

TOPIC 7

ENVIRONMENTALLY ORIENTED PLANNING FOR HUMAN SETTLEMENTS

Scope

The process of rapid population growth and urbanization taking place in practically all the less developed countries will have an increasing impact on the environment, e.g., loss of the best farmlands to encroaching inhabitations, extensive and irrational exploitation of rural areas, and the growth of large metropolitan areas. The impact is more evident in these countries because their populations tend to concentrate in a few limited areas because of an imbalance in the regional spatial distribution of productive investments and social infrastructure institutions.

Large human agglomerations in the less developed countries face many common problems in different degrees of intensity. Examples of these are:

- (1) Low average income and high rate of underemployment and misemployment.
- (2) A growing gap between the income and opportunities of the rich majority and the poor masses.
- (3) A growing shortage of housing, public utilities, and social infrastructures relating to education, health, and recreation.
- (4) The gradual destruction of the natural landscape due to the rapid and unplanned increase in built-up areas.
- (5) Urban economies based on tertiary industries as a result of the low growth of the industrial sector.
- (6) The growing costs of municipal building and administration as a result of low building density and the speculative character of the land market and the construction industry.
- (7) The spatial segregation of urban population by socio-economic groups and the use of regulations and codes to bring this about.
- (8) The self-built character of most housing facilities for lower income groups.

These and other problems reflect the limited participation of low income groups in the definition of urban policies, plans, and programs and the dependence of the public sector on certain profit-oriented private groups such as banks, insurance companies, and entrepreneurs, who promote speculation on urban land and rent. Moreover, the use of imported materials, technologies, and standards (supported by foreign and indigenous credit sources) force the cost of housing and services beyond the reach of most of the urban population and of almost all of the rural population. Such housing

is frequently inconsistent with the traditional styles of life of these populations.

These problems exist in practically all middle-sized cities and large metropolitan areas of the less developed countries. Smaller human settlements are not so hard pressed, but they also have problems, e.g., limited employment opportunities and inadequate educational, recreational, and health facilities.

Because of inadequate statistics, these and other characteristics of the cities of the Third World cannot be easily quantified. Statistics on these cities tend to be vague or unreliable because they were distorted for political reasons; also, they are not comparable cross-nationally because of the lack of standardization of definitions. Recent research indicates that existing descriptions are too optimistic. With a few rare exceptions, the urban situation in the Third World is not only far worse than usually believed, it is also deteriorating rather than improving, in many cases very rapidly. Many countries cannot, others will not, appropriate the funds necessary for urban renewal even to the limited extent of maintaining the present low levels.

It is estimated that if present trends continue, between 1970 and 1985 the urban centers of all economically underdeveloped regions of Africa, Asia, and Latin America will have to incorporate 589,688,000 new inhabitants distributed as follows: 160,714,000 between 1970 and 1975, an annual average of 32,142,800 persons; 195,271,000 between 1975 and 1980, an annual average of 39,054,200; and 233,703,000 between 1980 and 1985, an annual average of 46,740,000 persons.

The influx of population from rural to urban areas is generally due to the relatively large gap between the two. The general "push" factors from rural areas may be briefly stated as: difficulty of employment, inadequacy of services, and relatively meager governmental attention and investment which promises very little in future compensation for current handicaps. The general "pull" factors of urban centers, on the other hand, are the relative concentration of administrative, economic, and social activities; the concentration of industry, if any; and a relatively greater technological advancement. In most cases, this migration to the cities contributes to the multiplication of urban slums and squatter settlements. Their rate of growth (from 8 to 12 percent a year) is usually higher than that of the urban centers themselves.

In the case of relatively wealthy or educated rural gentry, migration to the cities is seen as a means of achieving upward social mobility, but this has an adverse effect on rural communities who are deprived of members who could contribute to their socio-economic advancement. Rural development measures such as agrarian reforms or improved agricultural inputs (e.g., the introduction of "miracle" rice) have not affected this trend.

In spite of the lack of valid statistics on housing, certain general conclusions based on the impressions of researchers and their respondents can be stated:

- (1) Between 40 and 50 percent of the world's population (urban and rural)

live in houses which are overcrowded, poorly built and furnished, and environmentally unsatisfactory.

- (2) No country in the Third World builds the number of urban dwellings provided with services and social infrastructure necessary to meet the demands of rapid urbanization. The majority of the countries of the Third World built less than 2.5 dwellings per 1000 inhabitants per year, and for some, it was closer to 1 dwelling per 1000. By contrast, the target set by the UN for the 1960's was 10 dwellings per 1000.
- (3) Vast sectors of the urban population lack a stable income. High costs of housing are due partly to the speculative nature and small scale of the construction industry which is essentially controlled by private interests. In many Third World countries, especially in Africa, more than 50 percent of construction material is imported from developed countries; in some African countries, over 80 percent of the material used to build western type housing is imported.
- (4) The cost of land varies significantly from city to city within a country, as well as within a city. The unnecessary division of land into urban and suburban, favoring horizontal urban extension, low building density, and the subdivision of plots, is one of the main hindrances to the concentration of public investment in housing and public utilities. The inaccessibility of land because of its cost leads to a segregation of the urban population by income levels and to a different level of access to services such as education, health care, and the provision of housing.
- (5) From a national point of view, the housing problem is the consequence of the inability of national economies to generate the growth needed to provide the total population with social services. What makes this situation worse and even more exasperating is the growing inequality between the poor and the rich in Third World countries.
- (6) Major sectors of urban populations are forced to live in socially marginal situations marked by ever-increasing crowding and a low quality of human environment. It is estimated that around 50 percent of the world's urban population lives in slums or uncontrolled settlements.
- (7) Whatever the causes, the design and technology of housing production, hence its cost, are completely unrealistic. Moreover, because they are derived from developed countries with little or no adaptation to local conditions, they fail to satisfy local social, cultural, or economic needs.

One major role of the built environment is to modify the outside climatic elements of temperature, humidity, air movement, and radiation to levels suitable for human comfort. These conditions are not met in most developing countries, especially in the case of squatters and nomads. Squatter and slum housing tends to provide the lowest level of human comfort due to the poor use of materials and inadequate design, as well as the lack of essential services. Although generally more expensive, styles of housing introduced from developed countries tend to maximize human discomfort in these climates because they do not make use of indigenous materials and design features. Often, ideal climatic conditions can only be achieved through

mechanical environmental control, but in most cases this is too expensive to be considered.

Options

In view of the immensity of the problem, it is not possible to provide a full range of solutions, but it is obvious that they should be sought along the following lines:

First of all we may start with two assumptions:

- (1) Social justice requires that all members of a society share the benefits of economic progress brought about by the development and use of national resources. Given the extent of poverty in the developing countries, the needs of the poor must be given priority in bringing about the basic aim of an equitable society. This requires setting aside the GNP as an indicator of national development since it only indicates the increasing wealth of the rich.
- (2) The concentration of populations in large urban centers is not an inevitable process. A better distribution of population can be geared to national goals based on the rational use of natural (land in particular) and human resources, especially through adequate locational policies and the spatial distribution of productive investments and social infrastructure.

National dimension of the problems. It seems obvious that the way to check the uncontrolled influx of populations into large urban centers is to increase opportunities available to populations outside of such large centers. This will benefit both the cities and the rural areas. Some measures necessary to achieve this goal are:

- (1) Comprehensive socio-economic planning on a nationwide basis, taking into consideration regional differences and community needs. This includes the establishment or development of sub-regional towns which can provide needed services to the surrounding area (markets, processing industries, credit granting institutions, schools, and employment opportunities for the local population). Such provincial centers should be developed in a balanced manner and should be so situated as to assure an optimum relationship with the settlements to be serviced.
- (2) Improvement of roads and other communication networks to break down isolation and to make it possible for all communities of an area to participate in the benefits of a sub-regional economic network. These measures, along with access to mass communications media, will also help to give populations a sense of national participation.
- (3) Decentralization of facilities for higher education, research, and technical training, taking special care that teaching programs and curricula are adapted to the vocational needs of the sub-regions they are intended to serve.
- (4) Balanced development of industry and agriculture. Agro-industries, for example, could be sited in rural areas in order to reduce the

pressure on urban land and to provide services and employment opportunities for rural populations.

- (5) In some instances, a better spatial distribution of the national population is desirable, and large public works or natural disasters may make relocation necessary. In general, the best approach to this problem is to make enough opportunities available so that the affected population can relocate according to their own wishes; for this, alternatives should be made available. When resettlement by government agencies and others becomes necessary, the population's life style, ethnic differences, and ability to cope with a new environment should be taken into consideration. Public works such as land development programs may be inaugurated in relation to resettlements as part of a plan to make provisions for future populations.

Urban dimension of the problems. Some measures which could be taken to alleviate conditions in large urban centers are as follows:

- (1) A better urban environment could be provided at reduced cost if urban sprawl resulting from uncontrolled land subdivision could be avoided. Density should be conditioned by the needs of social interaction, building maintenance, administrative costs, and the possibility of introducing variety in urban physical structures. Planning should also take into account the fact that density is related to physical comfort and that there is a relationship between administrative costs and city size.
- (2) Adequate measures should be taken to preserve the wholesomeness of both the natural and man-made environment when massive increases of population occur in urban agglomerations. Every effort should be made to preserve and increase the natural beauty of urban sites. At the minimum, essential natural supportive systems such as ground water supplies should not be polluted.
- (3) Urban planners should realize that measures for the control of city growth (e.g., zoning) as practiced in developed countries are not always adequate for Third World countries because of different rates of growth, scarce resources for investment, lack of technical resources, and different cultural attitudes.

Measures related directly to problems of housing. In general, every effort should be made to provide inexpensive and comfortable housing for specific populations. Methods by which this can be accomplished are as follows:

- (1) In order to accommodate the maximum number of dwellers, houses should be designed for the least cost consistent with basic requirements of human comfort and dignity.
- (2) To avoid repeated investment due to rapid obsolescence, the cost of housing should be related to the life span of the house.
- (3) Construction costs should be reduced by using locally manufactured standardized building components, e.g., window frames, doors, etc.
- (4) The use of local building materials, particularly those made from renewable resources, should be encouraged to minimize the use of much more expensive materials manufactured from non-renewable minerals.

- (5) Whenever possible, houses should be designed in such a way as to use solar, wind, and other readily available energy sources.
- (6) The size, volume, and design of habitations should be consistent with the social, cultural, economic, and climatic character of the community.
- (7) The design of the house should aim to improve the natural rather than to create an artificial environment.
- (8) The technology of city building should be tied to employment policies. The construction industry and the production of building materials should be promoted as sources of employment and training for more advanced types of industrial activity.
- (9) Through appropriate organizations such as cooperatives, housebuilding corporations and city and village councils, financial and other incentives, as well as facilities, should be provided for the building and modernizing of human settlements.

The training of qualified personnel and the setting up of suitable institutional arrangements are needed at all levels of the problems referred to above in order to assure competent planning and support.

Research

The magnitude and urgency of these problems are obvious, but we cannot afford to wait for a complete inventory before instituting measures to alleviate them. Fields of research relating to such problems are incredibly vast. The following list suggests certain areas which appear to be more relevant to central issues:

- (1) Comparative studies of human settlements having different socio-political systems, spatial distributions, and productive systems, for the purpose of aiding the formation of relevant policies. The program should analyze such factors as: energy and resource usage; impact on the productivity of the natural environment; human well-being (generally and by sector within each settlement) in terms of access to jobs, housing, health care, and recreation; provisions for privacy; social interaction; security; and spiritual, aesthetic, and/or intellectual gratification.
- (2) Social adaptation studies of rural-urban migrants.
- (3) Analysis of traditional and experimental building forms, materials, and techniques in terms of climatic modification, measures of efficiency, and factors of initial and long-range costs.
- (4) A study of the minimum standards of housing, settlements, and environment which would assure a basic level of the quality of life.
- (5) The relationship of socio-political systems, productive systems, and the spatial distribution of populations, historically and cross-culturally.
- (6) The problems of minority groups and minority group enclaves, and their relationships to labor policies and employment possibilities (access to new sources of employment, service industries, etc.).
- (7) A study of environmental resources in rural areas which could be

developed to improve socio-economic conditions: surface and ground water resources and their management; conventional and non-conventional sources of energy for residential use and rural industrialization; and the suitability of soils for high yielding and/or new more profitable crops.