

THE ROLE OF PAHO IN HOUSING AND PHYSICAL PLANNING¹

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Housing problems in Latin America may be viewed in terms of rural migration and unbalanced urban growth. A changed approach, consistent with environmental health goals, is advocated for restoring the already impaired urban-rural balance. PAHO is assuming a significant role in three sorts of activities that have a direct bearing on this situation; these are metropolitan planning, river basin development, and rural settlement.

The Housing Problem in Latin America

Housing is part of human settlement. It encompasses a great many aspects and is closely related to man's health and well-being. Nevertheless, people assign different meanings to the word "housing," depending on their particular needs and circumstances. The range of definitions takes in everything from simple shelter against the elements to the whole "residential environment" concept adopted by the World Health Organization (1). Most people still conceive housing as involving merely physical structures, though it should also be viewed in a social context. Similarly, there is no clear concept of how to deal with housing problems, and their sheer magnitude has tended to obscure the distinction between quality and quantity. Controversy on the subject is compounded by widespread misconceptions, which are apt to be especially marked when comparisons are made between conditions in developed and developing countries.

In Latin America, as in other regions, the housing problem exists mainly among the lowest income groups. Housing for middle or

even lower-middle income groups involves supply and demand situations that can reasonably be coped with. Mass construction, prefabrication, and other techniques have had some success in economizing building expenses but not urbanization costs, and since roughly half the cost of a conventional home goes to pay for land and urbanization, the direct effect on price has not been significant. The least expensive houses still remain far beyond the reach of the lowest income groups.

While social housing programs are rare in developing regions, so-called low-cost housing is still geared to norms and standards adopted from industrial countries. Assimilated traditions as well as vested interests constantly obscure the fact that there are not enough resources to produce all the housing needed in the conventional way.

A recent UN estimate indicates that by the year 2000 the world population will double to nearly seven billion people, while the world's urban population will increase more than three-fold to over three billion. The resulting requirements in housing alone are staggering; between 1970 and 2000 over one billion new urban and rural dwellings will be required, as well as accompanying public facilities and service areas (2).

The UN Department of Economic and Social Affairs predicted in 1965 that Latin America's housing needs would require annual construction of 3.2 million new houses. Yet up

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to now construction has fallen far behind this goal and has not even kept pace with the deterioration of existing stock. With a total construction in the whole region of possibly around 500,000 houses per year, the housing deficit is spiralling at the rate of 2.7 million units per year, almost all of them in the low-cost class.

If we multiply the housing deficit by the lowest conceivable price for a house, for example US\$500, we shall come to the conclusion that there is simply not enough money to do the job. Actually, the minimum market price of a house in most countries is nearer US\$1,000, and the price of the average low-cost house is apt to be around US\$2,000.³

Is it possible to build cheaper? Probably so. However, efforts in developed countries are directed at rationalizing building methods in order to save 5 to 10 per cent on building costs. In contrast, the problem in Latin America is how to build for only 5 or 10 per cent of the conventional cost. Unless ways of achieving such a solution are studied in earnest, it will not be possible to create a sufficient breakthrough in low-cost housing.

Building activities in urban centers create the impression that extensive housing development is underway. Yet it would be too optimistic to think that sufficient housing can be provided for all Latin American city dwellers. Normal commercial building methods and those adopted by official programs will not have any meaning at all in the foreseeable future for families earning less than, say, US\$100 a month. The cost of housing thus bears no relation to the ability of the great majority of urban families to pay.

Income distribution figures for Latin America in 1960 reveal that 40 per cent of the population earned only 12.8 per cent of the total revenue and had an average *annual* income of US\$130 per person (or roughly \$60 per month per family). Another 40 per cent of the total population had slightly higher incomes, averaging around US\$310 per person (3). This

³Without urbanization costs.

means an enormous sector of the region's population was and still is in an extremely poor position to pay the cost of reasonable housing. Obviously, conventional building is not going to solve the housing problem.

Undeniably, the dwelling itself embodies important values and serves as the basic family core. However, since financial resources are so limited they should be used primarily to provide the most indispensable elements of housing, namely physical planning and essential public services. A typical program of this kind, for example, would provide parcelled lots with adequate access, water supply, sewage disposal, and electricity, leaving the family to construct the house according to its own means and at its own pace. The existence or absence of services would remain the crucial difference between slums and areas with adequate living conditions.

Further betterment of housing conditions can only be achieved on a significant scale by shifting the emphasis from construction to improvement programs based on mutual help, assisted self-help, and use of inexpensive building materials and methods. Such programs must of course count on sustained participation by the entire community and a necessary minimum of public support. This sort of extensive development of urban facilities, as opposed to limited intensive housing programs, will generate just as much employment in the construction industry and produce long-lasting social benefits for many persons instead of just a few.

Uncontrolled Urban Growth

Several features of the housing problem in Latin America strongly limit the benefits to be gained from conventional solutions. One of these is the uncontrolled growth caused by rural migration to the cities, and another is the inability of health facilities and environmental engineering to reach the inhabitants when housing assumes the form of slums and uncontrolled settlements. More specifically, if either urban or rural housing evolves without a logical physical plan, it becomes exceedingly

difficult to provide it with modern sanitary services.

Another facet of the problem is that half of the population of Latin America is still rural, so that we have to deal with both urban and rural housing. Unfortunately, there is very little similarity between the two. Urban housing implies building dwelling space and providing public services, while rural housing requires solutions compatible with a mode of life in which the dwelling is a much more integral part of daily life and work. If a solution is inadequate, migration turns the problem of rural housing into an urban housing problem—and the latter is considerably more difficult and costly to solve.

While planning authorities are viewing housing programs as the panacea for housing and urban development, Latin American cities are expanding at a rate of 5 to 7 per cent each year, mostly as a result of uncontrolled settlement. Squatters and makeshift dwellings are becoming an inseparable part of city life as people continue to build their own improvised housing without any outside help. Actually, this constitutes a vast outlay of money and labor, even though it often results only in unhealthy slums. The underlying pattern is not one of bad housing (a house can be improved in time); it is a lack of sanitary and other services, or worse, the absence of a physical planning framework which would have permitted installation of such services at a later stage.

The symptoms of uncontrolled urban growth are many: overcrowding, mushrooming spread of squatter settlements, inadequate water supplies, lack of facilities for waste removal and disposal, inadequate siting (on flood plains or dangerous slopes), social disorganization, poor health standards, high accident rates, juvenile delinquency, and crime. To these must be added the health hazards affecting economically advanced areas—such as air and water pollution, congestion, and strain—which have already begun to make their appearance in some of the bigger Latin American cities. Given all these pressures, it is logical to conclude that

at some point social frustration may burst into active urban unrest.

Efforts to brake uncontrolled urban expansion have been halfhearted and fragmentary. Authorities have frequently had to intervene to avert mass invasion of urban property and work out *ad hoc* solutions to accommodate squatter populations. However, uncontrolled settlements continue their incessant spread and planners repeatedly seem to be taken by surprise. Current planning techniques have proved to be of limited value in dealing with squatter settlements, while institutions of learning and professional organizations have made only faint attempts to develop original expertise that would enable them to respond to the problem in a knowledgeable manner.

Admittedly this unbalanced growth is only the end-product of rural difficulties, and Latin American countries are indeed increasing their rural development efforts. Still, the growth of urbanization is likely to prevail during the next decade despite its negative effects, and most cities will double their populations by 1980.

As a result of explosive urban growth new problems are emerging which already eclipse those concerned with the individual home. Health and public services are already under severe strain, and concerned, pragmatic action will be needed to deal with the environmental impacts caused by huge human agglomerations. Metropolitan planning in an environmental rather than an economic context is currently becoming a most urgent task. It involves the sound management of resources which constitute the life-blood of the city, including their preservation and development in accord with immediate and projected needs. However, the *sine qua non* of urban survival is a slow-down of rural migration. No planning solution can prevail against the present tide of urban growth, composed almost entirely as it is of refugees from rural poverty.

The Rural-Urban Balance

The generally primitive living conditions in

rural areas of the Americas are well known. Health deficiencies and waste of human potential in these areas have tended to accelerate rural migration to urban centers. At the heart of this situation are commonly held notions such as the ideas that rural migration is inevitable; that it accompanies agricultural mechanization; that economic growth implies industrial development; and finally, that urbanization is essential to social and economic development. Indeed, many planners are resigned to the fact that migration to the cities is an irreversible process and maintain that it should be guided into positive development channels instead of being allowed to become an impediment.

These assumptions may have been true in the recent history of some developed nations, but they have led to false conclusions when applied indiscriminately to developing countries. In Latin America such thought has drawn attention away from the real problem—the stagnation of rural areas and the resulting exodus which is swamping urban centers. A UN inter-agency team which studied the problem in Colombia wrote:

Unidirectional migration flows are not only the result of the lack of economic opportunity (land, employment, income), and of social infrastructure (education, health, housing), they also contribute to a further deterioration of the (urban) situation as the growing—and politically more significant—problems of the towns claim increasing attention (4).

Concerning employment, the same report points out:

... the non-agricultural sectors of the economy taken together cannot generate enough employment in the medium term to approximate the goal of full employment. This means not only that faster growth is necessary in agriculture, but also that policies need to be devised and implemented to alter the hitherto prevailing trends of migration and urban growth (5).

The Special Meeting of Ministers of Health of the Americas at Buenos Aires in 1968 took note of

... the awareness of the 100 million persons

living in the rural environment who have remained outside the mainstream of progress. They have been stigmatized as idle and irresponsible. Yet whenever they have been given incentives to carry out community projects they have shown themselves willing and able to cooperate and contribute to the welfare of others. Agriculture will long remain of major importance in the economy of the Americas, and it is therefore essential to accelerate the modernization of rural life, including the essential health services (6).

The need to modernize rural areas was also emphasized in the Charter of Punta del Este. Programs were outlined in the areas of construction, water supply, nutrition, housing, and physical planning. Among other points made in this regard, increased agricultural productivity was recognized as the key underlying factor in the success of regional development programs.

Increasing the share of resources allocated for rural development could lead to better population distribution and help to re-establish the impaired urban-rural balance. By strengthening the rural sector, migration can be retarded and diverted to stimulate the growth of smaller urban centers, thereby alleviating the pressure on the larger cities.

Some Possible Solutions

The foregoing shows that there are two distinct areas of difficulty. One is housing and urban development, a field in which planning is hampered by misconceptions. The other is rural development, where expertise in physical planning is very scarce. If institutional initiative is to improve health and general well-being, these two sides of the problem must be dealt with effectively. Both urban and rural physical planning are thus indispensable to any general program aimed at reconciling human and environmental requirements.

In this regard the following areas of action appear to offer the best chances for producing high returns in terms of social and health benefits. These are (1) metropolitan planning; (2) river basin development, and (3) rural settlement planning. All three areas actually

embrace large parts of the human habitat and so have an important bearing on health and well-being. They are, however, unique in the sense that they require an interdisciplinary approach in which matters of housing and physical planning play important roles.

Metropolitan Planning

Basically, metropolitan planning endeavors to attain a proper balance between economic and social development. It takes in urban as well as rural areas. The emphasis is on urbanization, but within an overall approach which considers a city's surrounding areas of influence and their rural populations as a coherent whole. This urban-rural interrelationship is especially important in developing countries with a predominantly rural population.

Metropolitan planning has evolved in recognition of the fact that the best way to tackle urban problems is through concerted and integrated action in the economic, social, and physical planning fields. Its aim is to create a physical environment congenial to both the individual and the community that will effectively promote economic development.

Experience has shown that the more acute metropolitan planning problems are encountered in the environmental health field. This is confirmed by recent studies and surveys carried out in various parts of the world by the United Nations and its specialized agencies (7). In the face of rapid growth, metropolitan planning has had to give priority to problems involving water supplies and water systems; sewerage and sewage disposal; drainage; transportation; garbage and refuse disposal; and air, land, and water pollution. Most of these are health-related public responsibilities.

An example of such integrated metropolitan planning is the program developed by Colombia's Regional Corporation of the Savanna of Bogotá and Valleys of Ubaté and Chiquinquirá (CAR). In this area of more than 2,300 square miles (containing 3 million people in 47 municipalities) the objectives are to conserve, manage, and coordinate the use of natural resources. To

this end substantial investments are being made in electrification, roads, erosion control, reforestation, and control of floods and water quality. Within this complex of activities PAHO has been providing advisory services to CAR in the following fields:

(1) Sanitary engineering (particularly in water pollution control as it relates to principal water uses in the region);

(2) Systems analysis (to develop decision models for managing the region's water resources); and

(3) Physical planning (introduced with the aim of improving the region's physical infrastructure and manpower resources).

Among the physical planning aspects covered is zoning of residential, industrial, agricultural, and recreational activities in accord with optimal use of water resources. The increased emphasis on physical planning is designed to offset the urban expansion of Bogotá by inducing alternative growth poles in rural parts of the metropolitan area.

River Basin Development

River basin development can be described as the planned development of a river region defined by geographic criteria. Using geographic rather than political or administrative boundaries permits planning for the development and use of the region's natural resources in harmony with the environment.

The concept of regional development for specific purposes (a good example being the Polders land reclamation project in Holland) is many centuries old. However, multipurpose development planning for the social and economic well-being of people is relatively recent. A well-known large-scale example is the Tennessee Valley development project in the United States of America. The project (which covers an area of about 40,000 square miles) was first intended simply to obtain hydroelectric power. However, in 1933 a comprehensive approach was adopted, establishing a modern pattern whereby agriculture, power,

and manufacturing are developed in a coordinated way to serve the best interest of a region's inhabitants.

Because of the complexity of the problems involved, various strategies were devised for identifying the interrelationship between the various planning components and for assessing the comparative advantages of alternative solutions. Design criteria were frequently based on economic efficiency measured by traditional benefit-cost parameters. However, the application of these criteria to developing countries has remained of questionable value. This is because none of the theories supporting such an application fully appreciated the complexities of planning with and for the human factor, which has turned out to be a crucial element in the development process.

Difficulty in quantifying social values may oblige planners to redefine their objectives and formulate more appropriate design criteria. In the UN study "Resources for the Future" the objectives outlined included the need to evolve "improved patterns of rural and urban human settlement and productive activities" in order to advance the social development of a region (8).

The importance of integrating the health sector in development planning has been generally recognized. Specifically, this includes the sanitary uses of water, water quality control, water-borne disease control, health services, etc. However, new problems and broader environmental considerations are emerging which call for a closer collaboration with other planning disciplines.

Several such environmental features were brought to light by a program aimed at developing Ecuador's Guayas River Basin. The biggest river basin on the Pacific coast of South America, it contains roughly 13,000 square miles and produces most of the country's export crops. Half of its two million inhabitants live in an urban setting, about 750,000 of them in Guayaquil and the rest in smaller towns. The other million is scattered about rural areas in small hamlets or simple isolated dwellings.

Following a preliminary survey by the

Organization of American States (OAS), the Study Commission for Development of the Guayas River Basin was established to prepare prefeasibility projects for agricultural and socioeconomic development of the basin. Although the program was conceived as one of comprehensive, integrated development, it became clear that the economic benefits of mechanized farming would eventually increase unemployment and associated social and health problems. This would in turn accelerate migration to urban centers, especially Guayaquil, which was already seriously overburdened with squatter settlements.

Consequently, PAHO advisory services were expanded to cover a wider range of environmental engineering and health matters, including physical planning of rural communities and related facilities. The first pilot project—for irrigation of over 27,000 acres of land—includes settlement plans for about 1,200 family farms, which will be incorporated into the irrigation district.

Rural Settlement

In rural housing programs, health considerations take in not only water supply, nutrition, eradication of disease vectors, etc., but also more general social and economic matters. As a rule, the human factor turns out to be more crucial than mere physical structure.

PAHO advisory services to agrarian reform, agricultural settlement, and rural housing programs are directed primarily toward the health and well-being of the individual and the community. Active PAHO participation in the physical planning process has created awareness of the need for development of settlement patterns in which health, occupational, and social functions are successfully integrated. Through such involvement PAHO has paved the way for promotion of other health-related services.

However, the fundamental justification for investing efforts in planning rural settlement, particularly in the case of small projects, has been the opportunity to explore new ap-

proaches and create expertise in a hitherto neglected field. Since rural settlement is generally directed by government agencies, each project generates valuable experience which can later be applied to larger undertakings.

PAHO collaboration in rural settlement planning includes work on such programs as the Multinational Demonstration Project on Rural Housing operating in Colombia, Ecuador, Trinidad and Tobago, and Venezuela. This project is coordinated by an interinstitutional committee in which the OAS, UN, IDB, AID, and other international institutions participate. PAHO covers the areas of physical planning and environmental sanitation.

Another example of PAHO assistance in physical and regional planning is the FAO/UNDP preinvestment study of the Huallaga River Basin in Peru. Specific projects for farm family settlements were designed for long-term stability in an agglomerated pattern that would improve both village functions and environmental services. The Peruvian Ministry of Agriculture, which is working actively on the study, has also applied the new techniques introduced to carry out land settlement programs in the Huallaga River Basin and other areas of the country.

A case study of collaboration by health authorities may help to illustrate the demands which rural physical planning attempts to satisfy. A multidisciplinary project was started during 1963 in the Venezuelan State of Cojedes with the aim of raising the living standard of the zone's 1,115 campesino families and creating an initial nucleus of agricultural development. The project was first conceived as covering only the socioeconomic organization and infrastructure needed to advance agricultural production. Thus initial plans covered crop rotation, organized marketing, supervised credits, and extension and technical services for obtaining seed, fertilizer, and farm machinery. Physical works included access road construction and land clearing, grading, drainage, and irrigation.

Most of the farmers, however, remained scattered over the project area in small poorly-

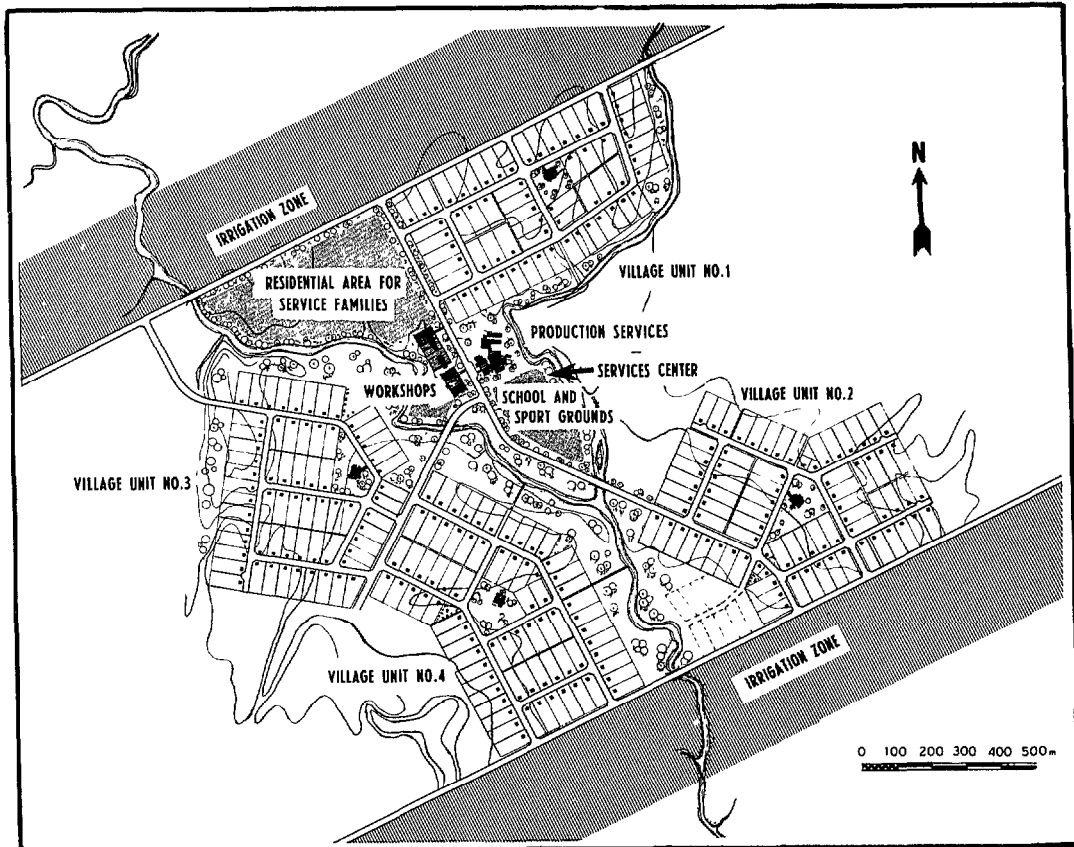
served hamlets, and it became clear that this would impede further development after initial success in crop raising had been achieved. Likewise, higher incomes would not yield improved living conditions unless accompanied by a steady upgrading of essential production and consumption services, and of community facilities such as water supply systems, housing, schools, etc.

The planners were thus presented with a need to agglomerate the dispersed communities into new viable villages with enough families to support adequate services. The plan was to enable farmyards to be attached to each house but also to keep down the walking distance to the fields. Since each village was to be formed of several smaller communities, a physical layout was sought which would enable the resettled families to lead their own communal life, while encouraging gradual integration through sharing of common facilities. The Ministry of Health and Welfare, in collaboration with PAHO, dealt with the usual health-related matters and participated along with other agencies in execution of the project. PAHO provided extensive advisory services in connection with physical planning of the new villages, which was carried out by the Ministry of Health and Welfare's Rural Housing Division (9).

Figure 1 shows the spatial organization of one of the multiunit villages which has four resettled communities deployed around a joint services center. The farmsteads of each such unit are grouped around a common village green. This green—a place for meetings and recreation—may eventually contain a kindergarten or communal club. All other services, however, are found at the joint service center a short walking distance away. Services are provided to and by the four communities on a cooperative basis.

By thus increasing the size of the population served to 275 farming families and a number of professional service families (schoolteachers, storekeepers, technicians, instructors, etc.) greater efficiency and economy can be achieved. At the same time, keeping the four units somewhat separate helps preserve the

FIGURE 1—Layout of the Campo Alegre multi-unit village. This village of 275 family farms is composed of four resettled communities grouped around a service center. Special housing areas are provided for “professional” non-farming families who work in the community.



advantages of small size. A farming community of about 60 to 80 families is more amenable to organization and more amenable to agricultural extension services, and planning in small neighborhoods provides more flexibility for executing the program in stages and adopting it to the terrain.

The service center provides space for a variety of functions. Housing for professional non-farm workers at the center can also accommodate members of farm families whose work is related to farming and who prefer to live in the vicinity of their relatives.

Introduction of a technical and social infrastructure of basic services and community facilities is not a single operation, as it is often

viewed in urban housing developments, but rather a continuous process involving lengthy government and community efforts. By tracing paths for social development compatible with the rational functioning of farming operations, physical planning provides the master plan which permits smooth insertion of these services and facilities over time.

Human Settlement: New Concepts and Needs

The future outlook for human settlement in Latin America presents numerous problems. Most urban growth continues to occur in an uncontrolled and spontaneous fashion. The trends are predictable but urban services are

barely able to keep pace with the population increase. In rural development, planning is aimed mainly at the economics of agricultural production. In spite of significant advances in agricultural technology, new settlements are often merely based on traditional patterns. A lack of tools for spatial organization may be one of the reasons why otherwise technically sound projects have failed or not lived up to expectations.

In recent years planners and policy-makers have become increasingly aware of the fact that Latin America's urban and rural areas are closely intertwined. For this reason there has been a marked shift toward integrated projects aimed at both modernization of rural areas and regional development. This widening scope of development projects is making interdisciplinary planning indispensable. As a result, there is today a growing need for improved planning tools and better criteria for assessing the social and economic consequences of alter-

native courses of action. The complexity of new planning factors is also generating an increased demand for consultation in specific disciplines. In physical planning, as in environmental health, the interaction of diverse factors must constantly be kept in mind.

The Pan American Center for Sanitary Engineering and Environmental Sciences (CEPIS) in Lima, Peru—organized in 1969 to meet the growing advisory service needs of the Latin American countries—offers a special opportunity to tie health and physical planning together in a way likely to achieve maximum effect. One of its primary roles may be to offer professional leadership to local planners (which implies staying abreast of the field by taking advantage of new techniques and evaluating past experience). An important part of this task is disseminating modern concepts of health and well-being that can be translated into engineering designs compatible with conditions and needs in rural areas.

SUMMARY

It has become increasingly clear that new solutions are needed to Latin America's growing housing problems. One basic difficulty is that most people have insufficient income to buy a low-cost home. At the same time, the Government is not usually in a position to finance public housing for a large share of those in need. Thus there is little chance that traditional housing construction programs will provide the required answers. The real need is for ways to help people build for only 5 or 10 per cent of the current cost of low-income housing.

Thus, further betterment of housing conditions can only be achieved on a significant scale by shifting the emphasis from construction programs to improvement programs based on

mutual help, assisted self-help, and the use of inexpensive building materials and methods. Such programs must of course count on sustained community participation and a necessary minimum of public support.

A major complicating factor is uncontrolled urban growth, fueled by rural migration to the cities. This has placed a premium on physical planning intended to direct such growth into sound development channels, and on methods of stemming the flow from the countryside by promoting adequate housing and services for rural areas. Action in the fields of metropolitan planning, river basin development, and rural development planning, discussed in detail by the author, seem particularly likely to yield the sort of results desired.

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MENINGOCOCCAL MENINGITIS IN BRAZIL

A preliminary report dated 27 September 1972 indicates an increase in the number of cases of cerebro-spinal meningococcal meningitis in the metropolitan area of São Paulo since 1971. The number of cases notified in 1971 and 1972 (up to 30 August) were 465 and 708 respectively. In addition, the number of cases with unspecified diplococcus were 162 in 1971 and 158 in 1972 (up to 30 August). On 21 September 1972 there were 166 hospitalized patients with clinically diagnosed cases of meningitis. [*Weekly Epidemiological Report* of the Pan American Sanitary Bureau, 44 (44) 257, 1972.]