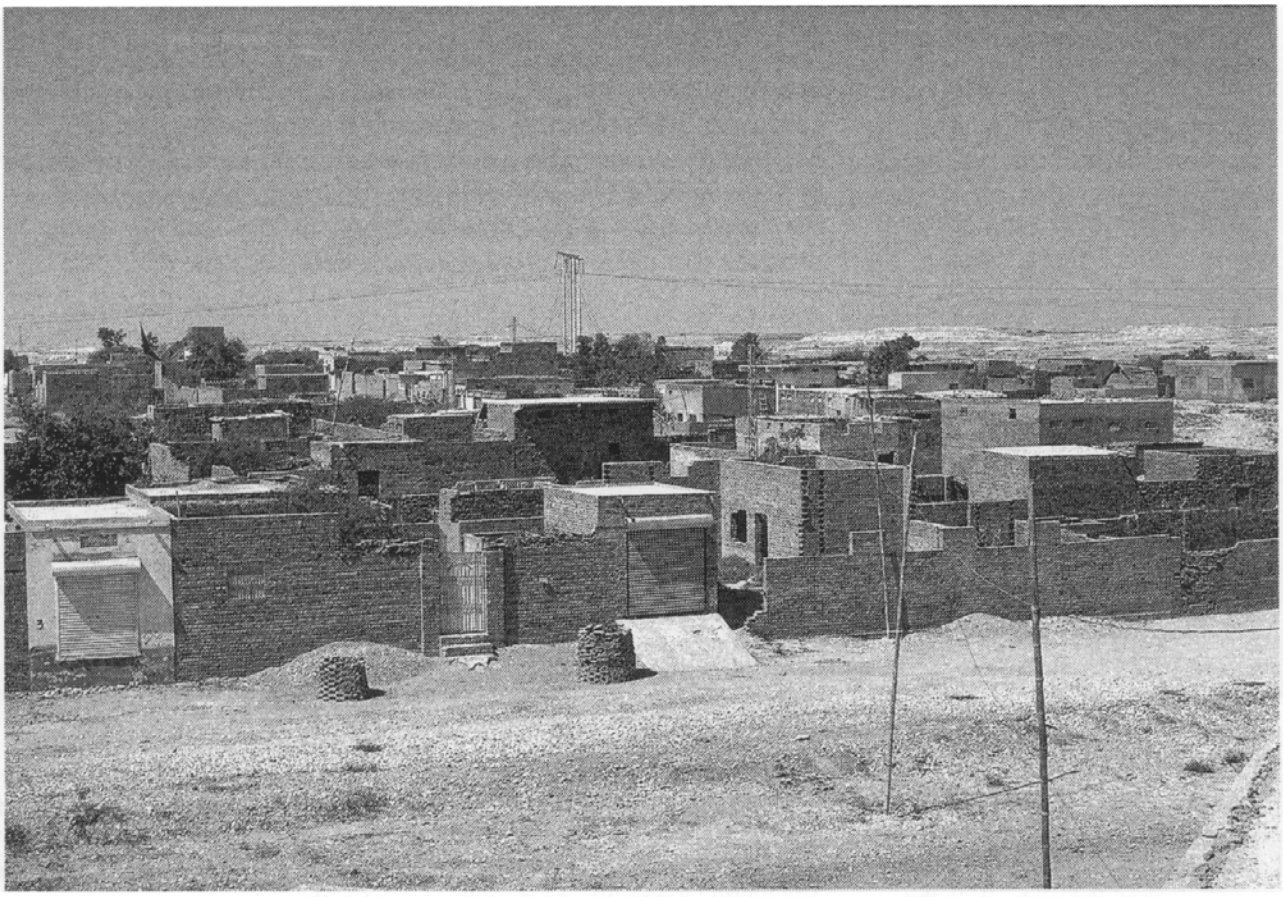
1995 Technical Review
Summary
by Lailun Ekram

Khuda-Ki-Basti Incremental Development Scheme

Hyderabad, Pakistan
987.PAK



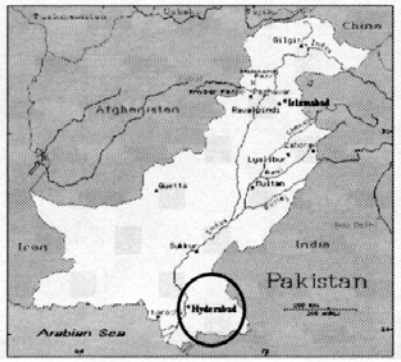
Clients and Planners
Hyderabad Development Authority
Tasneen A. Siddiqui
Mohammad Azhar Kahn

Completed
1989 and Ongoing

Khuda-ki-Basti Incremental Development Scheme, Hyderabad, Pakistan

Housing programmes in Pakistan have always included "low income" housing schemes. The conventional housing loan programme proved futile in meeting the needs of many families, since the repayments were far beyond their resources. Allotted plots, therefore, often fell into the hands of speculators and profiteers, who kept the plots and houses vacant while prices appreciated. As in Metroville and the Deh Surjari Schemes of the Karachi Development Agency, subsidised low income housing was built by Hyderabad Development Agency (HDA) in the Gulshan-e-Shahbaz. Khuda-ki-Basti is a part of the Gulshan-e-Shahbaz housing scheme.

Incremental Development in the urban sector involves development that increases with time at an affordable repayment schedule. The scheme formulated in Khuda-ki-Basti allows housing problems to be solved through incremental involvement of the beneficiaries. The poor were given the scope to own a permanent home within their economic means, and improved services that ensured them a better quality of life.



Hyderabad; located due South from Islamabad along the Indus river

Context

Historical background

Partition in 1947 resulted in thousands of Indian Muslims (known as Mohajers) leaving India to live in the newly formed Pakistan. With the division of Pakistan and formation of Bangladesh in 1971, Urdu-speaking Muslims migrated to Pakistan, increasing the number of Mohajers there.

Mohajers squatted on unauthorised land beside railway lines, rivers and any other "khas" (government owned) land in the urban area. These settlements were called the Katchi Abadis.

The Katchi Abadis provided housing for 27 per cent of the Pakistan urban population. Local profiteers and political groups controlled the allotment systems within the Abadis. The Katchi Abadis became unauthorised, unplanned, crowded permanent settlements. Such large settlements are found in Baldia, Orangi, and Mahmoodabad in the Sind Province of Pakistan.

The 5,550 acre Gulshan-e-Shahbaz housing scheme is located in Hyderabad. an historic city and the one time the capital of Sind Province. The fourth largest city in Pakistan, Hyderabad is located 140 kilometres from the port city of Karachi.

The community has named Gulshan-e-Shahbaz after the pious local saint Shahbaz; Khuda-ki-Basti means "Allah's Settlement".

Local architecture

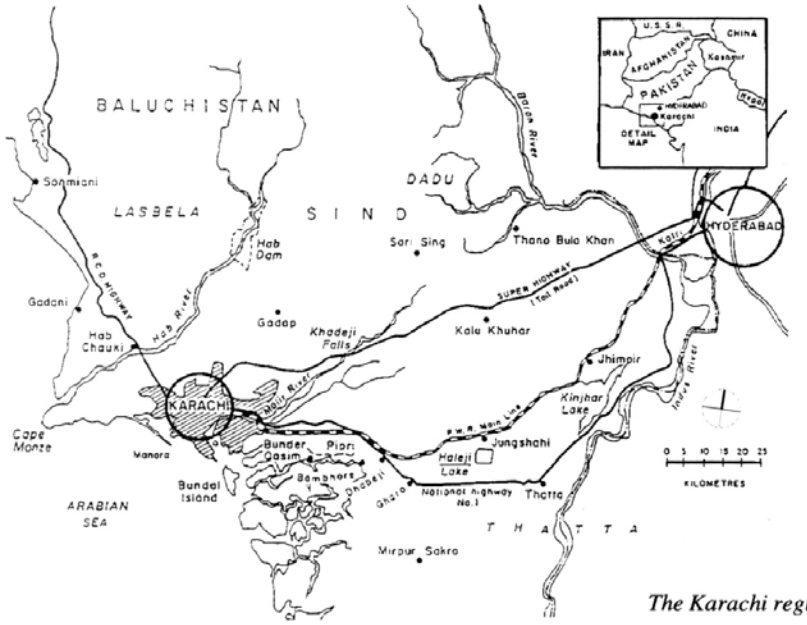
Culture and climate have played a major role in the evolution of the Hyderabad house.

The typical form is a low-rise brick construction with an open-to-sky courtyard surrounded by high walls and a protective and elaborate entrance. The cultural idea of Purdah is reflected in the uninterrupted exterior walls of the buildings.

The outdoor living allowed by the courtyard is well suited to the local climate and large family size. The courtyard also plays a pivotal role in the family life; it is an area of household activity in the daytime and an outdoor sleeping area for men at night.

Some houses of the pre-partition era (1920-40) have Anglo-European style decorative entrance gates with elaborate Corinthian column capitals. All the buildings have a balcony on the road elevation. Buttress, balustrades, railings, and cornices also form part of the facade decoration of houses in the settlement.

The thick brick walls with few windows, the wind tunnels, and the wind catchers make the house cool and comfortable, responsive both to climate and local style.



The Karachi region

Building material and house form

Local building materials include brick (fired and non fired), cement concrete blocks, stone, weed and mud blocks.

The jhuggi, the most basic housing for the poor, is a temporary makeshift structure, built from reed mat, cardboard, timber boxing, plastic sheeting, and other randomly improvised materials. Structures such as these characterise the self-built Katchi Abadi (squatter housing) on unauthorised land.

Mud houses are made of mud blocks or sun baked (adobe) bricks or mud plastered reed mat walls. The roof is made of grass mat, tile or wood. These are self-built temporary houses on unauthorised land with only one room. Easy to erect and self maintained, these are the second level of squatter housing.

The semi-pucca house has cement block or brick walls with temporary roof of corrugated iron, asbestos sheet, cement or tile. These houses have a main room, kitchen, bathroom, lavatory, courtyard, and veranda.

A pucca house is a permanent house with foundations and a roof. Some of these houses are two or three storeys high, with elaborate entrance gates and colourful facades. A characteristic of Pucca Abadis housing is the legal ownership of the land.

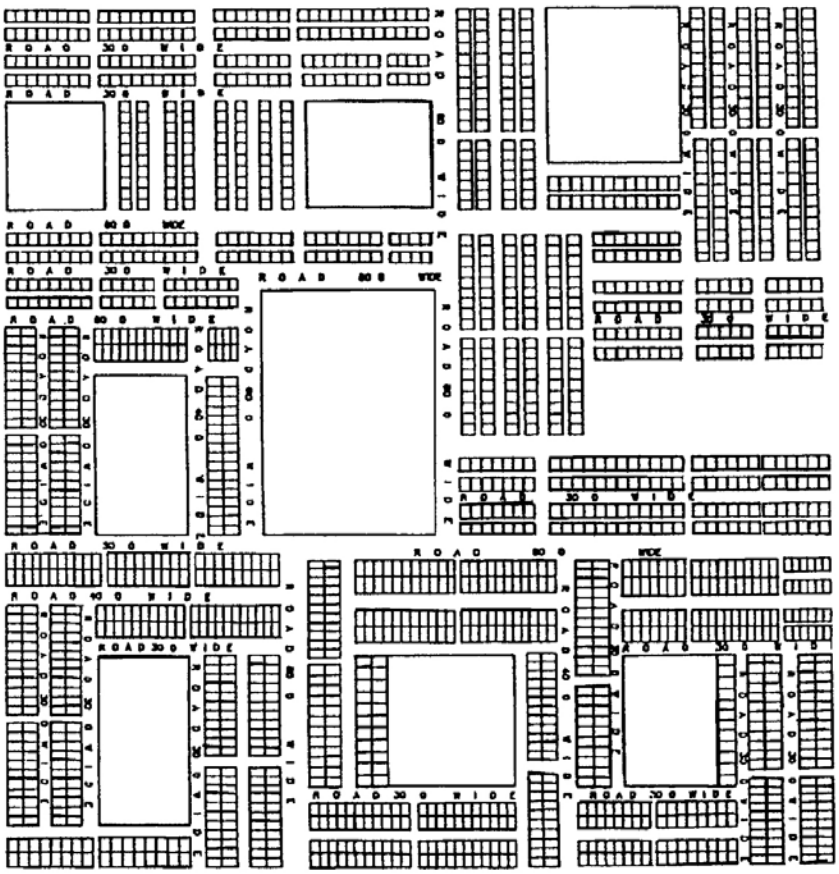
Climate

Bordered by the River Indus, Hyderabad is located in the desert area of Sindh. It has a hot, dry, arid climate with a maximum temperature of 41 degrees C and minimum temperature of 26 degrees C. Winter temperatures range from 25 degrees C and 11 degrees C in the months of December and January. However, being located in the Lower Indus Plain and near the Arabian Sea, Hyderabad experiences pleasant breezes in the evening and at night. Rainfall is minimal and occurs in the month of July.

Immediate surroundings

The Gulshan-e-Shahbaz housing scheme is located on the highway connecting Karachi and Hyderabad. It is 12 kilometres South-West of

Main arterial road encircling the Khuda-Ki-Basti site



A sector of Khuda-ki-Basti

Hyderabad city, 16 kilometres from the town of Kotri and only about 1.5 kilometres from the Kotri industrial area. The site has an access road from the highway at the South. Another access to the site is from the national highway connecting the Kotri industrial area, Kotri town and Hyderabad.

Kotri is a small industrial town, which was at one time a flourishing township on the bank of the Indus River. The national railway connected Kotri city with the national grid and the Sindh Industrial and Trading Estate. Kotri town consists of conventional two-to-three storey compact brick houses with inner courtyards, enclosed by walls. Brick walls, flat roofs, small window openings are the characteristic features of this housing. The central business areas of Kotri are crowded, but there is little current business development.

The desert-like dry arid climate facilitates the growth of natural vegetation such as some scattered cactus bushes. In the city and project area, plantations along the road side include neem, eucalyptus, castor-oil and flowering plants like gul-mohar and bougainvillea.

Immediately surrounding the Khuda-ki-Basti Project are the Gulshan-e-Shahbaz housing sectors. Apart from the model homes built by the HDA and the site office, the entire area is barren. All the homes, built in barrack style, are unoccupied. The barrack layout is visually regimental.

Topography

Khuda-ki-Basti is a comparatively flat area adjacent to the river, the site is formed from the alluvial deposit. Some small hillocks are located near the site on the West within the Gulshan-e-Shahbaz scheme. The Ganji Takkar, or bald hillock, is located beyond sector D6 of Khuda-ki-Basti. The average elevation of the site and Hyderabad district is 50 metres above sea level.

Description

Need for project formulation/project concept

Land in sites-and-services schemes in Karachi and other cities in the province of Sind was generally acquired by middle-income families. They did not need to occupy their plots immediately, because they already had adequate housing elsewhere in the city. As a result most plots for sites-and- services schemes remain vacant. In the meantime, illegal subdividers (dallal) have sold large tracts of vacant public land to the urban poor at affordable rates. Such illegal subdivisions provide suitable housing opportunities for the bulk of the low-income urban population, but they cannot be the solutions the authorities need to find formal alternatives that are equally affordable and accessible for the urban poor.

In an attempt to reach the lowest income groups in Hyderabad, the Hyderabad Development Authority (HDA) launched an incremental-development scheme. The scheme is based on the idea that people should settle before houses and infrastructure are built and that, once settled, they can develop their housing and the infrastructure incrementally, as and when they have the resources. The incremental development scheme in Hyderabad imitates the approach followed by the illegal subdivider; it is characterised by ease of entry, immediate delivery of the plot and incremental development of the houses and the infrastructure. The

HDA, therefore, recruited illegal subdividers to assist the agency in the identification and settling of low-income families in the incremental-development scheme.

General objective

Alongside the objective of resolving the housing need of the urban poor, is the physical objective to reduce the unplanned growth of slum and Katchi Abadis in this urban area.

The social objective is to upgrade the living standards of the economically weaker section of the population, by making land accessible for permanent ownership in a planned housing scheme with all infrastructure on a self help operation basis, so that urban poor can be integrated into the mainstream of society.

Institutionally, the objective is to overcome the constraints that public sector programmes face in making land, credit for housing and physical and social sector facilities available to the target group.

Technically, the objective is to make the scheme affordable, adaptable and maintainable to the life style of the users. The scheme allows for diversity in economic, socio-cultural and religious backgrounds.

Functional requirement, architect's brief

The physical layout/master plan

The functional requirements were predetermined and they included:

- A grid-iron layout master plan of the Gulshan-e-Shahbaz settlement. Khuda-ki-Basti included 4 sectors (E3, E4, D3 (part), D6) out of a total of 52 sectors.
- Determination of the plot size total number of plots. The plot sizes are 24 feet x 30 feet, 20 feet x 36 feet, i.e. ,a total area of 80 square yards.
- All infrastructural facilities
- Social, cultural, educational and religious functions.

The delivery system of plots

For the basic requirement of the settlement, the calculation of a plot is made at a level affordable for low income families still effectively meeting the subsided land cost of the government.

The scheme requires a reception area for new arrivals. Screening of applicants for suitability for the scheme was one of the key-point in the determination of plot allotment. Technical assistance was provided in the formulation of housing standards to stimulate and promote the input of the users. Home owners were given help in the technology of building techniques for self-help in construction, supervision and maintenance of the housing.

A co-operative system was used to manage utilities within the housing, including decision of access, building management, revenue, and maintenance.

A support group (NGO) was established to assist the scheme with technical, educational and moral support to obtain sustainability.

Project Data

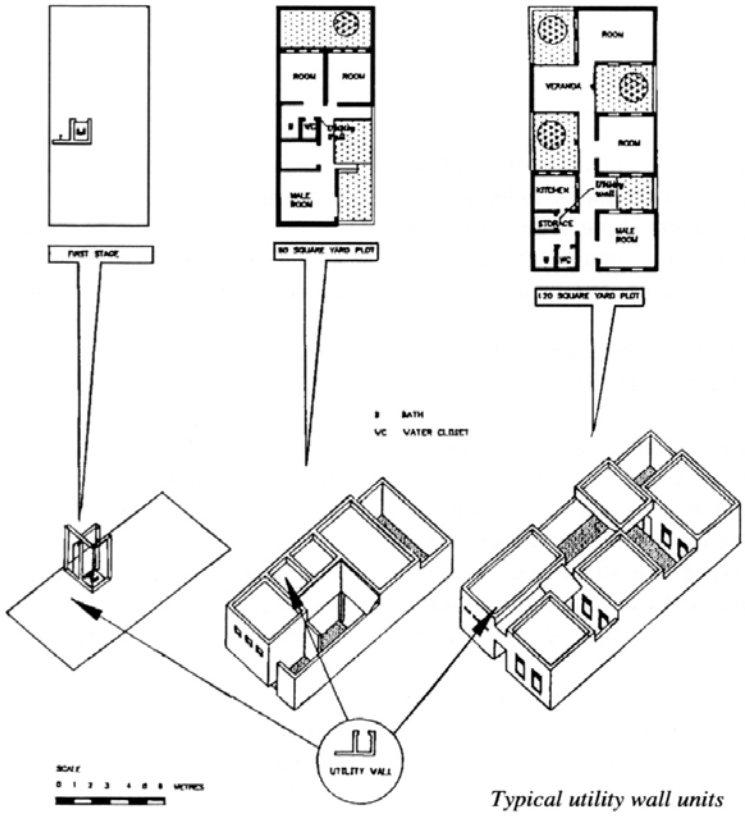
Physical data

Total area of Gulshan-e-Shahba: 5550 acres.
Total number of sectors: 52.
Total area of Khuda-ki-Basti: 147 acres, 3,000 plots.
Sectors of Khuda-Ki-Basti: E3 (part), E4, D5, D6
Size of plot: 24'x 30' & 20'x 36' (80 sq. yard)

Demographic data

Population of Khuda-Ki-Basti: 20,000 - 25,000 (1989-1990)
Average family size: 7.24
Average household income: Rs. 1567
Sunni Muslim: 85%
Shia Muslim: 15%

Gradual development of houses and greenery along the access road and supply of electricity



Typical utility wall units

Linguistic data

Sindhi speaking:	15%
Urdu & others:	85%

Social Functions

Schools: 5 (1 government school, 1 college).

Mosque (for Sunni):	8
Imambara (for Shiah):	1
Play field:	1
Post Office:	1
Clinic:	1
Marriage Hall:	1
Family Planning Centre:	1

Communication

Telephone connection:	16
Public Calling Office :	2 .
Mini Cinema Hall:	1
TV, Video:	0

Transportation

Transport available from 5 am - 11 pm. Bus service every 10 minutes from the site. Pickup (Suzuki Van) owned by residents. Micro Bus

Utilities

Water line, overhead reservoir, electricity line, sewerage line, sewerage pumping station.

Road width

Periphery road along sector: 150 - 100 feet
Main entry road around field: 60 feet
Road within blocks: 30, 40 feet
Service lane at the back of plot: 12 feet.

Evolution of the design concept

The master plan

Khuda-ki-Basti is formed out of 4 sectors, viz E3, E4, D5, D6, of Gulshan-e-Shahbaz. Each of the sections was further divided into blocks.

Sector	Blocks
E4	E4 /A, E4 /B, E4 /C,E4 /D, E4 /E, E4 /F
E3	E3 /A, E3 /B, E3 /C
D3 (part)	D/3
D6	D6

Plots were initially planned back to back attached in linear rows along the road, as seen in block A, B, C, F (part of sector E4). Later revisions were made with the inclusion of a service lane as seen in block D, E, F (part) of section E4 which accommodates the sewerage line and pits.

A rectangular playing field was planned centrally in each sector with plot area in a pin-wheel layout.

Settlement organisation and delivery process

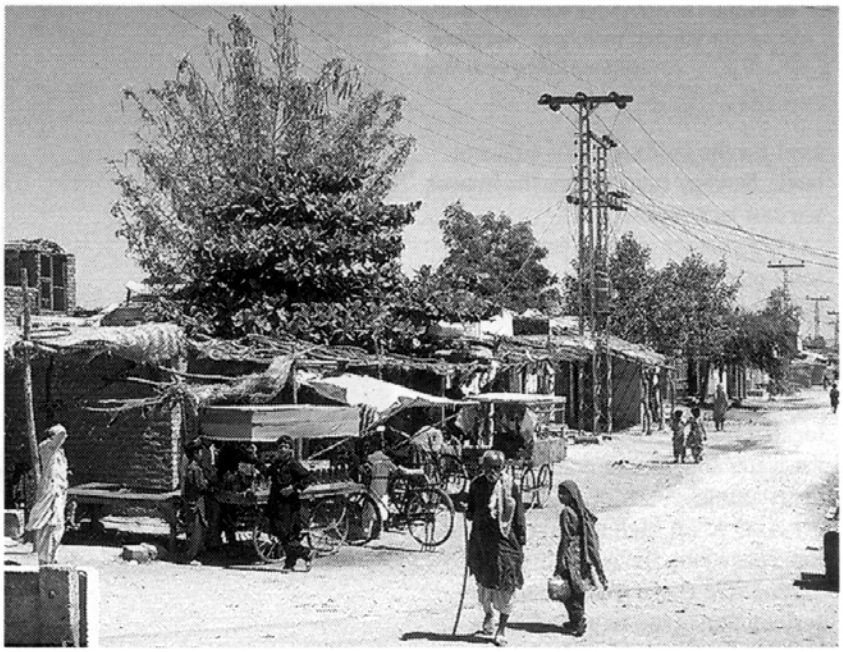
The genuine urban poor was the target group. A family would arrive and stay in the reception camp for 15 days. After screening by HDA and down payment of Rs. 1,000 a family was allotted a plot. Within 14 days the family must begin to construct their house otherwise the allotment might be cancelled. They would design and construct the house themselves (a portion or complete) in any manner suitable/affordable with what ever building material or style preferred and managed by themselves.

Incrementally, they may improve and extend or beautify their construction. With community participation they would contribute to all main service lines within the site and primary roads.

The house-form

The householder can construct his house in any chosen form. Usually the first stage of his house is a "Jhuggi", which he will eventually build into a one-storey brick-walled pucca house.

The house-form always includes a boundary wall and a gate, and all plots are aligned with boundary walls on the road front. The master plan in grid-iron pattern gives a telescopic perspective with the parallel walls along the road. The incrementally developed house usually has two



Commercial activities and shops form part of the development

rooms, one veranda, one kitchen, a bathroom, a latrine and a open-to-sky courtyard. During daytime, the courtyard is a multi-purpose work area for women and children (especially the girls) and at night time the courtyard is the sleeping area for men.

Rooms have few small windows, natural light within rooms is inadequate. Furniture is scarce, but all families have Charpayah (rope matted beds). Some families have been allotted the adjacent plot, which is used for farming (poultry and breeding livestock). Sometimes, a house is also used as a small cottage industry, especially carpet weaving and embroidery, which are the specialty of the people of this region. Plots along the 60-100 feet width roads have become commercial with shops.

Structure, materials, and technology

In "Jhuggi" the walls and roof are made of reed, wood, cardboard, or whatever gives protection and privacy from weather and people. Presently, these are few in number.

Brick houses with mud or mortar plaster are sometime built with sun-dried adobe. These are few in number. The families prefer to build slowly, but more permanently . Roofs are of temporary reed, asbestos tiles, or tin sheets.

Pucca, or permanent houses (85 per cent), are of brick or cement block, cement mortar pointed walls with reinforced cement roof. The majority of the houses are single storey load bearing brick structures. Approximately 10 per cent of pucca houses are two storied. Facades are brightly coloured and have cantilever verandas with jalley-work railings. Construction work and supervision were done by the owner. Technical assistance from SAIBAN, an NGO, was given in the execution of these pucca houses, especially in foundation design.

It was seen that more time was taken to build the permanent roof, as it is a one-time construction and involves considerable capital resources. Nearly 40 per cent still use reed for roofing. Doors and windows are wooden. Pre-cast concrete jalley-work with floral and geometric designs are used as ventilators in rooms, roof cornices, and boundary wall. These jalley-works are a traditional Sindh elevational element used in railings and cornices for building facade beautification. Floors are of cement.

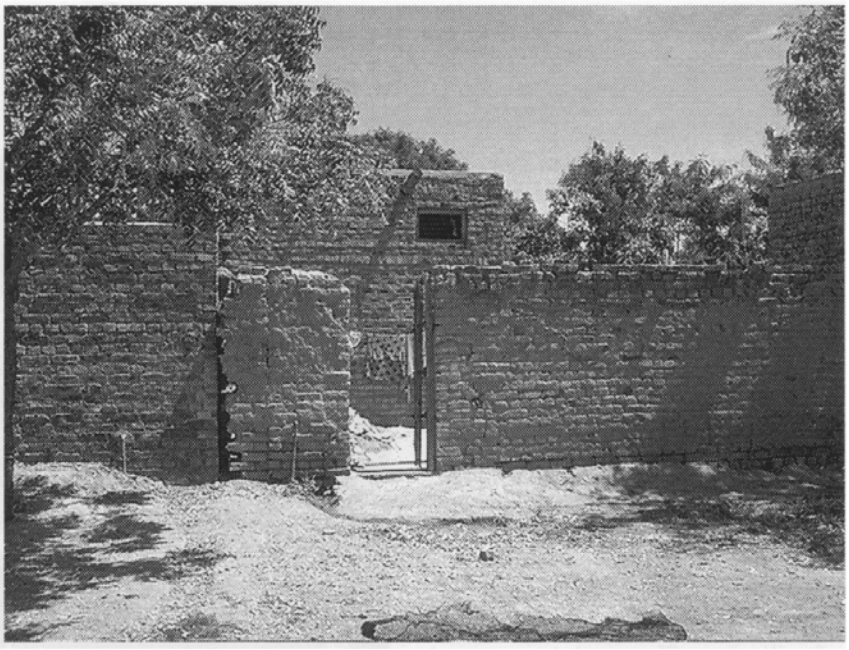
Origins of technology, materials, labour, force, and professionals

The locally available and affordable building material is brick. The clay for the brick is available from the site which is an alluvial plain. Local hand-made kiln fired bricks are used for the construction of brick walls, which has brought a homogeneous character to Khuda-ki-Basti. Cement block, concrete, and steel reinforcement are locally available. Except for the few two or three storied houses where professional contractors have been hired, all other houses were self-made by family members.

For specialised work, such as doors and windows, carpenters were hired. Some residents have become thallawala, who sell building materials such as concrete block, brick, cement, window gills, and jalley work. Local residents serve as the labour force for construction in the project area.

Utility service

Large, 6 inch diameter RCC pipes are laid underground for sewage lines in the street. For every four houses, there is one septic tank, which is joined to the two pumping stations in section E. A sewage trunk line joins the two pumping stations, located in the road in front of Block E, B, E, C of sector E. The water is recycled and



Individual houses have boundary walls and entrance gates, with open courtyards for outdoor living activities

used for the cultivation of adjacent land. Sewage lines within the houses are cast iron pipes.

Water lines are GI (galvanized iron) pipes. Seventy per cent of the houses have individual water supply connections. Houses without a water supply connection collect household water from conveniently located pipes. HDA is responsible for water supply and main line distribution.

A 33 KVA high tension electric line runs along the super highway. With a step down transformer, the service line is fed into the Khuda-ki-Basti housing scheme. WAPDA is responsible for the electricity supply and distribution.

Residents apply for individual house connection to all utility services after completing all required formalities and paying departmental charges. The residents qualify for procurement of utility services after payment of monthly installments to HDA against their total payment schedule.

A few houses have telephone lines. Facsimile and STD phone service is available commercially. Local TV and satellite TV and cassette players are a favourite form of family entertainment.

The waste disposal system is unresolved. A community participatory system is being evolved as the solution.

Construction Schedule and Costs

History of project

From the experience of Guishan-E-Shahbaz, Metroville, and other housing schemes where results were not effective, it has been established that the cost of a loan, the regularity of repayment, and guarantee of financial institutions, make site and service schemes inaccessible to the urban poor.

According to the information supplied by the HDA, the land cost was Rs. 21,780 per acre or Rs. 4.50 per square yard. The cost of infrastructure was Rs. 111 per square yard and the total actual cost (with land) was Rs. 110 per square yard.

Each plot, having an area of 80 square yards, measuring 24 x 30 feet or 20 x 36 feet, costs Rs. 9,600 (US $ 50), which includes the cost of land and cost of utility lines and infrastructure such as water, sewage, electricity, roads, and social ancillary function.

Comparative costs

A mud house costs Rs. 2,000 and a kutcha brick house costs Rs. 8,000. A complete Pucca house costs approximately Rs. 50,000 with the cost of utilities and services paid by installment with the incremental development of the services. This cost was 40 per cent below the conventional building cost.

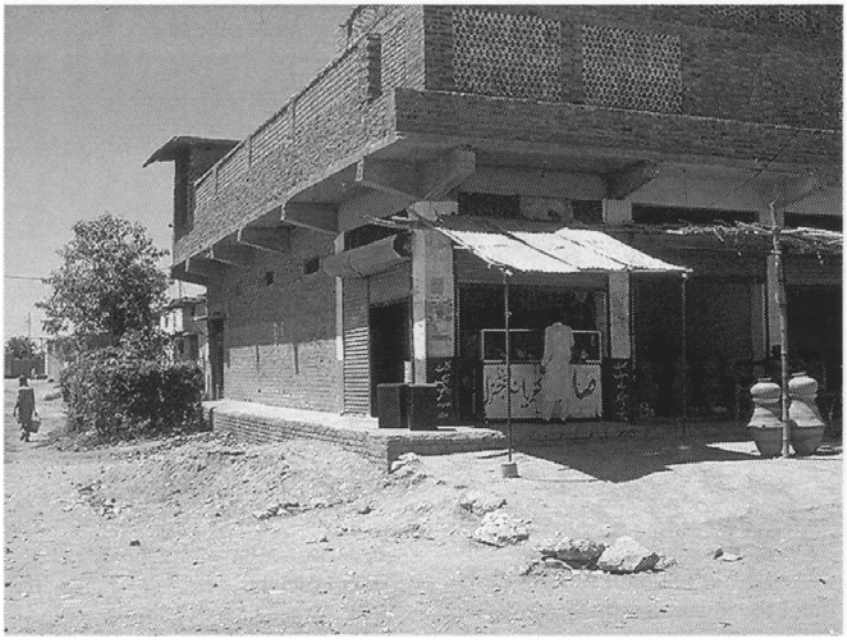
The initial down payment per plot was Rs. 1,000 to the HDA for the unserviced plot cost. The monthly installment repayment began with Rs. 50 (US $3 in 1988), with a yearly increment of Rs. 20 and, eventually, installments increased to Rs. 110 per month until the total repayment (Rs. 9,600) was completed and title of ownership of plot was given to the allotted.

The resident pledges to make regular payments. As the monthly repayment proceed, infrastructural developments are implemented. For the service lines, the residents collectively decided on the prioritisation of utilities, whether water connection was first, or electricity. However, a resident was free to select his priority of utilities for his own house. For installation of utilities, labour cost was minimal because it was done through self-help construction.

Technical Assessment

Functional assessment

The housing sectors being laid out in the original grid-iron plan of the Shahbaz have yet to exhibit organic sensitivity in planning. A central



A small shop on a corner plot, with residence above

field with a pinwheel plan pattern has been designed in the master plan layout.

All similar plots were planned back to back along linear roads. Later, a back service lane was included between two plots. Ancillary facilities, such as clinics, schools, and shops, were incorporated into regular residential plots.

Each plot was built upon immediately after allocation. There was total design freedom in the type of structure and the choice of materials of the house. Each allottee scheduled his time for extension, completion, and upgrading. The residents maximized the utilisation of the plot, using space both for indoor and outdoor activities. There is a harmony in the house forms, building materials, and the structural systems. Building volumes and masses seem to follow each other as they are built incrementally. This has brought a homogeneity to the entire complex.

The project has been able to fulfill its objective of plot allotment through the adapted land tenure process. A section of the urban poor has settled in the planned area with some decent living standards. The aspirations for a better life are clearly depicted in the house forms and their effort and enthusiasm in the procurement of the infrastructure stage by stage with the community decision as they invest their resources, is evident.

As the house moves from the "Jhuggi" stage to a brick walled pucca house, the essence of permanency and ownership prevails within the project. The residents are happy with their homes.

Climate

The micro-climate, being hot and dry, the house forms and the building materials compliment the climatic performance of the houses. Dotted with planted trees and flowering plants along wide roads with a high open and built space ratio and many low rise buildings, an effect of coolness has been achieved.

The house form comprising indoor and outdoor spaces, with small window openings, facilitates the micro-climate within the house.

Choice of materials and level of technology

Residents have their own choice of buildings forms and materials. The income level of the resident guides his choice of materials. However, since allotment of plots was completed in 1989, the "Jhuggi" stage has been overcome. Most of the houses are brick built, single storey houses and 70 per cent of the houses have been able to include pucca R.C.C. roofs.

Salban, an NGO and HDA staff, posted at sites, provides technical advisory service to the Khuda-Ki-Basti community. However, professionals advise it regarding structural systems, especially which foundations to use, facilitating the quality of construction and vertical expansion.

The present level of technology in building construction is the self-help and "learn/adapt from your neighbour" technique. The walls are load brick/concrete block with minimum foundations. Technological input in foundation design is important. The inner open courtyards give the option to add a staircase in case of vertical expansion.

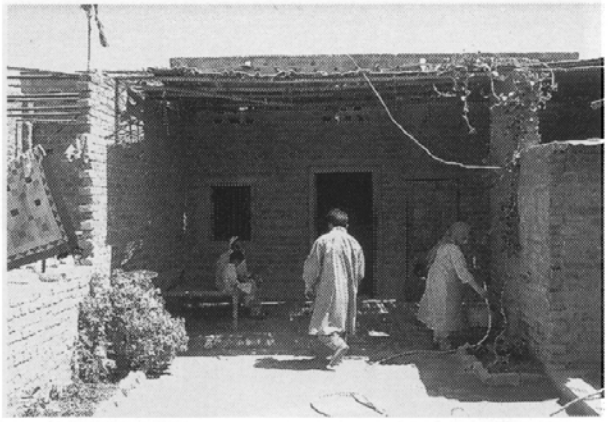
Some demonstration houses may prove helpful as models for building techniques.

Maintenance

Similar to the self-help construction, maintenance is done by the home owner. The brick pointed walls need low maintenance and are appropriate in dry surroundings. The project area is dusty because constant construction work is in progress and the roads are yet to be completed.

Utility service lines are maintained and serviced by community participation with assistance from HDA, WAPDA, Saiban, and other NGOs working on the project.

The sewage system and solid waste management is unique in this



An established house with typical brick construction

project. Waste from the two pumping stations goes to a treatment pond. Waste water is treated and flows into the cultivation land for irrigation. The solid waste is treated into fertilizer.

Design features

Being part of the Guishan-e-Shahbaz scheme, the plan of Khuda-ki-Basti was developed by HDA's Planning and Design Control section. A master plan was developed, incorporating plots, roads, open spaces, and ancillary facilities. The master plan layout was formal and conventional. HDA has observed that:

- A geometrical layout would contribute to better organisation of rural migrants and the pilot project would be easier to manage and monitor;

- The lack of time for research on an alternate master plan layout;

- Priority was given to the plot delivery process, rather than plot layout options.

Predominant features of the housing are typical, such as the brick massing of the house form, which is also found in the Katchi Abadis of Hyderabad and Karachi. The notable differences in this settlement all the planned layout, permanent ownership and serviced utilities.

Self-designed houses display an array of facade treatments in entrance doors, window openings and the boundary walls. However, local architectural influence has created a uniformity of look, size, proportion, and scale within the site.

The target group of the programme were the urban poor (20 per cent) and the lower middle class (40 per cent), whose income level ranges from Rs. 500-1,000. A majority of them are Mohajers, who were in constant movement with make-shift homes, or rental units near their work place. The incremental system, introduced for procurement of infrastructure with community consensus, has generated a compatible living behaviour.

Linguistic groups are divided into 70 per cent Sindi speaking, 30 per cent Urdu and other languages. Ethnic groups consist of 85 per cent Sunni Muslims and 15 per cent Shiah Muslims.

In each block of the sector, there is a community leader chosen by the residents, who gives leadership in the community decisions for infrastructure, maintenance, motivation, and unity. These leaders are always in liaison with HDA, Saiban, and other authorities.

"Ownership is Pride" — this statement is evident in the faces of the families in Khuda-Ki-Basti. A sense of right and responsibility has become inherent in this community.

The housing is going through a "growing" phase. Within the project there is always development work in progress. There are houses being built, some are being extended, some are being repaired. Ornamental elements are plugged in. There are utility lines being installed. To summarise, the scenario is one of constant development, which is the basic principle of incremental development.

Project Personnel

Inspired by the Orangi Pilot Project, the Director General of the HDA, Mr. Tasneem A. Siddiqui, initiated and formulated the Khuda-ki-Basti Project. A bureaucrat, Mr. Siddiqui, experiencing the failure of Guishan-e-Shahbaz housing, took a very bold step in initiating and implementing the incremental housing approach.

Mohammed Azhar Khan, the director of the planning and design section of HDA was in charge of the design of the master plan, the plots, and the service layout.

The project staff of HDA, Mr. Mohammed Akhtar Khan, is in constant contact with the users and assists in the solution of their day-to-day problems, which gives an institutional security to the resident.

Saiban, an NGO established in 1991, is committed to the welfare and growth within the township. Mr. Shahid Hossain, in charge of the project from Saiban, is on site to organise, motivate, and stimulate positive growth in Khuda-ki-Basti.

Rehman Architects, owned by an architect Jamilur Rehman, assists HDA and Saiban with technical and professional services required within the housing.

Lailun Ekram
May 1995

Local Report
by Salim Alimuddin

Incremental Development Scheme

Khuda-Ki-Bast, Hyderabad, Pakistan
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Introduction

In 1986, Hyderabad Development Authority (HDA) launched a low-income, incremental housing scheme, popularly known as "Khuda Ki Basti" (KKB). The scheme aimed to overcome the constraints that public sector housing projects generally face, in making land and physical and social infrastructures available to low income groups. KKB followed the approach of the profiteer who creates informal settlements. As such, the plan provided easy entry to and immediate delivery of the plots of land.

My Association

The first time I became aware of the IDS of HDA was in 1987, when the authors of the scheme came to the Orangi Pilot Project (OPP) office in Karachi to explore the possibilities of adopting OPPs low cost sanitation model for the IDS. Later in 1989, I had the opportunity to live in KKB for one week and to closely look into its' problems and prospects, while, at the same time, assist my classmate in conducting a socio-economic and physical survey for his thesis. I also attended seminars arranged by HDA on this development. The last time I saw KKB was in 1994, when OPP asked me for some advice about the development of a sewage disposal system for one of the KKB sectors.

Innovative Scheme

The Incremental Development Scheme (IDS), of HDA has been discussed in housing circles as an innovative approach and a point of departure from conventional practices, which have failed to meet their objectives for low income housing. While it is regarded by many as a truly successful conceptual approach towards the housing sector, it has been severely criticised by a number of planners, architects and administrators.

Origins of the Scheme

The KKB concept is not new in Pakistan. The debate on formalising the informal sector approach to housing began in 1974. However, credit must be given to the HDA for using the research on informal sector housing by Jan Van Der Linden and Arif Hasan and successfully demonstrating their theoretical concepts.

Salient Features of the Scheme

Immediate land supply

The objective was to provide land immediately for the applicants.

Comment

KKB was able to provide land immediately because it avoided lengthy and complex bureaucratic procedures and adopted a simple one-step operation.

Land at affordable price

The aim was to provide land for housing at an affordable price to low income groups.

Comment

KKB succeeded in providing land at affordable prices, firstly because inexpensive government land was available to HDA, and secondly because land and service costs were assessed separately. The allottees paid only land charges initially and were given a long period of time to pay this cost in affordable installments. Services had to be developed incrementally, with monthly installments paid by the allottees to the HDA.

Control over speculation and targeting.

One of the objectives of the KKB scheme was to control speculation, a major cause in the failure of formal sector housing schemes, and to identify the target groups.

Comment

KKB has been partially successful in this area. The procedures adopted for controlling speculation and identifying the target groups, were strictly followed while Tasneem Ahmed Siddiqui was the Director of HDA. His successors were not able to implement these innovative procedures because they were in conflict with the regular operating procedures of official agencies, and the HDA officials did not have the necessary interest and willingness to do so.

No by-laws

The objective was to allow the allottee to make full use of the plot and use any type of material for the construction of the house.

Comment

This decision was made by the HDA after realising that the inhabitants preferred to make their own decisions. The only imposed regulation was that of leaving a three foot space at the back of the plot. This has not been implemented by the allottees. The houses built without leaving this open space, do not get sufficient light and air. This situation will become worse in the future, when the houses will have had another storey added to them. Land use is not being regulated either, which could have a disastrous environmental impact in the future.

Physical Infrastructure and Social Sector Services

The objective was to help low income groups acquire incremental services over time, and at a pace determined by their ability to pay.

The main sewage and water lines were to be laid by the HDA. The result was that people had to perform this task on a self-help basis, following the approach of the OPP.

Comment

The main infrastructure could not be developed as quickly as desired and that which was developed by the HDA, suffered from technical flaws. Another problem was the lack of organisation and motivation among the people to lay the sewers. The HDA was unable to overcome this situation. Another reason for the failure of the project was that the people came from different locations in Pakistan and did not know each other well enough to initiate a combined effort.

Other services such as banks, a post office, and transportation services were acquired by the HDA Director by using his personal contacts. In the absence of such contacts, these facilities would not have been built. The introduction of social programmes by NGOs and government agencies was made possible in special circumstances, such as the Director's personal interest in them, and through his personal connections, which are difficult to create in normal working of official agencies. These programmes could not take root because they needed to be linked to local organisations, which did not exist.

People's Participation

The objective was to create effective and self-sustaining groups of residents to decide and place priorities on the services they desired, and then to establish an infrastructure on the pattern developed by the OPP in Orangi 2.

Comment

The HDA's efforts to organise the community have not been successful, although it has tried several different approaches. One major hurdle was the size of the block, that it sought to develop, 200 to 250 houses. Another factor was that, government functionaries are used to performing their duties and do not perceive their function as working in partnership with people.

Credit for Housing

The objective was to provide credit for low income inhabitants to acquire weatherproof roofs. A loan of Rs. 5 million was obtained by the HDA from the House Building Finance Corporation (HBFC) for this purpose.

Comment

The block organisations, which were responsible for disbursing the loan in their respective blocks, misused the money by giving it to friends and relatives for their businesses, rather than giving it to the homeowners for roofing. On the other hand, repayment of roof loans by the inhabitants is poor and becoming worse over time.

Physical Planning

KKB followed the grid iron pattern to establish uniformity of design.

Comment

The land has been used liberally by planning just 20 plots per acre. The standards applied for parks, playgrounds and width of roads and streets are by no means compatible with the culture of a low income community. Due to the large open spaces, their maintenance will be a financial burden on the HDA. The plan would have been much better if planners outside the HDA had been involved.

Financial Viability for the Implementing Agency

The objective was to make the project self-supportive so that it would not be a financial burden for the implementing agency.

Comment

The IDS is financially viable for the implementing agency because inexpensive land was made available by the government, and the infrastructure was to be developed and paid for by high and middle income plots of the Gulshan-e-Shahbaz development, which was to be shared by KKB. Therefore, plots could be provided at a very low cost. The initial provision of services by HDA was limited to a communal water supply and public transportation to and from the city. Piped water, sewage treatment, electricity and roads were developed at a later stage. Monthly instalments paid to the HDA by the allottees were to cover these costs.

The price of land is recovered through down payments by the allottees and no further investment in infrastructure development was to be made by HDA until sufficient deposits were collected from the inhabitants.

Institutional Support

While Tasneem Ahmed Siddiqui was the Director of the HDA, his objective was to generate interest in the officials and staff of the HDA for KKB. They were taught to learn from their mistakes and to listen to experienced people.

Comment

He was unable to create and sustain the interest of officials and staff of HDA in KKB scheme because of their lack of dedication to the work in which they were involved.

Role of "Saiban"

Because of the reservation on the part of government functionaries, in 1990 the creators of the plan decided to form an NGO called Saiban to take on the role of the HDA for the development of KKB. The main objective of Saiban was to act as a link between the government and the people to create a participatory development focus. Saiban also planned to develop new IDS projects with the government. Saiban at present has the financial support of the Swiss Development Co-operation, Homeless International (a UK based NGO) and Overseas Development Agency, UK.

The objective of Saiban is to replicate the KKB approach in several other locations, so that the impact of the approach in solving the housing need of low-income groups is effectively felt.

Comment

The KKB approach as a pilot project demonstrated that government agencies can provide land and services to low-income groups at an affordable price. To be successful it is necessary to create zeal and enthusiasm on the part of government functionaries and politicians. In addition to the delivery of land, the model also requires the development of effective community organisations, environmental regulations and their implementation and a workable community-government relationship. This has yet to be established.

Opinion of Professionals

Innovative scheme

Most professionals in Pakistan like the concept and feel that it is an innovative and viable solution for meeting the housing needs of low-income groups. They feel that the procedure applied for the allotment of plots was successful and should be replicated in other government ventures. However a few professionals feel that not only the plan but even its principles cannot be universally replicated elsewhere and will only lead to the creation of environmentally degraded neighbourhoods.

Land supply

Professionals argue that the land supply in KKB was successful because inexpensive government land was available outside the city centre. In other settings, it would not be possible unless such land was available.

Infrastructure services

The view of most professionals is that since KKB is part of a larger picture, which includes high and middle income development, all the basic urban services such as water, sewage treatment and roads were present. If this had not been the case, the cost of the development of the infrastructure would have been out of reach of the low income groups.

People's participation

Professionals feel that because the people who currently reside in KKB

come from different places and have different regional origins, a closely knit community structure has yet to emerge. Others feel that a true community can emerge only if people of different income groups and backgrounds live together. They argue that in KKB this is not the case since all are from the same low income group.

Institutional support

In the view of professionals, a smooth transition from HDA to Saiban, for overall managerial functions, saved KKB. It was also felt that interest created in the HD staff for this project was due to the enthusiasm and zeal of Tasneem Ahmed Siddiqui. Otherwise, given the attitude that tends to prevail in government functionaries, one could not have been expected such enthusiasm.

Physical planning

Most professionals do not like the physical planning of KKB. They feel that the plan is not suited to low income groups and cannot generate cohesion and a community feeling. Another view is that if KKB is seen in isolation from the larger Gushan-e-Shahbaz project, of which it is part, it appears lavish and wasteful. However, in its present form there is a continuity between it and the Gulshan-e-Shahbaz scheme.

Other professionals see the planning of a housing project as a town planning exercise which should be designed by a professional town planner. Unfortunately for KKB, professionals were not engaged.

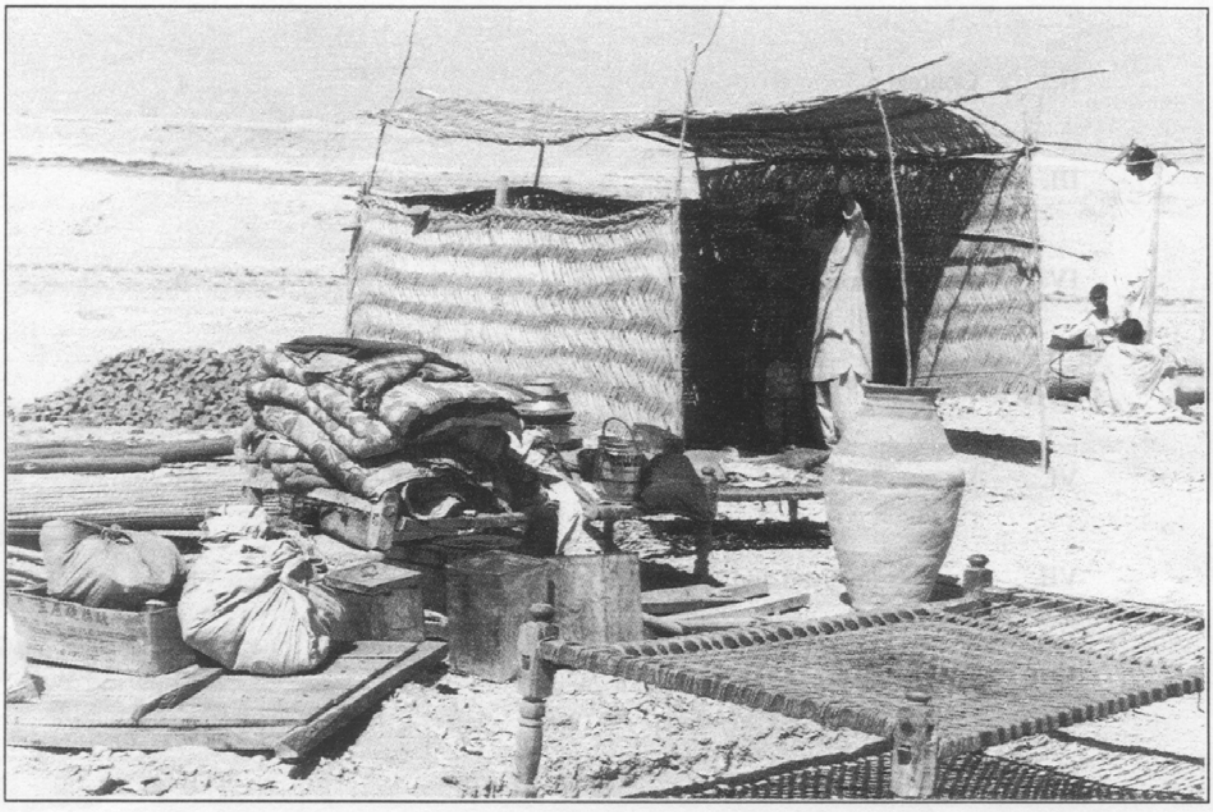
Salim Alimuddin, May 1995

1989 Technical Review Summary
by *Johan Silas*

0987.PAK

Khuda-Ki-Basti Incremental Development Scheme

Hyderabad, Pakistan



Architects & Clients
Residents of Khuda-Ki-Basti
Hyderabad, Pakistan

Planners & Sponsors
Hyderabad Development Authority
Tasneem A. Siddiqui, Director General
Hyderabad, Pakistan

Completed
1986, and ongoing

Khuda-ki-Basti Incremental Development Scheme, Hyderabad, Pakistan

I. Introduction

Since the adoption of the Vancouver Action Plan in 1976 (sponsored by the United Nations), member countries are expected to resolve housing problems through the increased involvement of the beneficiaries, including the urban poor. This approach also is intended to be stressed in the formulation of housing programmes. As a result, low-income housing schemes have been "re-formulated" such that the poor might be better served, their involvement increased, and their potential better harnessed. Besides conventional, ready-made housing programmes, alternative approaches were introduced - such as settlement upgrading programmes as well as sites-and-services schemes. The latter, especially, were developed to meet the housing needs of the very poor, permitting them more freedom to choose the kinds of houses they need, within the limits of their resources.

In Pakistan, many such schemes were initiated but did not effectively reach the target group. Instead, they often were controlled by land speculators or by more affluent groups. Worse still, many of the allocated plots remained vacant for periods as long as ten years; examples of this are the Metroville and the Deh Surjani schemes in Karachi. At Surjani, out of the 47'000 plots which were available and allocated in 1980, not even a single house has been built to date (1989); of the twenty thousand public housing units constructed, none have yet been occupied.

Thus, the existing thousands of urban poor have not been served by any of these schemes or offered any other possibility to house themselves. It is somewhat normal, therefore, that many of the poor wind up in squatter settlements or *katchi abadis*. This solution has catered for about 40% of the urban population, yet many others are so poor that they cannot even afford to live in slums and have become street dwellers.

Nevertheless, heavily subsidised "low-income" housing schemes continue, obviously with the same results. The only remedy to this situation is to take creative and daring action by formulating drastically different solutions. This is what happened at a part of the Gulshan-E-Shahbaz housing scheme which for the most part represents a conventional housing programme. One small part has been re-planned on a self-help, incremental basis. This settlement is known by the local community as *Khuda-Ki-Basti*, or the Lord's settlement.

The alarming situation confronting Pakistan is the homeless status of over three million people; one of every five households lives below the poverty line. As stated by the Environment and Urban Affairs Division of Pakistan, " ... they cannot afford adequate housing, their lives are marked by malnutrition, dilapidated shelter, poor water supply, inadequate sanitation, the lack of services, ..." This situation has become even worse because government housing policy is elitist in nature, strongly ignoring the existence of the poor, whose numbers are increasing rapidly every day.

II. The Context

a. Historical Background

Pakistan, with a population in 1985 of 100.4 million, is the ninth largest country in the world. By the year 2000, the population is expected to reach at least 141 million, when Pakistan will become the fifth or sixth largest country in the world. Yet in terms of status, Pakistan still belongs to the low-income group of countries, with a GNP of US$ 380 (1984).

On 14 August 1947, Pakistan gained independence. The idea of a separate state for Muslims of the Sub-Continent was originally conceived by the poet-philosopher Sir Mohammad Iqbal (1930) and later formally adopted by the All India Muslim League led by Mohammed Ali Jinnah (1940).

Partition led to communal rioting and to the mass migration of some 10 million Muslims, known as the Muhajirs, into Pakistan. More immigrants arrived from West Pakistan after Bangladesh declared independence in 1971.

Similarly to India, Pakistan began public housing programmes long before it gained independence. Until recently, the programmes were conservatively formulated and implemented, providing ready-made housing to the general public. Although heavily subsidised, access to obtaining a house remained far beyond the reach of the urban poor. This situation led to the existence of two types of people's housing: The first type was built on occupied land (many on the banks of water courses); the second was formed by sub-diving government land without authorisation by private persons. Some of these settlements became very large, such as Baldia, Orangi, Mahmoodabad, etc. The *Katchi Abadis* provided housing for 27% of Pakistan's urban population (1988), and grew faster than any public housing programme (*source: A. Hasan, A.D.B. discussion paper.*).

Hyderabad was once an important city and the capital of Sind Province. With the change of the political and economic structure of the country, it is now the fourth largest city in Pakistan, and one of the oldest cities in South Asia. The origins of Hyderabad date to pre-historic times when Ganjo Takar, a nearby tract, was used as a place of worship. In the middle ages, Hyderabad saw many famous rulers such as the Arghuns. Another ruler, Ghulam Shah Kalhora, ordered the construction of a fort covering an area of no less than fifteen hectares - this site is now a popular tourist attraction. Subsequently, Hyderabad experienced many changes and is now one of the most important industrial centres of Pakistan.

b. Local Architectural Character; Prevalent Forms and Materials

Basically, the architectural character of people's housing is influenced by three main factors: life-style, climate, and the availability of building materials.

Life-style is principally determined by agricultural activities, to which the majority of people still adheres, especially amongst low-income groups. Another specific way of life is the *Purdah* custom which imposes a clear separation of activities for women. *Purdah* still is widely practised, although in varying degrees of strictness. Building materials are determined mainly by local availability and include earth and mud, stone, wood, and, to a certain extent, fired brick. The use of imported materials such as steel is limited. Pakistan is mainly an arid land, hot, dry, and with very little rain.

The basic house form is a low-rise, enclosed compound house consisting of interlocking indoor and outdoor spaces. Low-income houses are mainly one-storey buildings, although in some middle class areas, two or more storeys are common. Houses are surrounded by massive walls, an inner court, and a well-guarded gate. This pattern caters very well for the need to differentiate between the unpleasant outer- or macro-climate which is dry, hot, and dusty, and the more pleasant inner- or micro-climate, which is cooler, rather humid, and clean.

Service areas are managed by women and are located to the rear or side areas. In some houses, animal breeding is integrated with other domestic activities. If necessary, other activities can be located to the right or front areas, providing easy access to shops or workshops and separating them from household activities.

Most of the house functions are accommodated in rectangular rooms, with a main (bed) room located approximately in the centre of the compound - this main area is always the largest free-standing room. It faces the inner courtyard to the front gate. Rooms for service, such as kitchen, bath, and toilet, are located to the side or back of this main room. It is not uncommon for the toilet to be located next to the main gate for its use by visitors and to facilitate waste disposal.

The main courtyard has the function of an outdoor family space; the side and rear yards are used for service. If space permits, a shelter without walls is provided in front of the main room, mainly for use for men's light activity. If needed, other non-domestic functions may be accommodated, such as for animal raising, home industries, etc., and these are mostly located to the side of the house, next to the gate. The outer wall serves to protect and differentiate private activities and belongings from the outside, and to mark the boundaries of outdoor spaces. It is often constructed of light, simple materials such as reeds, timber, or bamboo. If available, permanent materials are preferred, such as brick, stone, plastered mud, or a combination of several of these materials. If desired, colour can be applied; otherwise, houses retain the colour of the building materials in all parts of the house.

A traditional chimney-type structure can sometimes be seen and functions as a wind-catcher to increase wind flow and ventilation in the inner main room. Due to lack of rain, the roof is constructed lightly and is rather transparent so that daylight can penetrate, since rooms are only served by small ventilation holes and seldom by windows. People's housing can be classified into four basic types *(source: Horst in Schoorl, 1983)*:

- A *jhuggi* is basically constructed using cane for the frame and reed mats for the walls and roof. These mats, in certain cases, can be replaced or combined with jute, plastic, cardboard, timber, etc. To put up a *jhuggi* requires no special skill; it can be erected within a very short time, costs very little, and serves well as a shelter, although it is less effective in providing protections. *jhuggis* are always considered to be eyesores by outsiders. This housing type is generally used as a temporary shelter with a relatively short life span, and is later replaced by an improved housing type.

- Three types of *mud houses* are to be found: those using wet mud piled in stages up to an eight-foot height; others employ sun-baked mud bricks, which are stronger and more attractive; and the third type consists of mud plastering over skeleton walls of cane and reed mats - this construction type withstands rain much better than the other two methods. Although nearly everyone is able to erect a mud house, this type requires more time and labour and is thus more expensive. If plastering is required for maintenance, a mixture of mud, dung, and water is used.

- A *semi-pucca house* employs cement blocks or bricks for the walls of the main room, verandahs, courtyards, kitchen, bathrooms, and toilets. When properly plastered, durability is greatly increased. The roof is made of corrugated GI sheets or asbestos cement. Needless to say, special skill is required in this type of construction and the cost is at least seven times great than the cost of a *jhuggi* or mud house.

- A *pucca* house is distinguished mainly by its foundation and roof. The roof is made of reinforced concrete and can be used as a terrace or additional floor. Therefore, in order to safely carry this increased load, strong foundations are required. The construction of a pucca house requires skill and equipment and, obviously, the services of a contractor. It is, therefore, the most expensive of the four housing types.

Climatic Conditions

Hyderabad is located on the Lower Indus Plain in the Sind Desert area, well known for its arid climate. The district lies between 24.46' to 26.06' north latitude, and between 68.16' and 68.59' east. It has extreme climatic variation between winter and summer. The months of May and June are very hot during the day, when maximum temperatures reach 41°C, and minimum temperatures fall to 26°C. The months of December and January are the coldest, with maximum temperatures of 25°C and minimums of 11°C. The daily temperature variation can be great.

Showers, if any, fall in the month of July - the district lies in the rain shadow area. Heavily laden south-west clouds rising from the Arabian Sea normally pass over the area, but without letting moisture. Rain mostly can be caused by cyclonic winds blowing occasionally from the Persian Gulf. Humidity is variable and highest in the month of August, especially towards the end of the month. The lowest humidity occurs during the month of May.

d. Immediate Surroundings; Architectural Character; Access, Congestion, Landscaping.

Khuda-Ki-Basti is part of the Gulshan-E-Shahbaz housing estate, which is located about 12 kilometres south-west of the centre of Hyderabad city, or about 16 kilometres from Kotri Town, and only about 1.5 kilometres from Kotri Industrial area. The site covers only about 7.5% of the total housing estate (2'025 acres), which covers about 45% of the total settlement area which presently is still mostly vacant. The site is easily reached from the super-highway between Karachi and Hyderabad, which lies to the south of the site. Access may also be had from the state road connecting the Basti to Kotri Township and leading on to Hyderabad. Most of these routes are served by public transport.

Kotri Township is the nearest built-up area to the site and resembles most of Pakistan's other conventional low-income housing estates in urban areas. The houses are compact with little open space and enclosed by walls. Massing consists of box-like rooms organised vertically, due to limited land availability. The two- to three-storey houses are erected with permanent materials. Lower-income housing built by the people themselves is similar to the description given above in the first part of this report.

Other middle- and high-income housing is more individualised. The two- to three-storey houses are built of select, permanent materials on large plots measuring over 100 square yards. The forms and spaces are composed more freely but still are enclosed by massive walls and are somewhat more protected from street views. Street elevations reveal better finishings, in terms of the application of colour and detailing.

Except for the built-up area, the surrounding landscape is barren and rather dull, reflecting desertic conditions. Plantings and vegetation are scarce, difficult to grow, and require special care and cultivation.

e. Topography of the Project Site

The Hyderabad district is part of the Lower Indus Plain. The Indus River flows along the western boundary of the district and is the main source of water. It is a relatively flat area and has a uniform land surface formed by alluvial deposits from the Indus River. There are no mountains or hills anywhere except for some hillocks known as the Ganjo Takkar or bald hillocks. The highest point is only 75 metres above sea level and the rest of the district is a fertile plain with an overall elevation of about 50 metres above sea level. There are some good forest reserves in Hala Taluka along the Indus River.

The area is desertic, arid land with slight or low hilly areas to the north-east. Vegetation is difficult to grow due to the dry and rocky soil, and most of the terrain is not planted. Dust and dirt are easily formed and carried to every direction by an even, light wind. Sunlight is strong throughout the year and not tempered by trees or other vegetation.

III. Description

a. *Conditions Leading to the Formulation of the Programme*

Aside from the "Greater Karachi Resettlement Programme" for Korangi and New Karachi proposed by the Doxiades group in 1959, the dominant housing programme in Pakistan to systematically solve the needs and problems of urban housing was the Metroville programme launched in 1974. It was planned to meet the need for low income housing, and was supported by international finance. In the end, the project managed to provide 4'141 plots, but almost all of those ended up in the hands of middle-income households. For a long time, many were left vacant. When some actually did build their houses, the original core houses provided under the scheme with public investment were completely destroyed, because the restrictions they imposed on the plan prevented upgrading to better, middle-income housing.

This and similar other housing projects failed completely to serve the housing needs of the urban poor, whose numbers continued to grow at an alarming rate. Needless to say, in order to achieve a "balance" to this situation, more than 60'000 housing plots were later self-provided in the surrounding perimeter of Metroville by the low-income residents themselves, who initially were designated to occupy the Metroville project.

Thus, Orangi Town came into existence, through self-help by the people, and without any public resource assistance whatsoever, and in much cheaper ways and yet with better results. Another advantage of this "scheme" was the absence of any red-tape and reduction of the holding period between the time of "allocation" to the time of actual building and occupancy of the house. Housing and communities were readily built in this fashion.

In most public housing programmes, the holding period exceeded ten years. Two things have been clearly proven by the people's self-built housing efforts: First is their ability to erect reasonable housing by themselves, immediately upon the availability of land; the second is that the ever-increasing demand for cheap housing for the poor in urban areas was conveniently met by the scheme, although it was not "recognised", and without relying on any external assistance.

At present, Hyderabad covers an area of 5'683 square kilometres. Until 1980, 517'000 hectares were farm areas, of which 373'000 hectares were cultivated. Industrial activities here are amongst the most developed in Pakistan; one of the industrial concentrations is called "*Site*". In 1980, 150 industrial units were registered. At that time, according to the 1981 census, Hyderabad's population was 2'054'159 and increasing at a rate of 2.6% per annum.

The urban population has now reached 911'239 (44.4%), growing at an average rate of 2.3% (1972-1981). As explained earlier, although public housing schemes had been initiated years ago as in many other major cities in Pakistan, the poor remain un-served and must cater for their housing needs by themselves, using whatever resources, means, and opportunities they can manage. Due to this prevailing condition, several reasons lie behind the development of the incremental scheme, or Khuda-Ki-Basti - the name given to the settlement by the local population. One important reason was the apparent success of the largest and most widely known low-income settlements in Pakistan, Orangi Town.

The Director General of Hyderabad Development Authority (HDA) has previously had experience in dealing with housing problems through conventional housing developments in many parts of Pakistan. His long experience working in many places (including the former Eastern Pakistan) has taught him not to rely too heavily on existing approaches in the effort to genuinely serve the poor. His sensitivity to the problems of housing the poor has, over the years, become more feeling and has stimulated creativity to embark on an alternative and more realistic scheme based on the Orangi experience, which proved that public housing is a possibility for effectively serving the urban poor.

On 18 July 1986, an article was published by Arif Hasan (see appendix) in the daily newspaper *Dawn*. In it, Hasan, who has worked with the people in the Orangi Pilot Project (OPP), proposed to shelter the homeless and urban poor in cheaper, realistic, and more effective ways. The example of Orangi Township clearly demonstrated that this idea was possible. Orangi Town was originally built as a reaction to existing public housing schemes (such as Orangi Metroville) in the same area, which failed to serve the poor.

The article in *Dawn* further stimulated the Director General of the Hyderabad Development Authority to develop a similar approach to house the urban poor of Hyderabad, within an existing scheme. This was followed by his visit to Orangi and a first meeting between Hyderabad Development Authority and Orangi Pilot Project representatives, during August and September of 1986. Orangi Pilot Project team members agreed to assist the Hyderabad Development Authority in the development of their scheme, and more staff made themselves familiar with the experience of Orangi Town. A plan was formulated towards the end of 1986 as part of and within the Gulshan-i-Shahbaz housing scheme.

Three basic conditions were considered in the formulation of the scheme: the prevailing housing inadequacy and shortage for low-income urban families; the responsibility of the Hyderabad Development Authority to provide effective low-income housing; and, the success of Orangi Basti, whose success was by then already well acknowledged. Although Hyderabad is only the fourth largest city in Pakistan, its population has reached over 2 million persons. 95.1% are Muslims. The lack of appropriate data makes it difficult to measure the actual housing shortage and needs of the urban poor. However, the available data do give an idea of the prevailing housing problems, especially those of the urban poor.

In existing housing schemes (such as Qasimabad, North Qasimabad, Site Pocket, Kohsar, and Gulshan-i-Shahbaz, in which Khuda-Ki-Basti is located), a total of 14'662 plots are available, consisting of plots of 60 square yards (5.05%), 80 square yards (46.91%), and 120 square yards or larger (the remaining half). In Qasimabad and Gulshan-i-Shahbaz, of the existing 12'522 plots, only 0.17% are now occupied, 4 years after allocation. In Karachi, Hyderabad, and Sukkur, of the 119'916 plots allocated so far, only 2'924 (2.44%) are actually occupied since the programme was first launched in 1974.

Needless to say, until now, low-income people have continued struggling to solve their housing problems; some are exploited by more privileged groups or persons who have taken advantage of others in great need of housing. *Katchi Abadi* is one of the solutions to the housing problem of the urban poor in Pakistan. Of the three major cities (Karachi, Hyderabad, Sukkur), there are 136 *abadis* (1971) housing 992'000 persons, at a density of 563.3 persons per hectare. In 1986, this statistic increased to 556 *abadis* housing 2'352'867 persons, or 334.3 persons per hectare. In the same year, of the existing 400'500 houses, only 4.6% received leases. At the same time in Hyderabad, of about 15'000 plots provided through public housing schemes over the past eight years, less than 100 have actually been occupied. *(source: Peltenburg, 1987).*

Therefore, the attempt to provide decent housing for the urban poor in "normal" ways has achieved little success, almost negligible in comparison to the tremendous size of the problem. It is only through drastic steps that the poor can be relieved from the poor and high-risk housing conditions they now suffer. So far, only the better-off enjoyed being served by subsidised and scarcely available resources. An illustration of this problem is the proposal put forward by which "... the erection of new *jhuggis* will be dealt with as a serious criminal offence, punishable by at least one year of rigorous imprisonment." *(source: Schoorl, 1983).*

b. General Objectives

The general objectives of the scheme can be summarised by two aspects. On one hand, it intends to effectively satisfy the housing needs of the ever-increasing urban poor, thus far not served by existing housing programmes. On the other hand, it attempts to lessen the pressure of the growth of urban slums and high-risk housing which have increased on an alarming scale.

An objective of the scheme is also to give evidence and experience that public housing can be planned and implemented to effectively serve the needs of the urban poor without adding extra burden to public resources and to the responsibilities of the implementing agencies. In fact, this case has proved that, in financial terms, the project is fully self-financing and sustains itself.

Technically, the objectives of the scheme are not merely to serve the housing needs of the urban poor, but to do so at costs that meet the actual affordability of the poor, with shorter waiting periods, with the option to fit conveniently into their affordable resources and still to permit options for the future development of the house in line with the socio-economic mobility achieved by the family in the future.

c. Functional Requirements; Architect's Brief

Basically, the role of the architect in this project is to transfer the experience and pattern of the Orangi Basti housing development process, and to adapt it to the existing housing scheme which has, from its very beginning (1981), not been able to effectively serve the housing needs of the poor. It is also the role of the architect to decide on and prepare:

- A general plan where the basic requirements of the settlement can be met, but still efficient enough to keep land costs at a reasonably low level, affordable by the low-income families it intends to serve.

- Formulate house standards which can be developed in a process and through which the personal input of the owners/users is increased and stimulated. Another goal is to promote and inform the people on housing techniques and resource management for house development.

- Decide on the arrangements for access, payment, and the provision of services within the overall plan of the basti; supervise works carried out by contractors, such as the installation of electrical and water distribution lines, etc.

- Establish support personnel as well as other means in order that the project can function smoothly, such as by providing the reception area for new arrivals, informing new arrivals of their tasks and responsibilities, etc.

It can be summarised that the concept, plans, norms and procedures developed by the architect should make the scheme effective in serving low-income people, in the shortest possible time, and leaving options open for the users/builders to solve their own house construction problems with their own means and providing support to facilitate ease and creativity in all stages of the housing process.

d. Building Data

In less than two years' time after the start of the project (late 1986), the inhabitants of the scheme were able through self-help to build over 3'000 houses, serving more than 16'000 urban poor in immediate need of housing. The number of plots has now nearly reached 3'500 - some of these (11.3%) are still in the construction state. Only 12.2% of them are still in the *jhuggi* or temporary

state, which is a pre-requisite in the early stages of construction The remainder (76.6%) are pucca or permanent structures, or built with mud and masonry. Facilities have also gradually been added, according to need and opportunity.

By September 1988, 12'000 metres of water lines and 5'300 metres of sewerage lines had been installed. More than 600 houses were provided with water connections, and 90 public stand-posts were provided. Also, 8 mosques have been built, although some of these are very simple structures. There already are 15 elementary schools, and only one of them is run by the government. Electricity still is limited to certain lanes only; 80 houses have connections thus far, including one mosque.

Planting has also been carried out. Over 3'000 trees have been planted and are looked after by 5 workers. Some of the trees are planted to serve the purpose of demarcation of the boundaries of public open spaces, in order to prevent encroachment by land speculators. Although no permanent health centres have yet been provided, health services are provided by 8 doctors working from clinics and mobile units organised by the Red Crescent and the Lions' Club. The Family Planning Agency of Pakistan makes three visits per weekday.

Of course, employment and income-generating facilities are also available, such as the making of hand looms, paper flowers and bags, tailoring, embroidery, cobbling, etc., and run mainly by female workers. Various shops and services are also available. In all, no less than 22 shops (including a post office) are run by local residents. Seven government buses make 25 daily trips from the *basti* to Hyderabad city, and are further supported by 10 mini-buses or Suzukis, which make trips every 15 minutes.

e. *Evolution of Design Concepts*

It should be understood that most design and construction works were done by the people themselves, without any professional assistance whatsoever. The basic pattern of house design derives from the traditional settlements with which the residents are familiar. Resources include whatever the people manage to generate.

Basically, the evolution of design concepts can be divided into two different aspects: construction and function. The construction aspect has two dimensions: the first of these is from the point of view of materials and construction - *jhuggi* or pucca houses are illustrations; the second dimension deals with the process and stages of house development. The material and construction dimension consists of three different house-form types.

The first type is the occupation or shelter type, with the aim to take immediate possession and use of the plot by erecting very simple structures of temporary materials, such as *jhuggi* houses. The second type is developed incrementally and uses every imaginable and available material in the construction of a complete house, based on short-term demand. The third type is the totally evolved house - it usually is developed in stages over time, mostly using permanent materials and for owners who are not generally in pressing need of the house.

The second dimension or process of house development can be divided into two aspects: First is where the quantity of the end result is most important. Therefore, from the very beginning, the house is considered to be finished when the total required space has been achieved. The time required to build this type of house is usually very short. The second aspect of this dimension emphasises quality. Qualtity can be achieved in stages or phases and, if necessary, over a longer period of time. In actual practice, most house developments are a combination of the various aspects mentioned above.

The functioning whole is a compound house type. The house is mainly a plot surrounded by an enclosing boundary wall, with a big room for living and sleeping, usually located in the centre of the compound. Other rooms for service and production are situated to the rear or side of the compound. In some cases, the front part of the house may be used for income-generating activities, such as for shops or stalls.

Mostly, the rooms have limited openings for ventilation and limited lighting, not for view. The main room is always well decorated inside and is the focal point of the whole house. Other activities, such as home industries or animal breeding, may be integrated into the house and are normally located to the right side of the compound when facing the main room. Clearly, the house concept has the family as its nucleus and is harmoniously integrated to climate and nature.

f. Structure, Materials, Technology

Three types of structures form the basic pattern: 1) the skeleton-and-skin, or *jhuggi*, house type, which relies on wood and reeds for structure, and covering materials of reeds, wood, or cardboard; 2) massive mud structures, with or without infill of stone or other durable materials; and 3) brick or stone masonry types, stacked or bound with mortar or mud. In developing the process of house construction, incremental, superimposed or combinations of different materials and construction methods is normal practice.

This provides flexibility in resource generation and utilisation. In the process, the application of creative solutions at any development stage of the house is the strong point of the technology. However, the final goal is always a permanent house of massive mud or masonry construction. This is already perceived as a decent house. Technology should be based on self-build principles which involve all members of the family, including women and irrespective of age.

g. Origins of Technology, Materials, Labour Force, Professions

Mud is the only material available locally. Mixed with or without vegetal materials and water, it is moulded into massive walls. Wood, reeds, leaves, bricks and other materials all must be imported from the city or from towns nearby. They are easily and abundantly available at reasonable cost. All of the houses are copies of previously known houses or traditional types, mostly influenced by the places of origin of the families.

Based on a "design" drawn and decided upon by the head of the household, work is first done (incrementally) by the family members themselves. For certain or specialised tasks, a carpenter or mason assisted by labourers may be employed, although even they are fully assisted in their work by the family members. Otherwise, it is quite common that the finish work is undertaken over time by the family members. In many cases, women perform most of the work, which is usually rather simple and can be done incrementally during any spare time and according to the resources available.

IV. Construction Schedule and Costs

a. History of the Project

The main project was initiated as a grand housing scheme called Gulshan-E-Shahbaz and was begun in 1981. It was intended to accommodate 11'280 plots. However, of the plots that were allocated, mostly to groups of persons and housing cooperatives, none had been occupied or built upon by 1987. On the other hand, many low-income people did not have the opportunity for ac-

cess to this scheme. Complementary to prevailing housing problems and the success of the Orangi Basti project, a small portion of the Gulshan-E-Shahbaz scheme was allocated for re-planning and re-arrangement as a very low-income housing scheme to serve the homeless. Thus, Khuda-Ki-Basti came into existence in late 1986. Less than three months following the allocation of the first plots, buildings began to emerge and were gradually occupied. Later, following the allocation of further plots, more families arrived and began building their homes.

"Starter" houses which initially were built cheaply and simply are gradually being improved and transformed into well-constructed and well-equipped houses. Infrastructure and service facilities were gradually added to serve the inhabitants, and these facilities are generally run by community members. The involvement of the public sector is mostly restricted to the initiation stage and is then gradually taken over by the community to ensure finance, maintenance, and operation. Environmental quality is also gradually improved by cultivating the open spaces. This process is ongoing and intensive. Outside interest is increasing. In order to improve project service to the community, more field staff personnel is being trained at Orangi Pilot Project. Such training is intended for the provision of building construction credit, communal maintenance work, etc.

b. Total Cost and Sources of Finance

From the project point of view, costs comprise of land costs and of servicing with basic infrastructure, which must be paid back in full by the inhabitants in instalments. No subsidies whatsoever from public sources is required. House construction is taken care of by the owners-occupiers, incrementally, in cash as well as in kind. Limited credit for housing improvements is gradually introduced. All plots are equal in area (80 square yards) but are provided in two dimensions: either 24x30 feet, or 20x36 feet. Each plot costs Rs 9'600 (US$ 550) and is fully serviced with water, sewerage, roads, and electricity.

Each plot would be inhabitable after eligibility was proven through screening in the reception area and following down-payment of Rq 1000; this amount is non-refundable, in an effort to prevent land-speculation. The first batch of inhabitants, after the initial down payment, were obliged every month to pay an instalment of Rq 50 (US$ 3 - 1986). This amount was increased by Rq 20 yearly until it reach a fixed maximum of Rq 110 per month. If, however, after three months (now reduced to one month), the house is not ready or if the residents are late in the payment of instalments, the allocation is automatically cancelled and can be re-allocated to another participant.

c. Comparative Costs and Other Cost Analyses

Basically, the cost of a house can begin with the very simple hut-house for only Rs 800; a wooden house costs Rq 1'200; cardboard and mud houses cost Rq 2'000; a Kutcha brick house costs Rq 8'000; and a complete Pucca brick house might cost as much as Rq 40'000. There are variations and options to build any kind of house according to need and affordability.

By comparison, a low-cost housing plot of 80 square yards in a public housing scheme would cost at least Rq 50'000. A serviced plot of 120 yards costs between Rq 30'000 to 50'000. A two-room apartment would cost no less than Rq 125'000. The following table shows the analysis of costs for site development.

Investment versus Recovery of Costs for Site Development

Name of Scheme	Plots	Investment (Rq)	Recovery (Rq)
Qasimabad	950	18'824'200	20'329'000
North Qasimabad	900	9'950'100	10'535'000
Zonal Plan	11'000	18'200'900	19'395'000
Site	275	474'000	3'670'000
Kohsar	336	10'722'900	25'362'000
Gulshan-E-Shahbaz	70'000	1'226'000'000	-na-
Khuda-Ki-Basti	3'241	(included above)	by instalments

It thus is clear that the provision of land for existing housing schemes managed to be self-financing in a profitable way.

V. Technical Assessment

a. Function and Use

The site is geometrically planned and consists of superimposed housing blocks arranged around a main open square. Each block is a rectangular pattern of roads and houses surrounding a central, smaller square of about 240x240 feet. Plots all have the same area of 80 square yards (consisting of two types: 20x36 feet, or 24x30 feet). Other spaces are provided such as for playgrounds or for plantings, or for facilities such as health clinics, schools, police stations, a site office, markets, mosques, etc.

Each plot may be built upon immediately without a waiting period. Each occupant has the freedom to build any kind of house he desires, of any size, and with any room arrangement. The house can be developed at any future time until the desired final result is reached. People know perfectly well how to maximise the use of space, form, and structure. Thereby, many houses have a second function such as for home industries, handicrafts, livestock breeding, shops, "hotel" or drinking hall, etc. The house, at any stage achieved, provides productive functions for resource generation, while enhancing the family process.

b. Climatic Performance

Because of the harmonious arrangements of the inner micro-climate and differentiation of the house from the area macro-climate, the overall climatic performance is good. It is achieved through the site planning and house designs, in terms of materials used as well as the location of properly sized openings in walls and roofs. Some houses are equipped with traditional wind-catchers to increase wind flow in certain parts of the room. This climate-conditioning is important to overcome the arid climate.

It should also be noted that the compound house provides the best solution for the micro-climate of the house, both indoors and out. The differentiation of rooms with and without walls, and semi-transparent roofing made of reed and leaves and sometimes covered with plastic sheeting,

provide the proper amount and type of lighting and, if necessary, wind flow from the roof or open wall. Basically, this arrangement also supports the acclimatisation of building materials used, combined with the method of self-construction and maintenance.

c. *Choice of Materials*

The selection of materials is based upon two different motives, contingent upon the motives of the housing process. The first is by necessity, especially in the early stages of the process. The second is by choice, especially during later stages. Another factor is the place of origin of the owner, which may determine preference according to local customs or traditions. In the beginning, preference of building materials is usually determined by availability, although not much variety exits due to the desert-like, arid area.

However, reed, wood/timber, stone, and fired or sun-baked brick are also preferred, but these must be brought from some distance. Other permanent materials have to be brought from Hyderabad or from as far away as Karachi. Some of these materials are considered expensive and are sometimes imported, such as galvanised/corrugated iron sheets of asbestos cement, or steel girders used for supporting permanent roofing systems. Finishing materials don't depend on luxurious quality but on the aesthetic creativity of the owner; this is most widely done with high quality in most of the main room, but never in other rooms.

d. *Ageing and Maintenance Problems*

Basically due to the materials used and the involvement of the owner in the construction process, as well as the choice of materials, there are no ageing and maintenance problems. Another reason for this is because the house is constantly being developed, in both quantitative and qualitative terms. Also, because many members have had experience when doing the construction work, they are very handy in performing the maintenance or improvement work by themselves, according to the availability of time and/or resources. The dry and rather hot climate also proves conducive to the endurance of the materials used, when properly treated.

e. *Design Features*

As mentioned earlier, the overall site planning was based on geometric patterns - rational, practical, and formal. This approach was an existing planning practice in government bureaucracy, and is believed to be more efficient and effective. But in practice, no clear differentiation of spatial hierarchies was made. This is important to guide wind flow, and for operational and maintenance responsibilities, as well as for ease of orientation for the residents. The topography and other natural features are easy and general and therefore pose no planning problems.

The prevailing planning pattern and single-storey houses create a low, horizontal landscape. At a closer look and although plot sizes and shapes are almost the same and all enclosed by walls, great variety is evident and the streetscapes reveal interesting architectural features. But by and large, at later stages (after two years) as can now be seen in the field as well as from statistics, only 395 (15.6%) of the houses are in the early or *jhuggi* stage. Out of these, less than 1% has been in the same stage for more than one year. Other houses, although still one-storey, are almost in the final stage, in terms of the quantitative development and in terms of the high grade of materials used.

Consequently, planning and design features are uniform and quite simple: basic geometric features in two as well as in three dimensions, clustering or compound house types, and a horizontal skyline over a wide area. The other dominant, uniform feature is the box-like massing of buildings, their light brown colour, vegetation, and mud texture. Detailing and finishing can only be seen in the inner, main room and on doors as well as around windows.

VI. Users

Because of the stringent selection criteria that every new arrival must come with all family members and all belongings and must stay in the reception area for about one month, it is difficult for others than low-income groups to be eligible for and to benefit from the scheme. Also, in order to deter and prevent land speculation, house construction is required to begin within one month of the family's arrival.

No less than three months later, the family should have moved from the reception area to occupy their plot. Some former land speculators have been incorporated as operators of schools, shops, clinics, etc., in order that they can earn a decent living and not be obliged to follow their previous occupation. Only limited socio-economic data on the inhabitants are available, to give an indication of the people living in the area.

Income level: the target population of the scheme is families with a monthly income of approximately Rq 1'000 (US$ 60). By comparison, the table below provides an idea of other income distribution.

Pakistan Income Distribution based on KDH/HDA figures

Percentage	Class	Monthly income per family
20%	Poor	up to Rq 500
40%	Lower Middle	501 - 1'000 Rq
20%	Middle	1'001 - 1'500 Rq
14%	Upper Middle	1'501 - 3'000 Rq
6%	Affluent	more than 3'001 Rq

Note: average family size is 6 persons; basis is poverty line.
(source: report by J. Anzorena S.J. 1988)

Sex Ratio and Age Distribution (%)

Age group in years	Male	Female	Total
Less than 5	14.8%	19.0%	16.7%
5 to 14	31.3%	23.1%	27.6%
15 to 19	10.7%	10.3%	10.5%
20 to 34	22.0%	28.9%	25.1%
35 to 44	9.5%	8.9%	9.2%
45 to 60	6.1%	6.7%	6.4%
over 60	5.5%	3.1%	4.4%
Total	99.9% (54.38%)	100 % (45.62%)	99.9% (100%)

(source: survey of Block E-3-A; 248 houses interviewed).

Birth Record in 1988:

Total Number of Births	6'582
Still Births	850
Alive Births	5'732
Number still living	5'457

This data also give an indication of the health conditions of mothers and children.

Finally, it is important to note, from the users' point of view, that not only are almost all of the inhabitants Muslim, but the majority is low-income Muhajirs who have more difficulty in getting decent housing at decent costs.

VI. Persons Involved and Their Roles

It is difficult to objectively assess the rôles played by individuals involved in the project. But, based on the information compiled in this report and referring to documents as well as to conversations held with persons directly or indirectly involved in the project, the following assessment can be given.

Needless to say, the people now living in Khuda-Ki-Basti are the main and most important persons involved in this project. They have put all of their confidence, capital, and hard work toward making it truly successful. But without the initial support and action of external agents, this scheme would not exist today. The group of people who have given proof that such an approach is possible, and who have inspired others to follow, have had an important role to play. The credit for this should go to the people and organisers of Orangi Basti and the Orangi Pilot Project.

Amongst them, we met individuals who have involved themselves in the initiation and formulation of the scheme. First, the Director General of the Hyderabad Development Authority, Tasneem A. Siddiqui, whose role was mainly in initiating and taking the necessary steps in order that the scheme could be realised. In making this decision, he also has had some opposition, and some of his colleagues do not believe that the government should behave in this fashion. He received his ideas and courage as a reaction to a feeling of frustration from his long experience in conventional housing projects that always failed to serve the poor.

Inspired by the success of the Orangi example, he then took an important first step to assist the poor in building their housing. This same spirit has been shared by one of his staff at the planning department of Hyderabad Development Authority, Mohammad A. Khan, who was responsible for preparing the site plan. Other Hyderabad Development Authority staff have also been very supportive of this project, from the highest functionaries to the lowest field staff; all have contributed their confidence and hard work to make the scheme possible and, in the end, successful. Interesting to note is the lack of interest on the part of university students and staff in Hyderabad as well as in the Karachi region.

Johan Silas
Surabaya, 1 May 1989

Appendix

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