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SHELTER FOR SHELTERLESS

DESIGN AND EVALUATION

BY

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I. INTRODUCTION:

The concept of Shelter differs not only from one Country to the other but also varies from one region to the other region in the same Country. One room family shelter is a complete home to many a dweller of developing Countries whereas automated micro devices and Electronic gadgetry may be the aspiration of many less privileged classes in the developing nations. The developing Countries in the third world are facing acute problems in housing its population which is increasing at a faster rate than the increment in housing stock as well as basic amenities of life. The gaps in the need and availability of shelters for housing instead of decreasing from year to year is rather increasing in most of the Countries.

There are following three types of approaches to solve the problem (a) adopt high level Technology by borrowing the same from advanced and developed countries in the first world. (b) Indigenous and self sufficient Technology avoiding foreign technology and its subsequent dependence on foreign powers. (c) Intermediate technology used to raise the existing level of Technology in gradual increments so as to improve the overall performance of the building industry. This also has the potential of achieving higher levels of industrialisation after the transitional stage is over.

The option (a) is generally not advisable as besides being very uneconomical it may not suit the users due to difference in climate, environment and social and cultural values of the lenders and borrowers of this type of advanced technology.

The option (b) is preferable, but it needs innovations in the search and manufacture of local building materials and indigenous construction systems and technologies. This type

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of approach needs planned and wide research in the field of Buildings Materials and Construction methods and equipment.

The option (c) is rather in between the two approaches and provides quicker pace of construction and early achievement of higher technologies than option (b) but of course slower than option (a). But option (a) as stated earlier is very costly and is also full of risks due to above stated vast difference in Socio Economic and environmental conditions of the parties.

II. DETAILED STUDY OF PROBLEM:

Before embarking upon any National Programme for providing either infrastructure or mass scale housing the Governments of the less developed Countries must have a very reliable data and statistics regarding the population growth, number of houses bed room wise, number of households with rate of occupancy per room, general specifications of building construction, per capita income of different households, Construction activity in private as well public sector of housing, trend in the cost of land and building materials etc. etc. In order to meet the demands of the targeted group viz weaker sections of the society, one has to make concerted efforts to keep down the cost by adopting low specifications as otherwise the aim of providing shelter to poor people would not be achieved and the houses getting outside the reach of targeted group would go to the upper section of the society.

III. TACKLING OF PROBLEM THROUGH PUBLIC AND PRIVATE SECTOR:

Small scale projects can be effectively carried out by private sector but public sector is better suited for undertaking mass scale housing because of the availability of (a) high standard of administrative and technical personnel (b) possibility of long range planning (c) provision of subsidy to the poor masses (d) access to cheap financing (e) well planned infrastructure (f) continuity between projects. Despite the above mentioned advantages, most of the public sector agencies in the developing countries often fail to achieve the desired results due to political interference and administrative mismanagement. Usually the traditional but costly specifications instead of innovative materials and technologies are used which result in costly residential units getting beyond the reach of the urban poor masses. Private sector is profit oriented and though greatly flexible and more efficient seldom meets the need of the low income housing but caters for higher strata of society. The level of Technology and skill of mass scale casual labour is often below the mark in the private sector. The quality control is virtually non-existent in the private sector and the quality of the work whatever is there, is regulated by the competition in the value of the finished products.

IV. FEASIBILITY OF HOUSING TECHNOLOGIES:

In order to work out the feasibility of housing technologies the most important document is the official housing policy of the country. Unfortunately we are one of the very few countries in the region who do not still have any housing policy, though our country came into existence about 46 years back. Despite repeated pronouncements by the Governments one after the other, the official housing policy has yet to see the light of the day.

Following factors have to be taken into account before adopting any housing Technology :-

1. General level of national/local development.
2. Official housing policy within the national development Plan.
3. Community Development Goals.
4. Target Population.
5. Cultural Traditions.
6. Desired quality of life.
7. National/local resource base.
8. Ecological system.
9. Macro & Micro Scale.
10. Energy conservation policy.
11. Infrastructural support system.
12. Availability of land.
13. Accessibility of financing capital.
14. Credit mechanism.
15. Organisational pattern of the housing market.
16. Role and accomplishments of the existing housing enterprises.
17. Availability of the experienced management teams.
18. Short range versus long range economic feasibility of innovative housing ventures.
19. Socio-Economic desirability of either labour or capital intensive housing production.

20. Affordability requirements of the final housing units for the target groups.

V. TRADITIONAL TECHNOLOGY AND INNOVATIONS:

The traditional technology is safe and sure but not necessarily the most economical solution. It is tried and tested and familiar with the users. It is suitable climatically as well as acceptable in appearance. The skilled as well as unskilled labour is well conversant with the same. There is no problem of adjustment with the architecture of the adjoining buildings. Innovation in quality as well as quantity can be exercised by adopting the following methods.

a) By adopting modern management Techniques, productivity can be increased by increasing efficiency of the structure of the agency responsible for the project. Improved information system, efficient administrative as well as Technical control, availability of evaluation results and co-ordination with other relevant agents and agencies can help increase the production.

b) Improvement of skills of labour.

The skills of Traditional labour should be improved by imparting them theoretical knowledge, improved practical methods, quality workmanship and above all by motivating them and invoking in them the sense of pride of performance.

c) Introduction of Semi-automatic tools.

The traditional skilled, Semi skilled as well as un-skilled labour will give appreciably more qualitative as well as quantitative production by simply upgrading their manual tools to Semi-automatic tools like mechanically improved block making process or other hand operated power tools. Even simple mechanisation of process from manual to power operated would improve the production by traditional methods.

d) Standardisation.

At present there is lot of wastage in time as well as production of material and components due to lack of standardisation in the materials, components, dimensions of the various repetetive members like the doors, windows, frames, fittings etc. It is essential that standards be introduced for quality of building materials, components and construction practices besides standardising the oft repeated parts like doors, windows, C windows, and their fittings and iron mongry etc.

e) Innovation in building materials and techniques of building construction.

Research and development be vigorously carried out to bring about improvement in the existing known building materials and also to find out better but cheaper substitutes of materials. Soil stabilised Blocks for walls which though much cheaper meet the requirements of building Construction and modular burnt clay bricks

which are easy to use and economical than the conventional bricks are just two examples of innovations in the material. Use of Rice husk ash cement is another. Likewise slag cement is cheaper and no less in strength than conventional Portland Cement.

Innovations in building Techniques like concrete waffle slabs, ferrocement shells and waffle slabs or even small water storage tanks bring about lot of savings and durability in the building construction. Hollow cement blocks with 48 % hollowness have been successfully used in the building Construction. The Construction of building with hollow block can be carried out upto 4 storeys height without any adverse effect by simply taking a precaution of providing M.S. vertical bars in the cavity on all the four corners of the walls.

Prefabrication of beams and tiles is now an every day phenomena and the traditional labour is now well versed with the use of these prefabricated members, which not only save lot of time spent in cast-in-situ operations but also reduce the cost of the work and is usually of better quality than cast-in-situ components as the same are manufactured in a factory where the qualilty is controlled. Further more, the scale of fabrication in the developing countries starting from smaller scale can in stages lead to complete industrialisation as the level of development in a country increases gradually. Prefabrication can proceed gradually but systematically if the same is regulated by laying down the performance standards, dimensions, tolerance limits, quality controls and specifications through appropriate law. Prefabrication of following items can be introduced:-

1. Doors and Windows.
2. Window wall panels.
3. Framing members.
4. Stair systems.
5. Different types of roof trusses and joists
6. Light funicular shells.
7. Partition panels.
8. Kitchen Cabinets etc.

This would also lead to rapid ultimate industrialisation of the building activity.

VI. PRACTICAL AND REALISTIC APPROACH IN THE THIRD WORLD:

It is common knowledge that in the developing countries, there is a constant migration of people from rural areas to urban centres. This pull or attraction caused by the search for better employment prospects, better living standards etc. is responsible for the creation of shanty towns, slums or Katchi Abadies as we call them in Pakistan. The land

is grabbed illegally and these abadies lack the basic needs and amenities such as piped water supply, drainage, sewerage, electricity, Gas etc. The dwellers have least regard for planning and the mushroom growth takes place in haphazard manner defying all laws of proper planning and building construction. The construction of shelters in the slums or katchi abadies is the cheapest form of construction in the real sense of the work. The specifications are of very low quality. But this type of Construction is actually the reality which must be kept in mind by the planners and administrators as it has often been seen that the specifications and type of Construction envisaged to be provided to the dwellers is of much higher standard and therefore is very costly and not possible to be provided at the needed large scale operations. In order, therefore, to solve this problem we must acknowledge and reconcile ourselves to this fact and try to upgrade and improve the existing building structure of evidently the lowest type of specifications. Efforts should therefore be made to involve the people living in these sub-standard,inhuman surroundings/environment to get together on street, Mohalla, area and abadi basis to do the following:-

1. Detailed topographical survey of the area showing the details of land holdings of each occupant, streets, open spaces, ponds, salient features etc.
2. Socio-economic survey showing the names of all the persons, relationships, accommodation details, salary or income of the household, occupations, places of duty level of education etc.
3. Specifications of existing structures and condition of structure etc.
4. Preparation of proposals and estimates for the provision of infrastructure viz Roads, Water Supply, Electricity, Sewerage, Drainage, Parks, Community Buildings etc.
5. Readjustment of land holdings to accomodate the proposed Planning and revised layout so as to provide for the essential services.

The above mentioned efforts be provided by the residents on self help basis by forming groups and Co-operative societies as indicated earlier. This way the sense of participation and also the utilization of Manpower would make the scheme acceptable by the dwellers and house owners.

VII. THE SITES AND SERVICES APPROACH:

1. Concept and Definition.

There is no clear cut thinking or definition to describe the concept of sites and services as the views differ from simple pieces of land to fully serviced plots in a planned area and even includes nucleus or minimum of shelter. The intention is to indicate an area where individuals can have earmarked spaces with minimal infrastructure and the beneficiaries are

'lower income groups' who have the choice and oppurtunities of adding structures and augmenting/upgrading the premises in due course of time.

This approach succeeds in cities (a) where open land is yet available, (b) Bus fares are low thus permitting easy movements or migrants from rural to urban areas and (c) loose control or practically no check on land grabbing. Lima in Peru in early Sixties provided all the three above stated components and so the site and services approach attracted the attention of observers in other countries.

2. Aims of the approach of sites and services.

The aims of the approach are as below:-

a) Provide shelter to the poor.

b) Addition in the stock of permanent housing.

c) Reducing public expenditure.

d) Exercise planning control.

e) Create a sector for construction.

f) Provide employment.

g) Create small business concerns in the sector.

h) Help capital formation by low income families and stream lining the investments.

The approach was natural outcome of the general feeling during the Sixties and Seventies that the methods used thus far to curb the rate of migration from rural areas to urban areas and consequential appearance/growth of Katchi Abadis or slum areas had failed on a larger scale. The efforts to provide reasonable shelter by Public Agencies also did not make any dent in this enormous problem. The World Bank supported this approach and therefore many countries undertook the projects of sites and services, with the help of the world Bank. Briefly given below are the reasons leading the world Bank to encourage this sites and services approach.

1) It is not possible to provide conventional type permanent houses to low-income people due to limitation of resources.

2) The gap between supply and demand is a big one and the same could not be met with the construction of costly conventional housing. It was realised that the gap could be reduced by constructing cheap houses affordable by large number of targetted population in the form of sites and services projects.

In view of above, steps were taken to strengthen the institutions and streamline the procedures for the provision of land, services and finances to the needy population. The standards in the conventional type of housing are often unrealistically high. The standards were lowered for substantial reduction in cost of housing. Efforts are made to minimise or stop altogether the issuance of subsidy to people so as not to burden the Public Sector and also with the aim of shifting the burden and responsibility from Public to Private sector. In this way the cycle goes on. Care is however very necessary in formulating a reasonable pricing policy. This approach is also adopted to fight poverty which may pose a political threat.

"Historicilly, voilence and civil upheavel are more common in cities than in the country side. Frustrations that fester among the urban poor are readily exploited by political extremists. If cities do not begin to deal more constructively with poverty, poverty may well begin to deal more destructively with cities". (Mc-Namara, 1975:20; of also seymour, 1975:74-5).

Provision of housing enhances productivity and combats poverty. The sites and services approach provides for planned growth, integration of poor people into the society and also checks the randum growth of slum areas and Katchi Abadis which often lack in services and planning. The elements of cost recovery and maintenance are also better in this approach.

VIII. RELEVANT PROBLEMS :

1. Katchi Abadies.

There are over 500 Katchi Abadies in Karachi alone covering an area of 15,570 acres with about 5 lacs household. Roughly 38 % of the city's population lives in these Katchi Abadies. There are over 1200 Katchi Abadies in Sindh. In Punjab, there are over 1000 Katchi Abadies and there are about 204 Abadies in Lahore alone. A large percentage of the urban population lives in these shanty towns, which lack amenities.

2. Karachi; Example.

At the time of independence in 1947 the population of Karachi was only four lacs. A large number of Refugees occupied whatever land was available and a lot of settlements sprang up in a short period of time. Under the given circumstances the land tenure of the otherwise illegal occupants was almost secure. The essential services such as provision of Municipal taps, Sewerage, Electricity, Gas etc. were gradually provided to these settlements.

Due to the above prevailing conditions a unique class of land grabbers appeared on the scene of Karachi. These persons assumed illegal authority over government and state land and started selling the parcels of land after a very rough exercise of parcelling out and sub-dividing the available land. This class of brokers enjoyed the protection and patronage

of people who matter and that is why the purchaser of land was sure of the security of possession and tenure. Such type of settlements were better planned and served than unauthorisedly occupied settlements due to their greater manoeuvrability and scope for improvement. During the period of Sixties and early Seventees there were enough opportunities for obtaining shelters in the various types of settlements viz unauthorisedly occupied, illegally sub-divided but cheapy available plots, centrally located or on the outskirts of the city. The low level of development and greater distances, led to the availability of cheap plots and shelters for the needy populace.

Due to expansion of the city, and increassing demand the situation is now different. The availability of land and shelters is decreasing day by day thus resulting in increase in cost, specially in such settlements which are nearer to the city and prodvide all facilities. The rise in price ofland and building construction materials is making the acquisition of land or shelters out of the reach of erstwhile eligible populace.

3. Population.

On a global level the population is likely to rise from 5.2 billion in 1990 to 7.8 billion in 2010. The urban population will more than double from 2.2 billion in 1990 to 4.5 billion in 2010. Of the 20 year increase of 2.6 billion, 2.3 billion or 88 percent will be urban. Put another way, this means that urban dwellers who are about 43 percent of the world's population today will constitute 57 percent by 2020.

The total population of Pakistan on 1.1.1989 was estimated at 107 million based on the inter-censal (1972-81) population growth rate of 3.1 % and at present is about 120 million. The population of Pakistan is expected to rise to 150 million when the country enters the 21st Century.

IX. CONCLUSION & RECOMMENDATIONS:

The problem of providing shelter to the shelterless is so complex and great that no single type of solution and approach is viable but rather it has to be tackled by various techniques. Following recommendations be kept in view:

1. We must avoid the folly of providing better specification houses to the shelterless and poor people, as in such case, the houses will ultimately be occupied by higher echelon of the society and the problem of poor people will remain as it is. This needs study of the existing self made shelters by economically weakest section of society and formulation of designs and cheap specification on the basis of the studies.

2. Since free or cheap labour is the only possession of such section of society, we should prepare such specifications and schemes as to allow the prospective dwellers of the houses to work with their own hands. This will minimise the cost, utilize the available manual labour and so give the sense

of participation to the dwellers. Their acceptability of the scheme, specification and designs, would be another advantage and also a contributing factor towards retention of houses by the intended and needy dwellers.

3. There is a great need to Co-ordinate the scattered efforts of the Research and Development Institutions which are involved in the research work of finding the low cost building materials and also building technologies, by immediately creating a cell in the centre with Powers to examine, co-ordinate and guide a concerted effort in the above fields. The Government should allocate necessary funds and get the pilot projects started with the help of the above proposed cell.

4. There is some thinking about importing technology from developing countries relating to the prefabrication of components for the houses of shelterless persons. This is something which we must avoid due to following reasons :

   a) This will be very costly equipment and a burden on our foreign exchange. The operation and maintenance is also costly affair.

   b). The materials employed for prefabrication would be very costly.

   c). The finished houses will be of much higher specifications than the ones used for upper income groups and so the shelterless people will not be able to occupy these better houses which will go to higher echelons of the society.

5. The financial institutions in the country need strengthing and secure financial aid is provided to the shelterless people

6. Use of Intermediate technology be made to gradually approach the industrialisation of building construction and materials.

7. Sites and services schemes be encouraged by providing infra-structure and allowing the needy to construct houses on self help basis under the guidance of the planners.

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