Paper:125

ECONOMY IN LOW-COST HOUSING

By

MOHAMMAD SHARIF AHMAD

Director
Planning & Design,
Lahore Development Authority,
Lahore

ECONOMY IN LOW-COST HOUSING

By

Mohammad Sharif Ahmad

1.0 BACKGROUND

Pakistan has a total population of more that 70 millions (According to census of 1972 it was 64.9 millions and increasing @ 2.0 millions per year). The population growth rate is 2.9% per year. The total urban population is more than 2-millions and growing at the rate of 4.8% per annum or about 0.8 million per annum. The urban population is more than 30% of total population.

Pakistan's economic and social development depends heavily upon the development of its human resources. Only about 38% of its land is arable. It has limited capital resources. It will have to continue to depend heavily on imports and achieve high export levels to support those imports till such time the oil and minerals explored recently do come into the commercial market.

Physical Planning & Housing was greatly neglected in the past. The main emphasis was on economic development, and the social sector such as housing was given low priority on the understanding that it neither helps in foreign exchange earning nor in production. This policy coupled with lack of resources and institutional inadequacies resulted in a huge and complex housing problem.

Director, Planning and Design, Lahore Development Authority, Lahore

The development was mostly gravitated in and around major Urban Centres. Industrial waste disposal, rural migration, growth of squatters, resultant strain on the public utility services and facilities and the creation of several such constraints were not considered properly in deciding the location of industry in Urban areas. This has resulted in a low standard of urban environment with the development of a number of slums, "Katchi Abadies", labour colonies and such other settlements haphazardly filling up the available space in and around the city. This caused severe strain on the public utility services and overall infrastructure of the city.

This all resulted in insanitary living condition, shelterless people, and over crowding. In 1960 the backlog of urban housing alone was 600,000 dwelling units which increased to 1.5 millions in 1970 and now it will be over 2.0 millions.

2.0 MAJOR PROBLEMS

The problems of urban poverty and unemployment, of inadequacy of housing and urban infrastructure have been always there throughout the ages but on different scale and intensity. The rapidity of overall population growth and the acute shortage of resources has made it serious and complex problem. One of the main causes is the shift from the traditional way of life to what is called "westernization".

The modern industry has its limitations to absorb the available man-power. The growth rate in industrial employment tends to be only about half that in industrial employment out-put. Also it does not take into account the repercussion that expansion of modern industrial out-put may have in reducing employment in small scale handicrafts.

The availability of suitable land for agriculture is already very restricted. The acceleration of the

growth of labour force has sharply increased pressure to migrate thus further intensifying urban employment problems.

The high growth of urban population, the inflow of poor rural migrants, and the increasing unemployment and imbalance in income distribution has further deteriorated urban living conditions. Perhaps more than half of the urban population can not afford minimal permanently constructed housing, even if financing arrangements are made available or limited subsidies given.

3.0 THE STRATEGY

The policies which form the basis of development should be appropriate to the socio-economic realities in which they operate. The western concept of development cannot work due to the fact that we do not have those advantages which they had. Due to the guaranteed sources of raw materials and out-let of market the industrialized cities were to provide productive employment for the surplus agricultural labour but the present expanding cities are unable to do the same due to excessive migration and natural urban population growth preventing the cities from realizing their economic growth potential.

The policies which restrict accessibility to urban employment or shelter by rural migrants actually encourage self-generated, informal alternatives affecting the intended urban growth. Mere dispersal of population will not achieve objectives without equal dispersal of economic activity. This may also necessitate a re-appraisal of the relationship between public and private sectors. The planners and policy makers should, therefore, fully examine and evaluate the socio-economic needs and capabilities within which their planning and policies operate.

The western concept of housing and of urbanism are regarded as valid frame work for successful development strategies. It is, however, often counter productive in

slum clearance which use-up scarce resources in the removal of dwellings and reconstruction of conventional pacca houses, thereby intensifying the housing problem.

The relationship of housing to employment, social services, recreation and other aspects of urban life is important. Access to employment and education is particularly important for poor. High transport cost or long travel time to work and home may off-set the low cost of housing on the periphery of the city.

The general aim of housing strategy should be to develop a programme of urban development to provide the basis of meeting the housing needs of the people to reasonably adequate level, depending of course on the circumstances and available resources.

As the capital resources are very limited and the public sector is quite inadequate to meet the housing demand, the emphases must, therefore, be on:-

a) Mobilizing under-utilized resources

b) Reduction in unit cost by increasing the efficiency of construction or reducing standards.

c) Improvement in the inter-action among housing land use and transport in integrated urban development.

4.0 THE ROLE OF HOUSING IN ECONOMIC DEVELOPMENT

Housing is now increasingly recognized as a profitable investment item. It yields a flow of income and the value of house is appreciated during a time period.

Houses in less developed areas are also places of business and production centres for small scale industries and handicrafts.

The rural migrants look to the construction industry as one of their primary sources of livelihood. Housing and its allied material production increases job opportunities which greatly help in absorbing unemployed or underemployed. Housing has, therefore, an important impact on employment.

It is a major focus on saving as people desire to have their own houses. Thus the unproductive capital can be released into the economy which can account for upto 20% to 30% of total fixed capital formation with vigorous housing policies.

Housing for industrial labour also steps up the production and efficiency.

Housing also activitates other industries related with it such as building material and consumable items and as such contributes in capital formation and production which ultimately reduce imports and thus foreign exchange.

A well planned housing can increase national productivity, economize land, and minimize infrastructure cost. The location of houses with respect to jobs helps in reducing traffic congestion and commuting expenses in addition to time saving and reducing fatigue..

5.0 HOUSING COSTS

Housing has got the following basic components:-

i) The Dwelling.
ii) The infrastructure.
iii) The location.
iv) The transport.
v) Social and cultural facilities.

Capital, land, materials, plants and equipments, services of design and construction agencies are the basic

inputs for housing. These components and inputs together determine the total cost of the housing and their mix may increase or decrease the cost per unit. Efforts are therefore, to be made to design this mix to achieve the best suitable housing with respect to household's capacity to pay. The design should be flexible keeping the structures technically sound and economically efficient so that the low standards initially adopted to lower the cost can be improved at a later stage.

The cost can be reduced by using traditional building materials and by adopting new techniques to replace the old building methods. There is lot of scope of research work in this field. For example, the cost of bricks can be reduced to a considerable extent if its size and manufacturing methods are improved and the cement can be replaced by lime morter.

Reduction in land area and interior living space can reduce the cost to a considerable extent. The layout of blocks plays a very important role in this respect. The cost of land can further be reduced if it is purchased ahead of use for housing at low cost by introducing a deferred payment scheme which can assure eventual possession at the current prices.

The size and the standards of the housing will be constrained by the total resources (economic, human and material) which are available for it thus necessitating the determination of an acceptable accomodation to various categories of income groups. The standards, therefore, have to be consistant with prevailing income levels. It is, therefore, necessary to establish the just and appropriate standards concerning the site , structure, equipment and use of buildings to protect life, health and properties of the people.

Too high standards, apart from entailing high cost of construction, lead to bribery to retain or construct lower standard housing. They can become antiproductive by being pitched too high with respect to cost and

time implications, or with respect to skill required to understand and implement the controls or approval procedures.

The existing building standards are typically designed for low volume, high quality out-put. They are defined in terms of products rather than the performance of particular components, and inhibit the development of new methods and the introduction of new materials. Wherever possible these standards and controls should relate to simple and clearly presented definitions of what people may not do rather than to determine what they should do. This would enable the prospective builders to adopt a flexible attitude towards the construction according to their needs and capacity to pay.

6.0 PRINCIPAL INPUTS OF CONSTRUCTION

Building materials, plant and equipment, labour and services of design and construction agencies are the principal inputs of construction. Building materials represent the largest single proportion of total inputs to the construction industry. They represent about 70% of the total costs, and therefore, have dominent influence on the cost. As such material saving techniques deserve more attention than those of labour saving devices.

Due to high prices of oil, transport of materials has become more expensive and as such efforts are needed to use local materials by applying the modern methods and techniques. Simultaneously arrangements must be made to ensure that the local materials are readily available so that the influence of short supplies to costs may be minimized. To enable local materials to make a substantial contribution to housing, their performance must be improved, building standards must be amended to enable them to be used safely, their supply must be organized and secured to produce a reliable out-put, and design philosophies have to be modified to make them acceptable to all types of builders.

7.0 SITE LOCATION

The location of site for housing plays a very important role in reducing the costs. The site needs to be carefully selected where the cost of services and substructures are minimized.

8.0 THE PHYSICAL LAYOUT

The physical layout is very important in determing cost levels and functional viability. Once designed, the layout becomes the primary determinant of subsequent commitment in terms of major cost factors such as:-

a) Land requirements.
b) Infrastructure lengths.
c) Administration.
d) Maintenance.
e) Overall performance of the development.

9.0 DISTRIBUTION OF LAND USE AREA

The layout plan should consider the provision of a balanced use of land for dewellings and related supportive functions. Balanced proportion of circulation, public and private areas can be determined on the basis of functional standards and target needs.

i) Circulated Areas

In a balanced layout the normal range is 20% at low densities to 30% at high densities.

ii) Public Areas

For supporting community facilities and services such as schools, hospitals, markets mosques, etc., 15% to 30%.

iii) Private Areas

= 60% to 50%

The low cost housing need to be designed from the viewpoint of padestrains, cyclists, and bus users.

The cost of road construction can be reduced substantially by proper design keeping in view its usage. A new residential scheme takes about 5 to 10 years to come up to a reasonable level of settlement. It would be wasteful if the roads are carpetted initially even before the allotment of plots to prospective builders. The stage construction seems to be more appropriate to expand the limited resources to a greater area. In order to reduce the cost, there is a great need for an appropriate technology which should be a function of increasing output. It has to make optimal use of the resources available.

The open spaces and play grounds provided are often misused, encroached upon, and become refuse dumping grounds. They can be attached with primary schools and maintained and guarded against misuse and aquetting. After school hours these open spaces can be extended to the community as a whole so that a limited resource gets full utilization and safe-guard. Markets and shops, clinics, mosques, or community buildings may be combined with the school building to provide a local focus and economy in land, transport and construction. If the mass of the people are to be housed at a reasonable standard, the old fashioned attitudes imported from the developed world have to be taken down.

Some new materials and techniques have been evolved to replace the conventional methods to reduce the cost such as:-

a) *Reduction of thickness of walls and partitions by reducing the size of conventional bricks and improving its quality.*

b) *Use of stabilized clay and stabilized suburnt bricks.*

c) *Use of materials manufactured from sugar-cane waste.*

d) Prefabricated roofing units.
e) Reduction in ceiling height.
f) Long building blocks.
g) Hollow concrete blocks.
h) Adopting uniform sizes of rooms to reduce the cost of shuttering and technical skill.
i) Special high tensile steel instead of regular mild steel.
j) Reduction of areas of doors and windows and their standardization and industrialization.

10.0 TYPE OF BUILDINGS

The land, climatic conditions and site are strong factors to determine the type of layout of buildings. Household income is an indicator with respect to which a wide variation in present and desired living conditions is observed and as such should be used to determine the required accommodation.

The National Housing Policy (1973) has classified the following income groups:-

i)	Very Low Income Groups	Rs. 0-299 P.M.
ii)	Low Income "	Rs. 300-499 P.M.
iii)	Middle Income "	Rs. 500-999 P.M.
iv)	Upper Income "	Rs.1000-1999 P.M.
v)	High Income "	Rs.2000 and above P.M.

i) Very Low Income Housing

The standards accepted for this section of community must necessarily be lower than elsewhere as virtually no return can be accepted on the investment. It is, therefore, suggested to provide a room of 8'x12' with a cooking place under a projected cover and toilet and bath in the back court yard or open space. The possibility of providing shared toilets and baths needs to be explored.

ii) Low Income Housing

Basic unit of one room of 8'x12' with a cooking place, toilet and bath is suggested to be provided initially to reduce initial cost as far as possible. Provision of space for adding an additional room be made in the design.

The above two types of houses must necessarily be on the ground. The plots provided should be narrow face and deeper inside so that the back open space is sufficient for storage, children's play, animals, washing clothes etc, and for later extention of building. These houses may be grouped as two having one common wall.

iii) Middle and Upper Income Housing

These income groups are quite stable and would prefer to have a built-house either from the public sources or on co-operative basis as it may not be convenient for them to construct on their own.

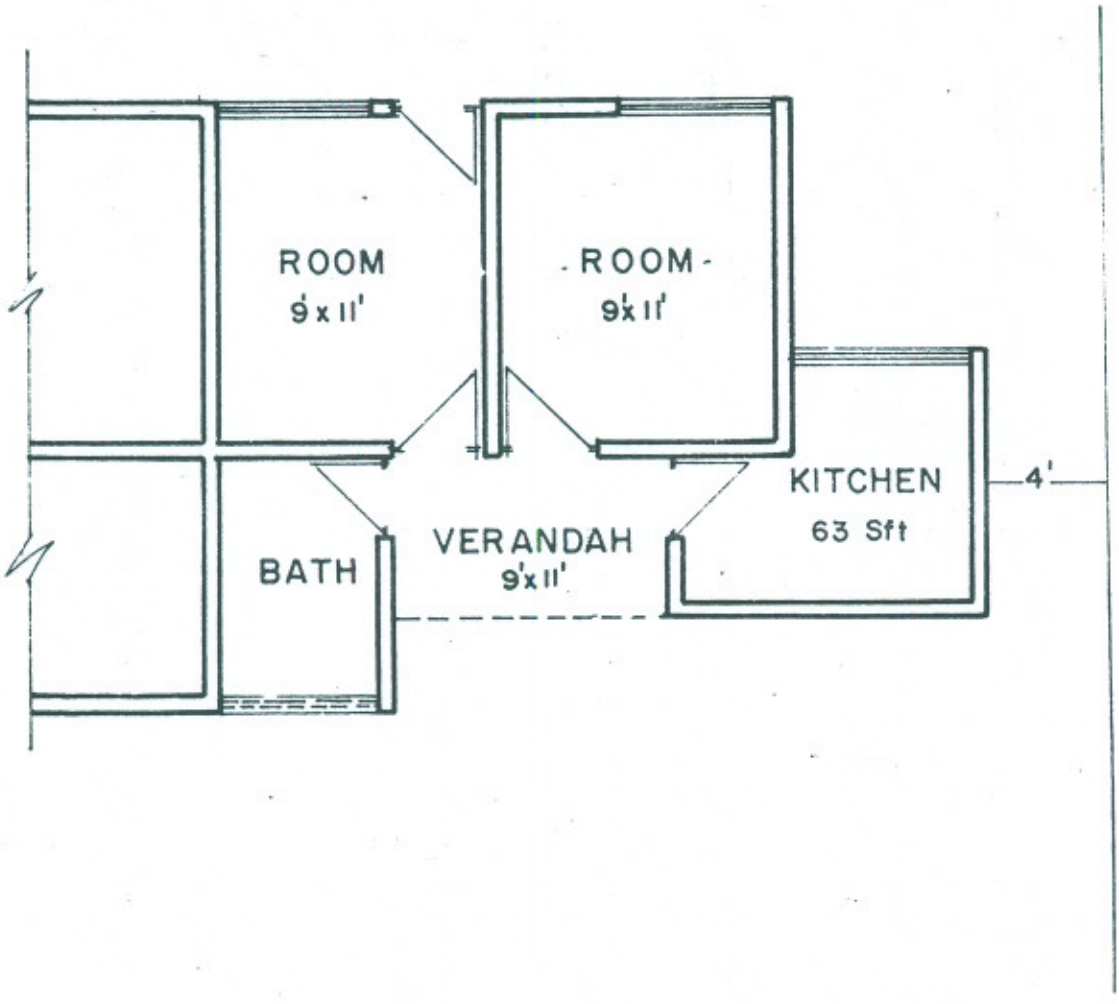
At this stage the high rise or mid-rise flats may be taken into consideration as this income group has got a reasonably clean standard of living and are mostly educated. The household size of this group is comparatively less than the Ist two groups.

For this group it is suggested to provide:-

a) One Bed Room flat with living room, kitchen, bath, and toilet, Area - 300 Sft.approximately. to 4
b) Two Bed Room Flat Area = ~~475~~ 600 Sft " 8
c) Three Bed Room Flat Area= ~~550~~ 900 Sft. " 12

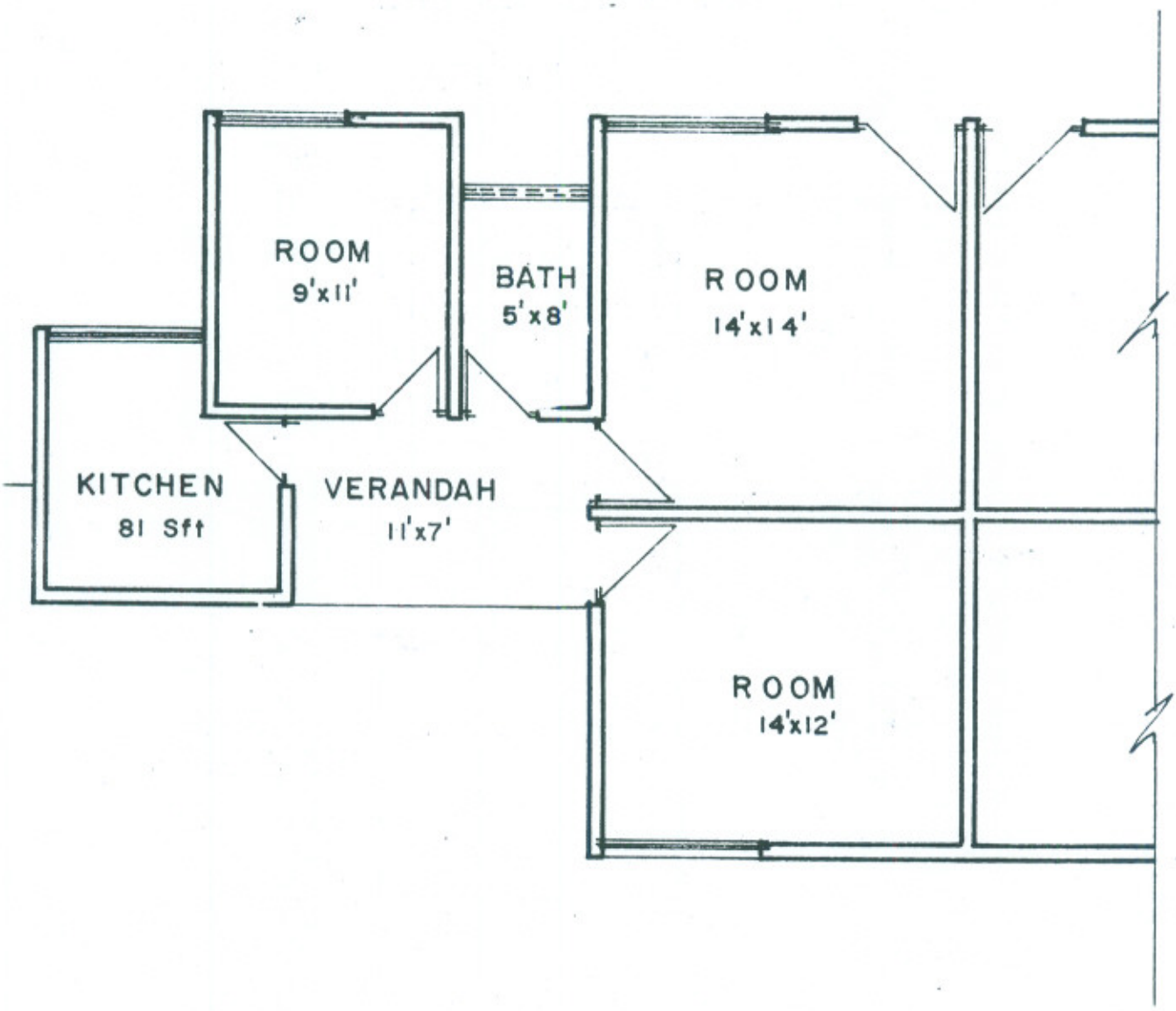
TWO ROOM UNIT

FLOOR AREA 355 SFT.



THREE ROOM UNIT

FLOOR AREA 660 SFT



FOUR ROOM UNIT

FLOOR AREA 827 SFT

