

INFRASTRUCTURE AND SHELTER: AN OVERVIEW

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Abstract

Housing is a basic need for civilized living in many developing countries housing inadequacies have been increasing mainly due to a galloping increase in population, fast pace of urbanization along with other social and economic factors which include breaking up the joint family system, and steep rise prices of land building material and labor. Housing has become one of the complex problems of our times and unless urgent measures are taken both at the national and international levels to mitigate the housing problem it will assume crisis proportion with grave adverse consequences on the survival and well-being of the people as well as the process of economic and social development.

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Developing countries need to accord high priority to housing and despite the severe constraints of resources ways and means have to be devised to tackle the housing problem. In developing countries emphasis on Low-cost Housing is being given. This term has many connotations and it would be appropriate to clarify the meaning of this popular terminology. Low-cost housing means housing at a low cost as compared to the prevailing cost levels. It is sometimes felt that what is really intended by low-cost housing is cost reduction in housing. Others view it as cost-effective housing. However, low-cost housing generally implies housing for the low-income families housing at an affordable cost to them the housing for the low-income to all. Surely by low-cost housing it is meant to achieve cost-effective housing for all, particularly for the low-income families so that to the extent possible housing is brought within their reach, Low-cost housing should not mean low-quality housing although the quality and cost go together. The total cost of housing called the live cycle cost of housing taking into consideration the initial capital cost of housing construction and also the recurring cost of maintenance and repair of housing over a period of its economic service, should be determined and the most cost-effective housing should be adopted.

Appropriate housing is yet another term commonly used. This has wide ramifications including fulfillment of the requirement of sustainable development geo-climatic conditions and environmental economic and social needs standard of living and lifestyles are prevalent in different areas religions and countries.

It would be worthwhile to concentrate on science and technology inputs made available by extensive research and development in various countries both developed and developing countries for achieving housing construction for achieving housing construction at low consists with quality and economy as may be relevant to different countries. Achieving of housing at a cost is therefore a process of synthesizing various requirements so that the housing process and product are not only but also acceptable to those for whom it is intended.

Acceptability is an important factor in low-cost housing as it is intimately related to the needs of the people and their way of life, as well as their expectations and aspirations. These are rather difficult to perceive as radical changes are taking place at a fast especially in science and technology. What is crucial importance is to cater to these changes effectively and adequately by application of science and technology in housing construction but at the lowest possible cost.

Achieving this optimum utilization of all available indigenous resources that are required for housing needs to be ensured. It entails input of science and

technology in a comprehensive manner particularly in the choice of appropriate building materials construction techniques and design concepts of housing. At the same time it is necessary to cater to more exacting demands of housing construction in terms of quality, economy and speed in construction techniques and design evolved through research undertaken in various countries, especially in the developing countries of Asia, Africa and Latin America.

Low-cost housing encompasses a variety of inputs, which call for multidisciplinary action in an integrated manner. It does not merely suffice to give attention to technological aspects such as architectural engineering and constructional requirements of housing but varied aspects concerning location, physical planning and use, conservation of resource energy environment, ecological balance mitigation of natural disasters and many other aspects of human settlements development have to be taken into consideration in the light of advances in science and technology and their impact on housing.

The social and economic situations prevailing in developing countries and the Programmes of national development are also matters of far-reaching consequences in low-cost housing. The developments in science and technology and applications of the results of the research are matters of vital significance and abiding value in improving the housing and environmental conditions of the people especially in the low-cost groups. The objective of low-cost housing is to improve the quality of life of the masses.

The concepts of housing have been akin to the growth of civilization and culture in any country. The idea of having a shelter came from the necessity of protection from wild animals and elements of nature for survival. As the primitive people developed they started paying more attention to the house structure to make it structurally safe and more secure. When families began living in groups as in villages houses became an abode for living and greater stress was laid on proper accommodation privacy, and residential aspects of living.

The provision of community facilities such as open grounds, parks schools, health centers, markets, and post offices is considered necessary for social development. Integration of housing colonies with town life has become essential to meet the demands of civic life. With the tremendous growth of urban centers in a rather haphazard manner the wake of a rapid program of industrialization and fast growth population due to immigration from rural areas in search of employment and high birth rate slum and clandestine squatter settlements have come into existence and overcrowding and in sanitary conditions have becomes a common feature in

developing countries. There is also a great shortage of housing and an inadequacy of essential services. As a result pollution of all sorts has been rising and assuming menacing proportions. Therefore it has become essential to minimize prevent and remove pollution to improve the quality of life. In this manner greater demands are being placed on shelter to fulfill the modern living requirements of city life.

Although many countries have embarked upon the program of national development adequate attention has not been given to amelioration of housing and living conditions. That is partly due to scarcity of financial resources and attention to more urgent and higher priority problems, such as increasing food production for self-sufficiency defense preparedness and fighting of wars to maintain territorial integrity and Programmes of industrialization and economic development to produce indigenously a variety of goods machinery and equipment. It cannot be denied that as a result of these efforts substantial progress and success have been achieved in different fields.

The national governments are becoming increasingly aware of the deficiencies and the need to improve the housing and living conditions of the people in both urban and the rural areas. An overall view has become necessary to equitable allocation of resources. Land reforms have been the forerunners in this direction and radical changes have been brought about in some countries which have a crucial effect on amelioration of the housing situation.

A notable instance is the ceiling on land and also on urban property. The review of fundamental rights as regards the right of property, socialization or nationalization of all urban lands acquisition of property land and extent of payment of compensation are measures that have been designed to equip the governments to carry out an effective program of housing development. These are much wider issues of greater political potency. Nevertheless, their impact on housing is far-reaching and fundamental.

A wide variety of policy measures seeds to be evolved to tackle the colossal housing problem. These policy measures are governed by the dictates of national programs, needs and resources. It is therefore not an easy task to evolve a comprehensive national housing policy. However, certain guidelines can be developed.

A considerable amount of research and statistical data on housing and building activity and the relationship of housing to the economy have to be established. The social factors and human needs have to be carefully analyzed. The technological support required to undertake a housing development program has to

be reviewed such as the agencies for implementation of the housing program the system of execution of projects rational use of resources such as finance materials and human resources adoption of appropriate technology of construction provision and installation of services for environmental protection and community facilities for social progress.

Governments are considering whether they should become directly involved in housing construction or concentrate their efforts on financing land development and infrastructure and on the development of institutions necessary to stimulate and support housing activity. They are also considering whether to attempt to provide conventional housing units for a limited percentage of the population or to distribute benefits more widely by reducing unit costs through reduction in size standards and degree of industrialization.

To provide ready houses the governments have established statutory housing boards and development authorities like A.P. Housing Board and improvement trusts which build houses and sell them to the general public institutions of the government. These institutions are also allowed to mobilize finance of their own in several ways which include issuing of debentures organizing lotteries negotiating loans from life insurance corporations and raising profits from the acquisition and disposal of land with or without development. Economic growth is an integral factor in development in eliminating mass poverty and unemployment and in providing the financial and material measures to transform human settlements.

According to the United Nations more than one billion people over a quarter of humanity, have shelter unfit human habitation. This number will expand dramatically unless determined measures are taken immediately. The International Year of Shelter for the Homeless observed in 1987, confirmed the need to intensify national and international efforts to produce deliver and improve shelter for all with particular emphasis on meeting the needs of the poor and disadvantaged. The right to adequate shelter is universally recognized and constitutes the basis for the national obligation to meet shelter needs.

The General Assembly of the United Nations, Therefore, decided to launch the global strategy for shelter in the year 2000. The main objective is to facilitate the provision of shelter for all by the year 2000. Shelter for meeting basic requirements of tenurial security stability and infrastructure support, with convenient principles of the global strategy are, Enabling policies whereby the full potential and resources of all government and non-government actors in the field of human settlements are utilized, must be at the heart of national and international efforts.

The public sector, rather than attempting to shoulder the entire burden of shelter production and distribution should concentrate on those areas. People are usually not able to provide for themselves while encouraging and facilitating the shelter production efforts of other participants including the formal and informal private sector small entrepreneurs civic and community groups voluntary organizations and private individuals.

The concept of sustainable development implies that shelter provisions and urban development must be reconsidered with a sustainable management of the environment. Women as income-earners homemakers and heads of households have a crucial role in contributions to the solution of human settlement problems, which should be fully recognized and reflected in equal participation of women in the elaboration of housing policies programs and projects.

Infrastructure is defined as the permanent installations to provide a service or an operation. The urban population in India has been growing rapidly over the last 60 years and it has been doubling itself every 20 years. Despite such a rapid growth rate the urban population accounted for 25.72 percent of the total population in 1991 and the same has increased to 30 percent in 2001. To achieve the level of urbanization as per with developed countries 40 core population would require to be accommodated is mostly uncontrolled. The development planning and control mechanism in our cities is either absent or so adhoc that the unplanned urban extension is being added to each city without any infrastructures.

In such an uncontrolled race the right type of infrastructure can't be planned or provided. By the time an infrastructure is provided to meet the present demand it is already overloaded needing further expansion. Such a flexibility could be provided by the road-based system predominated by personalized modes for provided by the road-based system predominated by personalized modes of transportation and individual arrangements for water supply and sanitation.

The cost of development operation and maintenance of four basic infrastructure networks namely ,Railways, Highways, power grid and Communication are highly sensitive to the location and structure of cities .A spinal type of linear corridor development along the basic high-capacity rail system would prove to be the most effective and environment-friendly pattern for urban development. The Indian Railways are operating a regional rail network extending over 62000km and covering the entire length and breadth of the country. Various corridors with high growth potential be identified and prepared for future urbanization.

A corridor width of 4 to 5km on either side of the spinal corridor should be reserved for planned and guided urban development. A railway station every 2km can be developed as a town center supporting population of about two lakhs. The series of such towns will function as complimentary and supplementary to each other providing the economy of scale for all types of specialized activities which a mega city can support.

The infrastructural spine of 100km length supporting a population of about core will generate the demand volumes justifying high capacity system and also ensure their optimum utilization. The un-directional tidal flows which are common in suburban computer systems will be balanced due to the presence of a major city at either end and the inter-town movement along the corridor. This would however necessitate a four-track system to meet the high demand volumes and the operational necessities to provide differential speeds. By confining the width of the corridor the rural hinter land is available within a couple of km, the supply of various consumables produced in the rural hinter land, particularly the perishable items and disposal of the various types of wastes generated in the town will be much more economical.

Many Indian cities do not have a sewerage system even if the system exists the capacity is not adequate to cope with the requirements. According to the mid-term review of the water supply and sanitation decade program 1981-90, at all India levels, the proportionate share of the population served by sanitation services in urban areas is about 28 percent. Further, the sanitation problem has assumed a new dimension due to the proliferation of slums. In India according to conservative estimates about 31 percent of the urban population does not have latrines for their daily use.

According to a World Bank report only 46 percent of the urban population has sewerage and sanitation facility. Thus, the sanitation situation is indeed grave. Considering stormwater drainage it is estimated that stormwater drainage system covers no more than 66 percent of the population. One-third of the urban centers are not covered by the drainage system.

For the maintenance of a clean environment proper collection and disposal of waste is absolutely necessary. However in most of our cities and towns this is one of the most neglected activities. Unattended waste not only spoils the aesthetics and creates unhygienic conditions in the surroundings but also pollutes air water and soil. Sometimes an unrepairable damage is caused by such a population. Pollution of water bodies results in the spread of several epidemics and the cost of water treatment increases sustainability.

The biodegradable waste generated in households has a high moisture content and decomposes very fast. The foul smell and unhygienic conditions in our towns are generally created by this component of waste. This includes the leftovers in the kitchen and from fruit and vegetable markets. These are a good source of biogas and organic composts. These components should be tackled locally at a disaggregated level to avoid storage as well as transportation to longer distances. For more cost-effective disposal such waste can be coupled with the local sewers as well as the horticulture waste from sweets in biodigestors locally. This will produce three important bio-products namely biogas, compost and recyclable water.

Regarding transport it is a known fact that the road-based systems have been the most traditional, most conventional and most convenient modes of transport over the ages. Once a paved road is available the choice of vehicle time of journey and destination is quite flexible. However, with the development of other specialized means of transport more efficient and more cost-effective systems such as railways and pipelines are now available for certain specialized needs. To get the maximum out of these specialized systems certain prerequisites are to be fulfilled through a coordinated effort.

Urban infrastructure development has been founded through budgetary support from central/state governments and local bodies through its Five-year plans and annual plans. The resources have been supplemented with funds from LIC, World Bank other multi-national and bilateral Programmes routed through Central/state governments to supplement the plan allocation partly as loans according to a pre-determined formula.

As these funds were passed on to the State and ultimately to the local projects as part of the budgetary system the concept of commercialization could not be introduced in the infrastructure sector. Not only the funds were made available partly as grants and partly as softer loans the recovery of costs from the beneficiaries could not be effectively introduced.

Repayments of loans if any were generally book adjustments. In many cases these loans remained in books of accounts ultimately to be adjusted or written off by the State/Central Governments. Under such an environment entry by the commercial financing institutions was not conducive. To cope with massive expansion and Programmes strong technical and managerial skills were necessary. Therefore wherever large investments through World Bank funding or otherwise were available professional institutions like Water Supply and Sewerage Boards were created. After the first project was over the pace of development could not be

maintained due to resource constraints and the organizational structure so created could not be used to its optimum. In addition to the underutilization these agencies are in the government. The public sector was also loaded with certain social responsibilities of providing subsidized free water in certain areas. These organizations could neither develop on commercial principles nor as welfare departments of the government. In many cases the overheads, and the establishment costs of these organizations have become prohibitive.

Here are a few but important suggestions with respect to cost recovery and pricing of urban infrastructure. The cost of development for implementation of complete infrastructure including utilities and social amenities should be considered in determining the reserve price of developed land as well as development charges and betterment levy. Whenever redencification of existing areas is permitted, agumentation of all the services should be taken beforehand and this cost is recovered as a betterment levy.

Identification should be selective and overall economic viability should be the criteria. The land can be achieved by a market-oriented approach to land development and pricing. Various modes of development may include acquisition, land sharing and guided development. Private sector participation in land development and management of urban infrastructure should be promoted with effective guidelines to achieve cost effectiveness higher productivity and better performance wherever possible. A reasonable rate of return on investment would be necessary to motivate private sector participation.

There should be an even field play for the private and public sectors. Participation of NGOs should be taken wherever possible. The development of the Railway corridor wherever its potential can be fully utilized should be used as a catalyst for urban development and efficient use of infrastructure. It is very costly to build rail corridors in fully developed areas. CIDCO's experience in the development of rail corridors and use of air space above railway stations for generating resources through commercial exploitation within the framework of an integrated perspective plan of the city has proved the effectiveness of a rail corridor as a catalyst for nitrated development of a new city.

Urban infrastructure projects should be financially viable with proper capital structuring. Financial management of each project should ensure proper pricing and cost recovery with periodic preferably annual revisions. Appropriate costing mw chains be developed for proper pricing. Part of the capital investment should be recovered through advice registration and connection charges.

This can be recovered as a one-time payment or in a few easy installments . Adequate steps should be taken for water conservation through minimization of losses at various states of supply, regular inspection or survey ,reduction of wastage by public awareness and pricing.

The principle of cross-subsidization may be used to ensure basic services to ensure basic services to the EWS and to achieve water conservation. This can be achieved by introducing smaller slabs at lower and with at least two slabs below average supply and one or two slabs above average supply. Wherever considered necessary, subsidy from other source should be explicit, transparent and properly targeted.

Information systems for proper planning at macro and micro levels need to be developed at the state and city be levels. Bulk and individual meters of good quality should be used for better effective water management. AIHDA may undertake a study on water meters, manpower and energy should be minimized.

System analysis and design economic approach be adopted for proper pricing of water supply and other services. This approach also may be used for phasing staging the investments for cost-effectiveness. Suitable training be provided to the staff of implementing agencies to use this approach. This may also be included in research programs leading to its inclusion in academic curriculum.

Specialized institutions for financing of urban infrastructure projects shall be set up at the national level and at other levels where ever commercially viable. Project-based financial instruments for debt and equity participation to the resources and improve commercial viability.

Rail harvesting and other source of water be tapped wherever these are cost-effective as demonstrated in western Rajasthan and Tamil Nadu. Local bodies should be strengthened to perform their role as providers and facilitators of services .Provisions of 74 of the Constitutional Amendment be studied and used to strengthen the local bodies as the nodal city government. Adequate training should be provided to voluntary agencies as well as to staff of implementing agencies for proper and cost-effective implementation.

A suitable information base needs to be developed by the nodal agencies. The local government's capability for planning should be improved. Urban development and management as far as possible should be decentralized at the city level under the overall control of the city government. City planning should conform to an integrated regional plan. The absence of adequate delegation of powers to various implementing agencies results in inordinate delays in awarding the works and procurement of goods and services.

Adequate powers therefore need to be delegated to these agencies for speedy implementation of projects and to control time and cost overruns. These should be indexed for annual revisions. In the case of statutory boards the delegation should be deleted from the Act and included in the rules to facilitate early action for revisions.

Slums and squatter settlements are the manifestation of poverty and the inability of urban administration to take the problem of large-scale migration from rural to urban areas due to the paucity of resources. Poor housing and environmental conditions in developing countries are great impediments to the economic and social development of the people. Therefore in the programme poverty alleviation and improvement of housing conditions should be an integral part.

Considering the colossal size of the problem as more than half of the urban population some 100 million people in the world are living in slums and squatter settlements enormous resources are required for improving the housing condition which the national economy is unable to spare due to other priority needs. However, improvement of housing conditions has also become an urgent matter requiring attention on an asperity basis to the health and well-being of the masses. Aided self-help is perhaps the most effective pragmatic way to solve the problem within the severe constraints of resources. Improvement in housing of poor families living on payments in slums and in squatter settlements can be brought about at low cost in the following manner.

The urban homeless population living on pavements and the open in improvised shelters are mostly new poor migrants to the cities the destitute the economically deprived and the unemployed the handicapped the old and sick people. Slum inhabitants live in old and dilapidated buildings as either owners or tenants in congested generally in the inner city areas. The owners and tenants are sure not to incur heavy expenditure required for essential repairs or reconstruction of their dwellings.

The poor new migrants to cities create squatter settlements where living conditions are appalling. The settlements need to be improved rather than the squatters to new settlements which they resent and refuse. To improve their housing conditions at a low cost the following measures are required. Grant of land tenure rights, redevelopment of squatter settlements, relocation of squatters.

In the process of tackling the shelter problem priority should be given to upgradation of existing shelters that are in a dilapidated condition and made of flimsy materials that are non-durable. The economic service life of all types of shelter including the existing permanent type of houses should be enhanced. New houses that are put up should have a longer service life.

There is a great need in developing countries to undertake further research for evolving appropriate low-cost techniques for heavy repairs rehabilitation and purgation of the existing shelters in slum and squatter settlements which in each situation present unique problems. Infrastructure the slums and squatter settlements. This calls for Insemination of technical know-how and demonstration projects to amass self-help or up gradation of shelters and improvement of environmental any have conditions. Reorganization infrastructure is important many countries implemented far-reaching reforms over the past two decades are construing encouraging private participation and establishing and new approaches to regulation.

This report identifies the challenges involved in this massive policy redirection within the historical economic and institutional context of developing and transition economies. It also the outcomes of policy changes and suggests directions for policy reform and to improve infrastructure performance. Although privatization competitive restructuring and regulatory reforms improve infrastructure performance, several issues must be considered and conditions met for these measures to achieve their public interest goals.

Conclusion

The slum people are spending their nights either on pavements platforms or in bus stations and Railway stations. They need shelter. The UPA programs should incorporate the provision of shelter to the slum people as one of its main objectives. Similarly slums are suffering from a lack of infrastructural facilities like water supply, drainage, interior roads, pavements, electricity, community latrines, medical and health and sanitation. Hence top priority should be accorded to provide the infrastructural facilities in the slums.

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