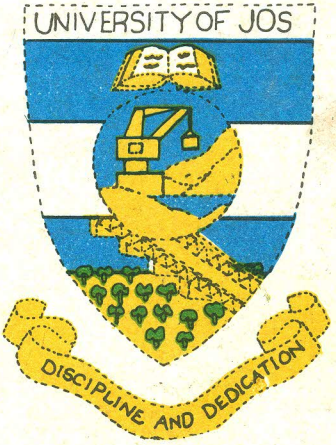
UNIVERSITY OF JOS

GEOGRAPHY FOR DEVELOPMENT PLANNING: THE JOS EXPERIMENT



INAUGURAL LECTURE

by

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Professor of Geography

UNIJOS INAUGURAL LECTURE SERIES 2

UNIVERSITY OF JOS, NIGERIA

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UNIJOS INAUGURAL LECTURE SERIES 2

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GEOGRAPHY FOR DEVELOPMENT PLANNING: THE JOS EXPERIMENT

INTRODUCTION

FROM TIME TO time the practitioners of a profession or discipline stop to take stock of their activities and achievements, and to map out their future lines of operation. Such a balance sheet usually ensures that mistakes or oversights are identified and rectified. In addition, methods, techniques and tools are re-examined and sharpened towards achieving future objectives. In particular, the relevance of the profession or discipline, with regard to the current and future needs or expectations of the society is duly ensured.

For the individual practitioner within the profession or discipline, an occasion such as this inaugural lecture affords one the opportunity also to reflect on what one has been doing. In particular, one assesses how one's academic and professional pursuits fit into the overall objectives of the discipline and the society.

I have often asked myself what the role of geography and geographers should be in the present-day Nigeria. I have attempted at various occasions to determine what the Nigerian society and the Nigerian economy expect of of geography and geographers. I have also tried to imagine how best geography and geographers in the country could contribute more directly and effectively to development planning for the good of the society.

In 1969, while discussing the major challenges that confront Nigerian geographers (Ajaegbu, 1971), I posed two related questions. The first was, what type of geographers do we want to make of our students? The second was, what geographical skills should be emphasised for Nigerian geographers today? That was exactly ten years ago. I did at that time suggest that "we should aim at producing professional, practical geographers who can practise their profession using their specialist (geographical) skills, just as do such other professionals as engineers, doctors, economists and so on."

There was then, and there still is today, in Nigeria the need to plan and manage the Nigerian space, environment and endowments (natural and human) for effective development. These questions and objectives have guided my attitude to, and orientations in, geographical studies, teaching and practice.

It was A. L. Mabogunje (1968; 1970) who argued for the advancement of geography in Nigeria as a policy discipline. In 1972, K. M. Barbour, then Head of Geography in the University of Ibadan, edited a collection of rather radical, pre-emptive essays written by the staff members of that Department, arguing for the adoption of regional planning in Nigeria. This publication, in particular, also called attention to the fact that geographers in Nigeria should develop their theories, methods and skills to be able to meet the needs of planning for Nigeria. I credit the early stimulus for my professional attitude to geography as a planning/policy discipline to these two professors who were former teachers and colleagues of mine.

I will, within the time available to me this evening, attempt to (a) review the geographical perspective to development and planning; (b) highlight the major lines of my own studies in this regard; and (c) discuss the approach to geographical teaching, research and practice being adopted in this university.

SECTION I

GEOGRAPHY AS A PLANNING/POLICY DISCIPLINE

In nearly all countries of the world, geographers are today increasingly being concerned with issues of development and planning for that development. White, et al. (1962) expressed the view that geography can make a powerful contribution to the advancement of society through relating the widely ranging geographic studies to social needs. They also maintained that its voice can be made powerful in policy making and planning decisions because of the experience and refinement of analyses it has to offer.

As if in a conscious effort to see these objectives realized, geographers have in their studies and publications, especially since the 1960s, dealt with several relevant themes in the general field of Geography of Development (Connel, 1971; Mabogunje, 1973), or Geography of Modernization (Riddell, 1970; Ojo, 1975). The specific themes include spatial aspects of development (Hoyle, 1974), development planning and spatial structure (Gilbert, 1976), spatial policy problems of the British economy (Chisholm and Manner, 1971), regional planning and national development in Africa (Mabogunje and Faniran, 1978); a geography of Nigerian development (Oguntoyinbo, et al. 1978), and urban and rural development in Nigeria (Ajaegbu, 1976).

The literature shows two broad concerns among the authors. The first is to understand the spatial patterns of development as well as the functioning of development processes. This concern has led to the modelling of how development processes operate in time and space, the functioning of environmental systems, and the relationships between human spatial organizations and development processes. The researchers attempt to find answers to such questions as what development levels have been attained in various areas or regions (development surfaces)? How do modernization traits (including innovations) diffuse over time and space among various societies? And, what development inputs or impetus make the greatest impact or have the greatest positive effects on development levels and surfaces?

Broadly, therefore, the studies aim at achieving two main objectives. The first is to discover the spatial order/arrangements and the processes that operate in the environmental systems, or in human occupance and performance in various parts or regions of the earth's surface, as well as how these help or retard human development efforts. The second is to understand, measure and predict the spatial framework and mechanism of development in their various settings, viz national, regional, local, rural or urban. This is attempted at various scales of consideration, from the global/regional to the community, household and individual levels of decision making that affect development processes. Moreover, the modelling is attempted in respect of each of these scales and settings as subsystems of the development process.

Hence, models of spatial processes, interactions and development mechanisms exist in geographical literature. In broad terms, attempts are made to understand and model the mechanisms involved in spatial national development, regional development, rural development or urban development. The functioning of development processes is conceptualized at these levels of spatial subsystems. In more specific terms, there are, for instance, attempts to model the functioning of national systems of cities, regional dynamics and inter-regional linkages, as well as settlement systems and the relationships between these and development processes (Logan, 1970; Pedersen, 1970; Wilson, 1970; Dokmeci, 1973; Allen and Sanglier, 1979).

The models help us to assess the effects of, say, the pattern of distribution of settlements, the distances separating homes (residences), workplaces and markets or shopping centres, the density of occurrence of given resources, services, facilities, or even information field and intensity). Such efforts are measured regarding the extent of development achieved or the efficiency of the functioning of development processes in a given rural area, urban centre or other unit area (planning unit).

Furthermore, there are several location models useful for the spatial/regional allocation of various resources, services and other development inputs; for the siting of development projects within a planning unit; and for measuring the efficiency of planning decisions and development efforts. Among the publications in these regards are those on locational analysis in human geography (Haggett, et al, 1965), location and space in human social administration (Massam, 1975), locational models (Haggett, et al. 1977) and locational methods (Haggett, et al. 1977). Single review or other journal articles are, of course, numerous (Godlund, 1964; Scott, 1970; Adejuyigbe, 1972; Wagner and Falkson, 1975; Goodchild, 1979).

It was Allan Gilbert (1976) who asserted that "without clear understanding of the spatial process which govern the movement of people from rural to urban areas, the relations between town and country and the ways in which certain regions grow and others stagnate... we would not be able to formulate appropriate spatial development models and strategies to help the poor."

The geographers have, in general, been guided by the need to encourage or achieve regional development, even development and welfare objectives of development. Their concern has spanned through environmental (natural and habitational), population, economic and social development, particularly in their national, regional and local unit areas and varying ecological settings.

Moreover, there is a recognition of the fact that there could be no single, universally applicable conception of development or model of development processes. Hence, geographical literature is also full of several local studies of the peculiar requirements of given ecological settings for development, the various approaches adopted towards achieving development in different localities, and the performance of development programmes/projects and the space-econmy in different parts of the world. From these studies, various forms of spatial development policies are enunciated.

The second major concern among the authors is with the requirements for effective planning for development. Geographers are in this regard guided by the desire to plan for, to order, and to enhance development processes in their spatial and temporal settings. They try to determine how development processes could be induced, initiated or maximized within a given unit area, within varying ecological units, or within given socio-cultural settings. They try to evaluate the bases and the critical conditions necessary for development, and subsequently, attempt to chart alternative paths for the development processes envisaged. They, thus, also attempt to predict which spatial models, spatial organizations, among several alternatives would most effectively enhance the functioning of development.

Hence, the studies in these regards investigate or model various forms and mechanisms for (a) initiating or enhancing appropriate development processes in areas or regions they are lacking or lagging; (b) expanding the wealth and growth base of a country or region; (c) achieving equitable distribution of inputs, services and proceeds of development; and (d) determining adequate infrastructural bases and

social organizations for efficient functioning of development processes.

Such studies also measure, determine, simulate or predict various alternatives and most efficient choices of locations (optimum locations); spatial nets and organizations; energy inputs into the development system in a given unit area; threshold sizes, such as of populations, settlements and inputs required for meaningful development efforts and processes; critical points and distances as well as minimum and maximum levels that constitute the development margins within which individuals, communities and nations operate.

The studies also present various ideological prescriptions on which the determination of the objectives of planning and development could be based. For instance, grographers are generally guided in their studies, modelling and policy prescriptions, on the one hand, by considerations for even development (equity), welfare to the people, social justice to all, improved environmental quality in our time, and efficient management of our space and resources for today's needs and in the interest of posterity (Mc-Allister, 1976; Gaile, 1979; Lea, 1979).

On the other hand, there is consideration for the need to develop the capabilities and maximize the potentials of every one, every region, and every unit area, in contributing to total growth and development. Hence, the geographers' planning conceptions do not allow for "no-man's-land" but, rather, recognize the varying or special characteristics, prospects and problems of individuals, societies, regions and other unit areas, with regard to development, from the local to the national levels. For planning units and the alocation of development impetus, space is treated by geographers in its continuous, rather than as discrete, distribution pattern. This ensures that every region and every nook and corner is included in the framework. The grographers' hexagonal nets (Christaler, 1966), urban-rural ecological planning units (Ajaegbu, 1976), or river-basins planning units (Faniran, 1972) are familiar examples.

We are, therefore, in an era in which greo

We are, therefore, in an era in which geographers are orientating their researches, theorizing and modelling towards issues and problems relating to the spatial dimensions of development, the space-environment-people-welfare planning approach, and the spatial-temporal considerations in planning leading to estimations and projections to future dates. The aim is to provide strong theoretical and methodological background for spatial planning and policy decisions geared towards achieving development.

For the geographers in these fields of research, development is thus seen broadly in terms of the maximization of (a) the contributions made by the various unit areas of a country and sectors of the economy in each unit area to local, regional and national growth; and (b) the welfare, quality of life, and standard of living of the people, including improved quality of their environment (however these attributes are defined). Hence, too, their planning units are defined in terms of rural areas, urban centres and various geographical or political regional units, while the targets of their development models are essentially the people.

For the discipline, geography itself, the results of these efforts have been enormous. For example, first, there has been a strengthening of the scientific base of the discipline, particularly in the social sciences, the natural sciences, and the environmental sciences, as a development science or planning/policy science. Second, there has been the sharpening of the tools of the profession for tackling practical problems of the environment and society. And, third, opportunities have been increased for ap-

plying the skills and methods available in the discipline towards professionalizing the subject. It is noteworthy, for instance, that perhaps, more than ever before, geographers are today working hand in hand with, and are being accepted by, other professionals concerned with development processes, planning activities and spatial policy decisions.

It is in the light of these orientations in geography, towards more application of geographical models, methods and skills to solving planning and development problems, that one now looks at what one has been trying to do in Nigeria.

SECTION II

SPACIAL DEVELOPMENT ISSUES IN NIGERIA: HOW I SEE THEM

When I look back at over fifteen years, since 1964, of my serious academic researches and geographical practice and, as could be seen from my various publications, it is, I hope, fair to say that I have devoted a large proportion of my time and efforts to development studies. Within this general area of investigation, I have been attempting to achieve three major objectives. The first is to understand the functioning of development processes and the evolution of development surfaces (varying levels of development) in Nigeria, given our circumstances.

The second is to determine how best we could organize the Nigerian (development) space in order to effectively induce or enhance development processes and achieve even (equitable) development throughout the country. This has involved trying to identify and propose regional planning models and strategies, as well as rural and urban development strategies and inputs within the regional planning context and the overall national system.

The third is to experiment on how best we could equip geographers in Nigeria for professional practice towards solving our development problems. In this section of the discussion, I will deal with the first and second of the objectives. The third forms the theme of Section III of this lecture.

Development processes in Nigeria can be analysed based on various units of the development space or different levels of the operation of the processes. For instance, the processes can be looked at within the national space, taking the whole country as one development area unit. They can also be investigated as they operate at the levels of the various administrative units, viz. the state, local government council and village council areas, etc., as officially delimited. In addition, one can study them at the level of urban centres, rural areas or other functional/ecological regions within the national or states' space.

Let us this evening, however, look at the spatial development issues in Nigeria at the national, rural and urban centre units.

The National Space-Economy

If we take the national space-economy as a whole, studies reveal major characteristics of the development surfaces and inefficiencies in the operation of the development processes. First, the nature of the development surface in Nigeria is largely related to the national system of urban centres, while the levels of development achieved are greatly differentiated according to varying time distances away from the urban centres. It could be demonstrated, for instance, that troughs exist in the national development surface at considerable distances in-between any two major urban centres, say, between Jos and Kaduna. In many respects, the urban centres are our most effective development centres today.

In parts of the country in which specific measurements have been carried out (Ajaegbu, 1967; 1976) one hour travel time to an urban centre of any size is today a critical (maximum) distance for the inhabitants of an area, given whatever means of travel available to them, as the national development process affect them. This demarcates an absolute critical distance for the effective operation of the national develop met processes. Beyond such distances, little or no development effects are felt.

This is because most of the development agents and inputs arising from national locational decisions and investments involved in the national development processes, are characterized by hierarchical spread (Ajaegbu, 1976). This means that they would necessarily go to the urban centres (in this case, first to the State Capitals) largely according to their sizes and functional characteristics. They would, thence, spread from the highest to the lowest of the urban centres and other settlement units which possess the adequate threshold populations.

In addition, spread effects (as also backwash effects) from the urban centres diffuse in concentric patterns within contiguous areas around the centres and are, thus, subject to the effects of distance and accessibility (the distance-decay). In effect, these are the two major processes involved in the national development space and each of them discriminates against areas located at relatively long distances away from the major urban centres.

Therefore, the Nigerian space-economy is today suffering the inefficiencies of our spatial settlement organizations, particularly the national urban systems (Ajaegbu, 1973). The distances separating our development centres (growth centres) are, in many cases, prohibitive for effective spatial development. Moreover, the actual development effects of many of the centres are not adequately high to enable them interact effectively with hinterlands, or enhance development to considerable distances away into their surrounding regions.

Thus, in many respects most of our rural settlements are disadvantageously located relative to the operation of the national space-economy and its development processes. They require to be brought effectively into the stream. The development of the State Capitals may help to improve on the national urban spatial systems. Yet, there is still the need to expand the urban system further especially into the vast areas of small scattered settlements. We still need to plan the development of the state capitals and other towns and cities in the country in a co-ordinated national system to ensure more efficient functioning of the national economy.

Indeed, as I posited six years ago (Ajaegbu, 1973), we are still confronted with two major questions in this regard. First, how can we create a national urban system for the national space-economy which would make for equitable distribution of growth and development, avoiding the over-concentrations in the few favoured areas that have encouraged the large regional disparities in development that we have today? Second, how can we employ the strategy of the national urban system in effecting greater balance in the spatial distribution of growth and development in the national economy through the allocation of various types and grades of activities and services, population sizes, and investments according to the ordering of the settlements, rural central places and national development centres within a co-ordinated national settlement hierarchy?

The second character of the national development surface is the pattern of distribution of the major demographic-economic centres in Nigeria, which today presents problems for the national space-economy. We can identify such centres by, for instance, superimposing the

patterns of distribution of towns and cities with populations of 50,000 or more, those with 20,000 or more inhabitants, the major industrial triangles in the country, and the relative importance of the industrial centres (Fig. 1, 2, 3, & 4). These show the major demographic-economic centres in the country as essentially (a) the Kano-Zaria-Kaduna-Jos area; (b) the Enugu-Onitsha-Aba-Port Harcourt-Calabar area; (c) the Ibadan-Abeokuta-Ikeja-Lagos area; and (d) the Benin-Sapele-Warri area.

These areas of the country have the largest population concentrations as well as the largest socio-economic investments relative to other areas. One may ask, what are the inefficiencies of this spatial pattern regarding the operation of the national development processes? The attraction capacity of these areas of Nigeria for development inputs and population movements creates considerable instability in the national space-economy. They could be seen as the major growth areas in the national economy, as their resource-base and the employment opportunities they provide have been continuously expanded. However, they do also, in fact, polarize development between them and the other parts of the country.

Here again, the distance-decay situation exists. The imbalances in levels of development could also be enormous, such as between the urban-industrial character of these areas and the rural, largely peasant agricultural character of the rest of the country. Moreover, the spatial pattern of opportunity situations in the country is greatly affected. For instance, one finds some correlation between the demographic-economic pattern, the demographic-ecological situations, and the population-resource imbalances in Nigeria. We now have population build-ups within varying ecological zones in the country. These have differential effects on the environmental and resource situations within such areas.

We are familiar, for instance, with the environmental effects of high rural population densities in the south-eastern parts of the country or in the Panyam-Pankshin area of the Jos Plateau. Furthermore, the areas of high population build-ups have corresponded to the areas of the greatest urban environmental problems in the country. Indeed, the inefficiencies in the functioning of the national development processes as a result of these and other spatial organizations are exemplified by the various ecological/environmental difficulties experienced in these parts of Nigeria. Yet, these same areas today form the core areas of the national space-economy.

Beyond the core areas there are vast areas of medium population densities and, thence also, very sparsely settled regions. These latter areas constitute, in effect, the peripheral zones in the national space-economy. They are essentially the inland basins, river flood plains, coastal plains and some upland pioneer fringes. In general, they are characterized by (a) relatively long distances separting them from the core areas, (b) low, non-threshold population sizes relative to their local soil, forest or other resources, and (c) relatively low levels of development. Again, their characteristics constitute an inefficient set-up for the operation of development processes.

Taken together, therefore, the core-periphery pattern in the demographic-economic character of our national space-economy is grossly inefficient ad calls for a conscious spatial reorganization.

The situation could further be illustrated with reference to the migration patterns experienced in the national space. Studies have revealed that the major source regions of internal migrations in Nigeria are those parts of the country where high rural population densities and/or rapidly increasing populations de-

pend on insufficient land and other local resources or economic opportunities. They are areas where the local resources and opportunities have been over-exploited. This may occur either as a result of large population sizes or of increased exploitations by even a relatively low or moderate population in an attempt to satisfy high or increased socio-economic expectations or felt-needs. They are areas where increased economic actions or ecological hazards and difficulties have led to low resources, deterioration of, or decreased resource-base. Thus, they are areas characterised by various stages and intensities of population-resource imbalances and of population pressures.

The migration destination areas are those regions where the population-resource relationships are high and/or are constantly increasing. They thus, permit relative to the migration source-region, favourable economic development, increased standards of living and satisfaction of people's expectations and needs. Such destination areas exist either in the core areas (referred to above) or in the peripheral regions. While the core-area destinations attract mainly the rural-urban and urban-urban migrants, the peripheral destinations attract essentially the rural-rural migrants. Because of the imbalances indicated above, more movements are directed to the core-areas than to the peripheries, a situation which is not very healthy for the national space-economy.

Part of the internal migration situation can, thus, be explained in terms of the varying economic or development situations and regional imbalances in the country. As we have noted earlier, development surfaces in the country decrease spatially from the core (urban demographic-economic cores) or favoured areas, often steeply to the peripheral regions at varying route and/or time distances. Socio-economic development is highest within the major growth-generating urban centres and regional central markets, as well as in the rural hinterland areas situated immediately at the doorsteps of these major centres. They are also relatively high in the core areas of the major export crops, such as cocoa, groundnuts, oil palm and rubber, as well as those of a few food crops, like rice.

Development within these latter areas is often highest along the major route ways, particularly the railways and trunk roads which form the main arteries of innovation and information diffusion. Beyond these major areas of relatively high economy (urban or rural) and of relatively high development, the tempo and levels of development decrease outwards through transitional areas to the peripheries.

One would have expected migrations to operate in a way to correct this situation. But, what do we have? We have two main trends of migration. The first is movement from the peripheral regions and the transitional zones to the core areas, especially the urban centres. These are essentially the rural-urban movements or the migrations to the export crop areas. The second is movement from the core areas, especially of rural population concentrations to other core areas (the urban centres) and to the peripheral regions.

Our studies have shown that it is now to a large extent no more the farming population which moves in search of farmland (rural-rural migrations) as hitherto. In fact, rural-rural migrations in Nigeria have been consideraly reduced or even stabilized. Whereas the wave of such movements was high between the 1920s and early 1950s, it is today very low or non-existent in several places and directions (Udo, 1967; Ajaegbu, 1968). Conversely, rural-urban migrations and consequent concentrations in few big cities, are expanding. Thus, while the present-day migration trend does not aleviate the rural pressures, it, instead, precipitates pressures in the cities and their suburbs.

Furthermore, much of the Nigerian farming population is largely immobile and strongly resist the required movements which could bring about a redistribution of the rural (farming) population. Such a redistribution could have helped to alleviate the pressures on the areas now affected, as well as to provide the adequate farming population needed to effect increased exploitation of the land and other resources in the peripheral regions where empty farming land exist. Thus, the twin problems of movement to already pressure areas (urban centres) and the reluctance of the farming population to be resettled in, or to voluntarily migrate to new farming land raise several issues for the Nigerian space-economy and its planners.

The peripheral regions in particular, present special problems. They still have low aggregate population sizes and, rather surprisingly, have not yet received (through immigrations) the threshold populations that they badly require. In general, they still need more people to make any substantial impact on their rural economies in the light of the existing low levels of technology of resource exploitations, and largely inefficient agricultural systems operated in these areas. This problem is true of (i) much of the sparsely-settled open lands of Borno and Bauchi States where groundnuts and other crops can grow and mixed farming could developed (Barbour, 1971); (ii) much of the Niger and Benue provinces within the Niger-Benue river plains, and in the northwestern parts of Kwara State which can still produce increased quantities of food crops for the internal market demands (Agboola, 1961), (iii) expanse of land areas in parts of the Oyo, Ondo and Ijebu provinces within the Lagos, Oyo, Ondo and Ogun States (Ajaegbu, 1969); (iv) the Nike plains near Enugu where there are more land than the local people can cultivate (Udo, 1970), and (v) the Cross River basin area, the Sokoto-Rima basin area and other major river plains throughout the country.

The problems of these areas are all the more compounded by the fact that many of the immigrants would have been used to predominantly upland, ran-based agricultural systems crops and techniques. As against these, the river basins and velley plains require, instead, hydraulic, irrigation-based or water control agricultural systems, crops and techniques. Hence, they have attracted, so far, rather fewer immigrants than expected and would, indeed, not be attracting very much more for as long as this technology problem exists.

When we consider the core areas, we also identify problems. They have today more immigrations into their urban centres than their rural sectors. In any case, the capacity of their rural economic base to expand, especially the export crops and the food crops sectors, seems to be exhausted or largely reduced. It thus cannot adequately satisfy the rising expectations and felt needs of migrants, as much as can the urban sector. Hence, while we may still expect further immigrations into these core areas, these would also be essentially directed more ad more to their urban centres.

In some of the core areas there are very densely settled pressured rural regions. Although some of such areas form the main source of regions of migrants in Nigeria, such out-migrations have not yet adequately alleviated the pressure situations in the areas. Moreover, the movements have been highly age-selective, involving especially those within the 20-29 age cohorts. They are areas or pockets of heavily-cultivated or over-cultivated land, where the population-resource situations are still badly mal-adjusted and at "critical" levels.

Partly as a result of rapid natural population increases, their population sizes and densities have kept increasing, while their resources get more and more exhausted. In addition, the ageing farming populations are (as we noted earlier) highly immobile or would resist to

migrate or be resettled elsewhere outside their home districts.

The oil palm belt of the southeastern parts of Nigeria (particularly the Orlu-Okigwe-Owerri-Annang zone) as well as the Awka-Udi (including Agulu-Nanka) parts of Anambra State are typical examples of these problem areas. Others include the Kano and Sokoto close-settled zones, as well as the Jos-Panyam-Pankshin areas of the Jos Plateau. How can we alleviate these and similar areas of their pressure conditions? Should we plan for greater out-migrations or can we expand the resource base of such areas?

What migration policies could be evolved in the interest of the national space-economy? Hitherto, the migration processes and population re-distributions in the country have been largely voluntary, uncontrolled and unchannelled to any planning or development objectives; at least not within a regional context. The relative neglect of the peripheral areas, which possess greater local resources and potentials, by many migrants, has been among the consequences of this situation. Since such areas should not be allowed to continue lying dormant any longer, a migration and population resettlement policy has now become urgent.

These examples, I hope, suffice to illustrate the inefficiencies in the operation of our spatial development processes at the national level. I have not, of course, discussed the problem of the population and manpower component in our development efforts. Let us, instead, turn to some issues in our rural development.

Spatial Issues in Rural Development

Studies have revealed the consideration implications of space and distances in the operation of rural economies in Nigeria. Because of various geographical, historical and sociological factors and circumstances, the Nigerian space could be subdivided into different contiguous units (the behavioural environment) within which various rural communities actually carry out their daily-life activities. It is within and between such space units that rural development processes operate and could be meaningfully studied.

As should be expected, the varying characteristics of, and development potentials held out by, the different rural space units in the country influence the economic and spatial behaviours of our people. In addition, the people's economic and other expectations and actions lead to varying responses to the environmental and resource situations in which they find themselves. However, the effects of the organization of rural space and the various distances which the inhabitants of the rural areas are confronted with, in consequence, are today crucial regarding the operation of rural development processes.

We have, earlier on, discussed the effects of the long distances that exist between many rural areas in Nigeria and the urban/development centres and regional markets. Variations in such distances, especially time distances, also help to account for the differences in the levels of development attained from one rural area to another.

Other distance relationships emerge from the distribution of the settlements within their genealogical and functional unit areas. It has been shown, for instance, that a dominant aspect of the spatial arrangement of settlements in most of Nigeria is that of the **main** or **mother** settlements surrounded by and linked socially and functionally to several **satellite** or **daughter** settlements of various generations, sizes and grades. The satellite settlements are either direct off-shoot of older (the main) or earlier off-shoots. They may, on the other hand, be adventitious settlements which have migrated into a given area, but not genealogically re-

lated to the older or earlier off-shoot settlements of the region (Ajaegbu, 1977a) (Fig. 5).

In some parts of the country these arrangements and linkage relations within settlement groups have evolved mainly during various phases of migrations and settlement histories of given areas. In other parts, the pattern has arisen from or has been greatly reinforced by recent (and continuing) disintegrations of original nucleated large village groups.

These various settlement types often exist within contiguous unit areas in which they maintain social, economic and other relationships. They, thus, have spatial functional interactions within their contiguous unit area. The unit areas form the primary spatial framework as well as basis of social organizations for local political and social activities/contacts and for diffusion of information, ideas and innovations. These functional regions today operate at varying levels of integration. At the lowest or village group level, the oldest and invariably largest (mother) settlement constitutes a central point and performs a number of central-place functions for its surrounding off-spring villages (see also Abiodun, 1971 and 1974).

Unfortunately, because of the free choice of the actual points of location of a settlement, and because of several constraints within contiguous areas, there are today, in many cases, considerable distances involved between the settlements. Moreover, over time, there have been several shifts, disintegrations and relocations of settlements which have led to successive generations of daughter settlements locating at farther and farther points away from the older settlements and local central places. In consequence too, there are evolving wider and wider unit areas for the operation of the linkages and relationships between the settlements.

In addition, following increased population sizes, greater felt needs and higher expectations and actions among many rural inhabitants in Nigeria, distances to work-places from the settlements are being increased. This is the case, for instance, as farming frontiers expand, advancing outwards from the village land. Moreover, as rural economies change in many places, the traditional market rings organized spatially at convenient distances are becoming less and less efficient to satisfy the present-day needs of the rural economies or the expectations of many people.

Hence, for instance, there are regroupings of local market systems and, thus, emergence of relatively larger rural markets for wider rual areas (market spheres). Such new rural markets, in places, attract sellers and buyers even from the urban centres (see also Adalemo, 1975).

In consequence, on the one hand, the earlier/traditional markets have, in places, become mutilated to functioning only in the early mornings or late evenings at much reduced capacities. On the other hand, the distances to the larger, more effective markets are now considerably long for many rural settlements and populations.

This development is to be expected. For, as Gana (1976) has discovered with regard to such local market systems in Zaria division, the scheduling of local periodic markets is integrated with their locational spacing, while there is a close relationship between such market provision and population density. It follows, therefore, that the larger the market, the greater the required threshold population and economic base area for its effective functioning. And, as a corollary, the greater will be the unit area from which such market population could be drawn. Hence, the long distances even to local central markets and regional centres that are

evolving in the operation of our rural economies today.

There is, in such market areas, a growing desire for adequate rural transportation systems to serve the changing needs of the people. It has also become necessary to plan rural settlements, market systems and other networks in a co-ordinated manner with linkages to the sub-regional (States) and national levels.

It is thus evident, even from these few illustrations discussed here, that over time the Nigerian rural space is being continuously characterized by longer and longer distances for the inhabitants in the operation of the development processes. These facts call for more suitable planning and organization of the rural space as well as for more locational efficiency in policy decisions for and implementation of rural development programmes and projects. Furthermore, how do we shorten the critical distances (especially time distances)? How do we create threshold populations at convenient locations for the development inputs and processes?

Again, because of the time available to us this evening, it would not be possible to demonstrate how the rural areas are affected by inefficiencies in the spatial organization of the demographic and behavioural characteristics of their populations and manpower situations. Such inefficiencies exist, for instance, relative to the development of rural resources and mobilization of rural labour force. They also call for effective manpower planning and migration policies for rural development.

Spatial Issues in Urban Development

The major spatial issues in urban development in this country could be discussed with regard to the inefficiencies in the patterns of urban land use allocations, the urban functional processes, and the urban environmental problems that stare all of us in the face everywhere. These are some of the major issues for which one has been trying to organize investigations and search for solutions.

For this lecture, I wish, however, to focus our attention on the issues related to, or created by, the constant and relatively fast changes (over time and space) in urban land use character, urban spatial forms, and urban functional systems. I will also, more specifically, limit my illustrations to the case of Jos.

In a continuing study of population behaviour in Jos and environ, we are trying to understand the existing patterns of decisions and actions regarding the spatial locational, demographic and socio-economic behaviours of people in the Jos-Bukuru urban complex area. The ultimate aim of this study is to see whether we could successfully predict or anticipate patterns of people's behaviours which might help us plan the organization of the urban space. Such a plan could help ensure the welfare and better quality of life for the urban inhabitants of the area. It could also ensure more efficient functioning of the city in the national growth and development processes. it is expected, for instance, that people's spatial, demographic and socio-economic behaviours within a time-space spectrum would have considerable effects on the urban growth processes and urban planning needs of the Jos-Bukuru complex (Ajaegbu, 1977b).

Meanwhile, a number of useful results and conclusions has been achieved. The first relates to the hierarchical and functional character of Jos. It is that Jos has assumed a relatively high order functionally in the national urban system in Nigeria. The city now operates, within that national urban system, at the level of the inter-state (national sub-regional) setting, particularly in the commercial, internal distributive trade, migrations and labour mobility sectors.

Indeed, in its operation within Nigeria's national urban system, Jos's sphere of influence embraces several other states than just Plateau State. To a large extent, it constitutes a central core-area for a functional axis in the country which stretches from Maiduguri through Bauchi, Jos, Makurdi, Enugu, Onitsha, Asaba, Aba and Calabar to Port Harcourt. A subsidiary artery of functional operation also links Jos with Kaduna, Zaria and Sokoto areas. A survey of the origin-destination pattern of motor traffic on the inter-city roads leading in or out of Jos, as well as within Jos motor parks, reveals a very high functional centrality of Jos in the inter-state economic system and population mobility patterns in Nigeria.

Furthermore, the extent of the popularity of the Jos-Bukuru urban complex regarding people's spatial (migration) decisions and behaviours is very high, measured in terms of the places of origin (migration source regions) of those who have made such decisions and spatial relocations. There are, for instance, many more migrants today from the eastern, western, mid-western and other northern groups into the Jos-Bukuru area than was the case in 1963. The northern groups, in the categorization, includes a significant proportion from the various divisions in the State. The total pattern is characterized by a substantial number of short, medium and long-distance migrants. In particular, the pattern shows a high incidence of relatively short-distance, rural-urban migrants into the urban area. Indeed, this measure, in particular, brings out very clearly the role of the Jos-Bukuru complex at the State and local (urban-rural ecological region) levels.

The Jos-Bukuru complex has been able to achieve this role in the national space-economy by its capacity to attract an almost continuous movement of people (and investments) into the area. This arises largely from the strategic location of Jos city almost within the geographical centre of Nigeria. Furthermore, there have been several political, administrative and economic decisions and locations, infrastructural developments in, and especially, improved accessibility to the area. It has, in consequence, been more effectively linked with many other parts of the country.

Many of these crucial inputs in the various sectors of the urban economy and space have taken place especially following the change in the political status of Jos to a State Capital. Job opportunities have expanded, services and welfare amenities are increasing, while opportunities for the self-employed, self-made entrepreneurs are emerging in different sectors.

In consequence, the urban status and city functions of Jos, as well as its growth generative capacity, have been increased. They have, in turn, influenced or determined people's behaviours – spatial decisions and actions – in favour of the area. Indeed the Jos-Bukuru urban complex has become a major destination region for both internal migrations in Nigeria and international labour movements into the country.

A major conclusion from the foregoing is that Jos city today plays an important role at the national (sub-regional/inter-state) and the state-wide levels of the operation of the development processes in this country. In addition, the city exists and performs with regard to its immediate rural hinterland and its internal urban systems. These roles could still be enhanced and co-ordinated more efficiently. Therefore, any urban planning for the city complex should necessarily take into account these various inter-related levels of its functional existence. It is necessary to recognize, for instance, that the regional and national development effects of the city system are as important as its internal urban development effects. Moreover, any inefficiencies in its internal form, character and systems would inevitably affect also its performance at the other levels of the national system, and vice versa.

A second result or conclusion from the studies is that intra-city behaviours in Jos are largely influenced or even very strongly determined by the internal spatial forms (morphology) of the city. This is, of course, to be expected. The increasing distances, costs and inefficiencies in the city form are today producing several planning and development problems.

Major features of the morphology of the Jos-Bukuru complex include the following:

(a) The dominance of a rather vaguely identifiable city centre (the Central Business District or C.B.D.) which effectively controls the economic, financial and even the recreational life of the city.

(b) Existence of various grades of residential areas, at varying distances from the C.B.D., many of which are devoid of essential neighbourhood services and facilities, and so are forded to look up to the city centre (C.B.D.) or the largely badly located open market spaces for their day-to-day needs.

(c) Recent urban expansions to peripheral areas of educational land uses, industrial zones, or residential areas, as well as urban-rural fringe zones away from and, at the same time, adding more and more urban land area to the existing city.

(d) The Bukuru sub-centre, located at about 15 km. south of Jos, which functionally regards Jos as its centre for higher-order services and, thus, effectively interacts with it as such.

Part of the implications of this spatial form of the city is that we do today have considerable (and increasing) distances from the city centre to the various arteries or sectors of the urban growth. For instance, the main industrial area on the Bukuru road is about 7 km. from the city centre; the old airport/Rayfield is about 8 km.; the new student's hostels for the University of Jos is about 8 km; while the permanent site of the Federal Government College on Zaria road is about 11 km. from the city centre. The low-cost housing area, Rukuba barracks, and the new airport are at even longer distances.

These distances now involved within the Jos-Bukuru complex are, indeed, crucial determinants of human spatial behaviours. This is more so as the urban population is increasing rapidly and the dominance of the C.B.D. is being all the more intensified. Such distances are, moreover, increasing between the people's residences and work-places; between the residences and the locations of such basic needs as schools, hospitals, mosques and churches; or between the urban peripheral zones and the city-centre functions. Commuter conditions and relationships are even beginning to develop.

In general, considerable inefficiencies in the urban systems are being felt, arising from these increasing distances, increasing population and increasing traffic densities on the roads. It is possible also that with the various proposals for further expansion of both industrial and residential layouts, development of a new city centre, and creation of urban "districts" within the area, the urban sprawl in the near future which could result, may present more acute constraints to human spatial behaviours and to the efficiency of the city systems and development processes. Moreover, it is very likely that the new airport at Heipang may, when in full use, over time, generate urban growth along that sector. This could, consequently, compound some of the present bottlenecks and constraints arising from the urban structure, distances, costs and logistics of spatial behaviour in the Greater Jos area.

In cases, and within urban centres, where effective spatial behaviours are impaired, a way out is for many people to relocate themselves within the city, or effect occupational mobility

in an attempt to overcome the barriers or constraints facing them. Thus, there could be series of intra-city migrations, changes in residences or work-places, or preferences for or special/inevitable patronage of given services, institutions or recreational facilities. These should be anticipated and planned for, although at the present they are greatly restricted, while the tendency is for many people to stick on to their present residences for as long as possible irrespective of inconveniences encountered. Our survey of people's perception of their local environmental (sanitation)conditions reveals that quite a significant proportion of the inhabitants in Jos do not perceive or get worried or prepared to do anything about their deteriorated environment or dirty/noisy neighbourhoods.

We can also illustrate the situation in Jos by the spatial inefficiencies being introduced by the emerging streets network in the city. Among the various characteristics of and trends in the evolution of streets network in the city are (a) the hierarchy of the streets, (b) the changing network pattern, and (c) the special designs in the new layouts.

With regard to the hierarchy, the streets and roads in Jos can be categorized according to their various grades on the basis of their sizes and alignments as well as their importance regarding land use, functional character and volume of traffic they carry. In some cases, the state of their surfacing, as well as the facilities (parking, frontage and access) also vary according to the grades.

The first set (first order) are the major intra-city roads radiating in different directions from the city, and forming part of the national road network. They are Jos-Bukuru-Makurdi road (Trunk A3), (b) Jos-Bauchi road (Trunk A3) and (c) Jos-Kaduna road (Trunk A16). To these arterial roads may be added five other roads based on their locations and role in Jos and the overall street network in the urban complex area. They are (d) the Zaria bye-pass road, (e) the Jos-Rayfield-Bukuru road, (f) the Bukuru road-Bauchi road-Zaria road bye-pass, (g) the Jos-Miango road, and (h) the Jos-Rukuba road.

These first order arteries form the major lines of both inter- and intra-city traffic flows including commuter movements. They also form the major lines of housing and commercial development in the inner parts of the city. Also within the outer or peripheral areas of the city, they form important sectors of new and potential spread of the city as well as future evolution of streets. In fact, many new streets have recently branched off from these roads and bye-passes at various intervals along their stretches. As new built-up areas emerge along the sectors of these major arteries, more branching streets would be expected to emerge correspondingly in the city.

The second set (second order) in the streets' network are the inter-ward district/neighbourhood streets. These are the streets which run from one ward to the other, or from one urban district or neighbourhood to another. Some of them form the boundaries between wards or districts. Within the inner city area they carry heavy intra-city traffic, as well as providing shopping and residential functions. Enugu/Mango Streets, Delimi Street/Gengere road, Ibrahim Dasuki road/Ahmadu Bello way/Beach road, and Sarkin Mangu/Massalachin Juma'a/Langtang Street, are examples in this category.

The third set (third order) are the intra-ward/intra-district streets. In this group we can identify two main sub-groups. The first are the major dividing lines or criss-cross streets of the grid pattern plan in the inner city area. They demarcate the blocks of the grid. Many of these also today have commercial shops, kiosks and small-scale workshops, showing a combination of residential and other uses within each plot or house. The second sub-group is made up of the access streets leading to

several individual plots/houses especially within the areas of newer development at the periphery of the city, or also in the "reserve" areas of low density, high class residential housing.

The final set (fourth order) are the short blind alleys as well as localized paths and access routes within private or semi-private housing estates.

As regards the changing streets network, the grid-pattern of criss-cross streets within the inner city of Jos and in the older layouts at Jenta and Nassarawa Gwom has been a familiar feature of the streets network in Jos. In contrast, the city is today witnessing the evolution of a different pattern. Within the peripheral areas of recent urban spread, the branching, tree-like pattern of streets is evolving. Such streets may lead to existing village settlements as they are being engulfed by modern urban spread. They may, instead, lead to individual houses or groups of houses developed by private individuals. In the areas or districts of the city where systematic urban layouts or design plans lag behind spontaneous land use/housing development, this (streets) network gets more distinct. Moreover, as we noted earlier, the development of bye-passes and arterial roads to Shere Hills/Liberty Dam, Rayfield, Miango and Rukuba, for instance, has opened up new areas of eventual evolution of this type of streets network.

Thus, the overall streets network in the city shows the radiating of such branching, tree-like nets at different points from the original higher (streets) density grid net. Further modifications to the network are also being introduced at different parts of the urban area through the internal streets patterns proposed for or designed and developed within the various new layouts and estates.

Apart from the official proposals and designs for new layouts, some local population and other individuals or corporations (including the University of Jos) have laid out plans for streets patterns according to their tastes, preferences and designs within their private or semi-private housing estates. Thus, with distance away from the grid-pattern of the city centre, and at different intervals along the branching streets, we now have the dotting of the peculiar internal streets network of the different layouts.

Apart from the aesthetic issue raised by the evolving streets network there is also that of efficiency in the operation of urban development processes. There are some advantages of the inner criss-cross pattern, such as the greater accessibilities and flexibility it affords, say, in getting from one area to another in the city, or in channelling of traffic which could as a result be relatively easier. Its greatest problem arises from the dangerous nature of its streets junctions.

Conversely, the tree-like pattern makes for generally less accessibility and has led to ribbon/linear development which usually presents more problems to neighbourhood planning or facilities development. In general, as the traffic densities on the streets increase, the inefficiencies of the streets network become more and more obvious. Hence, it has, even today, some planning implications, especially when one also considers the issues arising from the land use character in the city.

A very detailed survey and mapping of the different land uses in Jos was undertaken in 1977 (by the Geography Department, Unijos for the E.P.D.B., then J.M.D.B.). This revealed several features and problems of the spatial form and, thus, also the functional systems in the city. Let me present only a few of them here.

First, Jos is characterized by a high degree of undifferentiation in land uses, from area to area (ward) or even on one plot/building. There is an almost lack of distinctive zonation of land uses; and whatever extent of zonation which hitherto existed arising from the history of the city and its early planning (Ajaegbu, 1977c), is today being greatly blurred through complex land use mix.

For example, within the C.B.D., there exists a wide range of business (especially commercial) land uses, which is to be expected. There is also, quite unexpectedly, a whole range of residential uses from the traditional multi-family compound types, through the modern single-family bungalows, to the modern multi-family storey buildings and multiple flats. It is, indeed, a mixture of both the high and the iow density residential types. The problem of this area of the city is further compounded by the existence of several other unexpected land uses, including the University (Beach road and Murtala Mohammed locations), Army offices, NEPA yards, General Hospital, and (until recently) several buildings and offices (administrative uses) belonging to State Ministries. Today, too, the locationof the city's major railway station in this area is posing considerable problems to urban redevelopment.

One could also mention the case of the complex residential, commercial and small-scale industrial land use mixtures in the Mallam Kure/Laranto/Apata Streets area of Jenta, and the Delimi area, or the undifferentiated traditional, as well as modern high density and modern low density residential housing types and units in the Tudun Wada, Angwan Rogo, Dogon Dutse and Nassarawa Gwom areas of the city. Their complexities to planning are today obvious.

Land use zonations and differentiations would normally be expected either arising from the known laws of land use aggregation and segregation, or through the development of neighbourhood requirements. It is expected, for instance, that while complementary land uses congregate/aggregate at given locations and zones in the city, the obnoxious land uses or filthy/unhealthy local environmental (sanitation) conditions repel certain land uses. This does not seem to occur in Jos any more. Many land uses, many urban land developers and many urban dwellers in Jos no longer seem to be repelled by obnoxious uses or conditions, noise inclusive. They would not even abide by planning regulations and stipulations. Hence the persistence, and worsening of some of our urban problems today.

The problem of the uncontrolled in-filling of hitherto open spaces and green belts, characteristic of many towns and cities in Nigeria, is all the more complicated in Jos by two main trends. One is the selective renewal of plots in the inner city area. The other is the rapid development of land uses in the outer parts of the city by speculative developers before such areas had been planned and laid out. These have led to a juxtaposition of different, often antagonistic uses not expected in the inner city area. Within the outer parts we have witnessed, as a result, land use combinations and, especially, residential mixtures which, again, one would normally not expect.

Some of these problems could, perhaps, be avoided or minimized through faster planning and site development in estates and layouts ahead of actual building or development of plots, wards or districts. They could also be minimized through insisting on more strict adherence to plots development regulations. However, and more importantly, I am inclined to the view that, perhaps, we should review our theories and models of urban land uses, given the Nigerian situations and trends.

Maybe, for instance, the laws of land use segregations and aggregations now employed in urban planning in this country do not quite fit

the wishes and behaviours of Nigerian urban inhabitants and land use developers. Indeed, the nature of social mix, land use mix, and population behaviours in our towns and cities introduce new dimensions into urban development processes and urban planning.

One could continue to illustrate other problems based on the results of this study. There are, for instance, considerable planning and academic (theoretical) problems posed by the extent and nature of the land uses involving the so-called informal sectors. These are very small-scale, often one-man service units such as repairs, kiosks and hawkers. These are proliferating in Jos, as in other Nigerian cities today. Furthermore, the paucity of traffic terminal locations (i.e. parking spaces) in the Jos urban area has begun to pose problems to the city planners, to the inhabitants of, and to visitors to, Jos. We would expect such problems to increase with time, as the city grows, as more specialized (traffic generating) land uses emerge, or as urban affluence increases.

In sum, at the theoretical level what have we been doing? Put briefly, we have been trying to find the bases for formulating appropriate spatial framework and for carrying out spatial planning for effective development in the country. What have we discovered, so far? Again, briefly, it is the ways in which our people are today organizing and reorganizing their space (physical, social, economic) at the national, local, rural or urban settings and levels which provide us the most useful clues. It is the ways in which development processes have been operating among our people, through their various social and spatial organizations which provide us with the best theoretical framework for planning our development. Our planning units could be delimited based on them, while the present-day inefficiencies in their functioning could be identified and rectified.

Our studies have shown the various levels at which the development processes operate, as well as the integrations between the levels – national, rural, urban, or other regional units. We now know, for instance, the nature of the functional unit areas involved at the different levels of operation, as well as their hierarchical set-up. In fact, we now know, too, the types and character of the development processes operating, given our present-day socio-economic levels and the development attained.

These should help us in determining the spatial framework, the space units, for regional planning and national development in the country. The urban-rural ecological region (Fig. 6) seems an attractive spatial framework which could allow for and maximize both the hierarchical and the concentric development processes today. It would also enable us appreciate the vital role of our cities in their wider local, regional and national contexts and, thus, plan their internal systems and functional characteristics towards achieving also the wider objectives.

The bases for the delimitation and organization of such urban-rural planning units have been discussed in greater details in a larger work (Ajaegbu, 1976). Several other types and criteria for delimitation of planning units are, of course, possible and are, in fact, being sought for. We do, however, require more measurements of the operating critical distances for various communities and regions (in the organization of their daily activity-schedules) in the national hierarchy and its sub-systems. This should form the basis for determining the most effective spatial arrangements for development policies, decisions and locations.

SECTION III

TRAINING THE PROFESSIONAL GEOGRAPHER – THE JOS APPROACH

I have so far tried to indicate some of the aims and objectives of the present orientations in Geography, as well as the present pre-occupations of Geographers in various parts of the world. On the basis of the foregoing, my colleagues and myself in the Department of Geography and Planning in this University have been continually asking ourselves how best we could equip our graduates to enable them play more effective roles in our society and economy, given our present-day development needs.

Our big question is this: Can there be a geographical profession, such as, say, Architecture, Medicine, etc.? We think that Geographers could profess their discipline, knowledge, skills and tools through spatial planing. We belive that Geographers could be trained and equipped to be useful members of planning teams engaged in planning, say, for the development of the country (at the national level), a State, an urban centre, a local council area or a rural settlement. Industries, firms and companies which deal with spartial locations, distributions and market or information fields should find the services of Geographers worthwhile. Planning for development in any of these unit areas necessarily requires the co-operation of a wide range of professionals and academics, as well as the local inhabitants, opinion leaders, etc. for whom the planning is being made, all working in consort in order to achieve results.

We envisage a period in which such 'professional' geographers could be seen in planning offices, planning/policy positions in the various public and private sectors of our country and economy, playing their part amongst such planning teams. Moreover, following the trend in Nigeria today, we can see many such geographers establishing their own consultancies to practise their profession as private, self-employed groups or individuals, engaged in planning for development in its various ramifications.

We see geography today as development-centred and as space policy science. Hence we feel concerned with equipping our graduates with the theoretical basis and the practical techniques and skills relevant for planning for development, ordering space and effecting optimal spatial allocations, as well as optimizing the operation of development processes in time and space.

They should be able to advise on policies relating to locational decisions, or regional disaggregation of national, state or local government development programmes.

Hence, our courses are essentially oriented towards planning. We conceive of scientific geography whose methods, techniques and knowledge could be employed in tackling planning and development problems of Nigeria. Our emphasis is so far on spatial (physical and environmental) planning. While we try to broaden the geographical knowledge of our undergraduates, we also attempt to impart specific skills that they could use in definite job positions and sectors of the Nigerian economy. At a higher level, our post-graduate programmes focus on the training of the manpower required in various aspects of the country's physical (environmental, resources, urban and rural/regional) and population/manpower planning as well as for eventual university teaching and research in these fields. Our current (1979/80) Departmental Information Booklet gives the details of the programmes and courses designed to achieve these objectives.

As a Department, we adopt the spatial/environmental approach to development planning. The man-space-environment-development model forms a major basis of our programme formulations. Thus, for instance, with regard to space, we emphasise (for our students, in our researches) the various space characteristics, spatial organisations (physical and human), spatial systems and their processes. For environment, we consider the physical/natural and human/cultural (social) environments, natural ecosystems and regional ecologies (ecological functional systems). We also emphasise the resources (natural and human) and the environmental quality aspects.

Development is presented as regional/human efficiency in contributing to growth and development as well as in benefiting from the processes. Our model also emphasises the welfare of the people and improvement of environmental standards and quality. For us the region spans through various area units in the national space (already indicated above).

With these foundation knowledge, our students are then introduced to various aspects of spatial and environmental planning. At the undergraduate level, up to the first degree, these include rural, urban and regional planning, resources planning such as water, soils and forests, and managing the environment. In addition, at the post-graduate level, we emphasize the planning and management of specific aspects of or issues in rural, urban, regional and environmental planning. These include population and manpower, rural resources, water resources, transportation, tourism and recreational resources, urban environment, regional development systems and policy analysis. These specializations are given in any year depending on our staff strength and interests available.

Students are also taught basic theories and principles of planning and planning processes, as they relate to planning generally and to specific aspects that they are specializing on. The students are, as well, taken through the various relevant techniques and skills in geography and in the planning field. These range from field to laboratory techniques, for collecting, analysing and presenting data and results of investigations as well as, in this case, the plan(s) produced. In this regard, we organize yearly field courses, and teach field survey methods, land surveying, cartography and designing; map analysis, airphoto analysis; data handling and transformations; as well as plan formulations and implementation management.

All these sound unorthodox and, perhaps, also ambitious. Yet, our esperiment here in Jos is aimed at taking geography to its next logical stage in its evolution as a discipline and a profession. Geography has come a very long way from various stages of changes in its continuous search for relevance to man and society. The realities of today dictate that we push the discipline further to the stage of creating (rather than just discovering), a stage of professionalization. Such creativity could be fulfilled in the ordering or reorganizing of our development spaces, in translating and transforming our academic and theoretical discoveries to practical development plans, and in using our vast techniques and skills, by ourselves as professionals, towards planning for our development. This stage leads us from concepts, models and theories (of spatial systems and development processes) in Geography to also skills and techniques in, as well as **products** from Geography and Geographers. By our training and equipment, we are today in a position to plan and propose alternative models or patterns of space organizations, networks, locations and inputs that could be embarked upon at different costs and benefits, for efficient functioning of development processes, and for the maximiza-

tion of returns. Geographers are indeed moving to the stage of creating through spatial planning. Hence the Jos experiment.

CONCLUSION

In conclusion, may I restate that we are today being guided by the issues of development, man and his environment and planning for the welfare of the Nigerian peoples. These have formed the themes of my academic pre-occupations over these decades. They have also constituted the broad objectives of the slowly evolving Jos School of Geographers.

Thank you all for listening.

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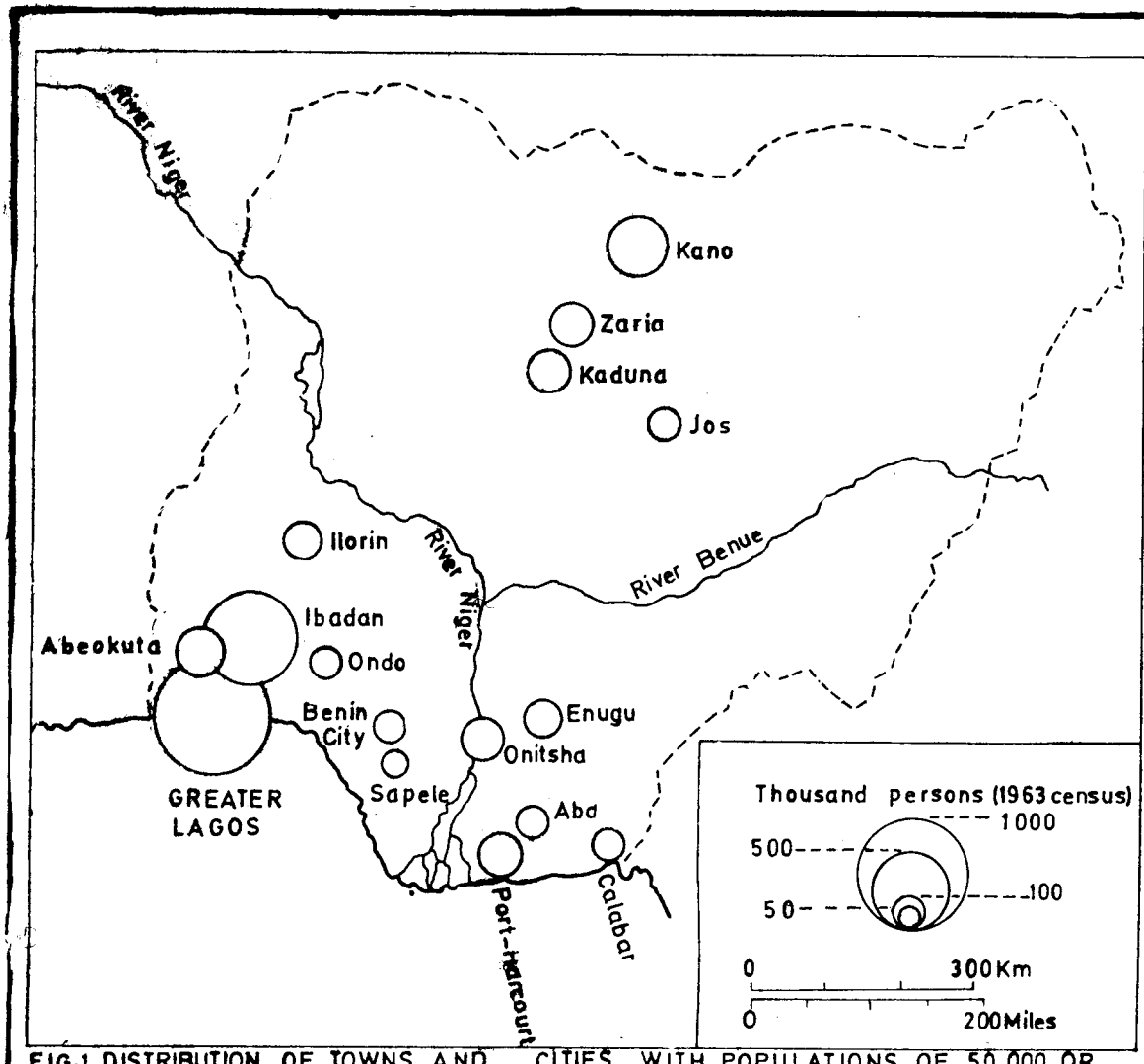
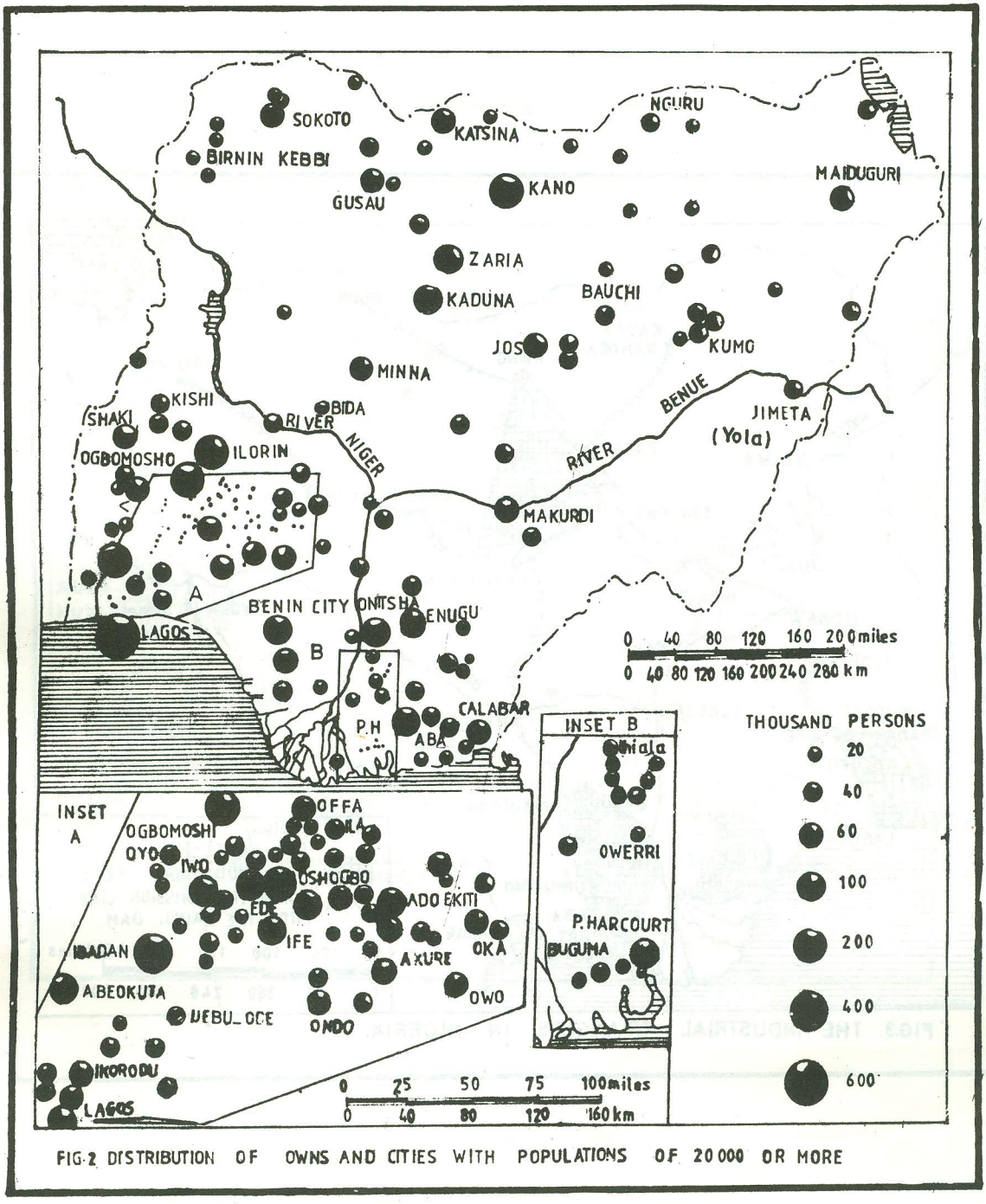


FIG·1 DISTRIBUTION OF TOWNS AND CITIES WITH POPULATIONS OF 50,000 OR MORE.



FIG·2 DISTRIBUTION OF OWNS AND CITIES WITH POPULATIONS OF 20 000 OR MORE

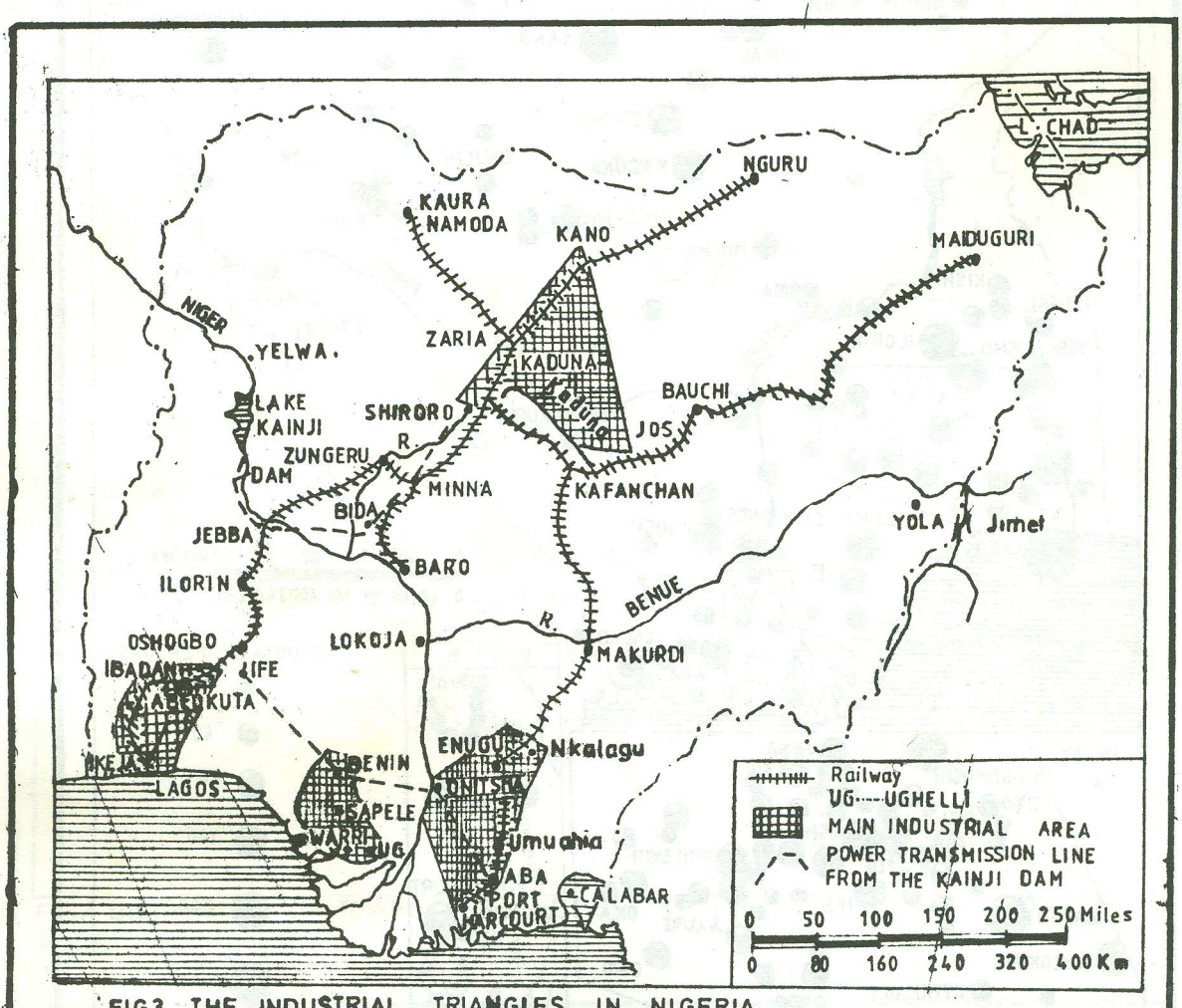
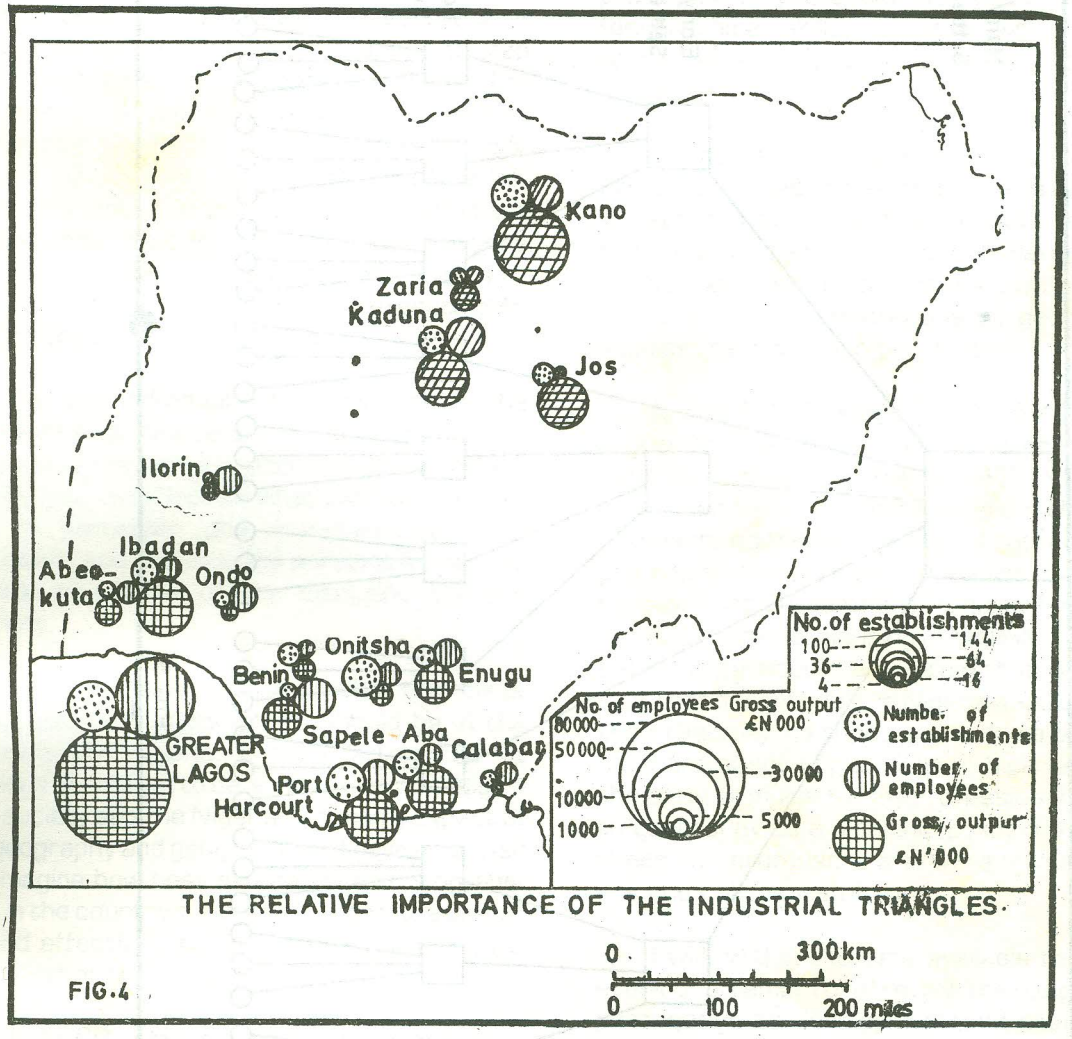


FIG.3 THE INDUSTRIAL TRIANGLES IN NIGERIA.



THE RELATIVE IMPORTANCE OF THE INDUSTRIAL TRIANGLES.

FIG.4

SCHEMA OF RURAL SETTLEMENT TYPES IN SOUTHERN NIGERIA

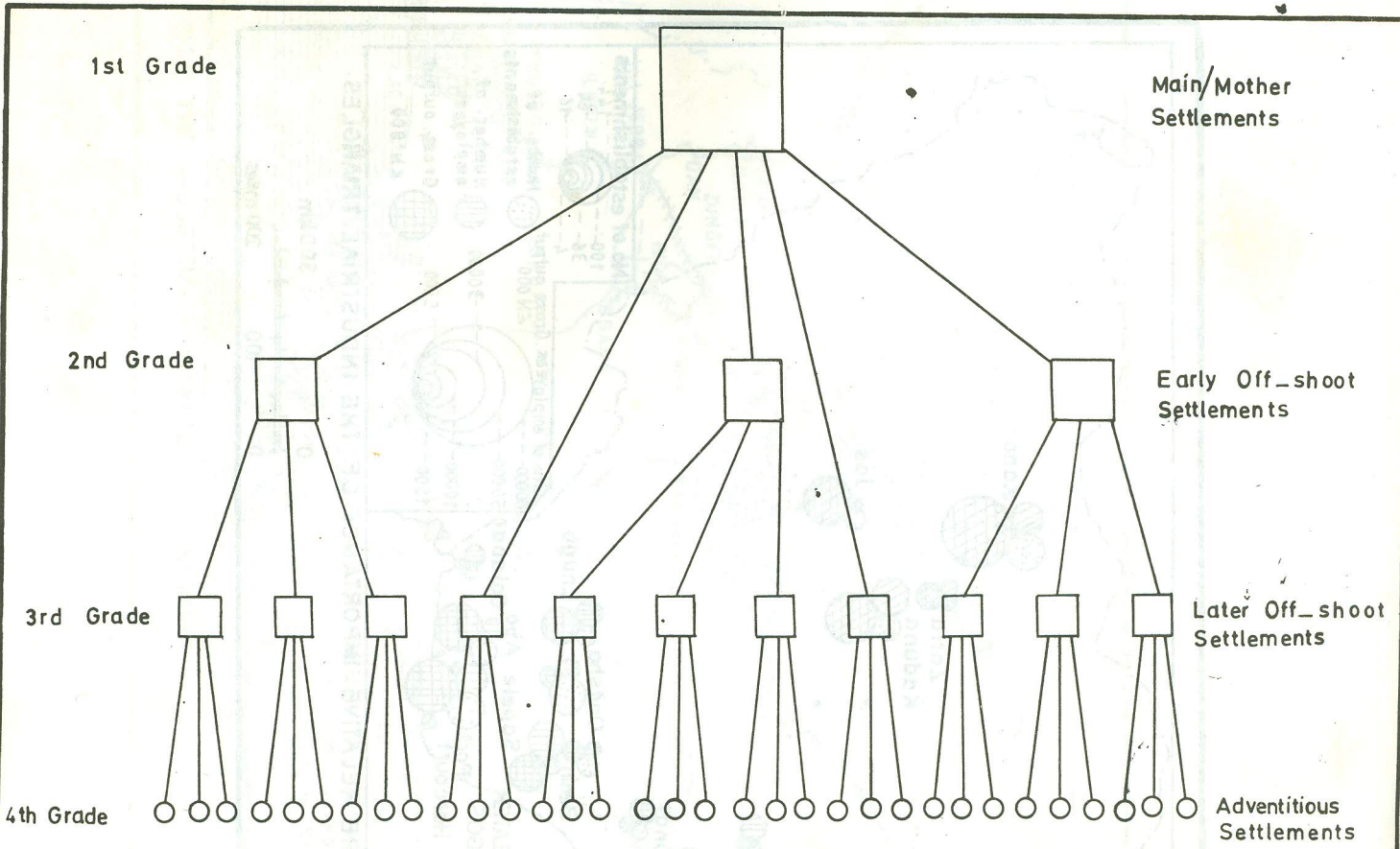


FIG. 5

URR Urban Rural Region

LSR Local Sub Region

V Village Village Group Area

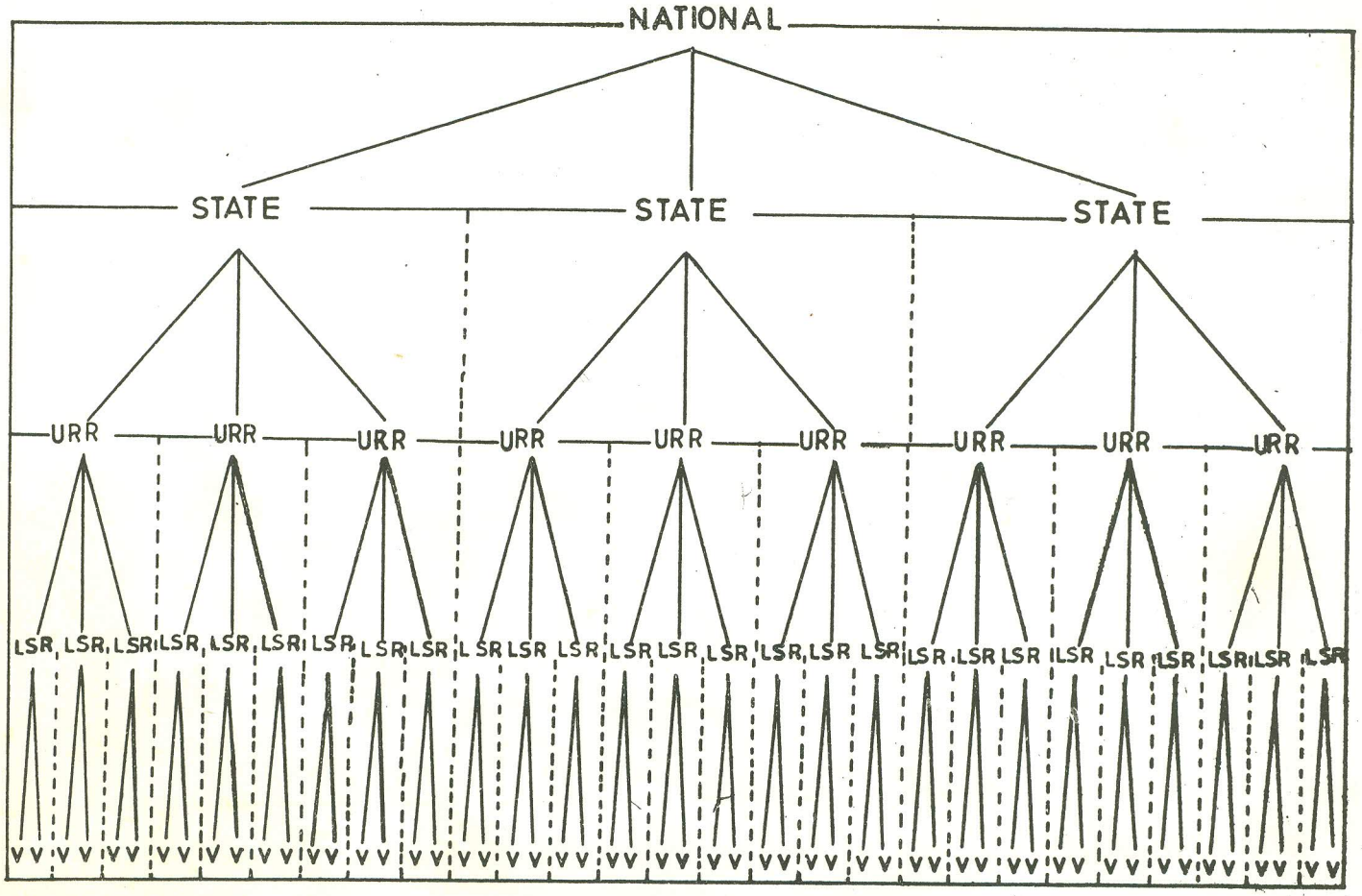


FIG-6 SCHEMA OF THE NATIONAL SYSTEM AND ITS SUB-SYSTEMS OF REGIONAL PLANNING UNITS.

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