Low-cost Garden Flats in Bangalore

Low-cost Garden Flats in Diamond District, Bangalore
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Developed at Shrsti Space™

Slum dwellings between the remaining palm trees, 2013.

Site

The site is located in the Diamond District of Bangalore, halfway between the center of the city and the Electronic City.

It encompasses a small slum area of roughly one hundred dwellings that are located next to an area of formal housing and an open land area which used to be covered with palm trees (as can be seen in the satellite image) but all of them, except for the palm trees in the slum area, have been chopped down.

To the south-east, the site is defined by a *nullah* (a stream), on the other side of which is the Karnataka Golf Association; to the east is a hotel and a complex of residential apartments and service apartments; to the north are several office blocks, occupied by Intel and other companies; and to the west is a large hospital.

The golf club, the hotel and the apartments, the offices and the hospital provide plenty of low-skilled job opportunities for the slum dwellers.

Aerial view of site and surroundings. Source: *Google Earth*; 10.07.2013.

Rehabilitation blocks
Small identical apartments in colorless four-storey buildings. Each apartment consists of a bathroom with a window looking out from the backside of the building and an open room with an entrance door and a window looking out from the front of the building. Common balconies on the front of the building, connected to a common internal staircase, provide access to the apartments. Except for these narrow balconies, there is no common space.

Existing slum and conventional rehabilitation, Bangalore 2012

Self-built houses
Colorful two-storey buildings with a high degree of individual differentiation, in terms of both shapes and colors, and a high degree of spatial complexity, providing multiple opportunities for use. The land area has been planned by the authorities and the individual plots are used to the fullest extent, leaving no space for communal activities.

Self-built houses, Bangalore 2012

Traditional housing, Bangalore 2012

Traditional houses

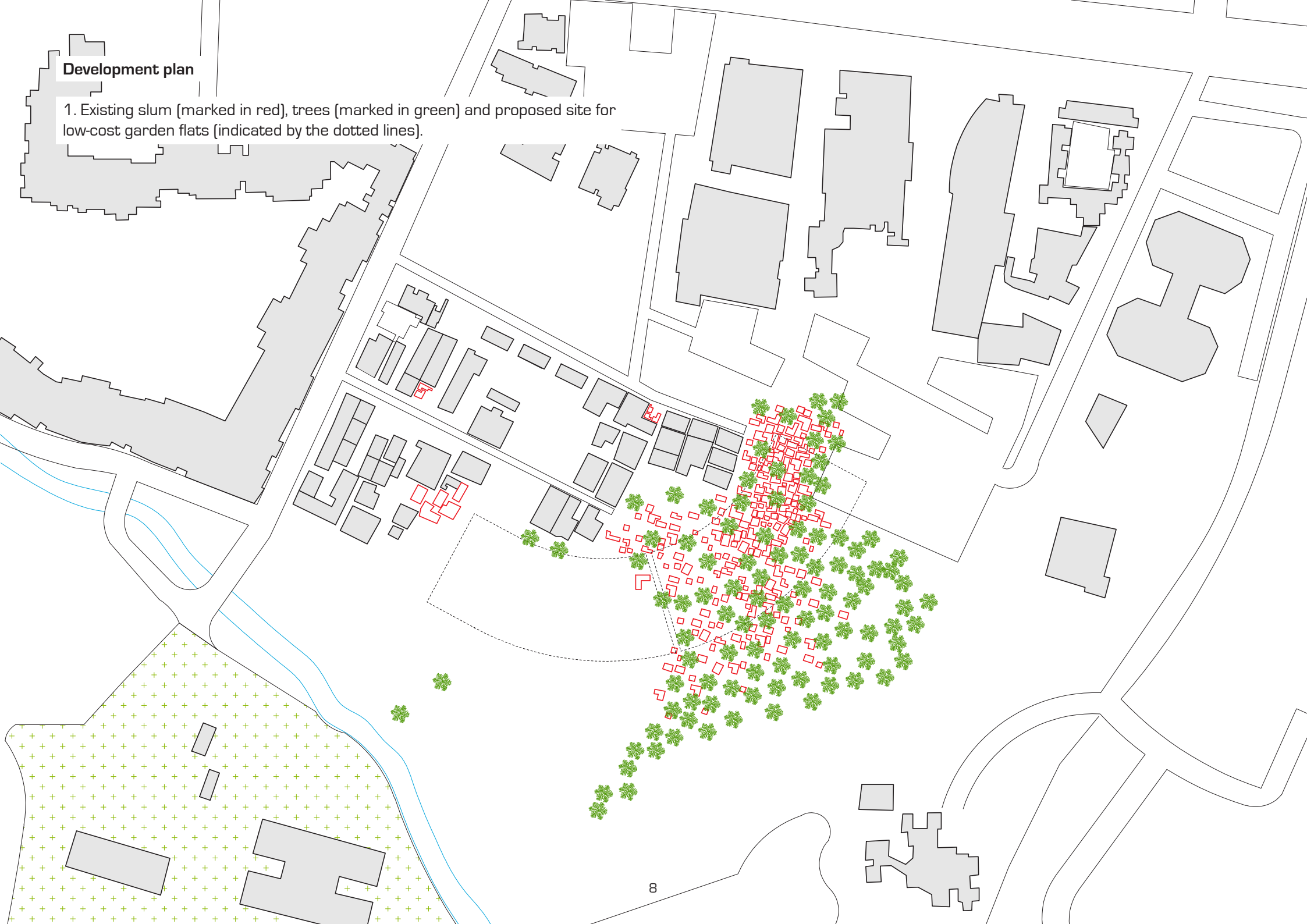
Colorful one-storey buildings, based on the same construction principles: for example, an outdoor bench with storage space underneath a sun-breaker (the horizontal plane that is placed above doors and windows to prevent the sun from entering). There are small variations among the different buildings, such as the varying colors, which serve to impart a certain degree of individuality. The outdoor space is used extensively and there is a strong sense of community.

Slum dwellings
One-storey buildings (shacks) made of scrap materials and simple building techniques but with a certain degree of individual creativity. The buildings are highly flexible and the area is being developed incrementally. There is plenty of common space with many communal activities.

Slum dwellings, Bangalore 2013

Development plan

1. Existing slum (marked in red), trees (marked in green) and proposed site for low-cost garden flats (indicated by the dotted lines).



2. Construction of low-cost garden flats and resettlement of three-quarters of the slum dwellers; creation of pathways running through the future park area.

3. Construction of remaining low-cost garden flats and resettlement of the remaining slum dwellers; additional capacity for 50 percent more inhabitants; construction of leisure facilities and of social and religious places in the park area.

Concept
Coordinated planning is needed to ensure adequate infrastructures and sufficient open space. Likewise, a certain degree of engineering and architectural design is needed to ensure structural integrity and spatial opportunities.

However, people may figure out, on their own, how to utilize the open spaces and how to decorate the houses.

The proposal for low-cost garden flats consists of:
1. Flexible housing frames (in two storeys) that ensure structural integrity and spatial opportunities but simultaneously allow people to fill out the frames according to their own needs and economic capabilities.

2. A two-stage implementation process, in which half of the new houses are initially erected on a currently vacant site adjoining the slum area while the other half are erected afterwards on half of the land currently occupied by slum dwellers, with the consequence that nobody will be forced to move away during construction.

3. A layout plan that ensures adequate provision of water (including rainwater harvesting), electricity (including individual solar panels), composting, solid waste management, sewage and drainage, and sufficient amount of open outdoor spaces, without any determination of the exact use of these spaces.

Financial model
Many of the slum dwellers in the Diamond District are working for surrounding companies, including those located in the office blocks to the north and northeast of the site, or for the upscale hotel, service-apartments and residential apartments to the west of the site, or for the hospital located to the east of the site, or for the Karnataka Golf Association situated southwest of the site.

The vision is that the owners of these facilities will form a consortium and that together with the municipality, they will create a combined public park and leisure compound for employees, guests, residents, patients and citizens on the land-area, which is currently vacant or occupied by the slum dwellers.

The land is to be bought by the government while the consortium will finance the park facilities.

A small portion of the land-area is going to be used to provide proper accommodation (low-cost garden flats) for the slum dwellers. Those who are not already employed by the consortium may take on service and maintenance jobs in the public park/leisure compound.

The consortium will finance the construction of infrastructures and the structural frames of the low-cost garden flats and will provide loans so that the slum dwellers can buy these flats.

The consortium will lease the land, for a 99-year period, at a favorable rate from the government. Land acquisition and construction work may be supported by the Rajiv Awas Yojana program.

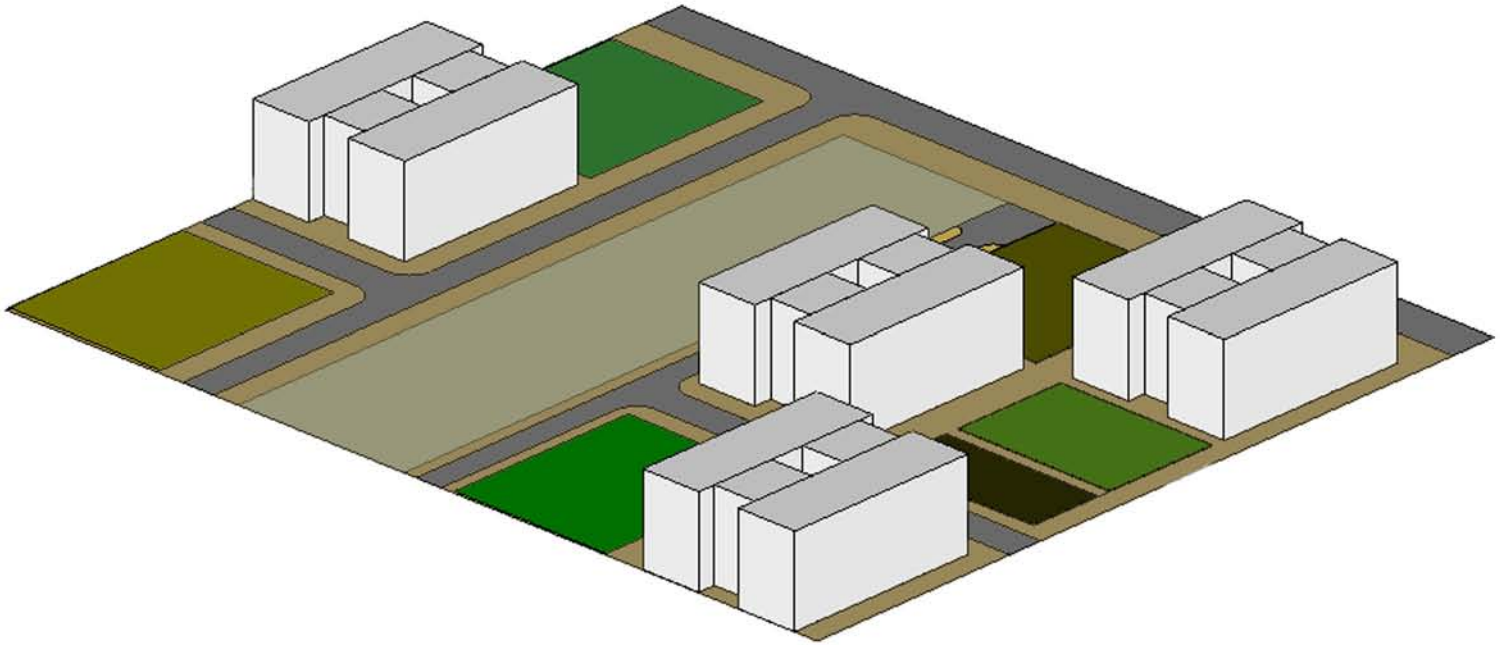
The park
The combined public park and leisure compound, which faces the low-cost garden flats on the one side and the *nullah* on the other and connects the office blocks and the hospital facing the Old Airport Road with the golf club, the hotel and the service- and residential- apartments, may include religious buildings and buildings for a crèche and a primary school, playing fields and sports facilities, sitting areas and jogging tracks, footpaths and cycle paths, and many kinds of vegetation, including trees providing shade.

Small Flats Scheme of Chandigarh (Dhanas)

Land area: 12,730 m2
Population: (4 x 64 dwellings) x 5 persons = 1,280 persons
Number of dwellings: 256 units of 22.63 m2 each (net floor living area)

Net floor area: 22.63 m2 x 256 units = 5,793 m2
Additional floor area: 0
Total floor area: 5,793 m2

Gross floor area: 4 x 4 x 445 m2 = 7,120 m2
FAR: 7,120 m2/12,730 m2 = 0.56
Density: 1/0.012730 km2 x 1,280 persons = 100,550 persons/km2

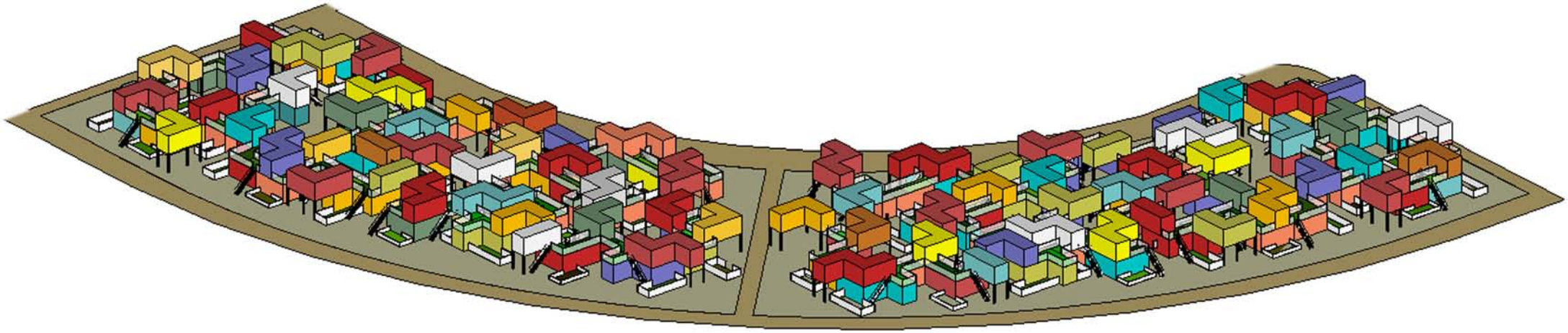


Low-cost Garden Flats in Bangalore (Diamond District)

Land area:
housing: 9,246 m2 + roads and parking: 3,484 m2. In total: 12,730 m2
Population: 150 dwellings x 5 persons = 750 persons
Number of dwellings: 44 units (20 m2 gross floor area + 10 m2 additional area) + 60 units (30 m2 + 15 m2 additional area) + 46 units (40 m2 + 20 m2 additional area). In total: 150 units

Net floor area: 44 units x 16 m2 = 704 m2; 60 units x 25 m2 = 1,500 m2; 46 units x 34 m2 = 1,564 m2. In total: 3,768 m2
Additional floor area: 44 units x 10 m2 = 440 m2; 60 units x 15 m2 = 900 m2; 46 units x 20 m2 = 920 m2. In total 2,260 m2
Total floor area: 6,028 m2

Gross floor area (including additional floor area): 1,320 m2 + 2,700 m2 + 2,760 m2 = 6,780 m2
FAR: 6,780 m2/12,730 m2 = 0.53
Density: 1/0.012730 km2 x 750 persons = 58,916 persons/km2



Discussion with a local politician in the developer's office

Sridhar Pabbisetty: *"The site is very centrally located in Bangalore. Therefore the land price is extremely high, maybe around 2.6 crores per acre.* Instead of housing the poor population here, suitable accommodations should be provided on the periphery of the city, where land prices are much lower. Good systems of public transportation – a metro system, for instance – should be established to give these people easy access to workplaces in the centrally located area. Green areas should also be provided on the periphery because nobody can afford not to develop centrally located land."*

*Roughly Rs. 6,500 per m2

Henrik Valeur: *"2.6 crores is a lot of money today. But a hundred years from now, it will not amount to much. Keeping up the value of expensive buildings requires continuous investment – over a period of a hundred years, these buildings may be rebuilt four to five times. The costs of maintaining and gradually upgrading low-cost housing while keeping most of the site green are much smaller and after a hundred years, the accumulated value of the green area – especially for the surrounding landowners – will be immense. The surrounding office blocks, the service apartments, the hotels and the golf club all depend on the services provided by the people currently living in this slum. The costs of transporting these people back and forth between the periphery and the center over an extended period of time, say a hundred years, would be astronomic."*

The dwellings
Low-cost garden flats are to be delivered in sizes of 20, 30 and 40 m2 gross floor area and are to be allotted according to family size: respectively, 1-4 members, 5-7 members, and 8 or more members.

The combination of different sizes and shapes of dwelling units and the "random" arrangement of these will give rise to different individual and communal outdoor spaces – with an ample amount of sunlight and fresh air for all the dwellings.*

*One of the reasons for widespread tuberculosis in slum areas is the cramped, unhygienic, damp and dark living conditions.

The individual outdoor spaces can be used for private kitchen gardens, small-scale business activities or the expansion of the dwelling, according to the family's particular needs and capabilities. Each "garden" contributes roughly 50 percent extra floor area to each "flat".

Each dwelling unit is delivered as an open concrete frame structure, including concrete floor plates and staircases. The residents fill out the frames themselves. Thus, to begin with, many units may be open or only rudimentarily enclosed with blankets or tarpaulins. Gradually, the frames are to be filled out with different solid materials according to individual preferences and possibilities. Eventually, each dwelling will have its own individual appearance, like many of the traditional and self-built houses in this region.

The whole area is car-free, with access roads and car parking surrounding the site.

Facades

The concrete frame structures are gradually enclosed with different kinds of façade cladding. In the initial stage, when people have just moved in, only a few frames are filled out with solid materials and most of the frames are either temporarily filled out with tarpaulins, blankets or other light materials or remain open.

In the subsequent stages, more and more frames are filled out. Some of the frames remain openings and are filled with a curtain, a shutter or a double-door while other frames remain semi-open and are filled with bamboo poles, perforated metal plates or a brick wall with many small holes, and the rest of the frames are filled out with solid materials like earth blocks, bricks or wood.

Examples of how the frames can be filled out individually by the residents themselves – using various temporary and solid materials.