

POPULATION ENVIRONMENT AND DEVELOPMENT: THE LATIN AMERICAN EXPERIENCE

1. Introduction

The widespread discussions leading up to and following the Stockholm Conference on the Environment in June 1972 suggest the extent to which the environment is providing a new perspective for the consideration of development strategies. At the same time, incorporation of environmental questions in such strategies help to open the way for a more integrated assessment of the demographic, economic, social, cultural, spatial and political factors in development.

It is precisely the relationships among these factors which now must be studied in depth. The results of such research should help political leaders and planners to make more effective judgements, in such a way that policies will emerge from the reconciliation of variables rather than from choice between what are considered to be mutually exclusive alternatives.

Questions of pollution, congestion, the concentration of population and economic activity, the degradation of physical surroundings together with resultant social stress, came originally to public attention as a consequence of the high levels of techno-industrial expansion in the industrialized nations. As the Founex Report^{1/} noted, the developing countries are not indifferent to such problems and hope to avoid repeating the mistakes which have led to environmental difficulties in the industrially advanced nations. In fact, they have found, according to their own levels of industrial/urban growth, that they are not immune to the same environmental problems.

^{1/} Development and Environment, Report and Working Papers of a Panel of Experts Convened by the Secretary-General of the United Nations Conference on the Human Environment (Founex, Switzerland, June 4-12, 1971), Mouton, Paris/The Hague, 1972, p. 6.

But the environmental difficulties for the underdeveloped countries go deeper. In addition to problems arising out of industrial development, they also have to face those deriving from the sheer lack of development and from poverty. The Secretary General of the Human Environment Conference expressed this double-sided problem for the underdeveloped world when drawing attention to the fact that "... there is much more to the environmental crisis than industrial pollution, and the environmental problems of poverty are no less acute and certainly more widespread than the environmental problems of affluence".^{2/} The message that the underdeveloped countries brought to Stockholm, then, was that although the environmental hazards that face the industrially advanced countries may be ameliorated by policies designed to slow down economic and demographic growth, the problems that they themselves face can only be resolved and overcome by the very process of development. Such concern was expressed at the Founex Conference in which the experts stated that "... concern for the environment must not and need not detract from the commitment of the world community - developing and more industrialized nations alike - to the overriding tasks of the developing regions of the world. Indeed it underscores the need not only for a maximum commitment to the goals and targets of the Second Development Decade, but also for their redefinition in order to attack that dire poverty which is the most important aspect of the problems which afflict the environment of the majority of mankind".

The meaning of development therefore is under challenge. Stress on the promotion of economic growth at the expense of social, cultural, political and spatial aspects, it is argued, has resulted in a pattern of growth which has failed to provide an acceptable livelihood for a large part of the population and has led to widening social and regional disparities.

^{2/} Human Settlements, Department of Economic and Social Affairs, United Nations, New York, Vol. 1, N° 3, July 1971, p. 8

Concern with environmental problems does not imply a braking of the economic growth process in Latin America. Nor can the argument for crash programmes to reduce population growth be accepted simplistically. In fact the chances for slowing the present high rates of demographic growth will lie mainly in attaining rapid but differently patterned economic growth, improving living standards, and changing attitudes, with programmes bearing directly on the fertility variable in dependent roles.

2. Development and its components

Traditionally land, labour and capital have been considered to be the basic factors of production on which the wealth of a nation rested and it was the manipulation of these (seen respectively in broad terms as natural resources - the availability of fertile land, forests, minerals, marine products; people - including skills, inventiveness, creativity and business initiative as well as their propensity to consume and so provide an adequate and growing market; and wealth - aggregate income levels, savings, investment and the stock of capital goods in the economy) which allowed a nation to "develop" or not. Successful national development was thought of in terms of the aggregate size of national income, income per capita (although social and regional distribution were virtually ignored), growth rates and international commercial performance.

In the past thirty years attention has turned successively to certain variables and interrelationships as being crucial to the development process. The roles of population, technology, resources and output depend on important, not only in themselves but also as a result of their interaction; it is the use that the population makes of resources which affects levels and types of production, which in turn determines the quality and range of consumption by the populace. Moreover the use of resources depends on the society's perception of what constitutes a usable resource and its ability to make its perception operative through the application of technology to the raw materials available. In the past two centuries this process of interaction has been a cumulatively expanding one which in the affluent nations especially has led to increased demand, new techniques for developing natural resources, and for the transport networks, as the industrially advanced societies widened their search for agricultural land and raw materials to replace exhausted or expensive resources in the already exploited areas. Constant technological advance, too, has led to the discovery of new sources of wealth and has in turn altered methods and types of production, and created new forms of consumer goods and demand.

The schema 'population - technology - resources - output' (with the concomitant consumption) is a useful one in describing the basic structure and functioning of the development process, and the way it has continually expanded in the two hundred years since the industrial revolution. But, although the basic techno-economic ingredients are there, more is needed to explain first why such a pattern of growth should be taking place; to what extent this particular structure has improved the quality of life for mankind - and more to the point, perhaps, how it has differentially altered the quality of life for distinct sectors of mankind; and what disadvantages it has brought in its train.

The development process has, on the whole, been one of cumulative growth both in terms of technological "know how" and of the increased sophistication of production and consumption. But the uneven social and spatial spread of the benefits of such growth, together with the deleterious environmental effects of the destruction or wasteful use of natural resources, and the perpetuation on an ever larger scale of inadequate conditions of human settlement, have raised a number of issues which cannot be answered only - or even primarily - in traditional technical or economic terms. The attempt to explain why, despite the tremendous technical capacity available to mankind, the principal features of the process of development in the 1970's should still be inequality and imbalance - the division of the world into developed and underdeveloped nationally, regionally, socially - requires the introduction of variables of a non-economic, non-technical nature.

Social and political factors, and spatial and environmental questions are now being incorporated into the calculus of the development process along with the more traditional variables as social scientists and planners seek an approach which will both allow them to analyse the development process on the bases of a wider range of criteria, and to find answers to problems through a broader understanding of the implications of different policy decisions.

Analysis of the sociopolitical variables might help the planner to understand why, for example, economic activity and population are

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concentrated increasingly in a few large centres; why particular capital - intensive forms of technology are being employed in labour-surplus situations; why luxury goods are being produced or imported when other criteria might suggest the production of basic goods for a nutritionally deficient and inadequately sheltered and clothed majority of the population would represent a more socially just national investment. The combination of the sociopolitical with techno-economic variables allows the planner or researcher to examine with much greater depth and understanding the working of a society by examining its motivations, its aims and principles.

In this quest for an integrated approach to development policy (which is still generally in the very early stages of its evolution) the spatial and environmental factors have important roles in demonstrating with particular clarity certain consequences of different types of development, in terms of the form and structure of human settlements, relationships between town and country, the spatial distribution of economic activity, and the spatial distribution of consumption of goods and services.

The environmental and spatial components are closely related in that they both provide physical indicators to the planner of the functioning (for good or ill) of the society. The use of the natural environment through the development or despoliation of resources; the creation or not of a humanly acceptable "created" urban or rural environment; or of a "livable" social environment form the practical evidence of the capacity of a society to provide for its citizens, by projecting the results on the ground, as it were, of the operation and interplay of other, less tangible, features of the system.

"Development" then is equivalent to the way in which all the variables of the system - population, technology, resources, production (and consumption), and the social, political, spatial and environmental factors - interact. In turn, development strategies require the selection and reconciliation of these variables and their interrelationships in order to achieve certain goals or principles.

3. The Population Factor

(a) Growth and size

"Population" is the initiating and operating factor (in the development process), the end to which all development is directed, and the element which suffers from maladjustments and contradictions in the functioning of the system.

The other variables stand in a dependent relationship to "population" constituted into organized societies; resources are a function of the perception of society, and the ability of man to make use of them through the application of technical knowledge, while the type and range of goods produced, together with the location of economic activity and human settlement, will depend in large part on the sort of society constructed to meet the requirements of dominant social groups.

The close links between demographic and environmental questions too, are immediate and obvious. Man has had an enormous influence in changing the environment throughout history, and especially in the last two centuries, with the rapid expansion of the human species together with its technical capacity for production and destruction. In the past two decades the phenomenon of a fast-growing population which is making ever-increasing demands on the environment and the stock of available resources to support mankind, has become, from the preoccupation of a handful of specialists, a worldwide obsession.

Latin America, with the highest population growth rate of any major region in the world, is particularly sensitive to the claim that population pressure is one of the major reasons for the sharpening of environmental problems. The different governments have taken various positions between two extremes; acceptance of the need to reduce rapid growth by specific population policies, and an outright rejection of any suggestion that population expansion should be slowed. (It should also be noted that there are significant differences between policy statements and action at either end of the range of possible policy choices.)

This is not the place for a detailed assessment of the different positions and it must be stressed that a discussion in generalized terms

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about the continent's population is not particularly useful, because of the enormous differences between countries not only in size but also in terms of population densities, rates, distribution and components of growth.

Densities remain low in most countries and this has generated a belief that the region, or at least some nations within it, needs people to populate the vast open spaces and develop and use the great richness and diversity of resources available. Moreover, as Victor Urquidi has pointed out, a population of 650 million in the year 2,000, "... places Latin America in a different world situation. There are many in the region who equate population to political power, or at any rate to greater influence in world affairs".^{3/} Nor can the question of frontiers be ignored when one government sees the rapid growth of population in its neighbour as a potential threat to its own integrity.

Although these may be valid - or at least, understandable - considerations, two other factors must also be taken into account when considering questions of national development. The first is the relationship between population densities and the level of economic development. The argument often put forward that in terms of the density of people per square kilometre, Latin America is comparatively underpopulated, is also fairly meaningless in a continent where geographic and climatic conditions are so variable and large areas are in fact not susceptible to viable occupation - in terms, at least of present technologies and investment capability while others are best suited to forms of exploitation (such as forestry or sheep farming) that require very low population densities. Considered in terms of the relationship between people and socioeconomic development - or, more simply, between the numbers to be fed, housed, clothed, employed and supplied with the basic social facilities, and the capacity of most societies under their present economic and social structures

^{3/} Victor Urquidi in "Latin American Demographic Growth: Political, Social and Economic Forces", a paper read at the Population Association of America, New Orleans, April 26-28, 1973, p. 4.

to do so - Latin America at the moment has more people than it can provide for.

b) The distribution of population

The second consideration is that the distribution of population is extremely uneven in many countries, with large numbers being concentrated in a few large metropolitan areas - usually the capitals - while at the same time population in the rural areas continues to grow rapidly because of high natural rates of natural increase. (The impact of millions of people concentrated in one or two geographically restricted areas on the environment together with the lack of development in the peripheral areas will be considered later.)^{4/}

Although levels of urbanization vary widely among the different countries - ranging from the highly urbanized societies of Argentina, Uruguay and Chile to the predominantly rural societies of Paraguay, Bolivia and Ecuador in South America and Haiti, Honduras and Guatemala in Central America and the Caribbean - there is a consistent tendency everywhere for the levels to rise.

The combination of high overall population growth rates with a strong tendency for people to migrate - especially, though not exclusively, from the countryside and small towns to the big metropolitan centres - has resulted, in some cases, in growth rates of six or seven per cent annually, which means a doubling of the population in large cities approximately every ten years.^{5/}

^{4/} According to the Office of Science and Technology, A.I.D., their survey of 35 countries in the underdeveloped world, "... revealed a close inverse relationship in nearly all ... between human population pressure and urbanization on the one hand, and the quality of the environment on the other". "Environmental Problems in Selected Developing Countries: Preliminary Survey", Washington, July 1971, p. 8 (mimeo).

^{5/} For example, in Brazil the average annual growth of cities of more than 500 000 reached 6.2 % in the decade 1940-50; 7.2 % 1950-60; and 6.8 % 1960-70 compared with percentage rates for all urban areas of 5.3; 6.4; and 6.1 respectively. See George Martine and César Peláez, "Urbanization Trends in Brazil, 1940-70", ECLA. Document presented in Rio de Janeiro, Brazil, April 3-7, 1972, p. 15. A gradual long-term decline in metropolitan dominance may be under way but, if this is real, the trend will take a long time to work itself out because of the large increases in absolute numbers.

Two features of this process of hyper-urbanization should be especially mentioned. First, it is much more acute than in the affluent nations where, although there has been a similar centralizing tendency, the trend has not proceeded at such a rate as in Latin America. Here, the capitals or major centres, in many cases, account for between one-third and one-half of the population of the country, and through migration are continuing to attract each year a significant part of the population into their continually expanding boundaries.

For example, even in a moderate case such as that of Chile, while annual growth rates for Santiago have only been 2.6 % compared with 2.2 % for Chile as a whole, the growth of 570,000 inhabitants in Greater Santiago between 1960 and 1970 represents almost 40 % of the total increase in that decade. Moreover, almost half of the city's growth resulted from the immigration of people from the rest of the country. Neither of the two secondary urban areas - Valparaíso/Viña del Mar and Concepción - experienced the same rates of growth. Compared with 32 % for Santiago in the decade, they achieved about 18 %.^{6/}

The process is not accompanied by rates of industrial and commercial development which would allow the centre to absorb the flood of people from the periphery. The migrants as well as large parts of the population born in the cities have extreme difficulty in finding productive work which will provide them with the means to satisfy their basic social and physical needs for food, housing, health and education services in the big city

6/ See "República de Chile: Informe para la Conferencia de Naciones Unidas sobre el Medio (Ambiente) Humano", Santiago, Chile, May 1971, p. 2. (The figure of 2.6 % for Gran Santiago, moreover, may underestimate the growth of the urban area during the decade. According to ECLA estimates based on the National Census, the rate of increase was of the order of 3 % annually, with a total increase of 712,000 people. The difference undoubtedly lies in the interpretation of what constitutes the entity, Gran Santiago.)

centre.^{7/} In Latin America as a whole the types of secondary sector activity characteristic of the affluent nations in the early phases of their industrial expansion, have been less dynamic in growth in incomes and employment and the tertiary sector, has become more dominant. Neither the over-simplified claim that urbanization inevitably brings in its train social and economic advancement for the population, nor the contrary argument that the expansion of large and rapidly growing cities must lead to great social problems without sufficiently compensating economic advantages can be accepted in toto.^{8/} In fact, the situation is complex, with important groups - composed mainly of the middle class and the unionized workers - able to take advantage of the possibilities that the city offers for wider employment opportunities and social mobility. At the same time, the more marginal groups still find themselves socially and economically restricted in a setting which is apparently more advantageous and dynamic. In such a situation the contradictions may become more obvious and the social paradoxes brought out in the open as consciousness of disparities grows and expectations rise. This can, in turn, lead to demands for the improvement of immediate problems and the resolution - however transient and partial - of the most pressing grievances.

The greatest impact of the cities may lie, therefore, in the contradiction between the objective conditions of limited socioeconomic mobility and sharpened awareness of inequalities in the system. Such contradictions depending on the flexibility of the authorities, and the resources at their disposal, will probably become more pronounced as the

7/ Despite the fact that, as in Bolivia, 60 % of the nation's industry and 55 % of the industrial work force may be concentrated in the capital. See "Informe Nacional de Bolivia sobre 'El Medio Humano'", Ministerio de Relaciones Exteriores y Culto, La Paz, March 1971, p. 4.

8/ See Pierre de Briey, "L'urbanization, le développement et le processus révolutionnaire dans le Tiers Monde", Civilisations, Vol. XVIII, N° 3, 1968, pp. 342-52, in which both sides of the argument are set out in summary form.

concentration of population continues and as migrants pour into the unplanned urban agglomerations of the continent, filling the central slum areas and contributing to the rapid growth of the 'barrios marginales' the 'tugurios', the 'callampas' or the 'favelas' that encircle the cities and account for perhaps a third of Latin America's urban population.^{9/}

(c) Population and other development variables

As was stated above the role of "population" in the development process can be analysed effectively only in terms of its relationships with the other variables, technology, resources, output, and the spatial dimension (the population - environment relationship will be considered separately later). The way that population interrelates with other variables will depend in large measure on the structure and functioning of the society, on its institutions, the political system, and the relative influence of different social groups. Attitudes, values and norms of political, economic, social and cultural behaviour will help to determine how, for example, resources are used; which types of technology are employed; what ranges of products are provided for consumers; and how economic activity and human settlement are distributed spatially throughout the society.

In Latin America one can see how the different variables interact in shifting and complicated patterns within the context of the dependent market economies of the continent. The choice of technology to exploit the enormous natural resources, the distribution of returns from such exploitation among different social groups - measured in terms of consumption, of the distribution of incomes and of employment opportunities - reflect in large measure the interplay of the two sociopolitical factors, dependence on the world centres and the market system. The spatial variable too, manifests the way these factors interact with the population variable,

^{9/} Between 1957 and 1969 their percentage of the total population of Lima is estimated to have risen from 9 to 36; of Caracas from 21 to 35 in the three years 1961-64; and of Mexico City from 14 to 46 between 1952 and 1966. See "Environmental Costs and Priorities: A Study at Different Locations and Stages of Development", Panel of Experts on Development and Environment, Geneva, 4-12 June 1971, Appendix, Table 2.

to create certain patterns of human settlement and location of economic activity.

The functioning of market economies has not led to equality among social groups at any stage of their historical evolution. In the affluent nations the gradual increase in aggregate national product has resulted, in most cases, in little narrowing of the economic, social or political gaps between the highest and lowest income groups. Even under the welfare state, certain minorities enjoy the choice of the better forms of employment, social services, and cultural amenities, and exercise a predominant influence in political affairs.

These traits of market economies take more extreme form in most countries of Latin America. Income distribution is, throughout the continent, extremely uneven; employment opportunities for the majority of the population are restricted to manual work or unproductive and often demeaning occupations on the margins of the service sector; housing, food, clothing, health services, education, and social facilities are not shared equitably; access to justice and effective participation in decision making of a political and administrative nature depend on one's position in society.

Equally, decisions relating to the types of goods produced and the levels of production reflect the consumption requirements of the wealthier social groups so that, at the same time that many basic commodities are not available at acceptable prices for the majority of the population, industries are producing goods for the upper income groups at prices indicative of the oligopolistic structure of the protected industrial sector.

In their methods of production the owners and managers of enterprise in whatever sector are naturally more concerned with maximizing returns - or with internalizing profits and externalizing costs as it has been more precisely stated - than with maximizing social welfare conceived of in terms of the society at large. The consequences of these attitudes in environmental terms will be considered later.

Centre-periphery patterns of human settlement and development/underdevelopment are typical of the unbalanced nature of the region's evolution. There are several reasons for this.

First, as many writers on regional development from Myrdal, Hirschman and Perroux to authors such as Corraggio and Rofman commenting specifically on the Latin American situation have pointed out, there is a natural tendency in market economies - though not only there - towards the gradual centralization of economic activity within a limited number of favourably located urban areas. The operation of external, urbanization and other economies of scale makes it imperative that to optimize profits firms should locate close to major markets, with access to all types of services and enjoying lower transport costs. The increasingly concentrated location of such economic activity attracts further population - the generally passive element in the process - and so the cumulative pattern described by Myrdal continues in motion.

The effects are not only felt in the economic sphere however. The favoured centre also attracts to it the social, political and cultural life of the nation, leaving the smaller towns and the rural peripheries increasingly drained of these assets and ever more dependent on the capital. Not only the relatively well off groups which seek the wider range of social, political and cultural opportunities of the city, but also the lower middle-class, the organized labour force and the groups at the margin of society hope to participate more effectively in decision-making and distribution of the fruits of development in the capital than in the smaller urban centres or the rural areas. The mere presence of the shantytowns on the outskirts of the city is a constant reminder to governments of whatever kind, of the needs of a rapidly growing population. Such a presence becomes even more obvious when the marginal groups - in conjunction with organized labour or not - are mobilized socially and politically to make their claims more effectively heard for housing, employment, education, health facilities, etc.

It seems unlikely that, without considerable changes in policy, these cumulative tendencies towards an increasingly polarized centre-periphery pattern will be reversed in the short - or even medium - term. The creation

of ministries of regional planning, the formation of research centres and the continued preaching of international bodies on the need to bring about a more dispersed distribution of population, economic activity, social facilities and political influence have only a superficial impact. The trends towards centralization and the concentration of human settlement in a few favoured locations undergo some modification through the growth and evolution of the market system itself but the internal problems of social, economic and political inequality on the one hand, and their spatial equivalents on the other, have in themselves created difficulties for most Latin American governments. In addition, however, they have to confront the problems raised by their dependence on world centres whose economic and political power can effectively curb the ability of governments, to deal with the factors underlying spatial concentration among other shortcomings of their development processes.

Solon Barraclough has written that:

"The sovereignty of the state is seriously compromised when it comes to the important decisions affecting national, social and economic structure. Latin American nation-states are an integral part of an international political and economic structure... The international concentration of economic and political power has proceeded so far that when it comes to the decisions that really count for national development the 'independent' but underdeveloped nation often finds its areas of decision circumscribed. Its 'sovereign power' is in some respects a formalism".^{10/}

The reasons for seeking foreign investment and accepting external control over significant sectors of an underdeveloped economy are hard to resist

The consequences of direct foreign investment in the Latin American region have been noted elsewhere. In an earlier ECLA document, attention was drawn to the complex and widespread ramifications that emanate from such investment. These include the conflict between the entry of foreign currency and the need to service and repay the investment; the increased need for imported components; intensified pressure on the balance of

^{10/} See "Rural Development Strategy and Colonization", FAO/UNDP, Chiclayo, Peru, 29 November - 5 December 1971, p. 3.

payments; the diminution of local savings and credit resources available for domestic investment; the impact of new types of foreign investment on domestic consumption patterns; the compatibility of this method of resource allocation with patterns aiming to meet basic necessities of the vast majority of the population; and finally the fact that foreign investment has reduced the effectiveness of customs and exchange measures designed to limit the consumption of expensive consumer durables. The document goes on to mention the often negative impacts on domestic technological development, on the balance of payments, and on the terms of trade of the receiving country, and notes the tendency towards increasing external indebtedness.^{11/}

Most governments have accepted the need to pay a price in terms of the diminished capacity for decision-making over the type of production undertaken; the kind of consumption patterns created; the location of economic activity (most foreign firms for obvious economic reasons prefer to establish in the larger urban centres); the contribution of industries to employment creation; and the effects on the natural and man-made environment, while seeking means to reduce the price and exercise control over some of these factors.^{12/}

Moreover, it is now well-known that the emergence of the transnational corporation has restricted even further the maneuvering space and bargaining capacity of even the largest nations in the continent. Greater emphasis is placed on the use of 'sophisticated' techniques in the 'modernized' sectors of the economy, however irrelevant or socially disruptive such practices might be in the wider setting of the national society. And

^{11/} See Economic Survey of Latin America, 1971 Volume 1, Part One, "Latin America and the World Economy: Prospects and Trends", E/CN.12/935, E.C.D.A., 8 June 1972, pp. 49-59. (mimeo).

^{12/} According to Maurice Strong, some of the industrialized nations are now considering the transference of certain types of heavy industry to the underdeveloped nations to help reduce pollution in their own territories. See "Address to the Latin American Regional Seminar on Problems of the Human Environment and Development", ST/ECLA/Conf.40/L.5, Mexico City, September 6-11, 1971, p. 11.

concurrently with these financial and technical pressures, the cultural dependence of those groups with high purchasing power ensures a continuing though restricted market for most lines of foreign-styled consumer goods.

The complexity of the total development/underdevelopment process can be seen even in an examination of the interaction of two variables, population-in-society (that is, population in its societal setting together with its spatial manifestation) and resource use.

On the whole, natural resources in the peripheral areas of the Latin American countries tend to be inadequately employed; either underutilized or wastefully exploited. With a few significant exceptions (which will be discussed in more detail shortly) farmland has been concentrated into large privately owned and only partially worked holdings or has been subdivided into tiny parcels almost incapable of supporting satisfactory standards of living. In both cases the level of farm management has been extremely low. Forests, a great potential source of domestic wealth and export-earning capacity, are wont to be ignored, treated as a barrier to economic 'development' and burnt; or if utilized, are exploited wastefully for short term profit, and not replaced.

Mineral wealth too has been subject to wasteful exploitation for quick returns to such an extent that the enormous wealth of the continent - petroleum, copper, bauxite, tin, iron-ore, silver - has, under conditions of dependence, contributed much less than its potential to Latin American development throughout history. Marine resources which were ignored in most countries until fairly recent years have increasingly been subjected to the operations of large-scale commercialized (and often foreign) fishing fleets which have brought virtually all fishing grounds within range of their 'vacuum cleaning' operations.

Whether Latin America's natural resources have been ignored or underutilized, or, as is the case increasingly in recent decades, subjected to wasteful and predatory exploitation, the combination of the societal and spatial elements have been the important determining factors. Short-term profits, distance from markets, shortage of transportation and communications facilities and indifference or lack of capacity for control

on the part of central authorities are all elements in the type of resource use experienced in the continent.

It is worth noting too, that, as a logical consequence, when farming, forestry, mineral and marine resources are exploited in the peripheral areas, the benefits are rarely enjoyed in the area of their extraction. Usually, and in accord with the logic of the dependent market system, further processing, which yields much more income, takes place either in the central region of the country, or in the international centre of the industrialized nation from which the foreign enterprise is operating.

The impact on population of this pattern of growth without development is obvious. Stagnation and neglect in the agricultural sector, combined with the latifundio/minifundio structure of land-ownership has stunted opportunities for employment in the face of pressures created by the continued high rates of population growth in the rural areas. The position has become even more acute with the transference of profits to the cities to seek richer fields of investment in property speculation, construction, and the consumer goods industries. And this has contributed to drain the capacity of the rural economy to absorb or to provide a tolerable livelihood for the population remaining on the land. The failure in those cases to develop a diversified economy has led to a restriction of employment possibilities and so to high levels of unemployment and underemployment not only in farming but also in the economic activity of small market towns.

However, even where the agricultural sector has experienced rapid growth, highly capitalized and mechanized methods have meant that, as in the industrialized nations, entrepreneurs have been able to dispense with a large proportion of the peasant labour which had earlier worked the land under different technical and social circumstances. In this sense the push factors in the rural areas have, whether under conditions of stagnation or of expansion, been as important as the pull factors exerted by the supposed attractions of the city. Equally, in the manufacturing sector, even when attempts are made to decentralize economic activity,

-- and as A.B. Rofman has pointed out^{13/} some large-scale enterprises are sufficiently independent and footloose to have moved to peripheral locations - the highly capital-intensive operations of such firms have little impact on the area of relocation except perhaps in terms of polluting the immediate countryside. Similarly, when exploitation of mineral deposits or forests is expanded and modernized, the employment of highly-mechanized and capital-intensive methods may produce a net drop in employment.

The relative underdevelopment of the peripheral areas is closely related to the hypertrophied growth in the metropolitan centres. Because of the lack of opportunities for investment in diversified development in rural and small town regions - the occasional large-scale projects which do take place involve considerable quantities of labour and capital only in the construction phase - capital is transferred to the urban areas where the opportunities are more wideranging and the returns on investment much higher.

Although conclusive evidence is lacking, it is probable that the peripheries of most Latin American nations have, over a long period, subsidized the growth of the urban centres, and especially of the metropolis; the canalization of investment finance privately and by public institutions has promoted the industrial development of the cities, but even more has provided the funds for the growth of the urban infrastructure and for the highly profitable real estate development of certain areas of the capitals. It is only in recent years that a number of central governments have begun to reverse the flow through regional development policies aiming to promote agricultural development, the decentralization of industrial activity, and rural public works schemes. Here again, however, it is difficult to estimate the extent of such financial movements, or, for that matter, the extent to which the profits from such investment return promptly to the source.

13/ A.B. Rofman, "El Fenómeno de la Concentración y Centralización Espacial en América Latina: Elementos para una Discusión", presented at the International Seminar on Regional and Urban Planning in Latin America, ILPES/ILDIS, Viña del Mar, Chile, 17-22 April, 1972.

4. Population and Environment

(a) Interrelations of the variables

The main concern in this section will be to examine the interaction of population and environment within the framework of the sociopolitical conditions outlined in the earlier sections. This does not discount the fact that there are many variations of the dependent market system in Latin America with more or less state intervention being one of the principal features of such variations. For the majority of Latin America's population, forced to migrate into the crowded and rapidly growing cities, packed onto hillsides, or dispersed over marginal lands, "impact on the environment" is a largely involuntary one - and one which reacts on it directly. Rapid demographic growth rates, decried as one of the major causes of environmental deterioration, together with an unbalanced distribution of that population, are only the final and most obvious causative factors of environmental problems.

(b) Environmental problems - examples

The evidence of despoliation and disruption of both the natural and man-made environments is widespread throughout the continent and the impact of such human activity has been clearly documented in numerous cases.^{14/}

In the agricultural sector^{15/} for example, inadequate farming practices, associated with prevailing systems of land tenure and the response of landowners to prevailing social and economic incentives have led to neglect

^{14/} See especially the National Report of Chile, op. cit., p. 8 ff. Much of what is stated in "Informe Nacional: República Argentina", Conferencia de Naciones Unidas sobre el Medio Ambiente Humano, (mimeo). n.d., is also a commentary on the physical depredation to the Argentinian countryside of inadequate and destructive practices which continue to the present. It should be added, however, that no systematic balance-sheet based on adequate research and clear definitions of problems, covering Latin America as a whole, has been drawn up as yet. General discussions (including the present text) thus fall back on "examples" culled from different sources, of widely varying importance and verifiability.

^{15/} A wide range of examples of types of environmental deterioration are given in "Environmental Costs and Priorities", op. cit., p. 6 ff.

of millions of hectares of good agricultural land and abandonment of marginal areas. Overgrazing has ruined natural pasture land and has led to consequent wind or water erosion; slash and burn techniques for land clearance have deforested large areas; and in zones of commercial forestry, attempts to replant the cutover areas are rare. Again the results can be seen in the widescale erosion, the permanent denuding of hill country, the consequent silting up of rivers, and the creation of conditions leading to recurrent flooding over large areas.

The results of such bad management are apparent in Chile where 20 million hectares or 80 % of the nation's agriculturally usable land is eroded to some extent, and the rate of erosion continues at 40,000 hectares a year. The consequent silting up of rivers and ports has put various types of industrial activity in danger, reduced the value of dams, caused loss of life and the ruination of large areas of good agricultural land.^{16/}

In Argentina, too, overgrazing of the pampas has destroyed thousands of hectares of pastureland as well as in the Chaco and Patagonian regions. The resulting erosion has affected 20 million hectares of which 20 % is considered to be severe. Population pressure in rural areas of Mexico has caused problems of an even greater scale, with 150 million hectares eroded and from 150 to 200 thousand more seriously affected each year.

In other countries too, rural population pressure has caused the ruination of hillsides and other marginal lands as minifundistas apply primitive, intensive methods on land cleared of forest and unsuitable for such farming. The position is most severe in lateritic soils and in tropical countries such as El Salvador where the spread of subsistence agriculture has occurred at the expense of deciduous forests. Increased population densities have forced the minifundistas to change from shifting

^{16/} See National Report of Chile op. cit., p. 9.

to permanent working of the land, while fallow has been decreased to three to five years with consequent widespread soil destruction and erosion. The wider effects of this are seen in, for example, the case of the dam "Cinco de Noviembre" on the Lempa River which, it is estimated, will lose 40 % of its storage capacity in the next twenty years as a result of erosion-created silting. Moreover vegetation removal has increased the soil temperature and has altered or destroyed animal habitats, so that 19 species of mammals have been exterminated in the country.

This type of problem derives in large part from the inequitable land tenure system combined with rapid population growth and disastrously inadequate or inappropriate land management. But even the use of new "super" techniques and modern farming methods can have unforeseen and undesirable secondary effects.

The disasters that can result from ill-planned expansion of irrigation (salinization of soils or spread of schistosomiasis), indiscriminate use of chemical fertilizers (clagging of water courses) and over-application of pesticides (destruction of natural predators) are now well-known throughout the world, and Latin America is not exempt. Heavy agricultural mechanization can have a destructive impact on forest ecosystems as has happened in the Matto Grosso of Brasil.^{16/}

In other words, the application of land use methods which aim for quick, short run results whether for sheer exploitation or for apparently more "virtuous" development goals have led to the deterioration of the natural ecology of many agricultural and forestry areas.

The forests of Latin America have been among the heaviest sufferers from methods of "development" employed over the centuries. In Brazil states such as Minas Gerais and Sao Paulo now have less than 10 % of their area in forest, much of the denuded area being exposed to erosion. Moreover it has been estimated that 300,000 tons of timber are lost each year through wasteful cutting methods.

The failure to replace timber lost through cutting, fire or disease also demonstrates an exploitative short-term approach. Chile loses

^{16/} See "Environmental Costs and Priorities", op. cit., p. 9 ff.

50,000 hectares of forest a year this way. Population pressure and existing land tenure systems have led to uncontrolled colonization and the destruction of large areas of forest in Brazil, Bolivia and Ecuador.

The above are the most obvious examples of the deterioration that has occurred in the natural environment of the continent, but there are others, less conspicuous but unfortunate, such as the extinction of 70 % of Brazil's fauna in the large areas of cutover forest - with 44 animals on the list of endangered species; the threat to other species caused by the opening of roads in Colombia which either upsets the natural ecology of adjacent areas or allows access to hunters of the jaguar and tapir; or the sheer overexploitation of certain fish species such as the yellow fin tuna, the Peruvian bonito and the shrimp hake and anchoveta species of the Caribbean.

Mining too, has contributed its share of depredation and pollution through poisoning of adjacent land, pit and strip induced erosion, river and coastal contamination and, as in Bolivia, excessive deforestation of the Altiplano, to supply the fuel needs of the tin mines.

In the man-made environment - in human settlements generally, but especially in the physical structures of large and densely populated metropolitan centres - the impact of unbalanced growth and population pressure has also been felt, at times severely.

The pollution of air, land and water in cities such as Santiago, Lima, Buenos Aires, Sao Paulo and Mexico City particularly, but in many other centres where population and/or industry are concentrated, has proved at times to be almost as intense as that experienced in the industrialized nations. For example, in Santiago de Chile the sulphur anhydride and dust content of the air in the city during the winter is higher than the internationally accepted levels. Car exhaust pollution, too, at times passes these permitted limits despite the low per caput levels of ownership.^{17/} And an estimated 65 tons of dust per square kilometre fell on the city in 1969.

^{17/} See "República de Chile: Informe ...", op. cit., p. 18.

Other cities share such problems; anhydrous sulphur particularly affects Mexico City, Caracas and Sao Paulo; suspended dust, Sao Paulo, Buenos Aires, Mexico City, Habana and Rio de Janeiro; and unsuspended dust Mexico City, Cordoba, Buenos Aires, Montevideo, Bogota and Caracas.

Domestic heating and private rubbish burning are responsible for a certain portion of the air pollution, but the worst contamination is caused by industry and the motor vehicle. In Sao Paulo 18 tons of sulphur compounds are discharged daily in the Capuava area, while the population of Sao Caetano do Sul is exposed to pollution by sulphuric acid and calcium carbide, from oil refineries and iron foundries. Small centres such as La Oroya in Peru with 35,000 inhabitants, also suffer from the emission of sulphur, lead and arsenic gases of a metallurgical factory in the locality, while potato crops, olive trees and other fruits in certain Peruvian rural valleys have been destroyed by atmospheric sulphur dioxide.

It is in the large populous cities, however, where motor traffic, and in particular the private car, have had the most deleterious effects. And the impact is worsened when combined with special climatological conditions as in Mexico City, Caracas and Santiago. The air pollution of Mexico City, for example, is to a considerable degree, caused by the automobile. During 1968, forty per cent of the nation's 1.6 million cars concentrated in the capital discharged into the atmosphere of the valley 4,884 kilos of hydrocarbons and 24.077 kilos of particles each day. But similar problems are caused especially in the narrow, crowded streets of virtually all the city centres where layout was planned in colonial times for totally different usages. The centre of Lima which has to cope with 300,000 vehicles in circulation is one of the most extreme examples of this problem.

Similarly the contamination of rivers and of water systems has followed from the lack of balanced development in the continent. The cities provide the most obvious examples of contamination of water courses of whatever size - the Rio de la Plata of Buenos Aires, the Mapocho in Santiago, Lima's Rimac, the Bogota, and Gunabara Bay in Rio - all serving

/as receptacles

as receptacles for sewage and other kinds of waste. Outside the big centres, however, industrial complexes have caused pollution in smaller cities such as Chimbote in Peru where, before the 1970 earthquake, a steel mill and fish meal plants had totally contaminated the bay nearby. And in a continent where only about ten per cent of sewage is treated, it can be expected that any human settlement will contribute to the problems of water pollution.

It has been implicit in the above descriptions of the depredation of the natural environment and the contamination of the man-made, that an interaction is occurring between environment (as the passive, receiving element), and population within a certain systemic framework (as the active element). This is too simplistic a statement of the situation. Within the population variable some sectors are more active, others less so depending on their social and political position within society.

Without going into detail, it is obvious that everyone contribute more or less equally to some forms of pollution. But in a wide range of some of the worst forms of environmental destruction and pollution it will be equally obvious that certain groups are more culpable than others. On the one hand, many of the problems caused by the minifundistas working on marginal lands can be traced back beyond the immediate cause - the peasant - to a system of landholding which reserves the best lands to wealthy landowners who may or may not work it efficiently. The present then has the choice either of working the almost unworkable margins, or of contributing to different forms of environmental disruption by joining migrant movements to colonize virgin lands or to find himself a living in the urban areas.

But it must be recognized that the present, the marginalized poblador, the unionized worker, or even much of the middle class are not responsible for the large scale destruction or contamination which is caused by mining operations, industries and the motor vehicle.

There is an element of social injustice in this as well. Generally the groups directly or indirectly responsible for the pollution are those which suffer it least. Much of the industrial pollution for example is caused by factories producing the more expensive consumer durables but

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it is the lower income groups working there and living in the industrial areas - not the wealthy and politically influential groups living well away from such districts - which have to breathe the fumes and use the polluted water. Similarly, the privately-owned automobile which is responsible for a large part of the urban smog usually causes the most severe problems in the city centres and away from the wealthier suburbs. And this has the added side effects that the car-using minority groups who also generally have a larger say in decision-making, are not under pressure to improve public transport services which are generally dirty, noisy and inefficient.

Such a situation could account in part for the lack of adequate action against air, land and water pollution, against congestion, and noise caused by industry and the private car, all problems created by affluence and a form of development copied from the industrialized world.^{18/}

(c) Environmental problems and social consequences

One of the basic premises of this discussion has been that there is a constant interaction among the different variables making up the development underdevelopment process. And this remains valid for the population-environment nexus. We have so far looked at one facet of the relationships, the impact of the population (in society) on environment. But - expressing this relationship between population and environment by the symbols P and E - it can be argued that the link is more than just $P \longrightarrow E$; it is more realistically stated as $P \longrightarrow E \longrightarrow P$ or

^{18/} In "Environmental Problems of Urban Development", E. Novaes, E. Neira and J. Van Fleet, Inter-American Development Bank, Washington, June 1971, pp. 12-13, (mimeo), the authors, commenting on transport problems, note that "... the problems seem to be inevitably determined by a consumption pattern that results more from the presence of demonstration effects than from the real acquisitive power of the population". In addition, private automobile ownership has adverse effects on public transport systems; "Under such circumstances urban transport today presents severe congestion problems and contribute extensively to air pollution". However, the authors see little chance of resolving the contradictions between a national growth dependent on the development of the automobile industry and the problems thus created by the urban environment.



P → E in which the population factor - acting through society, and using its technological instruments on available resources to achieve particular patterns of output to satisfy culturally determined styles of consumption for distinct social groups - has certain impacts on the natural and man-created environment. But, in turn, any changes in the natural or man-made environment will react on the population, so that a return social impact from E to P occurs.

In the rural areas the impact has shaken up most groups. The effects of population pressure, unequal land distribution, environmental disruption, and of "modernization" have been widespread and variables. On the one hand, the results are starkly apparent in the poverty of rural life for the great majority of peasants. Few rural settlements or even small centres enjoy even the most rudimentary facilities for their inhabitants while outside such human settlements, the highly dispersed nature of much of Latin America's rural occupation^{19/} results in primitive material conditions of life.

Basic necessities such as adequate housing, potable water, electricity, education and health services are scarce^{20/} - for example in 1970 potable

^{19/} See for example the case of Panama where the rural population is either dispersed or "... agrupada en pequeñísimos caseríos sin ningún plano propio instalados por lo general en áreas poco aptas para la agricultura, de topografía accidentada, y alejados de las principales vías de comunicación", in Atlas de Geografía Médica, Dra. L. Herrera, Ministerio de Salud, República de Panamá, 1970.

^{20/} "Si el 65 % de la población total del país, es la que vive en el medio rural ubicado en pequeñas localidades que caracteriza a esta como una población eminentemente dispersa, la misma que carece de los servicios básicos como son: de salud, educación, vivienda, agua potable, alcantarillado, transporte, etc., surge de por sí que las condiciones del medio ambiente son deficientes ...", "Breve Consideración sobre la Problemática del Medio Ambiente Humano: Caso Ecuatoriano", Junta Nacional de Planificación, Quito, Ecuador, n.d., p. 9.

water supplies reached only 24 % of Latin America's rural population, and only about 3 or 4 % of the rural populations of Haiti, Bolivia and Brazil; and, although such figures tend to be somewhat arbitrary, over 80 % of rural dwellings in Guatemala, Nicaragua and Honduras are estimated to be "deficient".

Apart from the obvious human suffering, such conditions lead to a general debility among the population, further weakening their ability to produce sufficient for themselves or for the rapidly expanding urban areas. The most immediate and evident result has been the outmigration especially of the younger and more dynamic elements in the population, leaving behind in general the older, more conservative and less educated "leftover" groups, often without satisfactory means of economic support, certainly without acceptable social facilities, and - although the situation is beginning to change - for the most part still lacking sufficient knowledge and political influence to express their discontent effectively.^{21/}

The situation, then, is a fluid one, and a number of writers have claimed with considerable conviction that the intensified relations between town and country will be the means to the awakening of the latter. But a number of questions still must be asked before any definite statement can be essayed. For example, in the economic sphere, to what extent has the infiltration of new ideas led to changes in production techniques, to an improvement in land use and productivity? Or, a more complex social issue, have new values created by the closer urban-rural links altered the relationships between the campesino and his patrón? Do the less privileged social classes exercise more or less political leverage than in the days when the periphery was more isolated? If they do, what is the nature of such leverage at local and regional levels? Is there a move towards greater participation? Or have there merely been changes from one source of authority to others, for example, from the old patrón to the new such as the "hombre-nexo" who acts as the link-man between the urban decision-making centre and market, and the countryside?

^{21/} See "Problemas de Población y Desarrollo en América Latina", ST/ECLA/Conf.46/L.1, Grupo de Expertos sobre el Programa de Población de la CEPAL, Santiago de Chile, 11 al 14 de diciembre de 1972, p. 33 ff. which examines the arguments over the effects of migration on local communities.

Some answers can at least be suggested. The migration flow to the cities has not yet resolved the agricultural crisis that afflicts most Latin American countries.^{22/} In spite of the large scale movements of people to the urban areas, rural population continues to expand at a rate of about 1.5 % annually throughout the region, and rises to over 2 % in some of the smaller, less urbanized countries. (This, however, should not obscure a situation in which some frontier regions are being colonized rapidly and population is growing as a result of migration, while older areas of rural settlements are stagnating, or, in providing the new dynamic areas with agricultural labour, are actually losing population).

Nevertheless, with the penetration of the mass communication media into the most remote areas, and with the constant to and fro migratory movements between rural and urban areas, the great majority of those living in peripheral areas are inevitably brought into contact with new ideas, values and styles of living.

Moreover, the effects of these cultural influences are reinforced by a series of other factors, including for example: the appearance of new consumer goods in the rural areas and small towns of the periphery which, because they cannot be produced there, increase dependence on the national market; the increasing influence of national political movements emanating largely in the cities and which conflict with local traditional forms of leadership; the initiation of policies of agrarian reform which bring agricultural experts, public servants and politicians out from the cities to train, educate and try to incorporate local communities more into the main stream of national life; and the opening up of peripheral and once remote communities by roads and public transport services which, however inadequate or decrepit, not only bring new forms of living or new types of land use (for example, for recreational purposes), but also allow people in erstwhile isolated communities to travel and communicate with much more facility.^{23/}

^{22/} Denis Lambert, in an article published in Civilisations, Vol. XV, N°4, 1965, p. 484, argues that in Latin America, the drift from the land entails almost inevitably a lowering of agricultural productivity.

^{23/} See for example, El Cambio Social y la Política de Desarrollo Social en América Latina, CEPAL, Naciones Unidas, Nueva York, E/CN.12/826/Rev.1, 1969, pp. 107-116.

"Modernization" of the countryside and small towns is, then, introducing powerful new forces into once traditional and scarcely changing areas, making communities aware of different styles of life, and arousing new needs and expectations. As in the urban areas such tendencies lead to a paradoxical situation in which the contradiction between the cultural demonstration effects and what is economically achievable by the majority of the people are brought more and more out into the open. Up to a point, migration - especially of the younger, more dynamic and qualified groups - may relieve the problem by transferring it to the urban centres, but with the continued growth of the rural population together with the constant problem of finding adequate employment the situation remains unstable.

The return social effects of environmental disruption and degradation are even more striking in the urban areas, if only because the problems are so much more concentrated and visibly apparent in the marginal barriadas which ring the urban centres of the continent and account for a considerable proportion of the urban population.

Such conditions are often associated with rapid national population growth. But that this is only one factor is illustrated by the situation of Argentina where low rates of population growth have not allowed Buenos Aires to escape the problems associated with an increasingly unbalanced distribution of that population. The very size of Greater Buenos Aires, with more than a third of the nation's population,

"... constituye una realidad económica y social cuyos costos son difíciles de mitigar. Por un lado, las distancias entre la vivienda y el empleo ocasionan un considerable desperdicio de tiempo en desplazamientos; por otro, la rapidez del proceso de urbanización producido entre 1947 y 1960, y la ausencia de una acción sostenida en materia de construcción de viviendas, generaron un habitat rudimentario ...

"Un estado de déficit crónico se ha vuelto característico. Gran parte d de los habitantes metropolitanos se ven constreñidos a habituarse a interrupciones en la provisión de agua, al aislamiento por falta de líneas telefónicas, a desgastarse en interminables viajes diarios y recrearse en las riberas contaminadas.

/Finalmente, la

Finalmente, la desordenada apropiación del espacio urbano, y la imposibilidad de atender simultáneamente todas las necesidades, han acrecentado de tal modo las urgencias en el dominio de los equipamientos colectivos que la generalización de los "deficits" parecería constituir hoy otro rasgo característico de la vida metropolitana".^{24/}

Urban centres, then, are subject to the heavy strains of demands generated by the concentration of population, and economic, social and other activity in the metropolis. Land is intensively used for multistory buildings and densely packed commerce, industry and government administration. (Although much of the use, because of specialization of activity and inadequate city planning, is intensive for certain limited hours only.) Water supplies, too, come under heavy pressure for the multiple (and often wasteful) uses demanded of them, as do other physical resources, including the city's air. Heavy demand for all these have raised costs of utilization^{25/} and, have caused major problems of physical decay and deterioration in the big urban areas.

But such physical amenity problems imply an environmental deprivation deeper and more complex. The impact of pollution, congestion, noise, and the lack of privacy is also likely to affect the inhabitants of the city in a wider sense. It will limit their capacity to develop their full potential in work and to enjoy their leisure; cramped and noisy conditions will subject many of them to nervous tensions and stresses which affect them individually, and in their familiar and community relations.^{26/}

Yet it is not easy to generalize when discussing the social, economic and cultural implications of the type of physical development now taking

^{24/} "Informe Nacional: República Argentina", op. cit., p. 5.

^{25/} See the Organization of American States, "Urbanización y el Medio Ambiente Humano ..." op. cit., p. 4, which also cites Simon Kuznets as saying that more resources are needed to give the same satisfaction in terms of housing, drainage, water, intraurban transport, etc. than in less densely populated areas. This suggests that some measure such as threshold analysis would help to give a closer approximation to the real economic costs and benefits of concentrated metropolitan growth.

^{26/} See the comment along these lines in Human Settlements, op. cit., p. 12.

place in the hyperurbanized centres of Latin America. Studies made of the groups moving to the cities and settling there in central city slums or in the shantytowns that ring the urban areas suggest that no facile conclusions can be made about them socially or politically. It is still not clear to what extent migrant groups are capable, under differing circumstances, of adjusting to the distinct situations posed by city life, of participating actively in the wider society, of finding employment, or of forging new family and community ties.

The more fortunate middle class groups find employment in the service sector, swelling the ranks of both private and state bureaucracies, carrying out functions which often, at best, are only marginally productive (and are often counter-productive because the principal aim of such bureaucracies, logically enough, is to create work opportunities rather than solve problems quickly and efficiently). The less fortunate marginal populations, lacking the basic minimum training to enter service sector activity in offices or shops, seek to create their own opportunities in the tertiary sector.^{27/} They become street sellers of whatever commodity or service they can find, domestic servants for the middle class, or unskilled labourers in the city's infrastructure and especially in the construction industry which, "... is especially sensitive to changes in the rhythm of economic growth and to fluctuations in public sector spending. It is a sector to which unskilled urban labour unable to find work elsewhere gravitate, and one whose labour is not easily absorbed by other economic activities in the case of a recession in construction spending".^{28/} And some turn to petty crime. The unionized labour force in the modern sector, as might be expected, remains fairly stable in size, offering little access for the marginal groups.

^{27/} For a more detailed analysis of this phenomenon see W. R. Armstrong and T.G. McGee, "Revolutionary Change and the Third World City: A Theory of Urban Involution", Civilisations, op. cit. pp. 353-78.

^{28/} "Employment and the Utilization of Human Resources in Latin America", ECLA, Social Development Division, November 1972, (to be published in Economic Bulletin for Latin America).

Some authors, nevertheless, argue that city conditions represent for the migrants an improvement in terms of access to employment, and to health and education facilities in particular. Deterioration in the man-made environment is therefore of lesser importance in comparison with the new social, economic and political fields which open up to them and their children in urban surroundings.^{29/}

On the other hand, a somewhat different picture emerges from the studies carried out in a number of poblaciones marginales in Santiago, Chile, where the author found among those she interviewed,

"... la reducción del campo de percepción social y la dualidad de la orientación perceptiva del mundo social, entre algunos de los problemas destacados. Lo primero se manifiesta en la manera vaga, inorgánica y difusa en que se percibe el mundo no inmediato y directamente referido a la vida cotidiana, mientras que ésta se percibe con nítida claridad, con elementos precisos, que permitan una definición clara del comportamiento. Lo segundo, se manifiesta en que la vida diaria dentro del propio mundo de la marginalidad se percibe y se define con elementos realistas y, en cambio, se recurre a elementos de contenido mágico para definir el resto del universo social.

De este modo se puede señalar de una manera provisoria que no solamente se encuentra entre los marginados la presencia de traumas en la formación de la personalidad psíquica, fisuras que dan paso a la inseguridad, a las desviaciones de tipo delictivo en algunos casos o predisposiciones a un cuadro psicótico, sino que la situación de marginalidad afecta un nivel más profundo de la psicología individual y de grupo".^{30/}

The two views are not, of course, mutually exclusive; the tendencies are heterogeneous and levels of political, social and economic involvement, and cultural understanding will vary according to the opportunities offered by different cities, to the social flexibility of the society, to the social and cultural backgrounds of the migrants and even to the generation of poblador.

It can be argued that, at least, the migrants are no worse off than they were in the rural areas. By jumping more into the mainstream

^{29/} See "Environmental Problems of Urban Development", op. cit., p. 7.

^{30/} Carmen Pimentel Sevilla, Vidas Marginales, Editorial Universitaria, Cormorán, 1973, p. 31.

of national life which is represented by the cities they have created severe strains on family and community life which have led to the sharpening of a whole range of social problems.^{31/} But in return for these social costs of marginality, the populations in the unfavourable barriada environments may enjoy certain benefits in terms of the de facto power to wring concessions from the authorities over immediate problems such as housing, water, power supplies, etc.

And various writers have lauded the positive qualities of the shantytowns. Beneath the superficial appearance of environmental squalor, they argue, the barriadas represent a chance to exercise self-help among groups of people who have, on the whole, adapted well to the exigencies of city life. Their desire to be self-reliant and to form a stable social entity in the larger society is usually manifested soon after they have taken land for settlement (admittedly the taking is usually by illegal means). They construct their own housing much more cheaply than the planners are able to, develop many of their necessary services, from their own local organizations, and apparently settle down to integrate into the life of the wider society.

This is doubtless a valid description of some situations, but in the dynamic conditions of Latin American urban life, a number of unanswered questions still remain. How long will such quietism last? The present stability could break down with the next generation which has been led to expect more from society. Its "felt needs" will undoubtedly begin on a higher level of expectation and perception than those of the older migrant generation.

^{31/} For more detailed examples, compare the statements made in various national reports to the Stockholm Conference, and especially:

- a) "Jamaica: National Report", n.d., (mimeo), p. 18;
- b) "Breve Consideración sobre la Problemática del Medio Ambiente Humano: Caso Ecuatoriano", op. cit., pp. 11, 17 and 18.
- c) "Informe Nacional de Bolivia sobre 'El Medio Ambiente Humano'", op. cit., pp. 4-5.

A somewhat broader question of policy-making can also be raised here. It is no doubt true that the barriadas of Latin America are a "better than nothing" answer, especially for the policy-makers and planners - who are, in any case, usually presented with a fait accompli when land is taken for a squatter settlement. It is undoubtedly better than nothing for the pobladores, who find a measure of satisfaction in such settlements, that the authorities have not been able to give them. And it is of value to the middle class which can continue to demand a disproportionate share of public housing allocation. Yet this misses the larger issue that policies of prevention through effective regional development, agrarian reform, and the decentralization of economic activity would open the way to obviate such forms of growth with all their deleterious environmental consequences. Objectively, the squatter settlements represent neither prevention nor satisfactory cure; they are by definition a spontaneous response to social failure.

Although the serious practical difficulties impeding effective planning are recognized, the question of the barriadas is raised here to remind planners and policy-makers that it exists, not in isolation, but as part of a wider and integrated network of cause and effect.

5. Policies for Integrated Development

In considering the viability of a development strategy incorporating environmental objectives in Latin America the first step might be to analyse the consequences of allowing present trends to continue without interruption - or at most, with partial and short term policy interferences in different sectors of the system as individual crises emerge.^{32/}

Without attempting to make a detailed extrapolation of every aspect of the continent's development/underdevelopment path it seems logical to expect that, without changes in present trends, the tendencies towards concentration of population and economic activity will continue, and that such concentration will continue to be exacerbated by medium to high rates of population growth at least in the next decade or so. In the rural areas migration will do no more than partially alleviate the pressure of population on the land.

Moreover the indiscriminate import of technology and its use without careful consideration of the human and natural environmental consequences, will have increasingly adverse effects of the type already described. It can be expected that the destruction and waste of natural resources will continue apace, while inequalities in the sociopolitical structures will lead to widening gaps between the rich and poor groups in society.

None of these imbalances among the variables seems likely to result in any short-term or dramatic breakdown; the existing system has shown a considerable degree of flexibility in dealing with crises. But it is possible to predict that the uninterrupted depredation of the natural environment together with the contradictions inherent in the man-made and social environment, will make the maintenance of the present pattern, increasingly costly, economically, socially and politically.

Many governments in the continent realize the danger of a "do nothing" attitude and have made institutional arrangements to introduce a certain degree of order into development through the formulation and implementation of national plans.

^{32/} Part of the following outline is based on the structure elaborated in "A Project on Global Energy Planning", by the Group of Experts in the European Center of the Carnegie Endowment, La Mainaz, France May 4-5, 1973 (typescript).

There is less evidence to show that such plans, even in the stage of formulation (leaving aside for the moment the discrepancies between formulation and implementation) are founded on an approach to questions of development in which all the variables are considered as integral parts of the total system.

But the selection of alternative strategies depends on more than the avoidance of disruptive conflicts among the different factors; to be coherent, global planning requires the statement of certain norms and goals demanding social and economic changes if they are to be attained. Such a positing of principles and aims implies something more than a mere harmonizing of the different variables in the development process. It requires the weighting and selection of certain variables in accordance with the goals decided upon.

An emphasis on an improved natural and social environment, for example, might well call for an adaptation of technology so as to conserve resources, to provide more employment, and to change consumption patterns of society, so that, instead of the use of scarce capital resources for the production of private motor vehicles, investment would be diverted into providing improved public transport services and intermediate (and cheaper) forms of transport - such as bicycles - to serve the majority of the population. Such a policy would be aided, too, by forms of urban planning which, among other things, allow people to live closer to their work and to social and cultural facilities, and so help to create a sense of community within the corpus of the larger urban entity.

Taking the environmental factor as the starting point in peripheral regions the planner and policy-maker could come to the conclusion that a profound change in life styles and socioeconomic structures is a necessary prerequisite for assuring development on the basis of a higher level of self-sufficiency.

The adoption of such a norm would involve much more emphasis on the conservation of resources through multiple use and recycling; on the planned use of local resources - timber, stone, clay, etc. - for building, roading and other infrastructural work; the development of more small indigenous locally-run enterprises such as agro-industrial and handicraft industries

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based on medium or low technology of an inexpensive nature and adapted to local requirements and capacities (but not excluding the use of other levels of technology where necessary for large-scale projects); and it would require the stimulation of latent creativity and initiative within the local community through education and extension services, and through the devolution of decision-making and the encouragement of participation at all levels.

Acceptance of a strategy such as this would open the way for a much more concerted form of development, allowing for the conservation of scarce resources (in for example, the transport sector where much of the expensive infrastructure of motorways, railways, and terminals could be at least postponed) while making more effective and balanced use of the available factors of development.

To resume, an important - an essential - step in the planning process is the statement of ideal objectives based on certain norms and principles which are considered crucial for the achievement of more balanced patterns of development. Such normative planning is required to clarify goals and principles among the policy-makers and to detect the inadequacies and contradictions of existing styles of development. But it will not be the final basis for planning in societies which have to take into account the many constraints imposed by their socioeconomic, political or, to a lesser extent, physical situation.

Feasibility studies are required to reconcile the differences between desirable goals and the limitations imposed by the real situation, and to provide the foundation for strategies of development. The constraints on action in most Latin American countries are formidable. Obstacles raised by special and influential groups, the conservatism of government authorities, the deadweight of custom and of traditional attitudes, administrative inefficiency and the sheer lack of qualified human and financial resources are all part of the systemic limitations which the planner is bound to consider in trying to reconcile normative goals with the practical realities of a given situation.

Past experience indicates that Latin American planners have not had conspicuous success wether in finding a satisfactory compromise or in relating the different variables to produce more integrated development

/policies. Attempts

policies. Attempts to regulate or alter existing tendencies have included:

- policies to slow down population growth, although these have thus far been talked about rather than actively implemented.

- anti-pollution legislation aimed at preventing the physical deterioration of urban and industrial environments,^{33/} but, as with population policies, such activity has been undertaken in isolation without regard to socioeconomic factors which are the major determinants of environmental conditions.

- regional development policies, using a technical approach borrowed from the affluent nations (which have, themselves, had only partial success despite the wealth of human and financial resources available) that have attempted to slow the growth of the great urban concentrations by channelling economic activity and people into alternative growth poles, created essentially according to a calculus of private economic costs and benefits.

- agrarian reform programmes which have in most cases resolved themselves into "pilot projects" or colonization schemes instead of large-scale redistribution aimed at reconciling greater social equity and economic efficiency. In few cases has there been sufficient change in society to permit the introduction of an agrarian reform bringing about major economic, social and political change in the rural areas.

- urban reform, zoning, and housing policies whose impacts have been inadequate compared with the scale of demands imposed by the unbalanced regional development which has taken place in the countries of the continent. It is difficult to calculate how far housing policies have fallen short of needs,^{34/} but the visual evidence leaves little doubt that the influx of migrants into the urban centres, has made a mockery of most housing programmes - and, for that matter, of urban transport, zoning, social service or public utility schemes.

^{33/} A brief report of the work of one such body set up by agreement among the Government of Chile, the World Health Organization, and the United Nations Development Programme in 1963, appears in "Instituto de Higiene del Trabajo y Estudio de la Contaminación Atmosférica", Santiago, Chile, World Health Organization, Geneva, 1970, 39 pp. (mimeo).

^{34/} Human Settlements, July 1971, *op. cit.*, p. 16. See also World Housing Conditions and Estimated Housing Requirements, United Nations Publication, Sales N° 65.N.8, p. 32.

The reasons for the lack of success experienced in most planning endeavours throughout Latin America are fairly clear. First, the need to select among the various factors to evolve strategies of integrated development has not generally weighed very heavily in the total scheme of governments' intentions. Instead "development" for most policy-makers, has been considered a matter essentially of promoting economic growth, of expanding the production of goods, and of raising the gross national product, rather than in terms of the production and distribution of goods and services to satisfy the social, cultural and environmental needs of all the population. And where, in addition, there are conflicts between private and community goals in the growth process it is usually the latter which lose.

Looked at in a slightly different way, it can be said that the failures have resulted from a lack of real concern for non-economic goals among the powerful socioeconomic interest groups which control the political and administrative machinery. The organizations to which advisers and planners offer their suggestions have little power to change this even if they believe in the ideal schemes offered by the experts.

But even if such obstacles can be overcome and the stage of implementation reached, policies often lose their value by being put into practice in isolation, as individual segments with little reference to other associated issues. The examples quoted earlier indicate that such policies have been conceived of and implemented as isolated measures with limited aims and not as integral and interrelated parts of a larger national strategy.

Or, alternatively, in cases where the problems are seen in their wider context, the socioeconomic ramifications inhibit action taking this wider context into account. Two examples, representing environmental problems at the extremes of urban modernization and rural stagnation, both identifiable in different variations in a good many Latin American countries, will help to illustrate the problems.

First, the crowded centres of the great urban agglomerations have experienced levels of air pollution too high to be ignored. Eventually the authorities conduct studies, pass laws, and set up regulatory mechanisms to deal with the problem. It turns out, however, that important industrial concentrations have already been established on the side of the urban area

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from which the prevailing winds come. Their output of fumes can be reduced to some extent but not eliminated, and their relocation would require prohibitive costs; and would be resisted by both entrepreneurs and workers. The urban public transport system too, is a major contributor to pollution, and this is an even more intractable problem. Most of the vehicles are old and in poor condition. Transit fares are very low, and it would be difficult or politically dangerous to raise them very much in view of their importance in the budgets of the urban masses. The bus companies can function at a profit only by using old vehicles with a minimum of maintenance. Effective regulations to keep excessively polluting vehicles off the streets would paralyse the transit system, and confront the authorities with unmanageable protests. The attempts to combat air pollution by regulation, therefore, are likely at best to hold it within limits more tolerable than would be the case without regulation. A drastic reduction in pollution would require thoroughgoing changes in the patterns of urban growth, and even in urban income distribution.

Second, certain particularly impoverished groups of cultivators on marginal lands raise goats and make charcoal to obtain a little cash income. Goat grazing and charcoal burning are destroying what little forest cover remains in the hills and causing disastrous erosion. The cultivators themselves are aware of this, but cannot dispense with their supplementary livelihood. Regulations prohibiting goat grazing and charcoal burning thus can be enforced only by repressive means and at the cost of intensifying the poverty, or driving off the land, thousands of families already at the margin of subsistence. An acceptable and effective solution to the apparently straightforward problems of deforestation and soil destruction thus requires capacity on the part of the authorities to resettle or offer alternative livelihood to the families in question, and this in turn requires effective agrarian reform, employment and educational policies.

Public agencies are not necessarily unaware of the causative factors but, because of a lack of capacity to confront the much broader set of problems involved in an adequate response, they fall back on palliatives; broader responses run inevitably into the rigidities and contradictions of the whole system. When, to these difficulties are added problems of sheer

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lack of statistical and other data, and the fact that the societies of Latin America are subject to the constantly changing (and mainly exogenous) pressures from changing technology which tend to conflict with other development goals, it is understandable that governments see few alternatives to short-term "solutions".

In fact, stop-gap policies seem so far to have justified themselves by keeping the most urgent problems of underdevelopment at bay and by creating minimum living conditions sufficiently flexible to allow most of the population to adjust somehow to their circumstances. Given this situation, the natural - almost inevitable - tendency of governments is to avoid policy responses of a large-scale nature which might alienate powerful interest groups while not having the counter advantage of attracting immediate support from the disadvantaged sectors of society. In any case, basic changes are not likely to be felt in the short term and few governments act in terms of the longer period, beyond their own expected tenure of office.

It is through an understanding of problems deriving from the socioeconomic system itself that general development strategies have to be evolved and in turn, converted into effective operational plans.

Some of the groundwork has already been done in Latin America, and, to judge from the unanimously favourable response to the principles for a "Unified Approach" to development strategies set out by the Economic Commission for Latin America at Quito, Ecuador in March 1973,^{35/} there appears to be at least formal agreement to consider planning in a broader perspective. More specifically, some governments have accepted in principle - or have anticipated - the recommendations of the United Nations Environmental Conference that the environmental factor should be included integrally within the total design of development planning.

Although a start has been made, it would be unrealistic to expect that governmental response to the arguments for a "unified" or "integrated" approach to development will be more than tentative for some time to come.

In the meantime some of the more important conditions for the implementation of integrated development strategies in the different nations

^{35/} See Evaluación de Quito: Primer Bienio de la Estrategia Internacional de Desarrollo, Naciones Unidas, CEPAL, Santiago, April 1973.

of the continent can be briefly outlined so as to give some appreciation not only of the reality which is to be reconciled with normative goals, but also of the major areas to which the arguments for new and more flexible approaches should be directed. Such conditions will include:

- the political determination of governments to initiate such policies, which in turn depends on persuading the influential social and economic groups of their value and viability

- the operational efficiency and organizational flexibility of the administrative machinery of government

- the financial capacity of government and the trained manpower available to it and

- the ability of planners to carry out national development strategies not only in terms of the wishes and cultural values of different social groups (which by itself may imply merely a passive acceptance of what is being offered) but also with the active - and at times, the necessarily aggressive - participation of those affected by the plans. The whole question of popular participation in particular is a complex one and its attainment depends in large measure on the education of all those concerned in the policy changes. This does not imply, of course, the manipulation of people to gain their acceptance of the planners' schemes; just the opposite, it will involve experts and people jointly working out methods to formulate and implement policies. And this will require mutual education through contact of both sides so as to change attitudes and reduce as far as possible the inevitable incomprehension and mistrust that will otherwise arise.^{36/}

Needless to say, all these conditions will involve systemic change, on compromise, and on what the energy planning experts have termed "trade-offs" to break down political, cultural and social constraints and open the way for the elaboration of "scenarios" of integrated development.

^{36/} Solon Barraclough, "Rural Development Strategy ...", *op. cit.*, p. 28 referring especially to the rural situation, writes of the need for 'full campesino participation' in development policies, and continues, "... all rural development strategies will remain inadequate until the hard political decisions are taken to move directly towards development goals in spite of the powerful interest groups opposed to sharing their power and privileges with the campesinos and other hitherto powerless groups".

The final condition to be noted in the dependent market societies of Latin America is that of national autonomy. If integrated strategies are to be implemented, their elaboration will depend on the ability of national, regional and local authorities to act with a considerable degree of freedom from external pressures. And this, in turn, will depend largely on the extent to which the other conditions are achieved.

6. Conclusions

One of the themes that this report has attempted to stress is that, although there are close and interacting relations between population and the environment, such links cannot be considered except in relation to their situation within the wider sphere of societal development. These relationships, in turn, raise further implications for both elements in the development process.

For population, the confrontation with the other development variables may help to clarify one of the issues that has been a source of contention: whether population is a negative or positive element in the achievement of societal goals. A widely diffused position at present seems to be dominated by the supposition that people are a nuisance, a drain on resources and a barrier to progress.

This is not very helpful to countries in which potentially the human resource is by far the most valuable available to society. Within the framework of a long-term policy to slow population growth, there seems to be much greater value in considering the positive attributes of people - as producers, decision-makers, contributors to culture and civilization - rather than as rats in a granary, predatory, destructive, and in the final analysis, dispensable. And the latter attitude is particularly inapposite in the "developing" world where the consumption of the world's resources per capita is extremely low compared with that of the affluent countries.

Looked at globally, objectives must include a slowing of the rates of population growth and the achievement of a more balanced spatial distribution but not every nation in the world can or must proceed at the same pace. In Latin America reductions in the growth rate and changes in the distribution of the population will come - if at all - as a consequence of development

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and not as part of a policy package labelled "zero economic growth; zero population growth". To reiterate what has been stated earlier in the report, it is precisely through the relevant employment of all the development variables that conditions of greater security will be created in the lives of Latin American rural and urban masses. Such conditions will then allow for changes in attitudes so that children are seen as human beings, and not primarily as forms of social security, additional wage earners and props in one's old age.

Similarly the population-environment relationship must be considered in the wider context of the society as a whole. To equate population pressure simplistically with environmental despoliation is, in Latin America, a partial and superficial approach which fails to take into account the systematic pressures which result in the misuse of natural resources in rural areas, however thinly populated, and the degradation of both the man-made and natural environments in the urban centres. Questions of spatial imbalance and inappropriate technology and production-consumption patterns have already been discussed and their role in the population-environment-population relationship has been pointed out.

It might, therefore, be most useful to put the relationship more clearly into its global setting by asking the following question: who (or which groups in society) is producing a poor environment for whom? And this subsumes a series of related questions. Who is responsible for the pollution caused by the private automobile, and for the inadequate transport services? Who benefits most from the minerals extracted from the countries of Latin America, and who suffers from the manner of their extraction and the appropriation of the returns? Who (or what pressures in society) is responsible for the continuous stream of migration from the poor environmental conditions of the periphery to the often equally poor conditions at the centre? The answers to these will require an approach which is much more global and interdisciplinary in nature than has been demonstrated in most analyses up to the present.

To conclude, a final comment on the role of the environment itself should be made. As the Founex meeting emphasised on a number of occasions,

environmental questions and economic growth must not be treated as mutually exclusive alternatives; rather, they should be complementary ingredients of Latin American development programmes. The environmental factor has the potential to bring into focus the socioeconomic and physical structures of the countries of the region and so broaden the basis for unified development strategies.

But this will occur only if the environment is integrated into development policies aiming to promote the wellbeing of the society as a whole. If it comes to be seen as something extraneous to the daily problems confronting the legislator or planner, or as merely a fashionable issue likely to compete for scarce resources with other demands of apparently greater immediate urgency, it will be either ignored, or, to satisfy national prestige - or loan and credit requirements - will be added as little more than verbal decoration to already decided policies.

