

67919

Distr.
RESTRICTED

PPUD/WP/5
21 August 1964

Original: ENGLISH

ECONOMIC COMMISSION FOR AFRICA
Workshop on the role of physical
planning and urbanization policies
in development
Accra, September 28-October 5, 1964

PHYSICAL PLANNING TECHNIQUES^{1/}

^{1/} A document prepared by Mr. B.A.W. Trevallion, former Town Planning
Advisor, Greater Kano Planning Authority (Northern Nigeria).

64-3186

PHYSICAL PLANNING TECHNIQUES^{1/}

This paper relates to the use of physical planning as a key system for guiding long term development at national, regional and local level. It accepts the integration of social, economic and physical planning as an essential part of this process.

The evolution of new techniques

As a generalization the planning techniques in use today in many parts of the world are out-moded and primitive. This, and the apparent limited understanding of the inter-relationship of development problems at all levels, has inhibited the contribution required of physical planning in a continent subjected to drastic change and explosive expansion.

The planning profession bears the main responsibility for failing to introduce up-to-date methods and techniques more applicable to an age of space travel and the computer. The physical planners together with the allied professions have failed to grasp the complexity and relationship of economic, social and physical growth. Economic, social and physical factors in development are inextricably interwoven. To analyse development problems and to prepare a model for future development, which will be meaningful when translated into physical realities, these three factors must be studied together.

Before the Second World War planning problems were less apparent than they are today and where they were recognized were generally dealt with in an ad hoc and disparate manner. In few countries were the services of professional planners retained. Administrative structures of governments appeared to cause all sorts of planners to work in isolation. This prohibited essential group working and the combination of skills and techniques from other and related professions, including economists, the sociologists, health specialists, etc. But however inadequate pre-war planning activities in the continent of Africa may seem to us now,

^{1/} Document prepared by Mr. B.A.W. Trevallion, former Town Planning Advisor, Greater Kano Planning Authority (Northern Nigeria).

some forms of planning were in evidence and were often wisely used. Planning methods included in the interpretation of health rules and building regulations, housing to meet special requirements, such as those of extractive industries. Town extensions were sometimes planned. The introduction of regulations relating to building, health and land paved the way for rudimentary planning schemes which set aside land for specific purposes. Legislation facilitating the protection of water catchment areas, forests and special agricultural land was a form of planning. But barely, if ever, were any of these marginal planning mechanisms interrelated. They were of undoubted value, but the sum total of early physical planning amounted to a fairly negative approach to isolated departmental problems.

Since the war stimulus has been given to physical planning and there has been a growing awareness of the need for long-range forward planning for development. In the English-speaking countries in west and east Africa the appointment of town planning advisers immediately after the war, was a significant step forward. Outline schemes for many west and east-African towns were prepared and invoked much support for physical planning at local level. In West Africa the planning adviser's headquarters was in Accra and much of his work was devoted to towns in Ghana. Today the national physical planning organization in Ghana has, it is understood, currently a back-log of over one hundred requests from towns and villages for the preparation of town plans and this is one of the few countries in the world which now has a national physical development plan, prepared with the assistance of the United Nations. Where the help and support of the people is invoked with sympathy and intelligence, that help and support will be forthcoming. Among the peoples of Africa there is an abundant store of goodwill towards planning and a desire for its use to improve the environment. This is, I believe, our hope for the future. With the latent or often active support for planning there is more possibility of experimenting with new approaches and more time in which to experiment. The opportunity must be grasped and utilized.

Growth of economic planning

Physical planning techniques have lagged behind requirements but techniques in economic planning have shown considerable improvement. Most African countries have prepared sophisticated national economic development plans for the purpose of guiding growth in the economy in accordance with current political policies. Assistance has been obtained under international technical assistance agreements from economists versed in the most modern methods of economic planning. It is unfortunate that physical planning has not always been able to make a similar contribution by the introduction of new methods. Paradoxically it is often the economic planner who sees the need for a change of focus and scope in physical planning. But there remains a hard line drawn between the two skills. It is unlikely that the welter of problems confronting the African countries can be adequately and expeditiously solved without the closest collaboration between economic and physical planning.

Development problems

Development problems in Africa are not dissimilar to those in the highly industrialized countries, but they have become apparent only relatively recently and particularly since countries have won their independence.

As a background to all forms of planning and development technologists in most countries in the continent of Africa have to take into account:

- (i) severely limited finances.
- (ii) a relatively inflexible economy.
- (iii) unequal distribution of national resources.
- (iv) excessive population density in one area and inadequate population in another.
- (v) lack of basic skills and an unequal distribution of what skills are available.

- (vi) inadequate public and social facilities.
- (vii) rapid urban growth without a complementary increase in employment opportunities.
- (viii) unorganized land use, particularly in the urban areas, prohibiting the most economic usage and the provision of amenities.
- (ix) lack of secure title to land, either through public or private ownership.
- (x) poor communications in terms of quality and direction.

Only in few countries in Africa, have significant urban conglomerations made an impact upon national development and national development problems except in the last few decades. The region or town with a clearly defined industrial and commercial connotation is fairly new to Africa and its effect upon the national scene is barely recognizable.

Africa is the least urbanized of all continents. With a considerable potential in exploitable natural resources it has an extremely low density of population and has limited skills upon which to draw. The mid-1959 figures noted in the United Nations demographic year book show Asia with a density of 150 people per square mile, Europe 212, and Africa 20. There are, of course, wide differences; in Somalia there is a density of about 5 people per square mile and in Nigeria in the close-settled agricultural zone density rises to about 1,000 people per square mile. Whilst urban centres of over 100,000 people account for a very small percentage of the total population because of the disparity in living standards and provision of social equipment and the economic pre-eminence of the large towns, the influence exerted by these settlements is probably greater in Africa than in any other continent. The growth of the large towns has been determined by past economic policies and administrative requirements. Previous economic systems in African countries where the industrial element was lacking were designed on the basis of mutual and complementary economies determined by a colonial

power. The, then, colonies provided certain important raw materials and were in turn the recipients of manufactured capital and consumer goods supplied by the Metropolitan Power. The choice of manufactured articles was therefore restricted. There was limited incentive for the development of locally based industries by the controlling interest. This form of economy and economic dependence is still evident today. Independent African countries desire to develop and are developing independent and more flexible economies. Despite the best efforts the old systems often deflect new policies in insidious ways. The reason for this is always partly due to an intractable and out-of-date physical structure.

Economic structure of physical form

Infrastructure, the national physical structure including the hierarchy and pattern of settlements, demographic phenomena and the form of the communications are not self-generating. Physical structure and the spatial arrangement of settlements is the manifestation of economic and social policies and situations whether they arise without guidance or as part of a government programme.

After relatively few years of independence there have been remarkable improvements and changes, not least in Ghana. It is not exceptional, though, to find limited changes in the structural elements of town and country. To change the structure is a herculean task. But changed it must be in order to reflect changed and changing attitudes and to assist in the implementation of new social and economic concepts. Physical patterns based upon a colonial, dependent, economy inhibits social and economic reform for many reasons including the following:

- (i) Very large parts of under-industrialized and under-developed countries, and a very significant proportion of the people, remain outside the economy. They play no part in promoting economic and social improvement and derive no benefit from such improvements.

- (ii) The larger urban centres whose main purpose was originally for commodity distribution, in and out, tend to be more closely linked economically with Europe through association in trade and industry than do the surrounding rural areas to which they should be complementary. Because of their peculiar importance in the past, they continue to attract a disproportionate share of available public and private capital to the disadvantage of other areas.
- (iii) The growth of the larger urban centres, because of the foregoing, tends to be out of all proportion to other settlements. Town and country are not related as in more developed and industrialized countries, and the gap between provision of facilities in the urban and rural areas continues to widen. The larger towns often act as parasites drawing their wealth from the country and giving nothing in return.
- (iv) The continued emphasis on development of very few urban centres originally chosen for a purpose different from that which they serve today, accelerates population growth beyond that which can be provided with essential social and public services. The more educated people are drawn from the rural areas, the development of which is thereby stultified, and slums and public dissatisfaction become rife in the big towns.
- (v) Transportation networks designed for the export of raw materials and the import of capital and consumer goods, with road often subservient to rail, cannot meet the demands of a developing and complex self-supporting economy. The perpetuation of out-moded transport alignments and systems inhibits the development of new centres of activity.
- (vi) The size and function of settlements is not meaningful at regional and national level. Disparate and ad hoc development did not permit the presentation of an economic and socially appropriate spatial arrangement of urban and rural centres.

These inhibiting factors are so striking that they may be fully realized without comprehensive analysis. Attempts to correct the pattern of development by disparate measures and without comprehensive analysis in which physical characteristics are examined in detail are doomed to failure. Even without a comprehensive approach to national and regional problems, physical forms would slowly change better to accommodate new economic policies and situations, but in this circumstance inconsistencies would arise. Both human and monetary costs would be far greater than where economic and physical planning had laid down an integrated and comprehensive blue print for physical development to provide a new economic order at all levels and for all forms of development.

The economies of the under-industrialized countries are sensitive to external forces. On the credit side of this situation is the fact that the physical structure of such countries is amenable to influence and has not the inflexibility of the more developed countries. It is, therefore, possible to plan for better population distribution, an appropriate hierarchy of settlements, an over-all land-use pattern to make the best use of national resources, including skills, within a relatively short period.

The physical and economic elements of this sort of plan whether at national, regional or local level are inseparable; each must reflect the other.

At the very least a draft economic plan at national or regional level must be assessed against considerations of physical structure, form and feasibility. Better still the economic and physical parts of a comprehensive plan should be developed by an integrated group of economic and physical planners. This combined work group would also throw present and future social problems into sharper focus. The sociological content of the plan must also be in positive form.

Social content in the eco-physical plan

Planning is for the people. The success of any plan can ultimately only be measured against its effectiveness in improving the lives of people by cultural as well as material benefits. The working relationship between the social scientist and organizations concerned with social welfare and community development and the physical planner has been closer and more advantageously exploited than that between the economist and the physical planner. This relationship has, however, been restricted mostly to planning and development at local level. The valuable contribution in solving development problems which can be made by the integration of these skills at national level in functional planning has yet to be fully exploited. There has been a failure to appreciate and understand that most local planning and development problems can be answered only in part at local level. The problems which the sociologist and physical planner have to face in large and small towns and in the rural areas are largely manifestations of a more virulent malaise at a national or regional level. It is now known that all too common problems such as overcrowding, squatter settlements, slums, under-employment, traffic congestion and the like require study and analysis beyond the geographical area in which the problem occurs. At least in part, effective solutions demand positive action on a large scale, generally regional and quite frequently national.

An appreciation of the social problems of the people today and their social requirements for the long-term future must be the basis upon which the economic and physical plan is built.

The social problems and ills which beset the people are no longer accepted as of their own making. In general terms this is known to be not true. They are very largely due to conditions and circumstances caused by an ill-balanced economy reflected in an ineffective and formless environment.

An analysis must be made of social problems. Social needs must be synthesized. This synthesis must be translated into a meaningful structure at national and regional level as a prerequisite of sound physical and economic planning.

The prime causes of social disorders have some similarity throughout Africa and the disorders themselves are not unlike those experienced in other continents. They include:

- (i) overcrowding
- (ii) slums
- (iii) lack of employment opportunities
- (iv) unstable local economies
- (v) lack of education facilities
- (vi) limited outlets for the educated
- (vii) formless and unattractive environments

Many of the above causes are directly and individually related to unplanned migration.

Continuous migration is common through the African continent and whilst the historical reasons and causes such as war, pestilence and starvation have been partly removed, the traditional movement of people dictated by these old phenomena factors tends to continue.

Superimposed upon these historical movements are the present trends where rural populations are migrating to the large towns, the economy and equipment of which is not designed to support the inflated population. The facilities offered by these few big towns, where housing is at best inadequate and public services limited, hardly indicates that a strong pull is exerted initially to encourage people in the rural areas to migrate, though there is, of course, always the allure of bright lights and large cars and the belief of fortunes to be made. There is no indication that these superficial reasons are a main factor in movement. A look at the rural areas themselves will reveal that, on the contrary,

very strong influences are exerted in the form of "push" factors accentuated through the continued neglect of the rural economy and the adverse conditions under which the people exist.

Whilst the most significant causes of population movement lie principally in "push" factors, the movement has undoubtedly been quickened by new development concentrated on the existing large towns. Over the past years and since the war considerable sums of money have been spent in the larger centres on the execution of civil engineering works, government building programmes and private commercial and industrial development. In no African country does there appear to have been an equivalent programme of expenditure in the rural areas. Employment prospects and the apparent wealth of the main centres have attracted the attention of those already footloose.

Many cities in Africa have grown at a rate which has out-paced employment opportunities. Unexampled migrations to the towns have thrown unprecedented strains upon housing and public and social services. Migrants, predominantly from the rural areas, have poured into the towns with little opportunity for employment or social assimilation. They form an outcast society and are a prey to all social evils, without a stake in the life and future of their adopted town. The areas occupied by these people are easily discernible to the eye and take the form of shanty towns without road access and lacking even the basic amenities.

Though solutions might require positive action elsewhere these social problems manifest themselves more clearly in the urban centres. There has been no lack of energy in tackling urban planning problems but the results, it must be admitted, is not **reflective** of this amount of effort. Generally the problems encountered in attempting to provide housing, employment and social and public services for the migrants have completely overwhelmed municipal authorities and central governments. Where effective attempts have been made drastically to improve conditions, the growth of fringe settlements has been further stimulated

and conditions have again worsened. Explosive town growth caused by the insurge of people from the rural areas has raised phsychological as well as physical problems. Whilst a migrant generally lives with other migrants from the same, or nearby, home district, he is no longer subject to the moderating influence of family discipline and this often has a disturbing effect upon his conduct. Economic hardship, which is most common, often leads him to a life of crime. The functions of the family are replaced by formal institutions which are barely identifiable and are therefore less stable for the unsophisticated. The migrant continues to be governed by emotional ties and formed habits which militate against his integration into a new community, which is impersonal. Subjected to these strains he is poor material for employment, when some occupation is open to him. This is evidenced by the high turnover and instability of labour which is implicit in the migratory labour system and which impedes economic progress. It is unlikely that any country can afford to meet the costs of providing essential facilities, employment and services in towns subject to excessive growth through migration.

Increases in urban population are quite frequently over 5 per cent per year. Growth reaching the rate of 100 per cent in a decade is not uncommon. The situation is such that ameliorative measures will not answer. Neither will solutions which are restricted to action in the urban or reception areas alone. The root causes of urban social problems are to be found in the rural areas. Simplified, the urban problems are largely created by exorbitant population growth, and the latter is directly related to a lack of opportunity in the agricultural communities; the predominantly weak agricultural cash economy inhibits the development of a proper hierarchy of settlements within which an appropriate environment can be developed. Attempts, however praiseworthy, to overcome social problems in urban areas by physical planning measures taken solely in the urban areas will have limited success. They may exacerbate conditions. Faults in the urban environment are more vivid than in the rural areas because they they concern a greater concentration of people but they are

in fact a reflection of inconsistencies and lack of balance between the urban and rural sectors.

Techniques must be solved to enable scientific studies to be made of the root causes of movement from the rural areas; to assess the social, as well as economic, relationship between settlements, and their functions; to comprehend the future needs for social facilities in a rapidly changing society.

Marginal improvements have been made in the rural areas, particularly within the last two decades. This has gone hand in hand with social improvements which have sometimes been the cause of, and sometimes caused by, a more viable local economy.

The rural areas stand out as the sectors to which the greater attention must be given in order to improve the national environment and its economy. Upon the social well-being of these people will depend the provision of adequate foodstuffs for the urban centres and service centres and the provision of raw materials for the factories. The rural economy is absolutely vital to the national economy. But it is unlikely that a sound viable economy can be developed without a suitable structure and hierarchy of settlements providing for essential social and public services, for the well-being of the people and for economy development.

Subsistence agriculture and its concomitant physical pattern of settlements and homesteads is a phenomena of under-developed countries and particularly relevant to the continent of Africa.

Statistics prepared in 1950 by FAO indicate that between 65 and 75 per cent of the total land area was cultivated for subsistence purposes and that about 60 per cent of the adult male population was engaged in this pursuit. Less than 15 per cent of the total area of cultivation was employed for local and external exports. In other words, very large and important numbers of people are at present little affected by the national economy and have little effect upon the economic life of their

country. They are isolated from the money economy and denied access to higher standards of living. The position is even worse in some parts of Africa. For example in Northern Nigeria about 90 per cent of the total population is outside the cash economy and about 95 per cent of the land is unrelated to effective economic improvement. Whilst there have been certain changes towards a market economy in parts of Africa, the impact upon living conditions has not been significant and has not yet acted as a stabilizing influence in the rural areas.

The conditions to which the rural people are subjected are remarkably similar all over Africa. No diversity of employment, chronic under-employment, extremely low standards of living and lack of educational facilities; these contribute to the total lack of social status of the farmer. Recent changes have had very little effect upon the spatial relationship of villages and upon rural land use. As the majority of rural land is not part of the market economy, the physical pattern is largely unchanged and remains suitable for subsistence agriculture only. It is not suitable for market methods and the integration of the agricultural and industrial sectors of the national economy. Nor for necessary social uplift. A slight change in the economic fortune of the subsistence farmer through even partial crop failure causes great suffering and intensifies the movement of people away from the rural areas. At the receiving end the towns are presented with an apparently insoluble social problem which, over the past five years, has assumed an unprecedented magnitude in practically all countries in Africa.

The social problems of the urban and rural areas are of national and regional significance and must first be investigated at those levels and their implications in economic and physical matters analysed.

The integration of social, economic and physical planning

For the correct translation of prime political policies into physical reality social, economic and physical planning techniques must be integrated. The inter-relationship of social and economic problems and policies must be recognized as well as the fact that such problems and

policies ultimately manifest themselves in physical form. The concept of a desirable physical structure is as tangible as the development of a sound economy and a sound social structure. The provision of one is virtually dependent upon the other two.

There is presently a marked breach between economic and physical planning and often an antipathy between practitioners in these professions. The economist may incline to the view that the physical planner is an impractical dreamer, and the latter may consider that the economist has an inflexible "calculating machine" approach to human problems. The best way to close the breach is for both sides to work together. The physical planner who works without considering economic and social principles is likely to produce a plan which works against national policies. On the other hand the pure economic development plan limits itself to capital use; land utilization, the geographical location of growth points and the spatial arrangement of development are invariably omitted or neglected. The supposition that, given a statement on economic policy and with certain monetary allocations, local government bodies, development corporations and private enterprise will relate their physical development to a location and to a programme which automatically serves the best national interest, is wholly false.

In any case the fiscal development plan suffers through not having been measured against alternative physical frameworks right from the start.

There may be some co-operative economic, social and physical planning at town scale but the physical and social elements are generally entirely unrepresented at regional and national level.

Some recognition is given in all countries to the necessity of co-ordinating development, but generally no machinery exists for analysing the effects, in physical terms, of political policies or of the best means of meeting governments policies over the whole range of development projects. Rarely is analysis made of the long term effect of any

large scale development project upon other aspects of existing and proposed development for which physical planning skills are needed. Planning is mostly a disparate and sectional process. It is now known from examples in both under-developed and industrialized countries, that where development projects are designed and executed in isolation and without reference to other proposals and policies, and where they are not analysed as to their effect on the country as a whole, then the result is not fully beneficial. The most economical solution is generally not achieved and many projects produce trends which are mutually incompatible. Some simple observed examples will illustrate this point:

- (i) The provision of educational facilities in an area lacking these facilities but where suitable employment is not available is likely to promote dissatisfaction and to cause the more educated element to leave their (rural) district and to become footloose.
- (ii) The concentration of industries in one or two old main centres causes exorbitant population growth beyond the ability of government and local government to provide adequate public and social services. Slums and dissatisfaction result, sowing the seeds for political problems in the future.
- (iii) Alternatively, the dispersal of industry to towns around which population density and agricultural productivity are low is likely to create problems of food supply and manpower which will raise production costs.
- (iv) Rural water supply to certain small towns may stimulate the growth of such towns when a concentration of manpower could better be used in another area.
- (v) The improvement of road communications on present alignments which serve immediate short-term requirements may well be unsuitable for a twenty-year programme. It may, in fact, frustrate the opening up of new areas of development, the requirements for which have not yet been investigated.

Despite the obviousness of defects such as have been observed above they are inevitable where planning for development is sectionalized and where a government relies only upon a broad national economic statement as the vehicle for the carrying out of its policies at lower levels. The integration of the three planning skills, with which many other professions must be associated, can ensure, that independent projects at all levels will relate to each other for smooth and economical development. All aspects of planning for actual physical development will have been duly considered in relationship to government policies. Independent schemes based on, say, economic considerations alone do not necessarily provide the correct answer. They often result in generating trends demanding the expenditure of considerable sums of money for additional projects of a curative or ameliorative nature which, without a comprehensive and integrated study, it was not possible to foresee. These integral studies require a permanent working group of sociologists, economists and physical planners. The system prevailing in most countries where the economic development plan is comprised of various projects worked up by independent and separate ministries, will not answer. The heavy and time-consuming responsibilities for day-to-day problems do not permit the degree of technical liaison and comprehensive analysis necessary.

Levels of planning and administrative arrangements

Planning has three easily definable levels of operation:

National, for the presentation of over-all national and regional targets, physical planning policy and national physical pattern.

Regional, for the interpretation of national policies into physical realities and the presentation of planning standards and land-use planning.

Local, the design of appropriate environmental forms and the implementation of detailed projects.

Agencies responsible for financial allocations for development, whether a branch of the Ministry of Finance or related to the economic planning or budget bureau, are administratively strong and have some opportunity of shaping policy at national level. Physical planning agencies are not generally so situated. Most were formed with a view of planning as an extension of architecture or municipal engineering. Under these circumstances their position in the government structure does not allow them to contribute in full.

The establishment of workable machinery, competent in the preparation of a comprehensive social, economic and physical plan, may in some cases require drastic administrative changes. In many cases the extension and adaptation of existing machinery will provide a strong and durable foundation. The prime requisite for effective national physical planning is that there should be an independent self-administering office for this purpose at national level. In order to ensure balanced progress in the evolution of the completely inter-related matters of social, economic and physical planning, there are great advantages to be offered by the organization of a tripartite department. This would consist of three bureaux - social planning, economic planning and physical planning - jointly responsible to a committee of cabinet. The three bureau could be permanently seconded from the appropriate parent ministries, the ministers of which would in part form the committee of cabinet.

Arrangements for a working, comprehensive planning agency should aim at integration into the government structure the better to incorporate existing government planning functions. Appendix A illustrates a possible arrangement related to a typical government ministerial system. A tripartite planning secretariat working to a committee of cabinet would be sufficiently close to the policy-making machinery of the government fully to understand the government's desires. It would be well placed to advise in a positive form on the broad technical implications of policy decisions. In fact it is possible to envisage

embryonic political dictum being sent to the secretariat for reassessment in technical terms before being pronounced perhaps in modified form.

The planning secretariat would relate government policies to their own individual skills, but analysed and formulated after comprehensive and related joint working studies. The bureau of the secretariat would be jointly responsible for preparing an economic and a physical plan for the nation presented either as one document or as complementary documents. The document or documents formulated as "White Papers" and approved at political level would guide and analyse the whole range of public and private investment on a long-term basis. Such a definitive, comprehensive statement of national development objectives would aid governments seeking technical and financial assistance.

A synoptic plan would assist in portraying the feasibility in implementation of prime government policies. Over-all planning of this kind, in which all aspects of development had been considered, would facilitate rational changes to correct imperfections, changing trends and necessary changes in government policy. The effect of a change in one sector or project would be clearly seen over the appropriate range of complementary projects and in adjoining areas.

The national plan provides the broad framework within which regional and local plans can be drawn up.

The second tier of planning, using the same integrated techniques, is at regional level. It remains a central government function as it is concerned primarily with the interpretation of government policies; It must however establish firm links with local government. The definition of geographical planning regions would be set out by the National team. These might be based upon administrative areas forming the second tier of government, upon multi-purpose areas of some homogeneity, through geographical, social or economic reasons and significant conurbations. The regional tier in the planning hierarchy has a

particular importance in drawing together both planning and development functions and this is a means of adding weight to the regional plan. Regional level enables broad and long-term aims to remain as guiding principles but tempered by actual day-to-day problems in development. The specialist ministries and agencies of government contribute in the preparation of the national plan and they are even more vitally concerned in the working up of the regional plan where an element of detailed design is introduced.

It would be appropriate for the draft regional plan to be submitted to the national planning secretariat for approval. Its authentication as a statutory document would provide an adequate brief for local planning and for the execution and programming of projects.

The importance of local physical planning and development must not be minimized. It is the level at which the peoples' personal ambitions can be achieved and their peculiar genius utilized. The local level can stimulate the people to improve their environment by their own endeavours and against the framework of national and regional policies, in a way that best suits them. The interpretation of regional schemes by the local authorities and by community development techniques introduces into the economy human resources which are otherwise denied participation. The use of these resources unaided by national and regional targets will bring about over-all less beneficial results and could frustrate government aspirations. Local planning and development forms an integral part of the over-all planning process.

The preparation of national and regional plans

The preparation of national and regional plans by the co-ordinated use of social economic and physical planning techniques will permit the correction of certain important defects in present-day planning. The physical planner will use his skills in the interpretation in physical form of social and economic policies at all levels. Projects initiated within his competence will perforce take greater heed of economic and

social factors. The present tendency for economic planners to work on 'vertical' lines will be curbed in favour of consideration of the symbiotic character of areas. The combination of skills will, of necessity introduce synoptic valuations on migration trends, population projections, education, housing needs, industrial locations, commercial facilities, and health services against feasible levels of economic activity. Benefits to be derived from capital development for economic or social purposes will be calculated in relation to geographical location. The measurement of proposed development against model national or regional frameworks indicating various spatial arrangements of towns and infrastructure will facilitate the calculation of fringe benefits. It will also provide a means of analyzing the effects of specific capital investments upon the total environment. It is only by a synoptic and symbiotic approach to planning and development that all resources can be brought to bear upon a problem in the most economic manner. The synthesis of physical, economic and social matters enables, for example, use to be made of demographic phenomena in shaping the national physical structure to serve the best purpose in relation to location of industry, housing programmes, agricultural extension schemes, or the emphasis on education by geographical area. The comprehensive analysis of the latter will then illustrate requirements for transportation, water supply, power etc.

The physical element of the national plan would be under obligation to

- (i) relate the government's broad policies to physical requirements in terms of comprehensive development on a wide, long-term basis;
- (ii) interpret social and economic situations and problems into physical and spatial terms;
- (iii) appraise all current development projects and their inter-relationship and interaction one to another; equate their effect upon the physical structure and their long-term efficacy in interpreting prime policies;

- (iv) relate broad long-term population trends to model physical structures;
- (v) deduce the complementary effort required in development and investment from the private sector of the economy and to integrate this with the public sector and relate it to specific comprehensive projects;
- (vi) design a long-term physical plan indicating quantitative requirements and spatial arrangements for housing, industry, communications, and social and public services throughout the country and to portray this in map form.
- (vii) programme the plan from national to local level.

This comprehensive approach related to complementary briefs for the social and economic planners would facilitate:

- (i) the closest co-operation between social, economic and physical planners;
- (ii) the most economical solutions, as all projects and technical policies would be signed on a multi-purpose basis;
- (iii) a quickening of development;
- (iv) the closer integration of both public and private sectors in development;
- (v) a readily interpretable comprehensive statement of the government's long-range development intentions which would assist in attracting loan capital and private investment;
- (vi) close integration in execution of development where multi-purpose projects were the concern of several ministries and other agencies;
- (vii) a concise programme for development at regional and local levels in harmony with the aims of the government's main policies;
- (viii) a programme against which to plan research and investigations by government organizations, universities and technical assistance organizations where help is sought;

- (ix) the logical adjustment of the national programme to meet changing conditions, as the full implications of proposed amendments could be calculated and assessed over a whole range of projects.

Integrated planning will aid progress, reduce costs and quicken the process of improving the social and economic conditions of the people by utilizing all available skills and techniques and by co-ordinating the efforts, aspirations and knowledge of the people, down to local level. Both public and private bodies and all human and economic resources will be harnessed together to the national advantage.

This philosophy denies the hard-drawn line between levels of planning and between social, economic and physical matters. The following list of studies which would form the physical planners' contribution does overlap into studies by related skills and professions. The list is not definitive. It is put forward as a basis from which study programmes applicable to particular national requirements could be evolved.

Physical planning objectives

Develop a national physical framework and a co-ordinated balanced pattern of settlements

Assess relationship between existing settlements.

Define function of existing settlements.

Rank settlements in size, growth rate and function.

Assess spheres of influence of settlements.

DEDUCE APPROPRIATE RELATIONSHIPS, FUNCTIONS AND SPHERES OF INFLUENCE TO IMPLEMENT SOCIAL AND ECONOMIC POLICIES.

Gear rate of urbanization to the development of key rural settlements.

Portray urbanization trends.

Evaluate population trends in significant rural settlements.

Define radii of influence of selected urban and rural centres by separate functions.

Compare development costs by geographical location in rural and urban centres.

RELATE GROWTH AND SIZE OF SIGNIFICANT URBAN AND RURAL CENTRES TO GIVE SUITABLE SPATIAL ARRANGEMENT FOR APPROPRIATE NATION-WIDE PROVISION OF ECONOMIC AND SOCIAL SERVICES AT MINIMUM COST

Create circumstances favourable to an increase in agricultural productivity and the introduction of significant additional land into the cash economy.

Portray varying rural physical patterns of settlements and relate to productivity.

Relate rates of urbanization of significant centres of varying size to rise or fall in productivity.

Overlay projected yields by area on possible future pattern of settlements.

Relate location of food-processing industries to agricultural areas.

Deduce future requirements in agriculture in relation to diet and yields.

Locate industrial centres within a national physical framework

Develop housing programme to support population growth and movement related to projected physical structure

Estimate additional acreage required for intensive farming to meet population growth and dietary improvement.

DESIGN GEOGRAPHICAL PATTERN AND SIZE OF SETTLEMENTS WHICH CAN BE ECONOMICALLY SUPPORTED BY LOCAL AGRICULTURE BY AREAS AND PORTRAY PATTERN TO SUPPORT MAXIMUM AGRICULTURE DEVELOPMENT

Portray location of existing industries and relate to market catchment area.

Relate industrial requirements to urban resources and skills and to general population trends.

Classify existing and future industries according to needs for water, power, housing and transportation.

Appraise relationship of alternative patterns of industrial centres to agricultural pattern.

DESIGN NATIONAL LOCATION PATTERN OF INDUSTRIAL CENTRES RELATED TO WATER, POWER, HOUSING, TRANSPORTATION, MARKETS AND FOOD SUPPLY AND TO ENSURE MAXIMUM ECONOMIES.

Estimate present housing shortfalls by area, considering obsolescence.

Evaluate desirable national housing standards to meet social and economic requirements.

- Estimate rate of house building by region and sub-region to meet population growth and requirements in industry and agriculture.
- Relate varying building costs between existing and projected urban and rural centres.
- Evaluate effect of provision or lack of provision of housing upon population movement and rates of urbanization.
- RELATE RATE AND COST OF BUILDING TO PHYSICAL STRUCTURE REQUIRED FOR MAXIMUM INDUSTRIALIZATION AND AGRICULTURAL DEVELOPMENT AND TO ALTERNATIVE NATIONAL PHYSICAL SETTLEMENT PATTERNS.
- Develop and locate educational and medical resources to meet the needs of agriculture and industry.
- Estimate educational and medical requirements to support forecast economic development.
- Relate requirements to geographical location.
- Assess feasibility of provision of educational and medical facilities against projected population pattern, particularly in the rural areas.
- DESIGN STANDARDS FOR PROVISION AND ALLOCATION OF EDUCATIONAL FACILITIES RELATED SPECIFICALLY TO AGRICULTURAL AND INDUSTRIAL GROWTH POINTS.

Provision of social equipment
in conformity with the chang-
ing needs of the people.

Evaluate social needs of people
subjected to rapid urbanization and
industrialization.

Evaluate capital costs for provision
of social equipment and economic
benefits from such provision.

Evaluate range of facilities required
for various sizes of settlements,
with costs.

Broadly assess impact on social
structure of larger urban centres of
various sizes and relate to projected
pattern and size of settlements.

PORTRAY SOCIALLY DESIRABLE PATTERN
AND SIZE OF SETTLEMENTS TOGETHER WITH
COSTS OF SOCIAL EQUIPMENT BY AREAS.
RELATE TO PHYSICAL STRUCTURE REQUIRED
FOR MAXIMUM INDUSTRIALIZATION AND
AGRICULTURAL DEVELOPMENT.

Provision of water, power and
essential public services

Portray existing sources and quanti-
ties of water and power.

Calculate future demand including for
population growth and rising demand
through social improvements and
rising standards of living.

Assess supply costs in various
geographical locations.

RELATE SUPPLY COSTS TO PHYSICAL
STRUCTURE AND SPATIAL ARRANGEMENT
OF SETTLEMENTS.

National physical structure
most conducive to increase
in G.N.P.

Analyze growth of G.N.P. components
geographically

Relate G.N.P. to population growth.

Locate G.N.P. components geographic-
ally for most rapid growth.

RELATE LOCATION OF ECONOMIC ACTIVITIES
TO SIZE AND SPATIAL ARRANGEMENT OF
SETTLEMENTS.

Forecast population growth
trends and desirable location
of growth.

Project population totals long-term
by geographical area.

Relate future age-structure to poten-
tial economic activity and provision
of social services.

Chart long-term population growth by
settlements in accordance with present
and foreseeable trends and portray as
physical structure and hierarchy of
settlements.

RELATE FUTURE POPULATION TO SIZE AND
SPATIAL ARRANGEMENT OF SETTLEMENTS
BASED UPON OTHER CRITERIA.

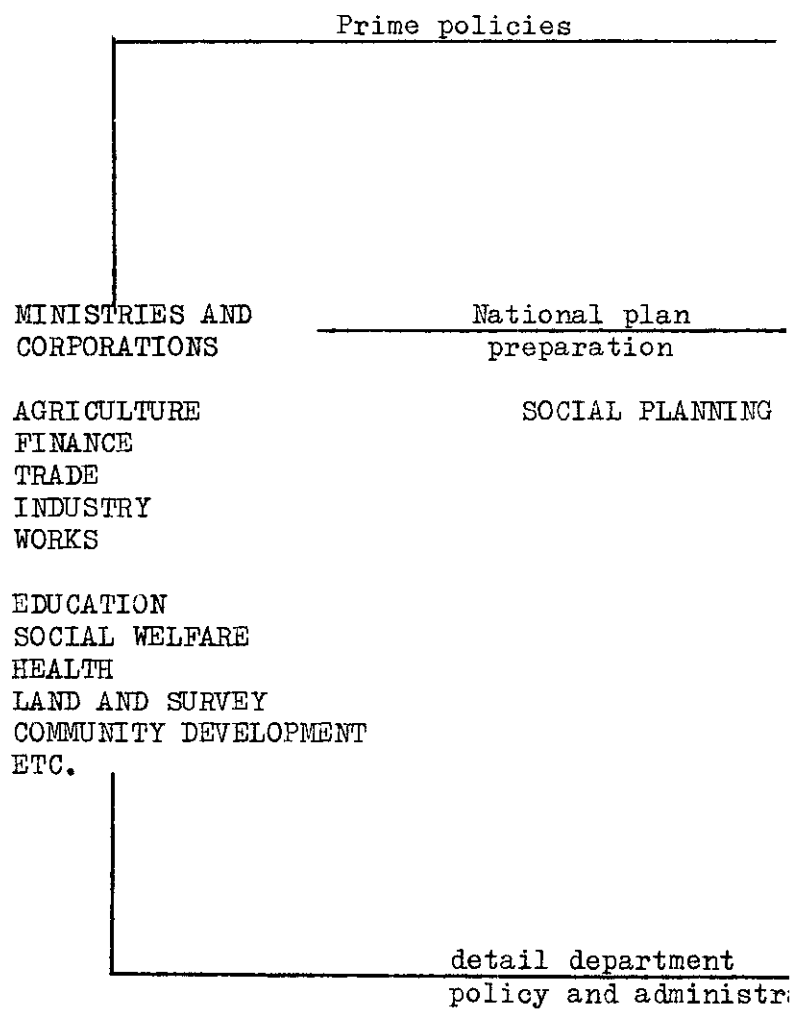
Manipulation of population
growth and movement.

Chart present and projected migration
trends, in and out by area.

Assess over-all population mobility and
relate to social problems and policies.

EVALUATE EFFICIENCY OF CONTROL OVER
POPULATION MOVEMENT BY LOCATION OF
SIGNIFICANT PROJECTS, INDUSTRIES AND
OTHER CAPITAL INVESTMENT, AND BY PROVI-
SION OF SIGNIFICANT SOCIAL SERVICES.

The need of physical planning techniques at national and regional level is simply illustrated. A government would not carry out the construction of a large block of flats by instructing the masons, carpenters, concretors and electricians to go ahead independently without full sets of working drawings being available. But this is analagous. Where there is no over-all national and regional plan for physical development government departments and private investors are forced to proceed in this manner, but on a large scale and involving more money and being thus more damaging to the end product.



1/ Cabinet Rank.

2/ Central Staff.

3/ A Statutory Board acting under delegated powers

