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LATIN AMERICA AND THE HABITAT CHALLENGE \*

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## INTRODUCTION

The Economic Commission for Latin America has been concerned with the development of the region's economy and with its major social implications. ECLA's analysis has demonstrated how the region's development has depended upon international trade, and how its development potential has been inhibited by deteriorating terms of trade. This has led to greater emphasis on a broader concept of development which focuses attention upon the internal market and social needs.

The regional experience which it has accumulated from its many comprehensive and sectoral studies has given ECLA a special understanding of the region's problems and possibilities. The Economic Survey of Latin America, published annually by ECLA, has proved to be a useful instrument in the reviewing and up-dating of policies. In addition, basic studies on poverty, population and the spatial aspects of development have provided specialized background, while years of technical assistance in urban and regional development have further enhanced ECLA's capacity to make a contribution to the understanding of human settlements.

More recently, ECLA has collaborated closely with the United Nations Environment Programme on a project to organize information on the environment in Latin America. Part of this project is the report which ECLA has presented for consideration by its member countries.<sup>1/</sup> At present, UNEP and ECLA are collaborating in the establishment of a Regional Programme in Human Settlements Technology that will be initiated by a consultative meeting to be held in August 1976 in Mexico City. ECLA also collaborated closely with the HABITAT Secretariat in the preparation of the Regional Preparatory Conference for the United Nations Conference on Human Settlements.

In addition to the Human Settlements Technology Programme, a basic study of the habitat in Latin America is under consideration. This project is intended as a basic study to collect and systematize

<sup>1/</sup> "El medio ambiente en América Latina", (E/CEPAL/L.132/Rev.1).  
The English-language version will appear shortly.

existing information on human settlements and to project the present situation over the next 25 years, in order to identify the most important aspects to be studied in the fields of policy, management and technology.

ECLA's interest in human settlements is also reflected by almost two years of technical assistance in urban development provided to the Brazilian Government which has given rise to several projects: a multidisciplinary approach, which constitutes an asset for future operations, has been specially assembled for this assistance.

The above, however, is not sufficient to deal adequately with the needs of the future. ECLA has neither the means nor the pretension to provide all the assistance required by the Latin American countries. All the capacity of the United Nations family and other international institutions should be committed, in one way or another, to the colossal task of tackling the accumulated backlog. Perhaps ECLA's most important role in relation to human settlements could be to act as an intermediary between the countries of the region and the United Nations family of organizations and other international institutions.

It is in this context that ECLA wishes to put forward some thoughts which stem from its continuous analysis of the region's overall situation.

The forthcoming 25 years clearly appear as a period in which the Latin American habitat will be almost completely restructured. With urban population increasing at a yearly average of twelve million persons in this period, by the year 2000 urban settlements will account for 77 per cent of the total population of the region in contrast with 57 per cent in 1970. By the end of the century, Mexico City will be the largest world metropolis with 31 million inhabitants, the present combined population of Mexico City, São Paulo, Buenos Aires and Rio de Janeiro. The number of Latin American cities included among the 50 largest agglomerations in the world will pass from 4 to 9.

Short of a completely unexpected break in present trends, a series of significant changes will take place:

At the present rate the demand for social infrastructure will grow to levels absolutely out of proportion to the resources of the region. This added demand will join the deficits already accumulated in both urban and rural areas. Moreover, a revolution in public transport, sanitation and communications will be required to cope with changing needs.

In this period, cultural change will radically transform the life-styles of the bulk of the population in a direction that could harm national integration if the current cultural identity crisis is not overcome through greater self-assertion.

The quality of life could certainly deteriorate if poverty and industrial pollution are not controlled and if socio-economic systems are not able to find ways and means to reconcile national development policies with the present and future improvement of the habitat.

Deficiencies in organization and the lack of applicable technology will exacerbate the divisions in society by completely depriving the low-income groups, peripheral areas and traditional sectors of the means to face everyday urban problems.

Without radical changes in organization, the management of human settlements, already fraught with chronic difficulties, could become an impossible task for local governments, especially in the larger urban areas.

This picture would be sombre and overwhelming, if Latin America were completely deprived of instruments for action. But centralization, which in the past helped to create some of the present conditions, has accumulated human capital and organizational resources that could be applied to tackle these problems. The tasks would include a concentrated decentralization of population and economic activities to regional metropolises and medium-sized cities, and the incorporation of agricultural frontier areas into the national economy.

/The lack

The lack of capital and financial resources could provide the best incentive for a wide redefinition of social and technical standards and for research and development of new technologies. The installed technical capacity existing in industries and crafts could be supplemented by new technologies in a co-operative effort to achieve drastic cuts in urbanization and housing costs.

Latin American countries already possess some of the conditions required for the creation of an innovative human settlements technology, something that is less important in countries where the infrastructure and housing stock may require replacement but relatively few massive additions. Mild climatic conditions such as those prevailing in the tropical and other ecosystems of the region, constitute an asset still not fully exploited, as the natural basis for simpler and more comfortable structures.

The social energy and creativeness demonstrated by the squatter settlements and indigenous communities could be applied to the construction, at much lower economic and social cost, of a substantial part of the habitat. This realistic alternative could also help to promote cultural identity and self-assertion.

The mobilization of such potential would require political decision and collective participation. For one thing, the habitat cannot be the product of the will of a small minority even if inspired by the highest social motivation. The habitat is the result of the interplay between the people, a particular place and a form of socio-economic organization, and therefore it calls for a comprehensive consciousness of the nature, meaning and functioning of human settlements, as well as of the social importance of the quality of the habitat. A vast mobilization of public opinion and the public sector is an essential condition for action.

Decisive intervention by the political institutions is another requirement. The habitat has to be considered as a basic component of national policies, and not exclusively the concern of local authorities. Distribution of income, population and economic activity

/are natural

are natural links between economic policies and human settlements. Social standards and investment priorities are another concern of central governments which have a direct bearing on the habitat. The restructuring of local governments, essential for the management of human settlements, constitutes a third area in which national governments should intervene.

To transform the rather casual settlement of the population into a deliberate and systematic process, without inhabiting creative participation, requires extreme social sensitivity and the collaboration of a range of professional and technical cadres not always available in every country.

A great educational effort is therefore another basic requirement, and must include primary and secondary education as well as university and technical training at different levels and for different careers. New professions, disciplines and skills have to be created while informal education and extension programmes have to be developed on a vast scale.

Closely related to the latter, research and development of human settlements technology represent another priority area. It seems impossible, adopting present standards and with existing methods of construction and management, even to provide the facilities required by the urban explosion. Another technology should therefore be developed.

The construction and reconstruction of the human habitat is a collective task which concerns the whole of society. It will therefore depend upon political will and a strategy for mobilizing the different elements involved in the process. This mobilization should aim primarily at liberating creative capacities with the minimum of imposed values and constraints. The habitat must be the result of collective participation to provide freedom for human fulfilment.

## I. A CONCEPT OF THE HABITAT

### A Definition

The habitat is the organized space which has been adapted for human life. As such, it embraces the socio-economic system and that which is external to it, the environment. The socio-economic system is understood to be the institutional organization of the human community, while the environment is the natural system juxtaposed to it, thus forming the natural context. The biosphere and the technosphere are two dimensions of the environment.

The relationships among the different elements that constitute the socio-economic system (government, enterprises, households and social groups) determine the specific form of institutional arrangements. These, in turn, act in relation to the environment through particular forms of internalization of environmental components into the system, and externalization of elements from the system to the environment.

This interplay between the system (human community) and the environment which is external to it, moulds, in an endless process, the habitat in all its dimensions.

Human settlements represent a habitat, where the technosphere tends to dominate the nature of the environment. For practical purposes, human settlements can be understood as concrete expressions of the habitat, in both urban and rural areas.

### Man and the Habitat

Man moulds the habitat through individual and collective intervention. As a result, the habitat reflects cultural, social, economic and political aspirations which, as well as being constrained and influenced by environmental factors, have also had a constraining and influencing effect upon them. This two-way process emphasizes the important role of the habitat in shaping human behaviour while at the same time representing a manifestation of that behaviour.

/Speed of

### Speed of Change

Man's repeated interventions combine to form a continual, interacting process of change, the rate of which is an important variable in shaping the habitat. A very rapid rate of change traumatizes both the internal and external relationships of the system, and therefore has a direct impact upon the environment. Above a certain rate, the capacity of the socio-economic system simply to adjust to, let alone anticipate the process, is exhausted.

Explosive urbanization is an example of this, where unprecedented rates of urban growth are accompanied by crises in meeting the demands for basic urban services such as water supply, sewage, energy, and health and education services, as well as the unleashing of uncontrolled amounts of diverse wastes into the environment.

### Modes of Development

Development can be understood as a cultural response to economic incentives within the constraints of a particular place and its resources endowment.

Modes of development, by affecting in different ways the interests of the various socio-economic groups, directly modify the internal relationships of the system and its relation to the environment, and hence the habitat.

There is a growing awareness of the importance of the cultural context for developing countries where the self-reliance of their peoples is being seen as a fundamental component of a new concept of development, as a process whereby the entire population can attain its social and economic goals through the assertion of that society's creative efforts, which can lead to a habitat which every inhabitant identifies with and considers truly consistent with his own cultural identity.

### Cultural Identity

Development, understood as a cultural process, underlines the importance of life-styles for the habitat. Life-styles basically reflect cultural values, social paradigms and real constraints. It is

/cultural identity

cultural identity that gives a person the sense of belonging to a particular life-style and enables individuals and the community to fulfill social goals which are dictated by their own cultural values.

Within the socio-economic system, one can witness the juxtaposition of different and sometimes opposing cultural identities as traditional cultural patterns expire and give way to imitations of more universal life-styles. During the process of change, rural and local life-styles evolve, in the largest settlements, into a cosmopolitan attitude. The latter, it must be emphasized, is characterized by an openness to a wide spectrum of life-styles, and by tolerance of and interest in other cultures, rather than a commitment to a particular way of life or livelihood.

Moulding a habitat in a way that takes account of cultural factors and the local ecology can therefore be understood as an important facet of the struggle of the emerging countries for their independence.

#### Perception of the Habitat

Although the habitat is collective in that it pertains to society as a whole, the individual relates to it through his perception of it. His perception of his own habitat and that of others is his subjective assessment of the objective variety in the habitat. His perception is conditioned by the culture to which he belongs and his socio-economic position (e.g., income level, occupation, education, etc.) and thus varies from individual to individual, being often strongly influenced by demonstration effects. The characteristics of the habitat have to be defined, then, in specific terms for each particular human settlement (macro-habitat) and even, within them, for the various neighbourhoods that constitute the micro-habitats of the different social groups. Generalization can be justified, on practical grounds, only as an analytical tool.

The differing perception of the habitat therefore derives from two sources: the subjective variety in individual perception, and the objective variety in the habitat. The latter /includes the

includes the disparate quality of the habitat for different social groups, while the former has a great bearing upon the nature of institutional intervention in the region's habitat.

### Institutional Intervention

Besides the more spontaneous individual moulding of the habitat, man has tried to organize a collective response through institutional arrangements. The resulting institutions intervene to control the internalization of environmental elements and the externalization of the elements of the socio-economic system. The effectiveness of these institutions can be measured by their capacity to respond to and minimize the traumatic effects of these interrelationships.

Institutional intervention is the result of the exercise of the power which reflects arrangements and compromises between different social and economic interest groups interwoven into the administrative fabric. Under present conditions, decisions are not necessarily taken, in all cases, through mechanisms which are representative of, and adequately reflect, the interests of all the groups that make up society. Moreover, at the local level, the authorities seldom possess either the capacity for arbitration or even sufficient power of intervention in such important matters for the habitat as land use and public services.

## II. HUMAN SETTLEMENTS IN LATIN AMERICA

The external nature of the interests in play during the colonial period led to a maritime system of settlements which are all of European origin, with the exception of some Brazilian and Venezuelan cities.

These predominantly coastal centres also served the international trade which constituted the economic base of the Latin American countries after their political independence. The spatial arrangement of the region's human settlements has, in fact, changed very little with time.

/The importance

The importance of the urban agglomeration as an import/export centre was re-emphasized by the consolidation of the international division of labour. This established, during the last century, the role of Latin American countries as suppliers of raw materials and consumers of manufactured goods from the industrialized world.

Even the more recent process of industrialization begun after World War II, based on import substitution, has considerably reinforced the traditional urban concentration along the coastal fringe. This is the result of exploiting the locational advantages and agglomeration economies of the existing main centres.

The resulting system of human settlements includes an array of centres varying in size, function and, probably the most important, life-style. Using this last cultural variable as the typological criterion, it is possible to try to identify the salient features of the complex reality which the system of human settlements constitutes today in Latin America.<sup>2/</sup>

Thus the human settlements of the region could be classified as follows:

### Metropolises

The three metropolitan sub-groups, cosmopolitan, national and regional, constitute the largest and fastest-growing group of agglomerations. They presently accommodate some 23 per cent of the region's population, while two-thirds of its industrial production and the largest share of total income are concentrated in them.

#### (i) Cosmopolitan Metropolises

This sub-group includes the four largest agglomerations in Latin America: Mexico City, São Paulo, Buenos Aires and Rio de Janeiro. They are all, with the exception of the Argentinian capital, growing very rapidly and their combined populations by the end of the century

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<sup>2/</sup> It must be emphasized that the criterion applied here isolates the distinguishing, but not exclusive, cultural feature of the group identified. For example, the distinguishing feature of the first sub-group is the cosmopolitan attitude, but this coexists with life-styles common to the other groups of human settlements.

will be 91 million if current trends continue (almost one third of the present population of the entire region and would be 2.4 times their present population).

They incorporate a great variety of social and economic groups, in some of which a distinctly cosmopolitan attitude prevails, and plays a decisive role in disseminating within the region the international cultural values associated with the modern development concentrated in them.

(ii) National Metropolises

The national capitals of Lima, Bogotá, Santiago, Caracas, Havana, and Montevideo constitute this sub-group.

Although large and varied in their social composition these agglomerations reflect the values and attitudes of essentially national cultures. Nevertheless, among the first four, with rapid growth and modern development, there may well develop a cosmopolitan attitude similar to the first sub-group by the end of the century. By then thirteen other national capitals will, given present trends, have a population of more than one million, the minimum currently associated with the concept of the metropolis.

(iii) Regional Metropolises

These are twelve large agglomerations which constitutes centres of modern development. At the same time, they are fully integrated into their respective socio-economic systems and hence incorporate essentially regional cultural values into their predominant life-style.

Before the end of the century, thirteen more agglomerations are expected to become regional metropolises.

Provincial Settlements

This group is made up of many kinds of human settlements varying from medium-sized cities to small towns. They all have in common a life-style which can be characterized as provincial, incorporating an attachment to traditional values, social and family patterns, and a tendency towards paternalism and conservatism.

/(i) Medium-sized

(i) Medium-sized cities

These include 133 cities of more than 100,000 inhabitants at differing stages of transition, but which generally attract little modern development.

(ii) Small towns

This category includes a vast number of settlements of between 20,000 and 100,000 inhabitants, the urban centres which are the least influenced by modern development and continue to be characterized by a truly provincial culture in their life-style.

(iii) "Frontier" towns

These constitute a special sub-group which is distinct from (i) and (ii) above through having exceptionally high rates of demographic growth. Goiania in Brazil and Chimbote in Peru are examples of such settlements, where the very high rate of change exacerbates the traumatic effect of concentration upon the population.

Rural Settlements

Although statistical criteria vary considerably, rural settlements are taken here as defined by national statistics. At present 44 per cent of the total population live in such settlements, whose culture is characterized by strong links to the land and traditional values. This proportion will fall to 23 per cent by the end of the century if urbanization continues at the present rate.

(i) Concentrated

These include settlements such as compact villages, indigenous communities, plantations, and farms.

(ii) Dispersed

The distinctive feature of this sub-group is the extended nature of small isolated settlements and dispersed subsistence households.

### III. SALIENT FEATURES OF URBANIZATION IN LATIN AMERICA

The essentially static picture of human settlements in Latin America that has just been built up calls for a consideration of the dynamic forces of urbanization that lie behind and largely determine its forms.

It is important to emphasize that urbanization is a continual process of cultural assimilation whereby social groups acquire new cultural values in time and space. In Latin America, this is represented by a large and continuous flow of people, in space, as migrants to large urban areas, and in time, as socially mobile groups within the settlements themselves as they successively switch from a rural to provincial, regional, national and cosmopolitan life-styles.

This process of urbanization does not simply follow the path laid down during the last century by the countries which are now industrialized; it has distinctive characteristics, four of which are considered here:

#### 1. Urbanization/Industrialization Relationship

Urbanization has hitherto preceded industrialization in Latin America, in sharp contrast to the experience of the rich countries in the nineteenth century where the latter was the driving force behind urban concentration.

This discrepancy can be illustrated by comparing the growth of the urban population of Latin America, 5.2 per cent annually between 1960 and 1970, with a growth of only 2.8 per cent per year in the industrial labour force during the same period. The gap between the two rates has continued to widen since 1940 as urban growth increasingly outstrips industrialization.

Rural poverty and agricultural decline, together with rapid population growth, have contributed to the expansion of existing settlements which were already enjoying, in some measure, significant agglomeration and external economies derived from their erstwhile functions as entrepôts of international commerce.

/The direct

The direct contribution of industrialization to this process has been only marginal in terms of jobs although the indirect effect of disseminating higher expectations and standards, unattainable by the large majority of the population, further encouraged urbanization and modernization of society.

## 2. Cultural Demonstration Effects

Imitative consumption patterns and expectations, leading to anxiety among the middle classes and unrealistic expectations among lower-income groups, are just one example, of the cultural demonstration effects of a mode of development based upon economic dependence. Others include attempts to imitate the cultural and technological standards of industrialized countries. In the latter case, the application of technologies originating in totally different socio-economic and natural conditions, far from solving concrete urban problems, becomes simply a question of social status for an integrated minority, or civic pride for the city's authorities. In the largest cities for example, the utility of the private motor car is sharply falling and the social costs and environmental damage are sharply increasing in a situation where the number of cars is growing three times faster than the already high rate of growth of the urban population. The resulting congestion disrupts the entire transport network, adds to the time lost in travelling, makes public transport inefficient and costly, and challenges the physical capacity of the settlement to a point which is approaching saturation level.

Urbanization on this basis is leading to a growing incompatibility between a habitat built in the image of human settlements in industrialized countries, and the stark realities of the living conditions and livelihood of the Latin American population as a whole.

## 3. Growing Inequality

Urbanization has frequently been associated with a tendency toward cultural and social homogeneity, but in Latin America, different social groups are affected by the process in dramatically different ways.

A very few social groups which together amount to no more than perhaps 20 per cent of the population, have adopted a modern consumer-orientated life-style and enjoy a habitat concomitant with a relatively high standard of material comfort.

Against this, one must contrast the habitat of former rural and provincial dwellers whose participation in the new economic opportunities is only marginal. It offers poorer material conditions, in particular because of the lack of urban services and social amenities.

The growing contradictions between these two extreme types of habitat and increasing competition for scarce urban resources such as space, drinking water and unpolluted air, lead to collective friction and militate against cultural and social integration.

#### 4. Spontaneous Urbanization

The process of urbanization is largely spontaneous in the sense that it depends very little upon the participation of traditional institutions. In fact, between 30 and 50 per cent of the entire housing stock of some large agglomerations has been directly provided by the urban migrants themselves.

This also demonstrates the creative capacity of these groups to adapt their habitat to the new urban needs through ingenious ad hoc social arrangements. These become necessary as a replacement for institutions like credit, social security and medical care which generally do not reach their income levels. Such traditional institutions generally do not officially recognize the life-styles, cultural values and technological solutions of these "marginal" groups.

Paternalism and inflexible attachment to imitative life-styles leave the traditional institutions singularly ill-equipped to deal with the urban problems of social groups whom they do not represent at all, and to adapt to the rapidly changing situations posed by unprecedented rates of urbanization.

#### IV. DIMENSIONS OF THE CHALLENGE

The creation of an adequate habitat for 300 million new urban dwellers before the end of the century and the improvement of the living conditions of a further 150 million in rural areas, in addition to the overcoming of existing deficiencies, would present a colossal challenge to even the richest nations of the world.

The habitat challenge must be understood as a whole which requires a total response in order to create a habitat that can allow the individual and his family to live a balanced and stimulating life. This therefore constitutes an important part of the search for a new international order in which basic concepts such as development, growth, independence, social fulfilment and the role of technology must all come under review.

The need for a new direction in world affairs is accompanied by an increasing potential to implement the necessary change. As was stressed by UNESCO in a recent contribution to the United Nations Conference on Human Settlements:

"... industrial civilization is the first civilization to possess at once the financial resources and the technical means required for mass destruction, followed by almost immediate reconstruction to designs which are totally different."<sup>3/</sup>

It is this potential which must be harnessed to meet the challenge of reconstructing the habitat in Latin America: a challenge which is an all-encompassing whole comprising a number of dimensions which will be examined here.

##### The Social Dimension

Lack of employment opportunities appears at first sight to be the outstanding social problem. Only 57.8 per cent of the population of working age is economically active,<sup>4/</sup> and this percentage is

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<sup>3/</sup> "Culture, Education and Human Settlements", UNESCO, 12 January 1976. (A/CONF.70/B/5).

<sup>4/</sup> ECLA. Población y Desarrollo en América Latina. Fondo de Cultura Económica. Mexico 1975.

falling, leaving an increasing reserve of unutilized labour in addition to the hidden unemployment among those who are economically active. The equivalent proportion for industrialized countries is 70.4 per cent.<sup>5/</sup>

The relatively low rate of activity in Latin America can partly be explained by the age structure of a population which includes a large proportion of dependants and by low levels of female participation. An important issue is raised by modes of development that emphasize capital-intensive methods of production dictated by international competitive conditions.

The challenge then becomes how to take advantage of the great potential of human resources that is at present untapped. In 1970, total unoccupied manpower was in the order of 64 million persons.<sup>6/</sup> Even without providing employment for these persons, by 1985 48 per cent growth in industrial employment would be necessary to absorb the labour force increment during the same period (compared with 42 per cent in Africa, 34 per cent in Asia and 16 per cent for the rest of the world).<sup>7/</sup>

Given present trends, the prospects for rural employment are meagre, and it appears that it will fall to urban settlements to meet this challenge.

The rapid rate of urban growth also calls for a considerable increase in urban infrastructure and housing. At present rates there will be almost ten million new urban inhabitants each year: an expansion that would require the construction of 15 new Brasílias or a metropolis the size of Buenos Aires annually.

The new urban dwellers will demand basic urban services such as drinking water, sewage disposal, energy, education, health and recreation services, transport and communications. All of these are already seriously deficient in Latin America.

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5/ Ibid.

6/ Ibid.

7/ UNESCO: op.cit.

In 1970, only 76 per cent of the urban population had access to a piped water supply, probably only directly connected to the dwelling in half the cases. The equivalent figure for the rural population is 17 per cent. Furthermore, only some 40 per cent of the urban population is served by a sewage system.

Health indicators for 1970, such as the number of hospital beds per 10,000 inhabitants (30 in Latin America compared with 160 in the United States), illustrate a shortcoming in medical care in a region which has only 5.7 doctors per 10,000 inhabitants.

Latin America's large urban agglomerations present transport and traffic problems similar to those of the larger world metropolises in spite of the fact that there were only 184 private motor vehicles per 10,000 inhabitants in the region in 1970 (cf. North America 3,223, Europe 1,475).

In the metropolises of the region, private cars are responsible for only between 15 and 25 per cent of urban trips and yet comprise 80 per cent of the total vehicle fleet. The efficiency of public transport is therefore severely curtailed by the competition of private vehicles for the existing street capacity, and the result of the heavy traffic congestion observable in all the large metropolises, where the average speed of bus operations is not more than 8 Km/hour. This situation can be expected to deteriorate as car ownership is increasing at 3 times the rate of the population growth of these agglomerations.

There is no easy solution to the transport problem itself since it apparently becomes necessary to carry out extremely expensive investment in elevated freeways, tunnels, and underground railway systems to accommodate traffic flows dominated by the private motor car. For example the 50 million dollar cost per kilometre of a rapid transit system for one of the region's large metropolises represents the average yearly income of 100,000 people.

At least in the short and medium-term, the urban transportation problem of the Latin American metropolises will be dominated by the question of how to replace private cars by collective public transport systems.

The housing problem is in Latin America no less serious: there are countries with urban overcrowding rates, as measured by the percentage of the local urban dwellings with more than three people per room, of between 25 and 30 per cent.<sup>8/</sup> Two countries in the "temperate cone" of the continent, Argentina and Chile, have lower overcrowding rates, 12 per cent and 19 per cent respectively, but these are still far above those for industrialized countries. In the European Economic Community, for example, the rate for most countries does not rise above 2.7 per cent.<sup>9/</sup>

Even without improving these existing conditions, where almost half the existing housing stock is considered deficient by official building regulations, 2.0 million dwelling units are necessary to meet the demands of new urban dwellers.

If we assume a cost of 5,000 dollars per unit, some ten billion dollars, or almost 40 per cent of the gross capital formation of the region, would have to be invested in housing simply to meet the growing demand.

To this must be added the urbanization costs of basic services and urban amenities. Assuming an average urbanization cost of only 1,500 dollars per capita, the required investment would almost completely exhaust the remaining 60 per cent of the region's gross capital formation.

Even if financing were available, the poorest groups (the lowest 20 per cent of income levels) cannot take on the burden of housing mortgages that would take from 30 to 340 years to repay.

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<sup>8/</sup> These countries include Ecuador (1962), El Salvador (1971), Honduras (1961), Jamaica (1960), Mexico (1960), Nicaragua (1963), Peru (1961). See: "Supplementary Tables for the World Housing Survey" (United Nations publication, E/C6/129).

<sup>9/</sup> The case of France.

The social dimension of the challenge reflected by employment, infrastructure and housing problems points to a newly emerging situation, previously unknown in industrialized countries. This further underlines the need for a profound review of present standards which are, to a large extent, more the result of demonstration effects than of a conscious choice between realistic alternative solutions.

#### The Cultural Dimension

The mass movements of population in Latin America entail much more than the simple transference of people in space. Migrant masses moving towards the large agglomerations are ready to bestow upon them the best human capacities of their former rural and provincial life-styles. Since they are not fully integrated, however, their vast economic and social potential remains underutilized, serving only as a manpower reserve for industry and domestic services.

At the same time, new forms of production, consumption and leisure are being accommodated within the social groups most closely integrated into the current mode of development. They in turn exert a strong cultural demonstration effect upon the rest of society.

The interrelationships between the integrated sectors and the remainder of society is strikingly analogous to the interrelationships between the socio-economic and the natural systems identified above in connexion with the concept of the habitat. The demonstration effect is externalized from the integrated sectors of the system to the social periphery, from which in turn they internalize labour flows and negative effects on property values in neighbourhoods juxtaposed to squatter settlements.

Powerful modern mass media enhance the demonstration effect, especially through the extensive use of symbolism and imagery. The result is the consolidation of a high-income minority which imitates the life-styles of the industrialized countries, and a majority which aspires to, if not the same standards, at least an improvement in that direction.

/It is

It is the size of this large "aspiring" majority, linked to the process of urbanization as a cultural change in time and space, that creates special conditions in the Latin American habitat. They find themselves with provincial or even rural cultural links, while at the same time adopting new life-styles or aspiring to them. Deprived of opportunities for integration "en masse" and dislocated, in time and space, from their origins, these aspiring groups are likely to suffer from a cultural identity crisis.

Among the aspiring majority, there is a distinctive sector composed of migrants and displaced urban dwellers who have organized themselves in squatter settlements. Shelter and social assistance and services are provided by ingenious cooperative methods of construction and ad hoc social institutions. Through these creative efforts, frequently challenged by the official sector, these groups are contributing to the construction of a substantial part of the housing stock, perhaps half the total if the production of small provincial towns and indigenous communities is included. It has been estimated that squatter settlements are growing at twice the rate of some of the large urban centres of the region. In Peru, for example, where this type of settlement has been officially recognized as a regular urbanization process, a city-within-the city of almost half a million inhabitants, the second largest in size in the country, has been built by squatters in Lima.

The underprivileged urban dwellers find their creative capacities at best being frustrated by institutions which do not recognize their standards, and whose services are beyond their reach. Inability to harness this enormous social potential into a systematic contribution to the habitat has led to disenchantment and social tensions, manifest in the alarming growth of crime, violence and mental disorder which is increasingly evident in the larger Latin American metropolises.

Within the cultural dimension of the challenge, some fundamental questions arise. How can the inevitable cultural transformation and modernization be achieved without involving an identity crisis?

/How can

How can the traumatic effects of very rapid change be minimized, or better still, transformed into social energy? How can the creativeness of new urban dwellers be incorporated into improving the habitat?

This represents a great challenge, and one that does not preclude modernization and the cosmopolitan open-mindedness necessary to secure a just economic solution to poverty and create a habitat in accordance with the cultural needs of the entire population.

#### The Technological Dimension

Analogous to cultural demonstration effects is the result of the transfer, from industrialized countries, of technology that was once thought to have universal application. This process only began to be questioned when the full cost implications for Latin American countries was realized, together with the fact that they were not accustomed to, and did not have the resources to plan for and implement, such technologies.

These standards were originally a cultural response of European societies to a natural system characterized by cold and temperate climates. When transferred to Latin America, they lead to conflicts with the region's natural systems where 68 per cent of its population can be said to live in tropical zones.

An example of such conflicts can be given by the extensive use of glass in modern buildings which, although well suited to poor light in low latitudes, leads to an increase of internal temperature caused by the concentration of the heat of the tropical sun. This in turn leads to the further expense of air conditioners, yet again using imported technology, in order to restore internal thermal comfort.

As has been seen, housing and urbanization costs are prohibitive using present technologies. In response to this, it is important to use imagination and research to produce new technologies, especially those that can harness the potential in social energy of the aspiring majority.

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There can be little doubt that the future demand for housing and infrastructure can only be met through a complete review of the technological standards currently adopted. The new technologies required must be understood in their cultural context, and be closely related to cultural values, modes of development, and the availability of human, natural and material resources.

New realistic human settlements technologies can challenge existing social values based upon status-seeking through the imitation of alien cultural patterns. These changes can be expected to encounter political obstacles, but when juxtaposed with the economic arguments, it may be hoped that they will be overcome. For example, the use of labour-intensive technology to mould the habitat is cheap and can exploit readily available skills, and thus increase urban employment.

The technological dimension poses a great creative challenge for Latin America. The most urgent needs are low-cost technology for rural and urban housing and infrastructure technology particularly adapted to tropical eco-systems and seismic areas. More specifically, realistic solutions are needed to replace prohibitively expensive underground railway systems, costly urban motorways, and elaborate water and sewage systems.

This calls for a great effort of imagination in the Latin American countries, while at the same time representing a possible field for sensitive international co-operation.

#### The Environmental Challenge

Mass poverty is in itself a primary source of environmental deterioration. The most visible manifestation of this in Latin America is water and land pollution.

Much of this is the result of urban concentration with inadequate or non-existent facilities for basic sanitation. This has often been considered to be closely related to the increasing rates of infant mortality which have been observed in some large metropolises, and to occasional outbreaks of epidemics.

Of the limited amount of human waste collected by sewage systems in Latin America, 90 per cent is discharged "in natura", without any treatment, into water and soil. This did not produce perceptible damage when the discharge was limited; but when the volume of waste from some large agglomerations exceeds the absorption capacity of the water which receives it, a pollution problem arises. In such conditions sewage networks that were intended to improve sanitation, start to operate as pollution vectors, to a point at which the capacity of natural water courses to regenerate the oxygen necessary to break down the organic matter is exhausted.

This is leading to the death of important rivers, lakes and bays. The level of organic pollution, measured by the presence of pathogenic bacteria, is, along some water fronts of some countries of the region, many hundred times higher than the maximum considered safe for the beaches of California.

In addition, insanitary urban garbage deposits pose a threat to drinking water supplies through the contamination of underground streams; or, if incinerated by primitive methods, contribute to air pollution.

The urban population also suffers from industrial pollution such as dust and chemical agents that are discharged into the air and water. The localized effects of pollution are particularly sensitive to microclimatic conditions. This happens, for instance when smog forms under thermal inversion conditions. In fact, severe atmospheric pollution has been detected not only in the large metropolises but also in relatively small industrial concentrations, to a degree similar to that experienced today in industrialized countries.

The noxious emissions from motor vehicles are an important source of atmospheric pollution in many large metropolises, and can even account for about half the total. In a few cases, pollution indices are approaching the levels of Los Angeles.

The problem of pollution control must be tackled at its source. This involves the use of anti-pollution devices for industries and motor vehicles and the physical relocation, away from residential areas,

of offending installations. Although representing a feasible solution for rich countries, the high costs involved pose a serious challenge in Latin America where increased production costs can lead to a cut in output, or even plant closure with the commensurate loss of employment.

The environmental dimension of the challenge depends on society's ability to combine its present economic requirements with a habitat capable of satisfying the needs of the entire population. This is illustrated by the irony of pollution brought about by industry that was intended to solve the problem of poverty and its polluting effects. How then can a society struggling for industrialization control pollution and still expand production? And how can a sound environment be made compatible with the maintenance of internationally competitive prices?

The answer to these fundamental questions is essentially political; each nation must decide on its own balance between the goals of economic growth and the quality of life.

#### The Political Dimension

The multidimensional challenge confronted by Latin American countries leads to a series of political questions regarding the actual capacity of present local institutional arrangements to reconcile national and local interests, the private and public sectors, the present and future interests of the modern minority, and the present and future interests of the aspiring majorities.

This calls for the creation of machinery for societal consensus, as the cornerstone of the political structure to intervene in the habitat. What is particularly important is that this intervention must be a collective effort that encourages and allows for the participation of all citizens.

There should also be a clear relationship between national and local development policies. The mode of development directly modifies the habitat, and the latter cannot be improved in isolation from global policies concerned with income and population distribution and national investment programmes.

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There is also a need to heighten political awareness of the importance of the habitat by incorporating its cultural and ecological aspects into the core of political objectives. A consciousness of the globality of cultural and ecological concepts is essential for comprehensive action. A partial approach is inadequate and will only serve to exacerbate frustrations.

Present deficiencies call for a profound structural change in local government and management to modernize institutions which have remained largely unchanged for centuries. The local authorities require arbitration powers to reconcile, for the sake of societal goals, all the interests of the different groups incorporated into the community. Greater capacity for intervention is also needed. This should be supported by improved management capabilities which would give institutions the necessary flexibility to cope with the rapidly changing habitat.

The restructuring of local government cannot be achieved, however, by applying universal formulae. Each type of human settlement has its own distinct requirements that call for a particular institutional structure and appropriate political mechanisms. Metropolitan areas, for example, cannot be governed in the same fashion as medium-sized cities or small towns.

This profound reformulation of present political machinery is a colossal enterprise, especially if conceived as a short-term task; and it is a prerequisite for action. There is still the need for long-term strategies in which both the national government and the community play a part. At the outset, the requisite for both is a clear understanding of the real importance of the habitat and the need to harness all the forces and energy available for its improvement.

In a world characterized by a tendency towards larger-scale organizations, it appears that local authorities will follow the same trend, especially in view of the growing size and complexity of human settlements. Without major structural changes, how can small traditional institutions, as most local governments are, be expected to continue to be able to manage agglomerations similar in size to the world's largest?