

at the local level, it takes the form of concern with the shortages and the townplanning disorder of agglomerations.

At the time of the most recent population census (1970), it was observed that one third of the Brazilian population was living in municipalities other than those of birth. It was also recorded that the urban population grew during the period between the 1960 and 1970 censuses at a rate of 5.1% a year, whereas rural population increased by only 1.1% a year, despite the fact that the rates of vegetative growth in the rural population are traditionally higher than those for the urban population. It should also be borne in mind that during the said period about 60% of the population growth in the nine Metropolitan Regions was due to the influx of migrants, and that the said proportion actually exceeded even 70% in the Metropolitan Regions further South.

The intensive migratory flows, over both short and long distances, reflected in these data, are the result of the Brazilian social and economic dualism at an intra-regional level and particularly at an inter-regional one. The best known instance of this is the substantial difference in development between the North East and South East Regions in Brazil. It is not possible to quantify the impact of these urban disequilibria at a national level, but it is feasible to describe the social and economic disadjustments entailed by them in terms of both origin and destination of migratory flows.

From the angle of the points of origin of the flows of migrants, those flows are to be added to the causes of dephasing of agriculture in relation to the industrial and services sectors, a good deal more dynamic, with the progress of capital-intensive technologies in agriculture not offsetting the loss of labor undergone by the latter sector. In terms of

the points of arrival after the migrations, due to the lack of ability for absorbing labor on the part of the urban production system, the migrants are affected by a series of disadjustments such as unemployment, lack of preparation in relation to the new patterns of culture, lack of basic and technical education, amongst others. These phenomena all become mixed in to a vicious circle of cause and effect that mutually reinforces itself and defines under-development too.

Another level on which urban imbalance shows up is in the numerical and geographic distribution of the towns and cities.

Numerical distribution, a few data on which I have given earlier, concerns the substantial growth of just a few Metropolitan Regions at one extreme of the scale, and, at the other end, the large number of small urban areas which ought more appropriately to be termed rural nuclei. The shortcoming of these towns is reflected in imperfect coverage of the territory and lack of hierarchy in the urban network that in turn results in widespread inefficiency from either the economic or the social point of view.

Imbalances in the geographic distribution of the towns and cities are connected precisely with the existence, side by side, of occupied areas of the territory, that accompany the East coast of Brazil, on the one hand, and extensive areas that are but sparsely populated, in the North and Center West Regions of Brazil. Well known historic reasons have led to this situation of disequilibrium in Brazilian population settlements.

A modification in this panorama, as well as a demonstration of the possibility of occupation of the insufficiently developed territories in the hinterland, is to

be seen in the construction of Brasília in the geographical center of the Brazilian plateau. In that respect, it has been a fully successful undertaking. The proximity of the decision-making powers has proved to be an important factor in regional development. Extraction activities, agriculture and animal husbandry have all gained considerable drive in the Brazilian Center-West, and millions of people that might otherwise be swelling the population of the already congested Metropolitan Regions, especially those of the South East, have moved to that area.

On a strictly town-planning level, urban imbalance is more obvious in those same Metropolitan Regions, where the whole of the contradictions of under-development end up by becoming locked in. Differences in income between the various levels of the population, combined with an extremely speculative real estate market, generate urban structures that are ultra-polarized between a nucleus fitted out at levels comparable with those of the most highly developed countries, though highly congested in the central portions, on the one hand, and a periphery that is usually quite rarified, lacking in the minimum of urbanistic facilities. Housing, transportation, basic sanitation, telecommunications, amongst other factors, are the dearth-stricken sectors that the municipal administrations are at grips with, being ill-prepared either financially or technically to cope with these problems.

It is possible, on this local plane, to quantify the relationships between energy and the urban milieu, especially the influence of the "perverse" urban structures on wastage occurring in urban transportation, which are common in the cities of the more developed countries but cannot be put up with in the cities of the less developed nations.

There is yet another plane on which the urban question may be viewed, namely, that of the design and construction of buildings and of the urban infra-structure, and the field in which it may more readily be related to the energy crisis.

Where the design of buildings is concerned, it has been remarked in some studies that the use of technologies imported from more highly developed countries, without the required adaptation to the natural and cultural milieu in Brazil, is a source of numerous errors ill-absorbed by the cities. This refers, in particular, to the extent that it has more direct influence on the consumption of energy, to high-rise construction using fast elevators; structures requiring artificial ventilation and air-conditioning, permanent artificial lighting and so on.

In the civil works sector, studies made in Brazil have endeavored to evaluate the consumption of energy in the manufacture of building materials and at job sites themselves. For building materials, a calculation is made of the quotient of energy in terms of kilo-calories per kilogram of weight, to which has to be added the cost of the fuel required for transportation. The ultimate energy content is computed by relating the quotient of energy to the units in which the materials are used (square meters of wall, flooring, paintwork, etc.). It is found that, generally speaking, the more highly industrialized materials are the ones that have the lowest contents of energy. This fact can be accounted for by the lack of organization of the less industrialized sectors, especially the pottery and earthenware fields, in which there is considerable wastage of fuel. Besides this, their products are of heavy individual weight and volume, causing high transportation costs.

In terms of energy consumption at job sites, it is known that building methods that are capital-intensive consume far more energy than those that are more labor-intensive. The majority of our towns are built using conventional methods and national industries. Of late, however, a tendency has been noted towards the use of more highly industrialized building methods, depending on technology transferred from more highly-developed and more energy-consuming countries.

Prospects in this sector lead one to anticipate that prolongation of the energy crisis will produce certain contradictory effects on the existing urban structure in Brazil.

Much of the inter- and intra-regional transportation is effected by highway, and with the rise in costs of crude both raw materials and finished products have undergone substantial increases. Curiously enough, as regards the structure of the urban network, the energy crisis may actually contribute to a desirable decentralization of activities and populations through the territory, due to the search for regional locations more favorable in terms of proximity to sources of energy and savings in transportation, in both agricultural activities and in transformation industries, bringing pressure to bear for new areas to be opened up to settlement in the North and Center-West, besides leading, even in regions already occupied, to a certain amount of decentralization of the major Metropolitan Regions through growth in smaller towns and cities, shaping up more firmly the role of the medium-sized cities and even fostering the appearance of new urban nuclei.

With regard to the internal structure of the towns and cities, on the other hand, it is possible that the effect will be one of even more intensified nucleus-periphery

polarization. The best location for a company is the one giving it the highest profits, and from the angle of the population, the best location is that providing it with the utmost wellbeing. Now higher profit and more well-being depend, amongst other conditions, on the reduction of outlay and time spent on urban transportation. In terms of a market economy, therefore, the best urban location is going to cost more, and will be attainable only by those in a position to pay for it, meaning the more competitive companies and the more affluent members of the population.

But the energy crisis is not the sole factor that will be affecting the configuration of the Brazilian urban structure on a medium and short-term basis. In addition to this, within the Brazilian political and administrative tradition, the energy and urban variables are not likely to be left up to the free interplay of market forces. State intervention is bound to make itself felt, reflecting the above-described tendencies, so as to channel them towards optimization of the sectors involved and to the development of society as a whole.

3. POLICIES AND PROGRAMS

3.1 - Definitions and Options of the III PND

The III PND (III National Development Program) spells out the main objectives and lines of government activity for the 1980/85 period, establishing orientation for the private sectors.

The definitions and options of the III PND are mainly based on:

- I - The certainty that Brazilian society is fully qualified and motivated to face up to and cope with the additional challenges that the world economy has added to the existing arduous national drive to build a developed and

free society, sustained by the unquestionable economic and social development already attained, the power of achievement historically demonstrated by the Brazilian people - even at times of world crisis - and the admittedly vast economic potential of the country;

- II - Evidence that there is a pressing need to emphasize certain time periods assigned of late to Brazilian development plans, readjusting them in line with the modifications and uncertainties stemming from the energy crisis and its effects;
- III - Recognition that a country in course of development, with such potential and so many problems as Brazil, cannot forego growth, on account of both the legitimate aspirations of the people towards greater prosperity and the high social cost of stagnation or retrenchment;
- IV - The pressing need to concentrate government efforts on the promotion of a more just distribution of the fruits of economic development, aiming on a priority basis at improvement in living conditions of the less favored sectors of the Brazilian population;
- V - Recognition, at the same time, of the Brazilian preference for a market economy, in which planning for development and the government's entire action should be aimed at guidance, support and encouragement for the private sectors, with the government limiting itself, as producer and investor, to those fields and activities called for by national interests and security and to projects undesired by or infeasible to free enterprise;
- VI - The purpose of the national effort is the valorization of the Brazilian population. This becomes of particular significance in terms of the drive to ensure proper working conditions and suitable pay for meeting basic needs.

Maintenance of a fast rate of growth is a sine qua non to increasing the levels of well being. The rate of growth of the population, linked with the legitimate aspirations of all segments of society towards higher living standards, imposes in turn minimum levels of generation of employment and growth of productivity, which become feasible only from a certain rate of growth onwards.

Thus the great challenge is to identify a strategy of growth tending towards reduction in social inequalities and correction, even on a gradual basis, of the imbalances in terms of trade and of internal inflationary pressures.

The reduction in social imbalance is a factor that ought to permeate the entire strategy, in the sense of characterizing a standard of development compatible with better income distribution. This expressly includes application of a substantial volume of public funds in the social sectors. This program will imply rapid expansion of the supply of foodstuffs, housing, health facilities and sanitation, with a view to benefitting the lower income sectors of the population.

In the long-range view, there are sound reasons for taking an optimistic view of the feasibility of fast growth. This attitude is not derived from ignoring the fact that Brazil and other non-petroleum-producing developing countries comprise one of the groups most affected by the imbalance following the petroleum crisis. It is the consequence of a study of the specific conditions of the Brazilian economy within the international context.

3.2 - Energy and Ecological Policies

3.2.1 - Energy Policy

The priority assigned to the energy policy stems

from its obvious essentiality in terms of a logical approach to Brazilian development and the operation of the national economic system, the latter being, in fact, subject to the greater vulnerability the more dependent it is on external supplies of energy. At present, over 40% of the energy consumed in Brazil is derived from sources abroad, with imported crude representing practically the totality.

The escalation in prices - to which is associated uncertainty as to supply itself, in the light of the international panorama - jeopardizes the Brazilian terms of trade not only through the increase in the petroleum account: it also brings pressure to bear in terms of international inflation and entails a retraction in world markets, thus making imports more expensive and hampering national exports.

Side by side with this, it is easy to perceive the immense possibilities of Brazil's developing alternative energy supplies through the most varied of approaches, and all the private sector needs in this respect is for the government to present a framework of decisions on a long-term basis.

Even though the discovery of new oil fields in Brazilian territory is a promising alternative, its uncertainty imposes on the country's energy policy adoption of a series of complementary instruments and actions. A realistic policy ought to take into account the inexorable exhaustion of sources of energy that are not-renewable. This leads to the continuing increase in international prices and to frequent difficulties in achieving regularity of supply.

Basic guidelines are therefore defined that should orient strategy intended to ensure self-sufficiency in terms of energy, namely:

- . increased domestic production of petroleum, through intensive, priority drives to prospect and extract crude, in order to permit imports to be curtailed as much as possible;
- . conservation of energy and substitution of petroleum derivatives, which will likewise contribute to a reduction in imports; and
- . maximum use of domestic energy sources, through diversification, regional utilization of resources and minimization of transportation.

3.2.2 - Ecological Policy

The question of the environment involves aspects connected with prevention and correction, so as to preserve the quality of the environment and maintain ecological balance.

Goals within this context are as follows:

- I - achievement of proper compatibility between the objectives of urban development and preservation of the environment;
- II - integration of the urban development policy with that of preservation of the environment;
- III - improvement and expansion of urban environmental sanitation (involving water supply, sewerage, sewage and garbage treatment);
- IV - achievement of compatibility in the policy of pollution control with the defense and protection of health (control of endemic diseases resulting from absence of basic sanitation or atmospheric pollution; control of the use of agricultural defensives, and other toxic substances in foodstuffs);
- V - rational utilization of natural resources (especially forests and water resources);

VI - promotion of education to environmental needs.

As regards basic and environmental sanitation, a priority task would be that of providing Brazilian towns and cities with regular water supply services, projects for flood prevention and projects for installation, completion or expansion of sewerage networks and services, with emphasis on the more densely inhabited urban areas.

3.3 - Urban Policy

The urban development policy is closely integrated into the overall development policy of Brazil, and as such is formulated at a national level for every one of the major regions into which Brazil is divided up, it being understood that the organization of the urban and rural structure should take place concomitantly.

It is stipulated in the III PND that the following factors are of general interest in terms of a policy for urban and regional development: the question of migration; reduction in concentration of industry; reformulation and intensification of agricultural development; energy policies; policy for the social sectors, and administrative decentralization so as to fortify regional and urban agencies and state and municipal governments.

Within the framework of the Brazilian urban-rural process, it behooves us to recognize the following basic requirements:

- . development of agriculture and animal husbandry, so as to attenuate the process of hypertrophy of the towns and cities, and especially that of the metropolitan areas, stemming the so-called exodus from the rurals;
- . achievement of a better balance in the availability of economic and social infra-structural factors between regions; and

- . attainment of greater functional adequacy in the small and medium-sized towns and the periphery of the metropolitan centers.

As regards the North East, the basic approach will be in terms of developing activities that can foster growth at a rate faster than the national average, side by side with greater relative increase in income and levels of well-being amongst the poorer families and reduction of poverty in the urban and rural milieus.

As regards the urban sector, besides the priority assigned to enhancement of the small and medium towns, there is a pressing need to mount a major effort at disciplining the growth of the metropolitan areas - particularly those of Salvador, Fortaleza and Recife - and the larger towns, for reasons including prevention of problems and effects jeopardizing the quality of life, which have already made themselves felt in other areas of Brazil.

In the Amazon region, the drive for development will be concentrated on gradual occupation and integration of the area, with due attention being paid to its characteristics and natural calling, with particular heed to non-predatory working of the area's natural resources and strict respect for the ecological equilibrium and the indigenous population.

With regard to the urban sector, the fast rate of growth of certain cities, such as Manaus, for instance, and their basic role in the occupation of the area, make disciplining of expansion and enhancement of the respective infra-structure priority goals.

In the Center-West, the drive to development will set a premium on actions aimed at maximum possible mobilization

of the vast agricultural and agro-industrial potential, even in the areas of the savannah.

Discipline will at the same time have to be established for development of the Geo-Economic Region of Brasília, for purposes of enhancing its already densely inhabited periphery, in terms of both quality of life of the respective populations and so as to protect and preserve the characteristics of the Federal Capital.

By analogy, stress should be laid on the adoption of measures for disciplining the development and expansion of the major cities.

In the South and South East, emphasis is on measures capable of fostering better geo-economic and geo-political equilibrium. Notwithstanding the better relative situation of these regions within Brazil as a whole, their role in relation to development and the attendant results will not be under-estimated, even in those areas marked by a concentration of productive activities - such as the Metropolitan regions, - which contain 20% of the aggregate population.

In this respect, a particularly marked effort will be made to discipline the fast growth of the major towns and cities, particularly by policies of industrial decentralization and agriculture and supply - the latter being essential in order to stem the intensive flow of migrants from the rurals to the urban areas - and by support for the development of small and medium sized towns.

At the same time, preventive and corrective activities will be intensified in the field of urban planning and its actual execution, particularly in the areas that are more densely inhabited or subject to intensive population growth,

such as the Metropolitan areas of Rio de Janeiro, São Paulo, Belo Horizonte and Porto Alegre. The basic orientation, with due consideration for the priorities and directives of the III PND, will be that of reconciling economic progress with the objective of improving the quality of life of the inhabitants, with respect being shown for the natural, architectural and cultural heritage existing therein.

Hence in its spatial terms, the policy of urban development is intended for the achievement of a more balanced urban system, establishing clear-cut functions to be performed by the towns and cities on a regional and national level.

Even at a city level, however, problems have arisen in relation to the proper allocation of investments, with a view to meeting basic requirements, in terms of urban infra-structure, for all layers of the population.

To summarize, and taking account of local idiosyncrasies, the topics of interest in the development policy at the inter-urban level are as follows:

- . Use of Urban Space

This is one of the basic objectives of the urban policy, meaning control of the expansion of the towns and cities through well ordered occupation of the urban pole.

- . Urban Transportation

Transportation plays a key role in connecting up the various functions of the towns and cities. It is in itself, however, an extremely expensive parasitic function in terms of time, funds and energy expended. There can be no thought of seeking to solve the problems of transportation in the agglomerations without coping with problems of spatial organization too, which is why solving the problems of transportation has to be undertaken also through solving

those of the use of urban space.

- Housing

Improvement of housing conditions, especially those for the lower income brackets, so as to eliminate, in a first stage, the progressive worsening of the housing shortage. By means of this program, the Federal Government also aims at holding the population in small and medium-sized communities, as a policy intended to attenuate the problem of internal migration.

- Water Supply and Basic Sanitation

In this sector there are serious shortcomings and an endeavor is being made to cope with them through heavy investments, especially in the peripheries of the Metropolitan Regions and in the medium-sized cities. As on December 1979, the population served by the state basic sanitation companies was about 45 millions. With the undertakings scheduled up to the end of this year, the population thus benefited in Brazil will amount to 63 millions, equivalent to some 80% of the urban population anticipated for 1980.

- Environment and Historic Heritage

In the sector referring to protection of the natural and cultural environment, particular emphasis is given to urban agglomerations. Policy in this field is closely linked with that of sanitation, industrial location and urban transportation. Where the historic heritage is concerned there still are major tasks to be carried out in order to integrate protection of this aspect into the overall process of economic and social development of Brazil.

Establishment of the urban development policy calls for mobilization of a series of institutional, financial and legal instrumentalities.

As an institutional instrument in this field, the National Urban Development Board (CNDU) was established within the Ministry of the Interior, its purpose being to "propose the national urban development policy and follow up its execution in accordance with the priorities established within the national development plans."

The financial instrument for this policy is the National Urban Development Fund System (SNDU), proposed by the CNDU and to be formed from funds provided by the National Housing Bank (BNH), the Social Development Support Fund (FDS) operated by the Federal Savings Bank (CEF) plus other funds operated by agencies that finance special programs, such as, for instance, study and research works.

Study is currently under way on legal instruments for better delineation of the competence, in the city planning field, of the various levels of government, for purposes of planning or for legislating. Another series of proposals also deals with the administrative competence itself, in the financial field, within this sector.