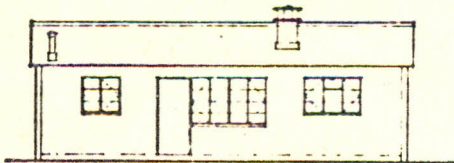
ELEVATION



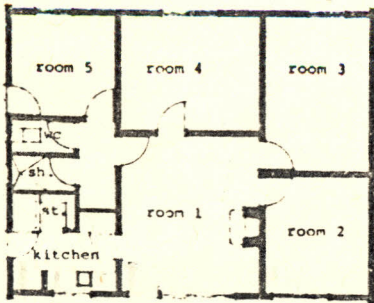
SECTION



PLAN HOUSE TYPE 94/39/II



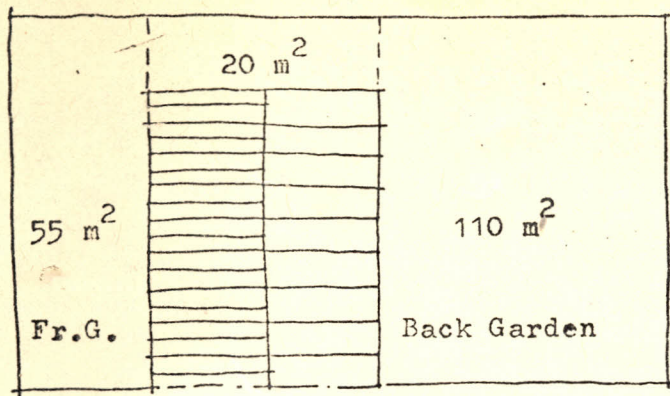
ELEVATION



PLAN HOUSE TYPE 94/39/III

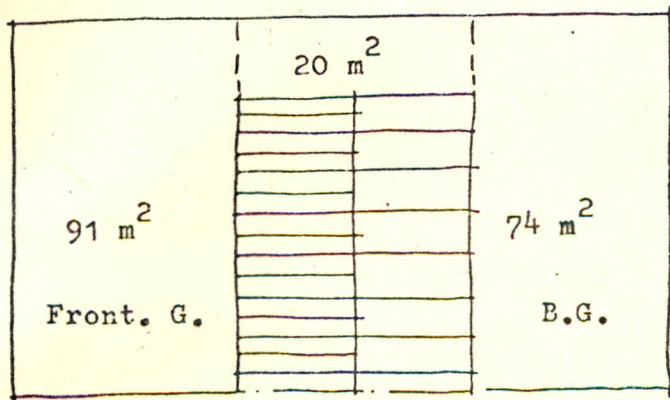
scale 1:200

4.5 m



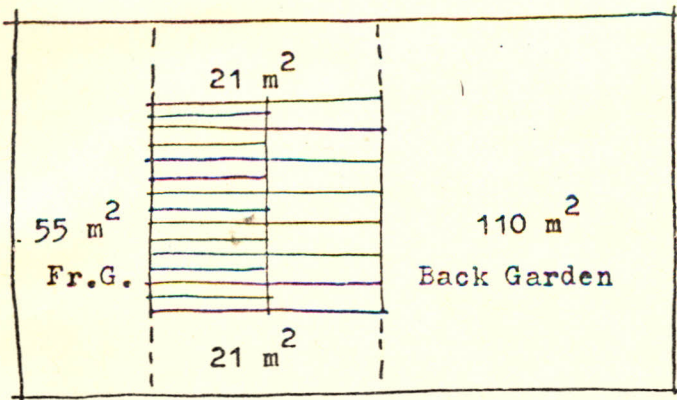
Standard plot I:
 12.19 x 21.34 m
 Undeep frontgarden
 House type: S.D.
 Plinth area 75 m²

7.5 m



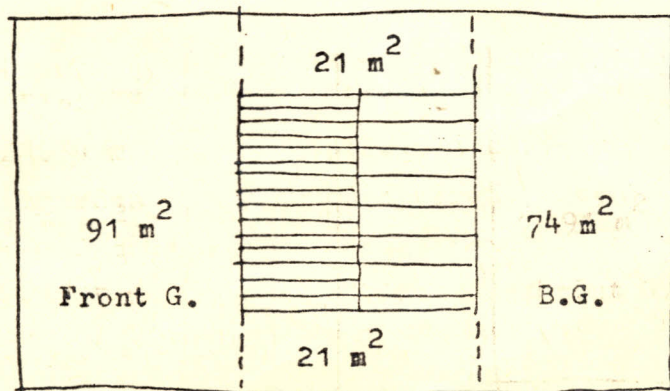
Standard plot II:
 12.19 x 21.34 m
 Deep frontgarden
 House type: S.D.
 Plinth area 75 m²

4.5



Standard plot III:
 12.19 x 21.34 m
 Undeep frontgarden
 House type: Detached
 Plinth area 53 m²

7.5 m



Standard Plot IV:
 12.19 x 21.34 m
 Deep frontgarden
 House type: Detached
 Plinth area 53 m²