RESETTLEMENT AND POPULATION CHANGES:
ASPECTS OF THE VOLTA BASIN SCHEME, GHANA

by

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ABSTRACT

Population Resettlement forms the general subject area of this study. This topic is described in general terms to establish the fact that population resettlement is a problem common to many developing countries. Since the importance which a nation attaches to population resettlement depends on national circumstances, the significance of the problem of population resettlement in Ghana is reviewed as a case study.

Ghana is a developing country which is currently implementing a multi-purpose river basin development scheme, called the Volta River Project. Basically, it is a hydro-electric power project. The Volta Lake has displaced some 80,000 riparian settlers in the Volta Basin. The displaced people should be resettled in new settlements, and they should be provided with satisfactory housing, employment, and social facilities and amenities. All these aspects of population resettlement call for the formulation of major governmental policies.

It is hypothesized that the Volta Basin Population Resettlement Scheme must contribute towards the attainment of Ghana's social, economic, and physical planning objectives.

The method of investigation is based on the premise that population resettlement is not an isolated problem, and that it should be examined within a national framework.
Consequently, the highlights of the national objectives and policies of Ghana, as defined in the Ghana Seven-Year Development Plan, 1963/64 to 1969/70, are stated. To put the population resettlement scheme in perspective, the Volta River Project is analyzed to show its national importance and its compatibility with the national objectives of Ghana.

Multi-purpose river basin development projects, carried out in India and the United States of America, involved the relocation of families in potential reservoir areas. A review of the Damodar Valley Project in India and the Tennessee Valley Project in the United States of America indicate that population resettlement is a national problem, the solution of which requires the formulation of policies by the highest level of government in a country.

On the basis of experience in India and the United States of America, the following criteria for evaluating Ghana's population resettlement scheme are evolved:

1. Declared National Objectives;
2. Regional Development Project as part of a National Plan;
3. Education for Population Resettlement;
4. Planned Settlements;
5. Consistency of Project Administration with National Policies;

The criteria are applied to the Volta Basin Population Resettlement Scheme. The findings of this application tend to substantiate the hypothesis, that the Volta
Basin Population Resettlement Scheme must contribute towards the attainment of Ghana's social, economic, and physical planning objectives.

Nevertheless, the method of investigation is evaluated. Its shortcomings stem from the lack of sufficient data for detailed regional analysis of the population resettlement scheme. Other ways of implementing a population resettlement scheme are evaluated. It is concluded from this evaluation that Ghana's approach to population resettlement will most probably contribute to the attainment of her national objectives.

It is, however, recommended that education for population resettlement should be a continuing process. It is further recommended that the Volta River Development Act should be amended to enable the Volta River Authority to transfer some of its functions to the Urban and Local Councils in the Volta Basin Planning Region.

In the final analysis, it is the people in the new settlements who will ensure the success of the population resettlement scheme. It is therefore recommended that there should be permanent machinery for carrying out continuing evaluations of the people's reactions to changes to be brought about by the Volta River Project.
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CHAPTER I

POPULATION RESETTLEMENT IN THE
DEVELOPING COUNTRIES

Population resettlement has taken place in many parts of the world for a variety of reasons. Natural phenomena, such as floods and landslides, often have created the need for resettling people. In some African and Asian countries projects for economic development are being carried out. Projects which involve the harnessing of rivers to produce electricity often call for the building of dams and the creation of headponds. The development of these headponds makes it necessary to relocate the riparian settlers.

The countries of Africa, Asia and Latin America are referred to as "developing countries". The term 'developing countries' is defined in this chapter to make explicit the meaning which it connotes in this study. Population resettlement is regarded as a national problem by the Ghana Government. New settlements must be built for the displaced people. Good housing, social facilities, and amenities must be provided in the new settlements. To facilitate resettlement, the settlers must be educated. All these aspects of population resettlement call for significant governmental decisions. This problem is reviewed with special reference to the Volta Basin Resettlement Scheme.
I. DEFINITION OF THE TERM, "DEVELOPING COUNTRIES"

The countries of the world are often divided into two main categories: Those countries which are industrially advanced and those which are not industrially advanced. Most of the countries in the latter category are found in Africa, Asia, and Latin America and they are described as "under-developed countries". The term, "under-developed countries" has different meaning for different people or organizations. For example, a group of United Nations experts defined the term as follows:

We use the term "under-developed countries" to mean countries in which per capita real income is low, when compared with the per capita real incomes of the United States, Canada, Australia and Western Europe.¹

This definition creates a difficulty in the interpretation of the term, "under-developed countries", because it does not take into full consideration the potential limit to the development of human and material resources possessed by the so-called under-developed countries. It is theoretically possible for a country to be under-developed either because its resources are of poor quality or the resources which it possesses have been as fully developed as current knowledge permits. It is held by some authorities that

whatever the resources may be, all countries are currently in a position where their national incomes could be greatly increased by a more efficient and effective utilization of the resources they have. The term therefore is a relative one. Because of the ambiguities which surround the term, "under-developed countries", a more suitable term should be used in describing the industrially less advanced countries.

The use of the term, "developing countries" is gaining popularity. In Webster's New International Dictionary, one definition of the verb "to develop" is "to cause to grow gradually in some way." In the strict sense of the term, every country by virtue of the fact that it is changing or is trying to change for a higher level of industrialization, must be classed as 'developing'. Thus using industrial development as criterion, one could place all countries on a scale of industrial development. It would appear that the term "developing countries" is a more suitable term to describe countries aspiring to change from agricultural to industrial countries.

In this study, the term "developing countries" is taken to include all those countries which are both industrially under-developed as compared with the countries of

\[^{2}\text{Ibid.}, \text{ p. 4.}\]

Western Europe, United States of America, and Canada, and which in addition have attained political independence since World War II. It is realized that a few countries which are industrially under-developed attained political independence long before World War II began and by using the end of the war as the dividing line they would not be classified as developing countries.

The end of World War II was an important landmark in African political history. After the war, many African countries which had been governed previously by foreign powers requested and obtained political independence. Before 1945, there were three independent African states. But in 1964, Ghana had diplomatic missions in twenty independent African states.4

The achievement of political independence implied that African countries could, through their governments, control their destinies as far as economic development is concerned. To avoid inadequate utilization of resources governments in the developing countries must assume a major role in planning.

Characteristics of Developing Countries

Before the attainment of political independence, the economies of developing countries were controlled by the

---

decisions of their colonial rulers. The general practice was that the developing countries had to produce agricultural products and other raw materials for export to industrially advanced countries.

In the developing countries, natural resources tend to play an important role. For the most part, these countries are characterized by a relatively direct dependence on nature. The economy is agriculture oriented, and levels of living tend to reflect the quality of natural agricultural resources as well as the efficiency of the agricultural techniques used.5

It is dangerous for a country's economy if it depends solely on the production of raw materials for export to other countries. The developing countries have recognized this danger and they are trying to diversify their economies. Consequently, the character of their economies is changing. Their economies are no longer based only on the export of raw materials and the import of manufactured goods. The governments of the developing countries want to raise the levels of living of their people and to meet this task attempts are being made to provide a wide range of social facilities and services, such as education, housing, health, and recreational facilities.

The position of developing countries after independence is defined as "the interval when the old blocks and

and the resistance to steady growth are finally overcome. In this sense, the developing countries are in their early stages of economic development. Their goal is to raise to a desirable point, the levels of living of their citizens through the development of their resources.

Foreign domination was only one of the many obstacles to economic progress of the developing countries. Unemployment, rural-urban migration, population resettlement occasioned by new projects, and low levels of living are all problems awaiting solutions. These problems can be solved by a proper utilization of human and natural resources in the developing countries.

II. THE PROBLEM OF POPULATION RESETTLEMENT IN DEVELOPING COUNTRIES

An important aspect of the adaptation of people to land is the manner in which family dwellings are arranged and distributed over an area of land. One or more of such dwellings will form a settlement. A settlement is, therefore, any habitation in which human beings live regardless of its size.

Settlements are built by people for certain purposes and several factors may help to determine their location. The availability of drinking water is an important consideration

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and so many settlements in the developing countries tend to be located near rivers, creeks or lakes. In the Volta Basin, a number of settlements were sited on the banks of the River Volta and its tributaries. The majority of these settlements could be classified as rural settlements in the sense that the greater proportion of the inhabitants are engaged in "primary" occupations such as farming, fishing or hunting.

Presently, Ghana's Volta River Project is being implemented. One aspect of the project is to build a dam across the River Volta. The dam was closed in 1964 to create the headpond required for power, water transportation and other uses. The headpond which is called the Volta Lake, is still forming and it will ultimately inundate about 600 settlements containing about 80,000 people. In order to resettle these people, the Volta River Authority has launched a population resettlement scheme. The scheme involves the building of new settlements and the provision of facilities which would raise the levels of living of the people. The purpose of this study is to evaluate this scheme in the light of Ghana's objectives, policies, and the Ghana National Plan.

**Significance of Population Resettlement in Ghana**

In Ghana, there is a growing tendency for rural people to migrate to the few existing large towns and cities. Such uncontrolled migrations have created problems such as unemployment, crowded central slums, and substandard squatter settlements on the fringes of the cities. To solve these problems, much thought must be given to the rural-urban
relationships. Jobs should not be concentrated only in cities. Industries should be located in the rural areas as well to provide employment. The rural people are forced to lean heavily on agriculture, since the alternative sources of livelihood are extremely limited.

The policy which is guiding the resettlement is that the displaced people must be resettled in new settlements. To prevent the displaced people from migrating to the big towns, they should be well-resettled, in the sense that job opportunities should be created and urban services and facilities provided in the new settlements. The resettlement problem is seen as a national problem, the solution of which must take into full consideration the national planning objectives of Ghana.

The Ghana Government has published its "Seven-Year Development Plan, 1963/64 to 1969/70," to guide the economic and social development of the whole country. In this plan, the national planning objectives are spelled out and a consideration of the relationship between these objectives and the problem of resettlement as envisaged in the Volta Basin Resettlement Scheme forms the basis of this study.

The Volta Basin Resettlement Scheme is being implemented according to policies adopted by the Volta River Authority. Displaced people are currently being resettled. It is assumed by the Ghana Government that this scheme will be implemented as planned without any major changes. It is further assumed that when a cheap and abundant supply of
electricity becomes available to settlements, industries will be located in the rural areas of the Volta Basin and the new settlements will perform functions far more complex than those they are now performing. The latter assumption is based upon the declared intention of the Ghana Government to follow a programme of social and economic development.8

III. STATEMENT OF HYPOTHESIS

Population resettlement in the Volta Basin is a national problem. An examination of this problem becomes more meaningful when it is related to clearly defined objectives.

As applied to a whole country, objectives can be either national or regional. National and regional objectives must be consistent with each other in order to ensure the best economic development of a country. The achievement of harmony between national and regional objectives is not easy; for example, optimum regional development may be inconsistent with optimum national development because objectives are typically for a number of variables. Consequently, it may be very difficult to arrive at a common denominator for all the regions in a country.9

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In order to minimize the ill-effects of inter-regional competition, economic development at the national level would probably have to be optimized, subject to the condition that the performance of any region with respect to any particular national objective must meet specified requirements.\(^\text{10}\)

It is consequently hypothesized that:

**THE VOLTA BASIN POPULATION RESETTLEMENT SCHEME MUST CONTRIBUTE TOWARDS THE ATTAINMENT OF GHANA'S SOCIAL, ECONOMIC, AND PHYSICAL PLANNING OBJECTIVES.**

"Resettlement" refers to the whole process of providing new settlements supplied with some urban facilities and services, and of expanding existing settlements to accommodate the displaced people. It also embraces the provision of job opportunities and recreational facilities, in or near the settlements.

The Volta Basin extends beyond the political boundaries of Ghana. In this study, that portion of it which lies in Ghana, and which forms the area of jurisdiction of the Volta River Authority will be taken as the case study area. See Figure 1, 'The extent of the Volta Basin Planning Region', on page 15.

Political issues may be considered only in so far as they may throw some light on the validity of the hypothesis.

\(^\text{10}\)Ibid.
IV. ORGANIZATION OF THE REMAINDER OF THE STUDY

The concept of a region is described in Chapter II and the social, economic and physical aspects of a planning region are reviewed to determine their relevance to the Volta Basin as a planning unit.

The national planning objectives of Ghana are identified in Chapter III. Since the Population Resettlement Scheme is an off-shoot of the Volta River Project, a description of the Project and a discussion of the functions of the Volta River Authority, in order to place population resettlement in the proper perspective are presented in Chapter IV.

An analysis and evaluation of national planning for regional development in India and the United States of America is followed by a list of criteria for evaluating the population resettlement scheme in Ghana, in Chapter V. The actual evaluation is presented in Chapter VI. A summary and conclusion are provided in Chapter VII.

V. SUMMARY

The development of headponds in connection with hydro-electric power projects often makes it necessary to relocate the riparian settlers. Such a relocation is frequently resisted by the people to be resettled. To persuade the people to abandon their old sites, therefore,
the planning agency or the government of the country is called upon to provide better social services and employment opportunities in the new location. Since all this must be done within a relatively short time, population resettlement presents a serious problem, especially in developing countries where there is a dearth of capital.

Those countries which are not industrially advanced are referred to as "under-developed countries". The term "under-developed countries" has different meaning to different people and organizations. In view of the ambiguities which surround the term, its use must be discontinued. It would seem that the term "developing countries" is a more suitable one to describe countries of Africa, Asia, and Latin America. Developing countries are characterized by a relatively direct dependence on nature. The economy is agriculture-oriented, and levels of living tend to reflect the quality of the natural agricultural resources as well as the efficiency of the agricultural techniques used.

Ghana is a developing country in which the Volta River Project is currently being implemented. The creation of the Volta Lake has necessitated the relocation of about 80,000 people whose homes have been flooded, and unless these people are relocated in new, durable settlements, they will migrate to the existing Ghanaian towns and cities and thereby aggravate the problems of urban unemployment and
substandard squatter settlements on the fringes of the cities.

One of the objectives of the Ghana Government, as stated in the "Ghana Seven-Year Development Plan 1963/64 to 1969/70" is to raise the levels of living of all Ghanaians. It is therefore hypothesized that:

The Volta Basin Resettlement Scheme must contribute towards the attainment of Ghana's physical, economic and social planning objectives.

To validate this hypothesis, the Volta Basin as a planning region, the national planning objectives of Ghana, and the Volta River Project are investigated. An analysis and evaluation of national planning for regional development in India and the United States of America is followed by the development of a list of criteria for evaluating the Population Resettlement Scheme of the Volta Basin.
CHAPTER II

THE APPLICATION OF THE CONCEPT OF A REGION TO THE VOLTA BASIN

For the past few years, certain disciplines, particularly, geography, economics and sociology, have given much attention to the study of the region. Each discipline has defined the region according to its own set of criteria. Though certain criteria may be acceptable to two or more disciplines, yet no single definition of a region acceptable to all disciplines has been advanced.

Some of the discussions about the concept of a region are reviewed here and an evaluation is made of their applicability to the Volta Basin. The area referred to as the Volta Basin is shown in Figure 1, 'The Extent of the Volta Basin', page 15.

I. THE REGION AS AN AREAL-CULTURAL CONCEPT

As a geographical unit, the region has three characteristics: 11 (1) The specific geographic character of the land - this includes the common properties of soil, climate, vegetation, human occupations and technical

FIGURE 1
EXTENT OF THE VOLTA BASIN

Source: Division of Town and Country Planning, Ghana,
Volta Basin Regional Plan.
exploitation of natural resources; (2) The existence of balance - the various parts of the region should be in a state of equilibrium. The implication is that any large scale change made in one part of the natural environment would result in alterations in other parts of it. Man's role in the shaping of the environment is significant since he can, in many cases, modify it to suit his purposes. The idea of balance also implies variety. A region should be large enough to include a sufficient range of interests and simultaneously small enough to keep the interests of the inhabitants in focus and to make the preservation of such interests a matter of collective concern; and (3) Interaction of human communities - it is comparatively easy to delimit a region, using as criteria the presence of physical features such as a river, a mountain range or marshy land. When human beings are considered, the region becomes a system of interactions among human communities. Physical boundaries of a region and boundaries of areas of human interaction do not always coincide with each other.

Conceptually, the extent and nature of interactions among human communities can be used as criteria for defining a region. A region thus defined, would have a centre, since "to define human areas one must seek not only the periphery alone but the centre."  

12Ibid., p. 315.
Economic activities are closely linked with human communities. Benton MacKaye recognizes three types of regions. The first type is mainly self-sufficient. The second is the wholly specialized region which produces a limited range of commodities. The third type of region is partly self-sufficient and partly specialized. It contains within its area a varied and representative range of human and material resources. In exchange for part of its specialized products and varied skills, it obtains from other regions the things that are needed for human culture. This type of region provides an economic base most suitable for cultural regions.\textsuperscript{13}

II. REGIONAL STRUCTURE

Size and Boundaries of a Region

A region may be large or small. It is not the area of land covered but the quality of the mutual relations between scattered populations, the measure of mutual exchange of products and of intercourse between different professions and populations, that turns a geographical area into a living region.\textsuperscript{14}

However, where a region is too large, it would be advisable to consider smaller units. Such a subdivision

\textsuperscript{13}Ibid., p. 337.

should be guided by the goals to be achieved. Social, economic, topographical and other factors can be used to define regional boundaries. These factors give rise to two main types of boundaries - physical and social. The physical region has been in existence since the beginning of the earth and its boundaries are more or less fixed. The social region was created by man. Its boundaries are difficult to define. The boundaries of these two types of region do not always remain identical, but they must be given due consideration if meaningful regional boundaries for planning purposes are to be drawn.

Socio-Economic Functions of a Region

As long as a region's natural life has not been disturbed by man's activities, it can be defined as a "geographical unit, characterized by a typical biological cycle and by ecological equilibrium."¹⁵ River basins, without settlements and whose natural resources have not been exploited, fit this description.

Historically, human society and culture began in river valleys, such as that of the Tigris-Euphrates and the Nile. Fertile soil, water, and easy communications by water encouraged human communities to settle on river banks. The fertility of the soil provided a basis for varied social and

¹⁵Ibid., p. 49.
economic activities. Agricultural surpluses enabled the communities to practise division of labour and thus, a permanent social and economic evolution was set into motion. As the socio-economic activities were spread from one river basin to the other, they were modified to suit the quality, quantity and location of the natural resources of the river basin concerned. In this way, the socio-economic region came into being.16

The socio-economic region fulfilled an important need by enabling people to live in communities and to create settlements which formed the basis for regional and social coherence. Human activities in the region tended to centre around centrally-placed settlements.

Socio-economic activities in a region can give a fairly good idea of the structure of the region. The study of such human activities must not be divorced from the resources of the region. To ascertain the quality of a region's structure, the relationship between its natural resources and the number and social structure of its inhabitants deserve careful consideration. This principle is valid only when related to an exclusive region, whose inhabitants have a monopoly over the use of its natural resources. The principle holds good as a sound basis for shaping the general structure of a region.17

16Ibid., p. 50.
17Ibid.
Regional Functions of Settlements

It is held by some authorities that human settlement - the village, the town, or the city - is the chief factor which integrates the life and organization of a region.

The same idea is expressed by Robert E. Dickinson when he says:

Every region is organized around a central city or focal point of dominance in which are located the institutions and services that cater for the region as a whole and integrate it with other regions.\(^{18}\)

Therefore, to understand the structure of a region, it is essential to have an insight into the relationship among settlements.

Christaller's Central - Place Theory.\(^{19}\) A theoretical framework for a study of the distribution of settlements is provided by the work of Walter Christaller. The Theory of Central Places is based on the idea that a village, town or city develops for the purpose of providing services to a surrounding area of uniformly rich agricultural land. Services provided purely for a surrounding area are termed


"central" functions, and the settlements performing them, "central" places.

Christaller's theoretical model of settlements is based on a number of assumptions. He assumes an "ideal" landscape in which the land is flat, soil fertility is uniform, and the natural resources are equally distributed. Further assumptions are that there are no physical or human obstacles to the free movement of people, that the rural population is evenly distributed, that the inhabitants have adequate incomes to pay for goods and services and that all goods and services in the area are offered by the central places.

Each type of 'good' or service will seek a market where there is sufficient demand for it. Given Christaller's assumptions of uniform population distribution and purchasing power, the size of the market area will be determined by the complexity of the services offered. This implies a hierarchy of centres, ranging from a small hamlet which performs a few simple functions, such as providing limited shopping facilities and a centre for a small contiguous area, up to a large city with a large tributary area composed of service areas of many smaller towns and providing more complex services, such as large scale banking, specialized retailing and the like. The tributary area of a hamlet would lie within the tributary area of a village, the tributary area of a village
within that of a town, and the tributary area of a town within that of a city. Thus, the full range of goods and services would be available in all parts of the region.

Ideally, each central place would have a circular tributary area and the city would be in the centre. However, if three or more tangent circles are drawn in an area, unserved areas will exist. Christaller, therefore used the hexagon as the geometrical figure closest to the circle in order to cover an area completely.

Settlements offering a similar range of goods and services would be placed at equal distances from each other. Competition on the outer edges of the service areas of two adjacent settlements would lead to the creation of centres of lower status. As shown in Figure 2(a), on page 23, 'Christaller's Theoretical Arrangement of Settlements', a centre of a higher order (A) would therefore have on the periphery of its service area, six equally spaced centres (B) of a lower order. Both centres of a lower order and those of a higher order would be arranged spatially in a pattern of hexagonal service areas.

Christaller recognized typical-size settlements, computed their average populations, their distances apart and the size and population of their tributary areas. The settlements were then classified. The hierarchy of centres included seven classes, ranging from a hamlet to a regional capital city:
FIGURE 2(a)

CHRISTALLER'S THEORETICAL ARRANGEMENT OF SETTLEMENTS

FIGURE 2(b)

THE APPLICATION OF CHRISTALLER'S THEORY TO SOUTH GERMANY

Source: Glikson Artur, Regional Planning and Development.
Market hamlet (Marktort)  
Township centre (Amtsort)  
County seat (Kreisstadt)  
District seat (Bezirksstadt)  
Small state capital (Gaustadt)  
Provincial head city (Povinzhaupstadt)  
Regional capital city (Landeshauptstadt)

On the basis of this classification, he delimited the service areas of central places in South Germany. See Figure 2(b), 'The Application of Christaller's Theory to South Germany', on page 23. The distribution of towns in South Germany conforms closely with the Theory.

The theoretical ideal appears to be most nearly approached in poor thinly settled farm districts - areas that are most nearly self-contained. In some parts of Germany, industrial concentration seems to be a more important explanation for the distribution of settlements. Christaller's theory fails to take into account the influence of industrial location or major transportation routes. In highly industrialized areas, such as the Ruhr Industrial Area, concentrations of industry often arise in response to the availability of natural resources and transportation facilities. The hexagonal settlement pattern is thereby sometimes distorted beyond recognition.

Despite the theoretical nature of Christaller's model and the fact that local factors can distort the resultant settlement pattern, the central place theory remains a valuable tool for studying the structure of human settlements on a regional basis.
Subsequent studies of settlement patterns in various countries have shown some of the weaknesses of Christaller's model. Christaller equates a service centre with a town. This interpretation is inadequate for a study of modern towns in Western Europe and North America which came into being as a result of the Industrial Revolution, because the theory does not give enough weight to the increasing importance of manufacturing industries, improvements in the methods of transportation and the territorial expansion of the city.\textsuperscript{20} However, the effects of manufacturing industries on settlement patterns are excluded from the theory by the assumptions made by Christaller and so they do not invalidate the theory even though they account for divergences from the model.

The concept that settlements perform functions which can be placed in a hierarchy is useful in regional planning. Keeble states the importance of this concept when he says, "the hierarchical concept should be incorporated in all regional planning proposals."\textsuperscript{21}

\textsuperscript{20}Dickinson, \textit{op. cit.}, p. 44.

III. THE VOLTA BASIN AS A PLANNING REGION

Regional planning is defined as a continuous dynamic process by which a society formulates its goals and tries to attain them through the development of its environment. For regional planning purpose, therefore, the boundaries of the region must be carefully chosen.

The type and size of a planning region must be determined by the purpose for which the region is needed. But since planning adopts a comprehensive approach towards the solution of problems, a region must be so selected as to satisfy more than one purpose. Louis Wirth describes such a region in the following words:

The component parts are not necessarily similar or identical but stand in a relationship of significant interdependence or integration of life in one or more aspects. Such a region finds difficulty in delineating its boundaries but is more likely to have a salient or dominant center ... 22

There seems to be no standard formula for delimiting a planning region. The type of planning region selected depends on a number of factors. The United States National Resources Committee made the following points about the planning region:

(1) Subdivision ...... into regions for the purpose of planning might well be made in one way for investigation and in another way for putting into effect the results of such investigation;

(2) Regions and their subdivisions as recognized by geographers, while not to be ignored, may not be appropriate divisions ...... for the purpose at hand;

(3) State boundaries are not to be ignored;

(4) It may be that no one set of regions can be devised which will serve either for investigation or for subsequent effectuation of plans.23

Even today there seems little reason to doubt the validity of the above statements. Discussions about the region seem to show that the determination of a planning region demands a flexible conception of the region. The delineation of a planning region must be based not only on present land uses but also on future changes in land uses.

Planning takes place in space. There are two types of space - physical and non-physical space.24 Physical or geographical space such as might be shown on a land use map is the commonest. Non-physical space has three main categories, namely, perceptual, economic and social. Perceptual space is defined by an interaction process between

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the observer's mind and the physical reality. The forces of economic influence and patterns of interaction among economic actors define economic space. In a planning region the non-physical space is superimposed on the geographical space. But since the two types of space do not necessarily coincide it is essential to conceive of the region as being flexible enough to be able to accommodate changes in land uses brought about by the changing beliefs and values of society.

Purpose of Creating a Planning Region

Before any planning region is created, the planning objectives must be clearly formulated and stated. Such objectives would determine, in a general way, the type of region required. Most regional planning may be said to be oriented towards economic development and the solving of such problems that seem to interfere with that development. In practice, economic development is closely linked with social questions, such as housing and education. Regional planning may have a general objective and may be concerned with maximizing resources of all kinds of a given country and with ordering their development with a minimum of social costs towards the raising of levels of living and, in general, the welfare of all the people in the country.

25Ibid.
Size of a Planning Region

Theoretically, planning can take place for the whole world as a planning unit, given certain conditions such as the removal of rigid national boundaries and the acceptance of certain planning goals and goal forms by all countries. In real experience, planning is confined to certain parts of the world. A planning region may be delimited so as to lie wholly within a country. However, a single natural resource, such as a river, may be cut by an international boundary. In such a case, an agreement must be signed between the countries to permit the exploitation of that resource in a most economical way. The Columbia River Treaty is an example of such an agreement. It was signed by Canada and the United States for the joint purpose of developing the water resource of the Columbia River Basin.

In other instances, resource development can take place entirely in a single country. For example, the planning region of the Tennessee Valley Authority lies entirely in the United States. The nation as a spatial unit for planning is often regarded as too large and too unwieldy to provide an effective spatial unit for planning and it is suggested that a smaller unit such as a planning region must be encouraged. But the criteria for delimiting planning regions must be determined by the type of problems to be solved. The far reaching effects of many regional problems
bring them within the scope of national policy and national planning. Furthermore, the "openness" of most regional economies, for instance in commerce and transportation reflect in part, the desire of a nation to enhance its unity as a political, social and economic unit. Large inequalities in regional welfare are rarely tolerated for long without the nation taking action to improve the situation by making efforts to achieve a tighter national integration through the efficient operation of labour, capital and commodity markets on a large scale.26

Change and the Planning Region

A planning region has two essential elements - space and people. The people interact with each other for a variety of reasons. Modern science and technology can have a profound effect on people's values and beliefs and consequently the use they make of space. Where society is conservative towards change, the basic activities of winning a livelihood in a subsistence economy change slowly; but where industrialization and urbanization proceed quickly, social change tends to be rapid.

Change may also involve scale. In a society of small settlements based on subsistence agriculture, the areal unit for planning in a single village is not only small rela-

26 Ibid.
tively, but also somewhat isolated from the neighbouring settlements because of poor transport facilities. Improvements in transportation and communications will bring the village into increasing interaction with its neighbours and with the town and city. Consequently, the village cannot be viewed in isolation. It must be regarded as one of many settlements in a planning region. Similarly, the creation of irrigation works serving large areas may create the need for a planning region which can deal with the area as a whole rather than simply with individual villages.

Technological change is a major factor in determining the changing character of a planning region. A planning region should therefore be flexible enough to be able to accommodate changes brought about by modern technology.27

The Application of the Regional Concept to the Volta Basin

One of the popular regional units for resource development is the drainage basin of a river system. The river basin is a natural and relatively easily delimited area; watersheds form its boundaries. The river basin is best suited to the planned utilization of water.

The Volta Basin comprises an area of some 150,000

square miles, \(^{28}\) of which 61,500 square miles (approximately 40 per cent of the total area) lie within Ghana and 885,000 square miles lie in the neighbouring territories - Ivory Coast, Upper Volta, and Togoland as shown in Figure 1, 'The Extent of the Volta Basin', page 15.

In the following description, the Volta Basin is used in the sense employed by the Volta River Authority. At the request of the Volta River Authority, the Volta Basin Plan, 1970 was prepared by the Division of Town and Country Planning of Ghana, with the assistance of the United Nations Regional Planning Mission in 1962. In this plan, the Volta Basin as a planning region is defined as the area of direct impact of the Volta River Project. This area of direct impact covers about 20,000 square miles, that is, approximately 20 per cent of the total area of Ghana.

The Volta Basin, as demarcated above, had a population of 725,000 people in 1960. They belong to different tribes, namely, Kwahu, Krobo, Akwamu, Ewe, Ewe-Guang and Tongu. Agriculture is the dominant occupation in spite of the appreciable tribal differences. Ninety per cent of the adult population look to agriculture as their main source of

\(^{28}\)International Centre for Regional Planning and Development Report of the Proceedings of the Conference on Regional Planning and Development (Brussels: Provisional Committee for the International Centre for Regional Planning and Development, 1955), p. 58.
The remaining ten per cent obtain income from fishing either exclusively or in addition to agricultural earnings. The larger villages have a few tradesmen.

Small and scattered settlements tend to concentrate on a relatively small area, there is no clear pattern of settlements for the region as a whole. Human interaction tends to be more on a local than on a regional basis. This situation is due in part to the fact that transport facilities are inadequate. But since plans are being made to provide the whole Volta Basin with a system of good roads and water transportation facilities, the interaction between communities in the Volta Basin would assume a regional and national scale.

Settlements in the Volta Basin are of different sizes as far as population and area occupied by them are concerned. In terms of functions performed, hierarchical towns or villages are poorly developed. There are a few towns and a large number of haphazardly distributed villages.

The whole of the Volta Basin is underlain by Voltaian beds of rock, but the soils are not uniformly fertile for the whole area. The presence of fertile soil and the availability of water have played a major role in the siting of the settlements. The location of settlements was also

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influenced by considerations of safety from floods and the 'ravages of the 'simulium' fly. This fly is responsible for blindness among some of the riparian dwellers.

With the exception of agriculture as the main occupation, none of Christaller's assumptions are satisfied. The application of the Theory of Central Places to the Volta Basin would call for a great modification of the theory. Manufacturing industries will be introduced into selected parts of the Volta Basin. These industries would exert a great influence on the location of settlements and would make great demands on the functions of the settlements.

The concept of a hierarchy of settlements is sound and it should be incorporated in proposals for settlements in the Volta Basin.

Without doubt, the impact of the economic activities resulting from the Volta River Project will be countrywide. Consequently, the Volta Basin should not be regarded as a separate unit from the rest of the country. The type of relationship between the Volta Basin and the rest of Ghana must be determined by the country's planning objectives. Without national planning objectives determined by problems to be solved in Ghana, planning regions would have little meaning. Planning regions should be regarded as tools to help the nation achieve its declared objectives. In this regard, settlements in the Volta Basin have important functions to perform.
IV. SUMMARY

As an areal-cultural concept, a region has the following characteristics: It consists of land together with its resources and the interactions of human communities. Conceptually, the extent and nature of interaction among human communities can be used as criteria for defining a region. It is the mutual relations between scattered populations which turn a geographical area into a living region. In such a region, people live in communities and they build settlements which form the basis for regional and social coherence.

Human settlement is the chief factor which integrates human activities in a region. Therefore, to understand the structure of a region, it is essential to study the functional relationship among settlements. Christaller's Theory of Central Places has provided a theoretical framework for the study of the distribution of settlements. The theory was based on the idea that a human settlement develops in order to provide services to a surrounding area. Settlements were placed in a hierarchy according to the type of services they offered. Christaller's model is theoretical and local factors such as the construction of highways and the establishment of new industries can distort the settlement pattern. Nevertheless, the concept that settlements perform functions which can be placed in a hierarchy
is useful in regional planning.

Regional planning is defined as a continuous dynamic process by which society formulates its goals and tries to achieve them through the development of its environment. A planning region must be carefully selected. The selection must be guided by the problems to be solved or by the national planning objectives to be attained.

The Volta Basin Planning Region occupies only part of the Volta River Basin. Agriculture is the predominant occupation of the inhabitants of this region. Apart from that, none of the conditions necessary for the development of hierarchical settlements, each surrounded by a hexagonal service area, is present in the Volta Basin Planning Region as a whole. Undoubtedly, the economic activities resulting from the Volta River Project will not be confined to the Volta Basin Planning Region; they will affect the whole country. Consequently, the Volta River Project should be regarded as a tool to help Ghana achieve her planning objectives.
CHAPTER III

NATIONAL PLANNING OBJECTIVES AND
POLICIES OF GHANA

Introduction. The Ghana Planning Commission was set up in October, 1961. Its task was to draw up a Development Plan for the whole country. With the increasing need to define the Ghana Government's socialist objectives in terms of economic development and to build up rapidly the public and private sectors of the economy, the Planning Commission took a comprehensive approach in the preparation of the Development Plan.

It was also considered necessary to introduce Ghanaians more fully to the Government's economic policy; to show them how the efforts and sacrifices that they make through the payment of taxes, contribute to national development; and to stress the need for the nation to set its priorities in order to achieve its objectives.

A summary of Ghana's national planning objectives and policies as outlined in the Ghana Seven-Year Development Plan, 1963/64 to 1969/70, is given in this chapter. The order in which the various topics are dealt with follows fairly closely that found in this plan and it generally indicates the relative importance which the Ghana Government attaches to them.
I. GHANA'S LONG TERM OBJECTIVES AND POLICIES

The most important factors which determine the level of a country's economic development are not subject to a radical change in a short period of time. For example, the structure of production and trade, the location of manpower and economic activity, the skill and age characteristics of the labour force, and the technological level of a society can change radically over a long period of time. However, the direction and the speed of such a change can be influenced by the declared objectives and policies of the Government.

Long Term Objectives.

Short term plans such as the present one and subsequent development plans can help to achieve the national objectives, if they are viewed as instalments in a long term programme, geared towards the satisfaction of Ghana's long term objectives.

The Ghana Government believes that the long term objectives should be the following:

(1) The economy must be developed so as to be able to assure to every Ghanaian worker, employment at a high level of productivity and a high level of living; (2) The structure of economic activity based on the export of primary commodities must be completely altered; (3) The new structure of
production that takes its place must be so designed as to enable Ghana to play her full part in at least a West African economic community; and (4) Government's participation in the development of the economy must be on such a scale as to enable it to implement its policies with respect to the distribution and utilization of the national income.

**Long Term Policies**

The growing numbers of young, unemployed persons in the urban areas of Ghana is a testimony to the inability of the economy so far, to assure the security of regular employment to its labour force. Recorded wage employment in Ghana increased from 245,000 in 1955 to 350,000 at the end of 1961. The 1960 Ghana Census estimated the number of all persons in economic activity at 2.56 million. But the wage employment data cover the whole of government service and most of the larger establishments in agriculture, industry and commerce. There are consequently more workers than jobs.

The Government's policy is to concentrate on maintaining such a rate of economic development as to assure Ghanaians regular employment at a steadily rising level of income.

In 1960, 61.8 per cent of the entire working population of Ghana was employed in agriculture and this partly
explains the low level of economic activity in Ghana. Since the developed countries such as the United States and the United Kingdom have a smaller proportion of their working people engaged in agriculture, they have a larger proportion left free to produce other commodities. Thus, the structure of the economy has an important effect on the rate at which the economy will grow; the more industrialized economies have, on the average, better chances for advancement than the agricultural ones. This point is illustrated by Table I, 'The Structure of the Economy of Selected Developing Countries,' and Table II, 'The Structure of the Economy of Selected Developed Countries.'

**TABLE I**

**THE STRUCTURE OF THE ECONOMY OF SELECTED DEVELOPING COUNTRIES (1960)**

<table>
<thead>
<tr>
<th></th>
<th>Agricultural %</th>
<th>Non-Agricultural %</th>
<th>Per Capita National Income L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mexico</td>
<td>58</td>
<td>42</td>
<td>98</td>
</tr>
<tr>
<td>Spain</td>
<td>48</td>
<td>52</td>
<td>92</td>
</tr>
<tr>
<td>Ghana</td>
<td>62</td>
<td>38</td>
<td>70</td>
</tr>
<tr>
<td>Egypt</td>
<td>64</td>
<td>36</td>
<td>40</td>
</tr>
<tr>
<td>India</td>
<td>70</td>
<td>30</td>
<td>25</td>
</tr>
</tbody>
</table>

TABLE II

THE STRUCTURE OF THE ECONOMY OF SELECTED DEVELOPED COUNTRIES (1960)

<table>
<thead>
<tr>
<th></th>
<th>Agricultural %</th>
<th>Non-Agricultural %</th>
<th>Per Capita National Income L</th>
</tr>
</thead>
<tbody>
<tr>
<td>United States</td>
<td>12</td>
<td>88</td>
<td>801</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>55</td>
<td>95</td>
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</tr>
<tr>
<td>West Germany</td>
<td>15</td>
<td>85</td>
<td>370</td>
</tr>
<tr>
<td>Denmark</td>
<td>23</td>
<td>77</td>
<td>370</td>
</tr>
<tr>
<td>Japan</td>
<td>39</td>
<td>61</td>
<td>121</td>
</tr>
</tbody>
</table>


It is Ghana Government policy to increase the productivity of labour and consequently the average level of wealth through the application of mechanization and specialization to the production of agricultural commodities and manufactured goods.

Before the structure of employment can be changed, productivity in farming must be high enough to make it possible for a large number of workers to be released from agriculture to work in other occupations.

In the final analysis, the real wealth of Ghana derives from the commodities it produces in its agriculture and industry. In the wage employment figure of 350,000
quoted above for the year 1961, 30.2 per cent were engaged in productive and 69.8 per cent in non-productive employment. In the Seven-Year Plan, employment in agriculture, industry and mining are referred to as productive whereas those in social services and infrastructure such as roads, and electricity supply are described as non-productive. It is the Ghana Government's intention to create job opportunities in the field of commodity production.

It has been suggested that there must be a shift in the structure of employment away from having a large proportion of manpower engaged in agriculture. Outside agriculture the primary emphasis will be on the rapid increase of employment opportunities in the field of manufacturing.

Industrialization will be pursued in stages. Each development plan such as the present one must propose measures for a significant advance in the technological level of the labour force. Social and economic policy at each stage of industrialization must be designed to maximize investment.

Most of Ghana's present entrepreneurs are farmers and small traders: their savings account for the bulk of private investment in the economy. For the next few years, their savings will be used mainly in trading, farming and real estate. Manufacturing and similar enterprises, with their problems of large scale labour control, machine running and maintenance, stocks control, and accounting, which
demand the ability to read and write would therefore lie beyond their abilities. The existing type of private investment must be supplemented and the Ghana Government has assumed the role of making investments in order to bring about those structural changes which are essential to the development of the economy. Private investment will be encouraged only if they would contribute to the achievement of Ghana's economic objectives.

II. ECONOMIC OBJECTIVES AND POLICIES OF THE SEVEN-YEAR DEVELOPMENT PLAN

Ghana's long term objectives will be implemented through a series of development plans. The primary aim of the present plan is to secure the fastest possible expansion of Ghana's economy during the next seven years (1963-1970).

The growing amounts and varieties of the goods required by Ghanaians as their standard of living has risen, have not been supplied by the economy, and Ghana has remained almost entirely dependent upon manufactured goods of other countries. Ghana has also had to import food in large quantities and at great cost in foreign exchange, even though she is a predominantly agricultural country. The economy has been unable to provide enough job opportunities. The external balance of the economy upon which depends the international value of the Ghana pound has been too narrowly based
on the sale of a single crop, cocoa. These problems persist in spite of the country's abundant natural resources. The Seven-Year Development Plan suggests ways of remedying these deficiencies of the economy and its economic objectives are the following:

(1) To solve simultaneously Ghana's commodity and employment deficiencies through the programmes of industrialization and modernization of agriculture; (2) To increase domestic employment and personal incomes which will provide a basis for higher government revenues to support more and better social services and eliminate the internal financial deficit; and (3) To eliminate the balance of payment deficit through the greater domestic production of the commodities demanded by Ghanaians and the sale of goods manufactured in Ghana. It is explicitly stated in the plan that "All other parts of this plan are designed to assist in the fulfilment of these tasks."  

Agriculture

Agriculture makes a significant contribution to the economic activity in Ghana. In 1962, domestic food production alone accounted for L181 million. In addition, agriculture including forestry and fishing supplied goods worth L86 million for export. The total contribution of agriculture to

the LG535 million worth of resources available to Ghana from all economic activities in 1962 was therefore about 50 per cent. This was far greater than the contribution of any other branch of economic activity.

Further growth of Ghana's economy and the achievement of economic stability require that Ghana be transformed eventually from an agricultural to an industrial country. Nevertheless, the general level of prosperity in Ghana cannot increase significantly unless agriculture which employs nearly two-thirds of the labour force also undergoes a revolutionary change.

Agricultural development is a necessary prerequisite for Ghana's industrialization. Agricultural development under this plan will be directed towards three objectives:

(1) To improve the nutritional level of Ghanaians and to eliminate the present food deficit; (2) To raise rural incomes especially in the Northern and Upper Regions of Ghana; and (3) To step up the production of agricultural raw materials both for export and for domestic industrial purposes.

Nutrition. It is the aim of the Ghana Government that in the long run, Ghana should be able to produce enough food to be able to give every citizen 2,700 calories per day in his diet. The present average calorie intake per citizen is estimated at 1,800 per day. More important than the
aggregate calorie value is the protein content. The present estimated consumption of protein is about 42 grammes per person, per day. Professional opinion is that a human being requires about 70 grammes per day.

Food production targets have been set so that Ghanaian agriculture can supply the deficiency in the present nutritional levels. As far as possible imported food will be replaced by food produced in Ghana. Furthermore, Ghanaian agricultural methods should be so improved as to ensure future population increases adequate supply of food in both aggregate calorie intake and protein content.

**Rural Incomes.** In the past, the economic development of the rural areas has been uneven. While cocoa growing areas have shown rapid progress, many other areas have tended to stagnate. It is the intention of the government to assist the less developed parts so that they can produce foodstuffs to meet the growing demand for them in the wealthier areas as well as the fast growing urban areas. By stepping up food production in the rural areas the government wants to raise the incomes of the rural people and thereby raise their levels of living.

**Commodities for Domestic Industry and Export.** Ghana intends to maintain her leading position in the world cocoa market. This will be achieved by increasing yields per acre rather than by devoting more land to cocoa cultivation, and by reducing production costs of cocoa. Among the local
manufacturing industries to be established during the plan period are some which will use cocoa, cotton, sugar cane, citrus fruits, non-apparel fibres, and timber. It is, therefore, intended to produce cotton, sugar cane and sisal on State farms and on farms around new settlements.

Policy for Agricultural Development. Ghana Government policy under the Seven-Year Development Plan is to concentrate on a limited number of commodities and to apply to them all the available agricultural knowledge and technology. These commodities are the ones that will satisfy the nutritional requirements of Ghanaians. The production of many other commodities will eventually be encouraged.

An attempt will be made to stimulate in each part of Ghana that form of economic activity best suited to it. In this regard, the maximum effort in agricultural development will be devoted to the promotion of increased agricultural production in the savanna areas.

Private farmers will be actively encouraged to organize into cooperatives. In this way, they will be able to gain access to agricultural machinery and modern techniques and thus increase their productivity.

Individual farmers and cooperatives will be assisted by an enlarged Agricultural Extension and Development Service.

The development of farming under irrigation for the large scale cultivation of sugar cane, rice and other suitable crops will be pursued during this plan period.
Industry

Industry makes a relatively small contribution to the national income of Ghana. It is expected that industrial development in Ghana will not only increase employment opportunities and incomes but will also improve the balance of foreign trade.

The largest part of Ghanaian manufacturing activity takes place in small establishments employing mostly family labour and using very little capital and capital goods.

Until recently, industrial development in Ghana had been left entirely to private enterprise. In 1957, the government set up the Industrial Development Corporation to promote the expansion of industry, by offering financial inducements to private investors. In 1962, the Industrial Development Corporation was succeeded by the Ministry of Industries.

Objectives of Government Industrial Development. Industrial development will aim at achieving the following objectives: (1) Domestic manufactured goods should replace imported manufactured goods, to the largest degree possible; (2) The agricultural and mining commodities that are now exported mainly as raw materials should be progressively processed before export; (3) A start should be made on the development of basic industries in the field of metals and
chemicals. The building material industry should also be expanded and modernized; (4) In the development of basic industries particular attention should be paid to preparing the economy for the further stages of industrialization. However, a start should be made in the field of machine industries; and (5) Industrial development in Ghana must take into account industrial development in the neighbouring African countries.

**Policies for the Development of Industries.** The Ghana Government will follow certain steps in its industrial development programme in order to ensure that all capital invested is utilized to the best advantage of the country.

**Maximum Utilization of Existing Plan Capacity:** There are many factories in Ghana that could almost double their output by the introduction of second shift. Factories that can adopt a second shift and possibly a third shift will be encouraged to do so.

**Expansion of Existing Enterprises:** After achieving satisfactory levels of operating efficiency in all its existing industries, the government will, wherever practicable, encourage the expansion of selected enterprises. Plant outlay for each selected enterprise will be studied to see if the same building can accommodate more machinery units. Only when this is not possible will additions or extensions to existing buildings be carried out.
Completion of Unfinished Projects: At the end of 1962, there were about twenty government projects in the course of construction; projects being undertaken by private enterprise numbered many times more. Since such unfinished projects have already imposed certain well defined financial obligations that can seldom be deferred, the government will in most cases have to complete them.

Commencing New Projects: Since new projects make great demands on natural and human resources, all the necessary preparations for their implementation must be thoroughly carried out. It is therefore proposed to use independent consultant services right from the start. On the basis of consultants' reports, tenders will be invited from suppliers of machinery. The specifications will include in addition to the usual particulars, training of Ghanaians.

The location of industries will pose some problems. In general, industrial projects will be sited so as to make the maximum use of the infrastructure facilities that exist. The timing of the projects is just as important. Thus, electro-chemical industries should not be established until abundant and cheap electricity has become available.

Mining

Mining has an important place in Ghana's economy: it offers employment, it earns foreign exchange, and contributes to government revenues. Ghana exports gold, diamonds,
manganese, and bauxite. In 1962, mineral exports from Ghana amounted to GH24.82 million, equivalent to 21.6 per cent of the total exports. The total recorded wages paid in mining and quarrying amounted to GH6.2 or 8 per cent of all recorded wages.

In the last ten years, the mining industry has been relatively stagnant. The objective of mineral development is that during the plan period improved performance in the mining industry in terms of production, exports and employment should be encouraged.

Private investors who already hold mining concessions and who have mineral enterprises in Ghana will be assisted by the government to make the fullest contribution to the attainment of the production targets set by the government. The forms that the assistance will take will be discussed with the investors in the light of existing legislation and government policy regarding investment in the mining industry.

In 1961, the Ghana Government acquired five gold mines, previously owned by private mining companies. These mines had been responsible for 52.9 per cent of the total gold output of Ghana. The government's efforts in the field of mineral development will be to secure an improved performance in the public sector of the mining industry.
Social Services

Social services include education, manpower, employment, health services, housing, electricity supply, and water supply and sewerage.

Education. Agriculture and manpower are dependent upon an adequate supply of suitably educated and trained manpower. Rising productivity derives from two sources. On the one hand it is influenced by the kinds of capital goods - equipment, machinery and land - with which the population is supplied. On the other hand, it depends on the skill with which labour and management use the capital assets.

During the plan period, education in Ghana will concentrate on the teaching of skills and attainments that are needed for the running of Ghana's economy.

This will be achieved by adjusting the present educational system to meet the needs of the expansion of industry and agriculture and by providing facilities for the Primary School children to learn the skills and attainments that will qualify them for skilled jobs.

For training in skills required by industry and scientific agriculture, the trainees should have had at least a basic education up to the secondary school level. The programme of educational development under this plan therefore places heavy stress on the expansion of secondary school education.

Opportunities will also be provided for an
increasing number of working people to continue their education and training through evening classes, short intensive courses and correspondence courses.

**Employment.** The Ghana Government's objective is to ensure that every Ghanaian who is able and willing to work is given the opportunity to do so.

A national income policy is needed to deal with some of the monetary and social problems which full employment could bring to Ghana's economy. Under this plan the income policy is designed to promote economic growth and rising productivity in labour.

**Economic Growth:** Only 20 per cent of the working population of Ghana works for wages. The rest of the working force is self-employed, mostly in farming and trading. Economic development in Ghana will not only entail the transfer of labour from agricultural to non-agricultural employment but will also increase the proportion of the total working force that works for wages and salaries.

**Productivity:** The expansion of the economy must come both from increasing productivity and from an increase in the total working force. The wage structure is a powerful tool for regulating the use of available manpower and for promoting increased productivity. A widespread method for relating a worker's earnings to his performance is the system of payment by results. At present, payment by results is restricted to a small number of industrial establishments.
It is the intention of the government to encourage a more widespread use of the system of payment by results in both public and private enterprises.

**Health Services.** The government will pay particular attention to the health needs of the people. Apart from humanitarian reasons, capital devoted to the improvement of health services is an economic investment, for a healthy population is much more productive than an unhealthy one.

In previous years emphasis was placed on curative medicine and medical service was almost entirely confined to the large towns. The rural population was left to a large extent without adequate medical care. An extensive network of mobile and permanent health facilities will be made available to the rural populations. Consequently, government policy is that all medical workers trained during the plan period should be given an orientation course which would make it possible for them to contribute significantly to the improvement of rural health.

**Housing.** In those locations where new economic activities are expected to develop and bring together large numbers of working people, adequate housing should be provided. The government's objective is to encourage a rate of housing construction that would preserve the cohesion of family life in the urban areas.
The rapid migration of people into urban areas in Ghana has resulted in the creation of a number of satellite towns and villages around the cities and has also increased overcrowding in the slum areas within those cities. Most of these suburban towns have grown without any planning or sanitation. To remove the threat to public health that exists in many of these communities a definite policy is proposed for their development. The government will provide facilities such as roads, drainage, water supply and sewerage. It is expected that when such facilities are constructed the immigrant worker will be able to build for himself a house to suit his needs. At the same time the provision of facilities will enable the government to exercise some control over the standard and siting of houses in such communities.

The assistance of the Central Government to rural housing will consist mostly of the further extension of the 'Roof Loans Scheme' and the development of a building materials industry. Government also intends to make an early start with the exploitation of limestone deposits in order to produce cheap building materials for rural house builders.

**Electricity.** The primary purpose of the electrification programme is to provide adequate power to meet the requirements for Ghana's industrial expansion and eventually to supply electricity to all homes in Ghana. Until power
from the Volta River Project becomes available, electricity generation will be carried out wholly by diesel engine driven alternators.

Regarding rural electrification, existing supply centres for electricity will be expanded to supply needy rural areas. When the national grid system is completed, thermal electricity equipment will be transferred to centres outside the area covered by the national grid system.

**Water Supply and Sewerage.** Only one-sixth of the population of Ghana enjoys good drinking water which is made available through 74 public supply systems. The rest of the population relies mainly on natural sources which are often polluted and not safe for drinking purposes.

The ultimate aim of the government is to supply abundant water to all parts of the country and to achieve a house-to-house distribution system, thereby eliminating the public standpipe system. Since the bulk of Ghana's population lives in the rural areas, new schemes and extensions of existing supplies to rural areas are envisaged. Research into methods of improving water storage in the rural areas will be conducted.

To meet the requirements for rapid urbanization and industrialization, it is necessary to improve and extend existing supplies and distribution in cities and urban centres. The Kpong extensions and Akosombo water supply development will increase water supply in Accra and Tema by 22
million gallons per day. The total capacity for the Accra-Tema Metropolitan area would then be 40 million gallons per day. This is the amount of water judged to be necessary for all purposes including sewerage.

Transportation

In the first and second development plans for Ghana, the major investment was made in the fields of economic infrastructure and social services. Out of the total development expenditure of LG136 million under those development plans, LG60 million, representing 44 per cent of the total was devoted to the provision of an infrastructure that is more than adequate for the present level of economic development.

The government attaches great importance to agricultural development and the efficient distribution of agricultural products. The government therefore aims at connecting all farming and rural industrial areas with trunk roads by means of an adequate feeder road system.

The Volta Lake will eventually flood certain sections of the existing trunk routes. The development of trunk road system for the country will be coordinated with the Volta Lake transport system.

The organization of internal road transport will be based on the individual bus operator as well as the large scale trucking businesses including the Ghana Transport
Department. An increase in the capacity and an improvement in the operational efficiency of the Government Transport Department has been made necessary by government's increasing participation in economic activity. Modernization of the department's maintenance facilities is well advanced. This progress will be consolidated during the plan period.

Railways. During the Second Development Plan period investment in railways was directed toward general improvement of services and increased operational efficiency. In the present plan it is intended to continue with the improvement of existing services and to prepare for the extension of the railway system to the north when economic development and the consequent growth in traffic will have made it necessary.

Volta Lake Transport. An important side benefit of the Volta River Project is that it will open up a large part of Ghana to water transport. It is intended to take full advantage of this by installing a lake transport system to handle the transport of bulky goods on the lake. A fast passenger service on the lake is also being planned.

The exploitation of iron ore deposits, limestone and other mineral deposits in the vicinity of the Volta Lake will make the Volta one of the largest arteries for bulk traffic in Ghana. Meanwhile a system of lake ports and connecting roads will be built.
Air Transport. The objective of the government is to consolidate and modernize air transport services. Some government subsidy will be necessary during most of the plan period but the Ghana Government will require the Ghana Airways to keep operational costs within reasonable limits, by a careful scrutiny of operational costs. Definite progress towards self-sufficiency must be made by 1970.

Shipping. The Black Star Line has become a wholly Ghanaian enterprise with the purchase of the external shares in it. An expansion of the activities of the company is anticipated. To facilitate this expansion, the Central Government will provide £2 million. But the company will finance a major part of the expansion costs out of its own resources.

III. PLAN IMPLEMENTATION AND ADMINISTRATION

The need for implementation is expressed in the Ghana Seven-Year Development Plan, thus: "A development plan however carefully worked out is only as good as its implementation."\(^\text{31}\) The national planning objectives and policies stated above make it imperative that major changes in the machinery of government be made.

\(^{31}\text{Ibid.}, p. 283.\)
The Ghana Civil Service

It is no longer realistic to assume that new recruits to the Civil Service will necessarily learn their jobs from older hands. In many establishments to be created most of the employees will be new hands. In-service training must be provided for all levels of personnel.

The other requirement for administrative efficiency is to standardize procedures so that the individual civil servant knows precisely what is expected of him and his supervisors can tell whether his performance is adequate.

In order to ensure that the machinery of administration can cope with all the new tasks which will fall on it, in the implementation of the development programme, the government will introduce suitable schemes for the recognition of merit.

Coordination of Projects

There is often a temptation for a government agency charged with the responsibility of arranging agreements and contracts with third parties, to attempt to save time and trouble by finalizing arrangements first, without due consultation with other agencies which are properly concerned with the proposed project. To avoid this situation, the following procedure will be enforced: All agreements and contracts submitted by government departments for government approval will have to carry the approval of the Coordination
Branch of the Planning Commission, before they can be considered.

Plan Administration: The Planning Commission

A new Planning Commission will be appointed to see that the Seven-Year Development Plan is successfully implemented. The President of Ghana will be the Chairman of the Commission. The Vice-Chairman will be the Minister responsible for planning and there will also be three full-time members with executive responsibility as Development Commissioners.

The Planning Commission will keep in the forefront of all policy-making the essential objectives of this plan.

For each year during the plan period, the Planning Commission will announce an annual plan comprising all economic tasks to be implemented in that year.

Periodically and in the light of accumulating knowledge the Planning Commission will undertake major revisions of the current Seven-Year Development Plan and also prepare new short term plans as required.

The present plan represents the first attempt in Ghana to prepare a development plan with a wide concern for the growth of the economy as a whole. In order to assist all participating bodies to work out their detailed designs, in relation to the national plan, A National Physical Development Plan will be set forth. It will translate the Ghana
Government's policies for economic and social change into physical designs. It will be supported by data showing the geographic distribution of projects, manpower, costs and timing, ranging from immediate future projects up to long range possibilities. The National Physical Development Plan will act as a collecting point for collateral requirements of resource development, industrial openings, settlements and infrastructure.

Certain major projects cut across many departmental spheres of responsibility or are of such importance to the national economy that their planning and implementation must be handled by a central body. For example, the Volta River Authority was set up for the Volta River Project. However, not all the projects will be as large as the Volta River Project. In a case where an ad hoc body is found to be unsuitable for a major project, the Planning Commission would ensure that adequate machinery is established for its planning and implementation.

IV. RELEVANCE OF GHANA'S PLANNING OBJECTIVES TO THE VOLTA BASIN POPULATION RESETTLEMENT SCHEME

During the Seven-Year Development Plan period, the Ghana Government will concentrate on the modernization of agriculture and industrialization.

As pointed out in the previous chapter, the majority of the displaced people in the Volta Basin are
subsistence farmers and their agricultural productivity is low. When Ghana is compared with the industrially advanced countries, it becomes evident that too many people are engaged in Ghanaian agriculture. Labour should therefore be released from agriculture and be employed in other industries after retraining. This can be done by increasing agricultural productivity through the use of fertilizers and the application of modern technology to agriculture. Modernization of agriculture is considered by the Ghana Government as a sine qua non to industrialization.

The successful application of technology to agriculture calls for a certain minimum level of education on the part of the farmers. Education is therefore considered as an indispensable adjunct to the success of industrialization. During the plan period, emphasis will be placed on training Ghanaians in skills to qualify them for skilled jobs in both agriculture and manufacturing industries. The present generation of farmers in the Volta Basin may not derive much benefit from a change in Ghana's educational system. But future farmers will profit by it.

A number of new industries will be established in the Volta Basin. The proposals which have been made for their location by the Division of Town and Country Planning, Ghana, are in conformance with the objectives of the Ghana Seven-Year Development Plan. The industries to be established are shown in Table III, 'Location of New Industries
in the Volta Basin'.

TABLE III

THE LOCATION OF NEW INDUSTRIES IN THE VOLTA BASIN

<table>
<thead>
<tr>
<th>Industry</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metallurgical Industry</td>
<td>Kete Krachi</td>
</tr>
<tr>
<td>Metal &amp; Machine Industry</td>
<td>Akosombo</td>
</tr>
<tr>
<td>Salt Production</td>
<td>Ada</td>
</tr>
<tr>
<td>Charcoal Products</td>
<td>Adawso</td>
</tr>
<tr>
<td>Ceramic Factory</td>
<td>Kpong</td>
</tr>
<tr>
<td>Lime Plant</td>
<td>Buipe</td>
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<tr>
<td>Pulp and Paper Industry</td>
<td>Akuse</td>
</tr>
<tr>
<td>Textile Industry</td>
<td>Yeji</td>
</tr>
<tr>
<td>Leather Work</td>
<td>Aveyime</td>
</tr>
<tr>
<td>Rice Mill</td>
<td>Atebubu</td>
</tr>
</tbody>
</table>


Some of these industries will depend on the agricultural raw materials to be produced in the Volta Basin.

It is an advantage to establish industries at or near places where certain services such as housing, hospitals, schools, water supply, and sewerage are available. The availability of some of these services was considered in selecting the towns in Table III above.
Manufacturing industries require raw materials and human labour. The new settlements in the Volta Basin must provide agricultural raw materials for factory plants and food for the industrial workers. The factories will in turn produce manufactured goods some of which will help raise agricultural productivity and the levels of living of the inhabitants of the new settlements. The new settlements must be designed for permanent human habitation. They must be provided with modern social services. By means of an efficient transportation system, they will be linked with market centres within Ghana. The national planning objectives of Ghana are therefore very pertinent to the population resettlement scheme in the Volta Basin.

V. SUMMARY

The Ghana Seven-Year Development Plan, 1963/64 to 1969/70, was prepared by the Ghana Planning Commission. The national objectives and policies of Ghana are stated in this plan.

Long term and short term objectives are recognized. The long term objectives are: to change Ghana into an industrial country, to attain full employment and to make the Ghana Government a major participant in the economic development of the country.

To achieve these objectives, the Ghana Government
has decided to increase the productivity of labour through
the application of mechanization and specialization to agri-
culture. Surplus agricultural labour will be absorbed by
manufacturing industries and other occupations. Ghana's
long term objectives will be achieved through a series of
short term plans such as the present one. The primary aim
of the present plan is to secure the fastest possible expan-
sion of Ghana's economy during the next seven years (1963 to
1970). Specifically, the objectives are: to increase the
domestic employment and raise levels of living; and to sub-
stitute as far as possible imported consumer goods with
those goods manufactured in Ghana. All parts of the plan
are designed to help in achieving these objectives.

Modernization of Ghanaian agriculture is regarded
as a necessary prerequisite for industrialization.

Social services, such as education, health services,
housing, water supply and sewerage will be provided in the
new settlements of the Volta Basin. A number of new indus-
tries will be established in the Volta Basin and the settle-
ments will be called upon to supply both agricultural raw
materials to the factories and food to the workers in the
factories. The national planning objectives of Ghana are
therefore pertinent to the Volta Basin Population Resettle-
ment Scheme.
CHAPTER IV

THE EFFECTS OF THE VOLTA RIVER PROJECT ON
SETTLEMENTS IN THE VOLTA BASIN

This chapter is prefaced by an outline of the geography of the Volta Basin. An understanding of the geography of the Volta Basin is necessary for a full appreciation of the impact of the Volta Project on population resettlement in the Volta Basin, on Ghana as a whole, and, to some extent, on some of the neighbouring African countries.

I. GEOGRAPHICAL BACKGROUND

The Volta Basin Planning Region covers an area of 20,000 square miles. In Figure 1, 'The Extent of the Volta Basin', page 15, the size of the region is shown.

The greater part of the region is underlain by beds of rock known as the Voltaian. These rocks are so named because they occur in the Volta River Basin. They consist of thick beds of sandstone, quartzites and conglomerates, with a few shale and limestone in isolated places. The Voltaian rocks are more extensive than any other single system of rocks in Ghana.

In general, the Volta Basin is low-lying, but there are a few well-defined areas of higher land. The Akwapim Scarp forms part of a range of hills which runs from a point
just north of Accra, in a northeasterly direction towards Togoland. Near the Ghana-Togoland boundary a branch of this line of hills assumes a south-north direction and culminates at a height of about 2,900 feet above sea level. This range forms the eastern water shed of the River Oti, a tributary of the River Volta. With the exception of a range of hills located on the edges of the Volta River Basin, the land is undulating and it rises from 0-650 feet above sea level.32

The Volta River System. The Volta River begins as the Black Volta from French Upper Volta and after flowing for about two hundred miles, in a northeasterly direction, bends southward to form the boundary between the Northern Region of Ghana and the Ivory Coast. Near Bole, it turns eastward across Ghana and then bends south again to enter the sea at Ada. An important tributary of the Black Volta, is the White Volta which also takes its source from French Upper Volta. Below the confluence of the Black and White Voltas, which is some 290 miles from the sea, the river is called the Volta.33 In this section, it has two major tributaries, the Oti, joining it from the north, and the Afram, from the west.


The Volta Basin, together with its tributaries, is interrupted by rapids at several points, notably in the area of the Volta Gorge near Ajena, where it crosses the Akwapim-Togo Ranges. Akosombo where a dam is being built across the River Volta is situated in this Gorge.

Rainfall regime of the Volta Basin exercises a great influence on the Volta River. The season of high floods occurs between August and December. This is the wet season. There is a marked difference between the flow of the Volta during the dry season and during the wet season. During the latter season, the river banks stand only eight to twelve feet above the river and sometimes the river completely overflows its banks. These differences are also reflected in the rate of flow of the River Volta. In the section of the river below the gorge, it varies from under one thousand cusecs, (cubic feet per second) during the dry season, to between 125,000 and 390,000 cusecs during the flood period.\textsuperscript{34}

Vegetation. The Volta Basin can be divided into three major zones of vegetation: (1) the coastal belt, which extends up to seventy miles inland and includes part of the Accra Plains, is covered with scrub, grassland and a few scattered trees; (2) the forest zone occurs near Akosombo; and (3) the guinea savannah woodland, which covers most of the Volta Basin, generally consists of grassland, the

\textsuperscript{34}Ibid., p. 42.
density of growth decreasing as one travels from south to north of the Volta Basin.

II. THE PRODUCTION OF ELECTRICITY

Ghana possesses in the Volta Basin an important potential source of hydro-electric power. She also has large deposits of bauxite. The proposal for the joint development of these resources is known as the Volta River Project.35

History of the Volta River Project. The idea of harnessing the River Volta for generating immense quantities of hydro-electric power has been appreciated for nearly half a century. In 1915, Akosombo, the very site where the Volta River dam is now being built was noted in a geological survey as being a suitable site for a hydro-electric power project.

Preliminary investigations were made for the building of a dam at Ajena - one mile upstream of Akosombo - for generating hydro-electricity to be used in producing aluminum from local bauxite at Npraeso in Kwahu and Yenahin in Ashanti. Plans for the scheme were delayed until 1938 when one Mr. Duncan Rose began a detailed commercial

35The International Centre for Regional Development, loc. cit.
investigation and survey of the project. He could not implement his plans because of World War II.

In 1945, Mr. Duncan Rose formed the West African Aluminium Company Limited to proceed with his development plans. The Canadian Aluminium Company Limited and the British Aluminium Company Limited became interested in Mr. Rose's scheme. The Canadian Aluminium Company Limited later bought shares in the company.

In 1950, a joint commission of the Aluminium Companies made an analytical study of the proposed Volta Scheme prepared by the West African Aluminium Company Limited. The commission concluded in a report submitted in 1951 that the Volta River Scheme as was then envisaged was technically sound and economically feasible.

In the interest of the national economy, the Government of the Gold Coast (now Ghana), decided that the economic development of the Volta River Basin should be thoroughly investigated and a detailed report submitted for critical study before any rights to develop electric power from the waters of the Volta River were granted.

The government, therefore, engaged Sir William Halcrow and Partners to investigate the following aspects of the Volta River Project: (1) Hydro-electric power at Ajena

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36 The Volta River Preparatory Commission, op. cit., p. 12.
and Bui; (2) Irrigation and drainage of lands in or near
the catchment area of the River Volta; and (3) Navigation
on the River Volta, transport and port facilities. Their
report emphasized the point that any major development of
the Volta Basin would only be economic if there would be a
sufficient demand for the estimated power capacity to be
ultimately produced. This decision was based on the assump­
tion that demands for domestic and commercial uses alone in
Ghana were insufficient to make the Volta River Project
self liquidating. It was therefore recommended that the
bulk of the electricity to be produced should be used in
smelting bauxite to produce aluminium.

The Volta River Preparatory Commission was set
up in 1953 to follow up Sir William Halcrow's investigations
and to examine in greater detail the chief problems involved
in the implementation of the Volta River Project. In
essence, the Report of the Volta River Preparatory Commiss­
ion, 1956, concurred with the Sir William Halcrow's Report
but revised the original estimates of the cost of the
project.

In response to Ghana's request, the Government of
the United States of America appointed Henry J. Kaiser Com­
pany of Oakland, California, United States of America, to
reassess the Volta River Project as recommended by the
Preparatory Commission Report. A critical appraisal of the
the comparative costs of the various sites and structures of the project resulted in the choice of Akosombo, about one mile downstream of Ajena as a more suitable site. Other recommendations made in the Kaiser Engineers' Report dealt with the distribution of electricity and the location of the aluminium smelter.

Apart from the smelter which was to be financed by private interests, the estimated cost of the power project, together with the construction of the national grid, was a little over £70 million. The Ghana Government realized that foreign capital would be required, if the project was to come to fruition. The World Bank, upon application from the Ghana Government, reviewed the Report of the Kaiser Engineers. After considering the possible long term economic benefits of the Volta River Project to Ghana as a whole, the World Bank concluded that the project was sound and practicable. Consequently, the World Bank, and the United States Government agreed to help finance the Volta River Project.

Aluminium Production. The Volta River Project is basically a hydro-electric scheme. It consists of the construction of a high dam at Akosombo; a power house capable of producing 589 MW electrical energy in the initial phase and 883 MW in the final stage; and a transmission system.

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which will deliver electrical energy for consumption by the aluminium smelter at Tema, the mining industry and general consumers in the principal towns and cities in Southern Ghana.  

Closely related to the production of hydro-electricity is the construction of a 120,000 ton aluminium smelter at Tema, and the modernization and extension of its port facilities. The linking of the aluminium smelter with the production of electricity makes the Volta River Project economically viable. This will ensure a dependable outlet for the electricity to be produced. The mining industry of Ghana, including the existing manganese, gold and bauxite mines provides another large market for the electricity. These mines currently meet their electricity requirements from thermal plants but they will be expected to switch on to the Volta transmission network as soon as assured supplies of electricity become available at Akosombo.

**Benefits of the Volta River Project.** The abundant supply of electrical power from the Volta River Project will attract new industries and stimulate the improvement of existing ones in the area covered by the national grid system. The aluminium smelter will lead to a fuller exploitation of Ghana's bauxite deposits which are estimated at 200

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million long tons.

At present imported fuel oil provides the principal motive power to Ghanaian industries. The availability of abundant electricity will reduce the reliance on fuel oil. There will also be a considerable expansion of activities at the Tema port as a result of the operations of the aluminium smelter and a general increase in industrial production.

The vast Volta Lake will also provide practical possibilities of developing a system of lake transportation. The lake will offer cheap transportation facilities and open up areas on the fringes of the lake as well as encourage the movement of agricultural produce and forest products of the Volta Basin to the principal consuming centres in Ghana.

III. POPULATION RESETTLEMENT IN THE VOLTA BASIN

The Volta River Project is not without its problems. Behind the Akosombo dam, a lake will be formed and it will displace about 80,000 people who are currently being resettled. Some fifty-four sites have been selected where new villages and farms can be established. The location of these new settlements is shown in Figure 3, 'New Settlements in the Volta Basin', on page 76.

Before relocation, most of the communities lived in their own ancestral houses and within their own tribes. The main tribal groups are Ewe, Akwapim, Guan, Krobo, Kwahu,
FIGURE 3
NEW SETTLEMENTS IN THE VOLTA BASIN

Source: Survey Department, Accra, Ghana
Krachi and Gonja. But others, like the yam farming Konkombas of Krachi and the Tongu (Ewe) fishermen who together constitute some twenty per cent of the total number of displaced people, live in the areas of other tribes. These tribal characteristics were duly considered in the resettlement of the people, by the Volta Basin Population Resettlement Team. The team is composed of representatives of the Volta River Authority, Lands Secretariat, Ministry of Agriculture, School of Architecture, Kwame Nkrumah University of Science and Technology, Ministry of Social Welfare and United Nations Officials. A comprehensive approach is reflected in the composition of the working party.


On the basis of valuable social data on the communities to be flooded by the lake, the Volta River Preparatory Commission recommended that the Ghana Government should assist the people to resettle themselves. This recommendation was accepted by the government.

The government's policy on resettlement is stated in the Volta River Development Act. It states that all the land which is to be inundated will be acquired by the Ghana Government and compensation will be paid in money or in non-monetary assistance. It also stipulates that no one shall be entitled to dispute the compensation offered to him if his only reason is that it is not in money. This provision
has given the Volta River Authority, the body legally responsible for resettlement, the power to use its discretion in taking measures to resettle the displaced people in the best possible manner. Though there is provision for cash compensation, yet the emphasis is placed on the resettlement of the people in permanent towns and villages.

The Act further authorizes the Minister of Social Welfare to take steps to assist in the resettlement scheme and to ensure that no person suffers undue hardship or is deprived of necessary public amenities as a result of the resettlement scheme.

As a result of the Ghana Government's injunction that no one is to be worse off than he was previously, the resettlement scheme is being used as a means of raising the level of living of the people affected by the lake and in this sense resettlement is a direct government responsibility.

New Settlements and the Volta Basin Regional Plan. Sociological investigation covered topics such as social structures, composition of households, number and types of houses, farms, and other property.

Individual preferences were respected in the regrouping of the people in so far as they were compatible with the ultimate good of the displaced people, and were not in conflict with Ghana's planning objectives.
Studies for the whole Volta Basin Planning Region were carried out before resettlement started. The studies covered population projections of towns around the lake, communication network and potentialities for agricultural and industrial development based on resources existing in the Volta Basin and any new opportunities for development of industries. For example, it was found that the displaced people would be resettled within the basin which, as defined for planning purposes, already carried a population of over 100,000 whose future needs must be kept in view when locating new settlements.

A study of the national communication trunk routes was made and a hierarchy of towns in the whole Volta Basin was arrived at. Soil surveys to locate areas of rich agricultural soils, and to determine their crop bearing capacities and the types of crops which can be grown were made. All these studies led to the preparation of a Regional Plan for the Volta Basin. It was within the general framework set out in the Regional Plan that new settlements were located in the Volta Basin.

Housing for the Displaced People. The Ghana Government regards the Volta River Project as a multi-purpose undertaking in which the whole area of direct economic impact of the Project should be considered as a unit for planning purposes. In this regard, population resettlement in the
Volta Basin forms an integral part of the Volta River Project.

An example of the immensity of the task to be performed within a limited period of time is provided by the housing needs of the people. It was estimated that about 10,000 houses would have to be built for the displaced people before the middle of 1964.\(^{39}\) The ultimate number of houses required is 15,000.

**Core Housing.** The original intention of the Volta River Authority was to build all these houses through self-help projects—that is to help the people affected to shoulder the responsibility of building the whole house from the beginning to the end. For some reasons, this proposal could not be carried out. First, besides the large number of houses to be built, the required number of technicians to help the people build their own houses could not be organized early enough. Second, the experts were agreed that the speed with which the houses had to be turned out was so great that self-help methods as envisaged would be unsuitable for handling the housing construction programme. In view of these difficulties a compromise was reached by providing core housing.

Core housing is a major variant of the self-help

technique adopted in community development projects, and it was introduced into Ghana by the United Nations Mission. The core-house scheme rests on the premise that a family can move into the complete room—that is the nucleus or core of the house—and thereafter expand the house as time and funds allow.

Ghana has used the core-house scheme to facilitate population resettlement in the Volta Basin. By the middle of September, 1963, five of the new settlements were ready for occupation. The core of the house consists of concrete foundations and aluminium roof for a four-room house with the walls of one room only completed. No services are provided at this stage. The people, through self-help projects, will provide themselves with some of the public services and amenities.

The core of the house is not intended to be a temporary house but the first phase in the construction of a permanent house. After the people have been resettled in these core houses, they will then be organized to put up the remaining walls of their houses, provide facilities and at the same time attend their farms.

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41 A Special Issue of _The Volta River Project_, March 1964.
Unless a settlement is planned from the beginning for core houses, a core-housing project may deteriorate into a slum. Hence, the layout and placement of the houses must be planned for expansion and provision must be made for open spaces, tree planting and recreational areas.

**Occupations.** The permanence of settlements does not depend on the provision of core housing alone. Apart from housing, the inhabitants must be provided with a dependable source of income, to enable them to complete their houses and to raise their levels of living.

**Agriculture.** Most of the displaced people are farmers. Because of this fact and also because of the importance which the Ghana Government attaches to rural development, the Ministry of Agriculture and the Farmers' Council Cooperatives are using population resettlement as an opportunity for introducing planned methods of modern agriculture into the Volta Basin.

In order to get large acreages under cultivation, introduce mechanization and financially justify it, the new settlements are being organized into farming cooperatives. The United Ghana Farmers' Council Cooperatives is establishing tractor and farm equipment stations all over the Volta Basin to serve these cooperatives. It is hoped that an agricultural revolution will take place in the Volta Basin which would set a pattern of modern agriculture for the rest of the
country and at the same time provide a sound economic base for the new settlements.

The first of the new settlements to be developed is Nkwakubew where core houses for some two thousand people are completed. People from twenty-two villages have already moved into the settlement. A three hundred and fifty acre experimental maize farm has been established near this settlement. This farm is one of the largest, wholly mechanized agricultural operation in Ghana.\textsuperscript{42} A combine harvester, which picks cobs, de-husks, shells, and bags the grain is used for harvesting maize. It is the first of its kind in Ghana. There are also demonstration plots for tobacco, oil palm and citrus fruits. What has been done for Nkwakubew will be repeated in many parts of the Volta Basin. Already, a great deal of government help is being provided through the services of various agencies which are contributing to the scheme. With this help and the local efforts and enthusiasm of the people, the Volta Basin Population Resettlement Scheme stands a good chance of succeeding.

Industry. It has been stated in the Ghana Seven-Year Development Plan that the agricultural and mining commodities that are at present exported mostly as unprocessed primary products should be progressively processed and manufactured before export. Consequently, a number of

\textsuperscript{42}Ibid.
industries will be established in the Volta Basin. The types of industries and their locations are shown in Table III, 'The Location of New Industries in the Volta Basin', page 64.

Metallurgical Industry. It is proposed to establish a metallurgical industry at Kete Krachi to produce 500,000 tons of steel and 400,000 tons of rolling stock a year. The choice of Kete Krachi is supported by the following reasons: (1) It is centrally located in relation to the sources of raw materials, namely iron ore and limestone, and (2) its location on the Volta Lake will facilitate the assembling of raw materials and the distribution of manufactured products.

Metal and Machine Industries. When the Volta Dam is completed, Akosombo will have a decided advantage over other settlements in the Volta Basin with respect to the availability of skilled labour and social amenities. It will also have a favourable transportation outlet for manufactured goods moving north by water and south by road and rail. Furthermore, there will be abundant and cheap electricity. Industries which use possibly semi-processed raw materials, such as metal and machine industries, appear most suitable for Akosombo. These industries are large consumers of electricity, demand skilled labour and use iron and steel which may be obtained from Kete Krachi.
Pulp and Paper Industry. Doxiadis Associates, an engineering consulting firm was asked by the Ghana Government to investigate the possibility of setting up a pulp and paper industry in the country. In their report, submitted in April 1964, they suggested Akuse as the site of the factory for turning out fifteen thousand tons of paper a year. At first the factory will depend on begasse, a by-product to be obtained from the Akuse Sugar Factory, and later on tropical hardwoods.

This project appears to be subject to many objections among which is the problem of getting regular supplies of raw materials over the years. The market for paper produced in Ghana has not been adequately studied. In view of these objections, it is unlikely that any commitments will be made by the Ghana Government now.

Textile Industry. A jute factory has been proposed for Yeji. Experiments are being carried out to determine whether urena labota, sisal and cotton can be grown locally to feed textile mills in the Volta Basin.

Food Industries. Food industries to be established include sugar factories, a salt factory and a rice mill. Work on the Asuchuari Sugar Factory, near Akuse, has already begun. Its annual output will be twenty-five thousand tons of sugar and will employ two thousand people.

Atebubu has been suggested for a rice mill. The annual output will be thirty-six thousand tons. The mill
will be fed principally by rice paddy fields of the State Farm Corporation, near Atebubu.

It is in the production of agricultural raw materials that the new settlements will make a great contribution to the national economy.

Transportation. The creation of the Volta Lake will initially disrupt existing lines of road connections, notably at Yeji and Kete Krachi, which will have to be replaced. Apart from opening up new areas of the country and giving easier access to certain natural resources, the lake will provide relatively cheap water transportation.

Field studies for the Kaiser Report on the Volta Lake Transportation included preliminary selection of more than thirteen ports and landing sites. These sites included Akosombo, Adawso, Kpeve, Kpandu, Amanfrono, Kete Krachi, Dumbia North and South, Yeji North and South, Port Tamale and Morno.43

There would be two principal types of traffic: Local Lake Traffic and Major North-South Traffic linking the northern and southern part of Ghana.

A local lake cargo service between Akosombo and Kete Krachi, Amanfrom and Kpandu landings would be provided daily as local transport needs develop. This traffic is

estimated to total 43,000 tons per year to Port Tamale and 172,000 tons per year to Port Akosombo for a total of 215,000 tons local lake traffic in 1970. The estimated 215,000 tons local lake cargo is predicated chiefly on the economic activity of the resettled lake populations. By the provision of an efficient transportation system of water and roads, the resettled people could transport their surplus agricultural products to any part of the Volta Basin at a reasonably low transport cost. This would stimulate and increase economic activities in the new settlements.

Volta Lake Community Traffic. The resettled communities will be provided with technical assistance to undertake new agricultural development, leading to higher productivity and higher levels of living. The landing sites along the shores of the Volta Lake, in addition to Port Akosombo and Port Tamale will serve as outlets for most of the marketable agricultural products in the Volta Basin. The majority of these landings are located on the eastern shore of the lake. Most of the new settlements are also located here. The forecast of traffic generated by these settlements is based on very limited evidence. Nevertheless, a minimum assumed level of traffic has been included in the 1970 traffic projections for each one of these landings, as shown in Table IV, 'New Local Traffic Generated by Lake Volta Community Development'.
TABLE IV
NEW LOCAL TRAFFIC GENERATED BY LAKE VOLTA COMMUNITY DEVELOPMENT

<table>
<thead>
<tr>
<th>Lake Volta Port</th>
<th>Freight Annual Tonnage</th>
<th>Passengers Annual Tonnage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Port Akosombo</td>
<td>30,000</td>
<td>28,000</td>
</tr>
<tr>
<td>Adawso Landing</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Kpeve Landing</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Kpandu Landing</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Amanfrom Landing</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Dumbai Landing</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Kete Krachi Landing</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Yeji Landing</td>
<td>6,000</td>
<td>8,000</td>
</tr>
<tr>
<td>Morno Landing</td>
<td>4,000</td>
<td>5,000</td>
</tr>
<tr>
<td>Port Tamale</td>
<td>13,000</td>
<td>6,000</td>
</tr>
</tbody>
</table>


This traffic is considered to be the minimum which will be generated by local economic development including new settlements in the vicinity of the Lake Volta ports and landings.

IV. THE VOLTA RIVER AUTHORITY

The Volta River Development Act became law on April 19, 1961. The purpose of the Act was to establish a Volta
River Authority charged with the responsibility of generating hydro-electricity by constructing a dam and a power house at Akosombo and of dealing with all developmental, commercial and administrative problems arising from the Volta River Project. The Authority was also made responsible for the resettlement of people displaced by the Volta Lake.

The provisions of the Act may be summarized as follows: (1) The Volta River Authority is a Statutory corporation with the President of Ghana as the chairman and seven other members. The Authority is required to train Ghanaians so that eventually the Authority will become a fully Ghanaiian organization; (2) The Volta River Authority is limited to supplying electric current only in bulk so that there should be no duplication of the retail sales and distribution functions of the Government's Electricity Division; (3) Land acquired for all purposes of the Volta River Project will be administered by the Volta River Authority. There is provision in the Act for the payment of compensation either in money or in the form of a core house; and (4) The Volta River Authority is responsible for the proper allocation of funds granted to it by the Central Government.

The Volta River Authority is therefore responsible for planning in the Volta Basin. To ensure that projects undertaken in the Volta Basin are well-coordinated and
integrated, the Authority commissioned the Division of Town and Country Planning together with the assistance of the United Nations Mission to Ghana, to prepare a regional plan for the Volta Basin Planning Region. The location of settlements and industries in the Volta Basin will be guided by the proposals made in this regional plan.

V. SUMMARY

The Volta Basin is a low-lying region, which covers an area of 20,000 square miles. At its southern end there is a gorge formed by the Volta River through the Akwapim-Togo Range.

The development of the power resources of the River Volta and the use of the electricity for smelting bauxite is called the Volta River Project. For the past few years, certain private companies have shown interest in the project. But in the interest of the national economy, the Ghana Government invited Sir William Halcrow and Partners to study the project and to make recommendations. Further studies of the project were made by the Volta River Preparatory Commission and by Henry J. Kaiser Company. The Volta River Project is being implemented according to the latter's proposals.

Aluminium smelting will consume most of the electricity to be produced. Other benefits which will result from the project are abundant electricity for industrial,
commercial and domestic uses, the establishment of new industries, increase of agricultural productivity through the use of the Volta Lake for irrigation and cheap lake transport facilities.

Housing, employment and social amenities are the pressing needs of the displaced people. Core housing, a variant of the self-help technique used in community development is being used to resettle the people. Most of the displaced people are farmers, and so the Department of Agriculture and other agencies will introduce new agricultural methods into the Volta Basin. Other employment opportunities will be provided by the establishment of food processing industries.

The national importance of the Volta Lake ports, such as Akosombo, Kete Krachi, and Tamale is illustrated by the enormous traffic they would handle. Besides, the resettled communities will be equipped with technical assistance to undertake new agricultural projects in order to increase agricultural productivity. The ports and landing sites will serve as outlets for most of the marketable agricultural products in the Volta Basin.

The Volta River Authority which administers the Volta River Project is directly responsible for population resettlement in the Volta Basin.
CHAPTER V

NATIONAL PLANNING FOR REGIONAL DEVELOPMENT

National planning calls for the identification of problems facing a country, and the careful definition of national objectives. Government policies based on national objectives create the framework within which regional development must take place.

The use of national planning to promote regional development in India is reviewed with a view to evolving a list of criteria for evaluating the Volta Basin Population Resettlement Scheme.

Introduction. India is several times larger than Ghana, both in terms of population and area; but both countries are in the process of development. India became independent on August 5, 1947; whereas Ghana had independence on March 6, 1957.

Since the attainment of political independence, India has prepared and implemented two national development plans. In the current plan, India's 'Third Five-Year Plan', the long term and short term objectives of the country are stated. Similarly, Ghana's 'Seven-Year Development Plan, 1963/64 to 1969/70' defines the government's objectives. Both plans were designed to help achieve the long term
objectives of the respective countries.

Multi-purpose river basin development schemes have become common in many developing countries. India's Damodar Valley Project was started in 1948. Already, four dams have been built, and a large number of riparian settlers have been displaced. An examination of the steps taken to resettle these people will throw further light on the problem of population resettlement in Ghana. In view of the similarity between the population resettlement problem in India's Damodar Valley and Ghana's population resettlement problem in the Volta Basin, the former's experience will have important implications for the latter.

I. INDIA

Review of India's Five-Year Plans

The first Five-Year Plan of India was prepared in 1951. In preparing that plan, the Planning Commission of India attempted a comprehensive review of the country's resources and needs. The programme of development incorporated in the plan was meant to strengthen the economy at the base and to initiate institutional changes which would facilitate more rapid economic growth in the future.

The Second Five-Year Plan, 1956, continued the process started in the previous plan. It provided for a large increase in the production of goods and faster industrial growth. The plan set forth long-term objectives and
a strategy for economic and industrial development based on
the socialist pattern of society. In such a society,
the accent is on the attainment of positive goals,
the raising of living standards, the enlargement
of opportunities for all, the promotion of enter­
prise among disadvantaged classes and the creation
of partnership among all sections of the community.44

The First and Second Five-Year Plans were described
as phases in the long term social and economic development of
the whole country. In the Third Five-Year Plan, it is stated
that:

the basic objective is to provide sound founda­
tions for sustained economic growth, for
increasing opportunities for gainful employment
and improving living standards and working con­
ditions for the masses.45

Priority is given to improvements in agriculture
and the maximization of agricultural production. The growth
of agriculture and the development of human resources hinge
upon the advance made by industry. It is also stated that
agriculture and industry must be regarded as integral parts
of the same process of economic development.46

The political framework of India encourages both
private and public participation in the development of the
economy. Village and small-scale industries have a crucial

44The Planning Commission of India, The Second
Five-Year Plan (New Delhi: Government Printing Department,
1956), p. 5.

45Ibid.

46Ibid., p. 7.
role in the development of the national economy, for, besides providing consumer and other goods and employment, they also provide a method of ensuring a more equitable distribution of the national income.

India is aiming at self-sufficiency because she has declared that:

a basic objective in the strategy of development is to create the conditions in which dependence on external assistance will disappear as early as possible.\footnote{Ibid., p. 26.}

One of the ways in which India seeks to achieve this objective is to develop the water resources of the country. The first multi-purpose river basin project in India is the Damodar Valley Project.

The Damodar Valley Project

India is a vast country and it is divided into a number of regions. One of these regions is the Damodar River Basin.

Geographical Background. The principal river in this region is the Damodar. See Figure 4, 'Location Map showing Damodar Valley Area', page 96. The Damodar River rises in the hills of Chota Nagpur, Western Bengal at an elevation of 2,000 feet. It flows generally in a south-easterly direction for about 180 miles, through the Province of Bihar and enters the deltaic plains below Raniganj. Some distance below this point, the Damodar River in the

**Figure 4**

Location map showing Damodar Valley region.
vicinity of Burdwan abruptly changes its course to a southerly direction and flows into the Hooghly River, about 30 miles below Calcutta. The Damodar River is 336 miles long. Its main tributary is the Barakar River which enters the Damodar from the north. See Figure 5, 'Drainage of the Damodar River Basin', page 98.

The topography of the Damodar Valley varies from the rough hilly section in the upper portion of the drainage area to the flat deltaic plain of the lower region. The total drainage area is 9,400 square miles.48

The catchment basins of the Upper Damodar and Barakar Rivers, which comprise the upper portion of the drainage area, are generally denuded of forests or vegetation cover. The heavy downpour of the monsoon season has badly eroded the land by cutting deep gullies.

Out of a total annual rainfall of 55-60 inches received by the Damodar Valley, about 80 per cent falls during the months of June, July and August. During this season floods occur. Frequent overflows have led to a heavy deposit of alluvial soil in the lower portion of the valley below the confluence of the Baraka and the Upper Damodar Valleys.

Conditions before the Damodar Valley Project. The Damodar Basin is composed of two distinct landforms, caused by differences in climate and soil characteristics. The upper valley with its dry climate and steep slopes has abundant mineral resources. The lower Damodar Valley which extends into the deltaic region of West Bengal is predominantly agricultural.

According to the 1951 Census of India, the population of the entire Damodar Valley was five million of whom 4.5 million lived in the rural areas and the remainder in urban areas. There were twenty-five towns and 10,000 villages.49

Subsistence farming was the type of agriculture practised in the Lower Damodar Valley. Holdings were small and uneconomic and the farmers lacked any incentive to increase agricultural production. By contrast, the land in the Upper Damodar Valley was more susceptible to soil erosion. Variations in the productivity of land in the upper valley were predominantly due to differences in soil characteristics.

The existence of irrigation facilities, so necessary for boosting agricultural production was limited. In the Lower Damodar Valley and the adjoining areas, out of a total farming area of about 3 million acres, the area under

49Ibid.
cultivation was only 800,000 acres.\textsuperscript{50}

Floods, famine and disease killed many people in the Damodar Valley during and after World War II. In Bengal alone 3.5 million people starved to death. Epidemics followed in the wake of famine and an additional 1.2 million people died of disease. These were the conditions prevailing in the Damodar Valley about the time the Damodar Valley Corporation was established. The development of the water resources of the Damodar Basin was a response to national emergency and the Damodar Valley Project was designed to help solve these problems.

**Agriculture.** The whole agricultural economy of the Damodar Basin rests on one main crop, rice. Sufficient and reliable supply of water is essential for the cultivation of rice. With the floods of the Damodar Valley controlled, farmers would be assured of constant supply of water throughout the year.

The preliminary planning of a long range irrigation and drainage programme envisaged the servicing of a large area of fertile agricultural land in West Bengal. The irrigable area is now supplied with water by a network of canals. It is divided into suitable blocks of land which are directly fed by small village channels. The excavation and maintenance of these works is carried out by the

\textsuperscript{50}\textit{Ibid.}
collective efforts of the villagers themselves.

Durgapur Dam is the main feature of the irrigation scheme. It is designed for a flood stage of 550,000 cusecs. The barrage has two main canals, one is used for navigation and the other for irrigation only.\textsuperscript{51}

\textbf{Industry.} The Damodar Basin is rich in natural resources, and it is well situated for the establishment of manufacturing industries. Coal occurs in Jharia, which ranks first in India's coal production. A high grade iron ore (haematite) is mined in Singhbhum District, within a short distance of the Damodar Valley. Other minerals which occur in the Damodar Valley are bauxite, copper and mica. There is sufficient supply of limestone in the Valley. The existence of many raw materials in close proximity to the Durgapur District makes a strong case for the location of extractive and manufacturing industries in that area. Subsidiary industries will be attracted to the Damodar Valley, when basic industries, such as iron and steel industry, are established. This situation would require the development of industries which produce consumer goods, and service industries for the whole region.

The Central Government of India and the State Government of West Bengal have jointly decided to locate a

\begin{footnote}
\textsuperscript{51}\textit{Ibid.}, p. 30.
\end{footnote}
A million-ton steel plant in the Durgapur Industrial District.\textsuperscript{52} Industrial development in the Durgapur area must be studied in relation to the existing industrial centres nearby. In the Damodar Valley there are two principal industrial nodes—Asansol and Dhandad, both of which grew out of coal mining industry. The Dhandad area is marked by a conspicuous absence of steel manufacturing works, though it is noted for the manufacture of hard coke, and its by-products, such as chemicals, ceramics, glass, and refractories. The Asansol area has developed the manufacture of iron and steel, partly on account of the availability of cheap power, adequate water supply and its proximity to the market centre of Calcutta.\textsuperscript{53}

Population Resettlement in the Damodar Basin. The Damodar Valley Corporation Bill was introduced in the Constituent Assembly of India (Legislative) on December 1, 1947. Proposing reference of the Bill to a Select Committee, Shri N. V. Gadgil, Minister for Works, Mines and Power, explained briefly the objectives of the Damodar Valley Project. As regards the resettlement of displaced people, he assured the House that those people whose lands would be acquired for the purpose of the project would be resettled in better surroundings.


\textsuperscript{53}\textit{Ibid.}, p. 211.
In connection with the Damodar Valley Project, four dams have been built. The reservoirs covered 69,000 acres of land of which a little over 50 per cent was classed as arable. About 93,000 people were displaced when 302 villages were flooded by the reservoirs.54

The Damodar Valley Corporation assumed responsibility for resettling the displaced families. But it soon became evident that a fair price for old fields would not be enough to assure the improvements in agriculture envisaged by the Central Government. It became necessary to give them lands whose yield would be superior to that of their former holdings. The participating governments agreed that the displaced people should be given new land for their old land and new houses for those submerged by the reservoirs, and that they should be provided with better living conditions. Consequently, 6,579 acres of land were reclaimed for the people. Compact tracts of land were allotted to the farmers. This was an attempt to put an end to the numerous scattered plots of land typical of former times.

The Damodar Valley Corporation was deeply concerned with the future of the displaced people. For its population resettlement scheme, the Damodar Valley Corporation built four trial houses. These houses were criticized for lack of

54United Nations, op. cit., p. 64.
roominess and some other shortcomings. As a result, the Corporation compromised by designing three new houses. The largest of these had three rooms, and two fair sized verandahs. Fifty-six houses based on the new designs were finally built at Bachhai Village. The layout of this village is shown in Figure 6, 'The Layout of Bachhai Village', page 104. The other villages built by the Damodar Valley Corporation have a similar layout.

In general, the houses were built of sun-dried bricks; foundation walls and the two top layers of outer walls were made of kiln dried brick and cement mortar. The roof was covered with locally-made tile.

Population resettlement in Bachhai was a partial success, judging by the number of people who decided to live there. However, many difficulties were encountered in other parts of the Damodar Valley. Most of the people accepted new land but refused to move into new villages provided for them. Before long, many people were either abandoning their villages or modifying the new houses to suit their way of life. Chimneys were considered unhealthy and were therefore torn down. As a result people died of gas fumes because there was no outlet for the smoke from the heating pots to escape. This incident occurred in Tiliaya.

\[55^{Ibid., \ p. \ 63.}\]
\[56^{Ibid., \ p. \ 64.}\]
FIGURE 6

LAYOUT OF BACCHAI VILLAGE

Later on, the Damodar Valley Corporation adopted the policy of ascertaining from the displaced people in advance whether they preferred a cash compensation or compensation in the form of a house and land on which to cultivate crops.

Most of the displaced people took cash compensation for the surrender of their ancestral homes to build a house more to their liking; others took cash which was soon dissipated. Nearly 92 per cent of the people took cash compensation. Table V, 'The Rehabilitation of People from Submerged Lands', page 106, shows the Corporation's efforts to improve the levels of living of the displaced people.

Had earlier attention been given to the traditions of the displaced people, the number of people electing to receive cash payment would most probably have been greatly reduced.

Transportation and Services. When the Durgapur District is developed as an industrial centre, and as a centre for agricultural products, traffic to and from the district will increase tremendously. It will therefore be necessary to provide easy access for agricultural products from the surrounding villages to reach the town of Durgapur.

The Burdwan-Katwa and the Ahmadur-Katwa railways are at present narrow-gauged lines. Furthermore, Bankura

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57Ibid.
### TABLE V

**REHABILITATION STATUS OF FAMILIES FROM SUBMERGED AREAS OF DAMODAR VALLEY CORPORATION**

<table>
<thead>
<tr>
<th>Project</th>
<th>Total land area (acres)</th>
<th>Arable portion (acres)</th>
<th>Villages involved No.</th>
<th>Families affected No.</th>
<th>Persons displaced No.</th>
<th>Houses involved No.</th>
<th>D V C Compensation by cash</th>
<th>D V C Compensation by resettlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tilaiya</td>
<td>16,107</td>
<td>7,902</td>
<td>56</td>
<td>2,691</td>
<td>16,120</td>
<td>629</td>
<td>2,114</td>
<td>500</td>
</tr>
<tr>
<td>Konar</td>
<td>6,672</td>
<td>2,115</td>
<td>27</td>
<td>1,218</td>
<td>5,749</td>
<td>118</td>
<td>1,335</td>
<td>118</td>
</tr>
<tr>
<td>Bokaro barrage (thermal plant)</td>
<td>1,185</td>
<td>538</td>
<td>3</td>
<td>371</td>
<td>1,697</td>
<td>59</td>
<td>448</td>
<td>59</td>
</tr>
<tr>
<td>Maithon</td>
<td>26,176</td>
<td>15,803</td>
<td>86</td>
<td>5,211</td>
<td>28,030</td>
<td>1,588</td>
<td>11,468</td>
<td>1,538</td>
</tr>
<tr>
<td>Panchet Hill</td>
<td>19,046</td>
<td>9,735</td>
<td>130</td>
<td>10,339</td>
<td>41,461</td>
<td>2,119</td>
<td>9,735</td>
<td>2,119</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>69,186</strong></td>
<td><strong>39,093</strong></td>
<td><strong>302</strong></td>
<td><strong>19,830</strong></td>
<td><strong>93,055</strong></td>
<td><strong>4,513</strong></td>
<td><strong>25,100</strong></td>
<td><strong>4,384</strong></td>
</tr>
</tbody>
</table>

has no direct railway connection with Asansol or Burdwan. The possibility of linking Burdwan with Bankura should be investigated. There is the possibility of electrifying the Asansol-Burdwan section to meet the future transportation needs of a considerable suburban population.\(^5^8\)

Inland water transportation has been important in India for more than two thousand years. The decline of navigation began with the advent of railways in India. The development of inland water transportation is one of the functions of the Damodar Valley Corporation. Consequently, a navigation canal has been built to link the Damodar with the Hooghly. This canal will facilitate the transportation of bulky goods between Durgapur and Calcutta.

Seven municipalities in the Durgapur District have piped water supply. For isolated communities and some rural areas, water supplies can be procured from dug or tube wells. As far as possible, the new villages built for displaced people were supplied with drinking water from the reservoirs. In those villages where this could not be done, wells were provided.

Ten towns in the Durgapur District have electricity. It is expected that after the completion of the Damodar Valley electricity distribution system, it will be possible

\(^{58}\)Prasad, \textit{op. cit.}, p. 212.
to supply not only the existing towns, but also all the large villages in the Damodar Basin with electricity for domestic and industrial uses.

The Damodar Valley Corporation

The idea of controlling the Damodar River was given prominence in 1943 when disastrous floods occurred in the Damodar Basin. The Government of India commissioned the Central Technical Board to take necessary measures to protect the inhabitants of the Damodar Basin from future floods. A memorandum for the coordinated development of the entire Damodar Basin was prepared and this was finally accepted as the policy of the Damodar Valley Project.

In 1948, by an Act of Parliament, the Damodar Valley Corporation was created as an autonomous body to implement the Damodar Valley Project.

Functions of the Damodar Valley Corporation. The Damodar Valley Corporation consists of a chairman and two members appointed by the Central Government, after consultation with the state governments of West Bengal and Bihar. It has a secretary, who is its chief executive officer, and a financial advisor. Both of them are appointed by the Central Government.

The statutory functions of the Corporation are:59

(1) Flood control;
(2) Promotion and operation of irrigation schemes, water supply and drainage;
(3) Generation, transmission and distribution of electric power;
(4) Promotion and control of navigation;
(5) Promotion of afforestation and soil erosion control in the Damodar Valley;
(6) Promotion of public health, agriculture, industrial, economic and general well being of the Damodar Valley and its area of operation.

The Corporation has been given broad powers to carry out these functions including the power to acquire property, erect structures and canals; to stock fish in reservoirs; to provide for the resettlement of displaced families living in the reservoir area; and to take measures for the prevention of malaria.

Upon approval by the State Governments of West Bengal and Bihar, the Corporation's transmission lines may be extended to any area beyond the drainage basin itself. The Damodar Valley Corporation is further empowered to divert and close any road or to create open space for recreational purposes, provided it pays compensation to the persons adversely affected by its projects.

The broad powers granted to the Damodar Valley Corporation should enable it to initiate projects in order
to raise the level of living of the people of the Damodar Basin. Through the delivery of water to every agricultural village, the Corporation can give the villagers the prospect of increasing their incomes. Since irrigation in India requires the collaboration of land-owners and cultivators along the same water course, the Corporation can organize them into cooperatives for their economic advantage.

The autonomy of the Damodar Valley Corporation was reduced in 1957, partly through an amendment of the original Damodar Valley Corporation Act. By this amendment the full-time status of the members and the chairman of the Board of Directors was abolished. The amendment strengthened the chain of command from the Central Government Ministry to the administration of the Damodar Valley Corporation. The previous independent initiative exercised by the Corporation in policy-making was thus reduced vis-a-vis the states of West Bengal and Bihar as well as the Central Government of India.

**Implications of India's Experience for Ghana**

The following lessons can be learnt from the Damodar Valley Project:

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60 Government of India, the Damodar Valley Corporation (Amendment) Act, No. 57 of 1957, 24 December, 1957.

(1) The Central Government should carefully formulate and state the objectives of the country.

(2) A regional development scheme must form part of a national plan.

(3) New settlements for displaced people must perform functions which are consistent with national objectives.

(4) The relocation of families affected by reservoir construction is a governmental responsibility. Every effort should be made to ensure that displaced people are resettled in new settlements.

(5) A single corporation is most suitable for administering a multiple-purpose river basin development provided the Central Government and the State Governments can exercise some control over the activities of the corporation.

(6) The corporation should transfer most of its functions to the State Governments in stages. Provision should be made in the act creating the corporation for such a transfer of functions.

II. THE UNITED STATES OF AMERICA

The United States of America is one of the pioneers of the multiple-purpose river basin development. Ghana's Volta River Project is similar to the Tennessee Valley Project in the United States. The building of reservoirs in connection with the Tennessee Valley Project resulted in the
relocation of people in the reservoir area. The Project is examined here with particular reference to population re-settlement.

The Tennessee Valley Project

In a broad sense, the Tennessee Valley region includes the Tennessee River Basin and the area served by the Tennessee Valley Authority's power. The region covers 92,000 square miles and it includes 201 counties.

In the early 1930's, the Tennessee Valley was a depressed area. It was characterized by a low standard of living and low agricultural productivity.

The Tennessee Valley region was designated by an Act of Congress as a region for planning and development. In 1933, the Tennessee Valley Authority was established primarily to develop water resources of the Tennessee River Basin in an integrated way so as to raise the standard of living of the people within the region.

Flood Control and Transportation. The Tennessee Valley Authority was assigned the task of controlling floods and of providing nine-foot navigation on the Tennessee. It also had the function of generating electric power.62

The Tennessee Valley Authority began reservoir operations in 1936 with the closure of the Norris Dam.

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Since then the benefits of flood regulation in the Tennessee River Basin have been very great.63

By 1956, seven high dams built on the Tennessee had turned the river into a number of reservoirs. These reservoirs are connected to each other by locks, thus allowing through navigation for a distance of over 630 miles. Improved navigation on the Tennessee River is one of the major programmes through which the Tennessee Valley Authority fulfills its broad responsibilities for unified development of the region's resources.64

The Power Programme. Full development of the country's commercial and industrial economy would be impossible without a plentiful supply of electricity. In the United States, it is an absolute requirement for national strength and security. For these reasons, the production of electricity is recognized by the United States Government as a public responsibility.

Electricity power is supplied to private consumers and Federal Agencies. The principal Federal Agencies are the Atomic Energy Commission, the Arnold Engineering Develop-

63Ibid., p. 93.

ment Centre at Tullahoma, Tennessee - an Air Force and tunnel project, and Tennessee Valley Authority's fertilizer plant at Muscle Shoals.

Relocation of Families. In carrying out its various programmes, the Tennessee Valley Authority has bought over 1,150,000 acres of land.65

When the Tennessee Valley Authority decides to build a dam and a reservoir, most of the people whose property is being purchased must move to new sites. The Tennessee Valley Authority wants the displaced people to be at least as well off as they were before, and to be willing to continue to cooperate in the Authority's programmes.

The number of displaced families which had been relocated in 1956 was 15,000.66

The Tennessee Valley Authority has had contracts with the agricultural extension services of seven State Colleges of Agriculture in the Tennessee Valley. Assistance in family relocation is one of the provisions in the contracts.

After a farm has been purchased the Authority notifies the owner of the farm that services of the county agent's office for resettlement are available free of charge. The county agent ensures that some members of the family are


66Ibid., p. 147.
employed in industry if they wish. For example in the Boone Dam area, over half the families had some member of the family working in industry in Kingsport, Bristol or Johnson City, all of which are twenty miles off Boone Reservoir, in 1956.

When people move from their homes in potential reservoir areas their institutions usually move also. Schools and churches are very important institutions. The Tennessee Valley Authority works closely with county superintendent of schools and the State Department of Education with respect to school relocation.67

In some cases, members of the same church were relocated as a group. For example, members of the Louisville Methodist Church were relocated as a group.

Grave removal is a related aspect of clearing land for a reservoir. In Norris over 5,000 graves had to be moved. The Authority's policy is to relocate the graves at the expense of the Tennessee Valley Authority and at a place selected by the family of the deceased. This has always been done reverently, with due consideration for the family affections and religious sentiments.

Agriculture and Industry. The government's nitrate plant at Muscle Shoals produces large quantities of

67Ibid.
fertilizer for agriculture in the Tennessee Valley region. Agricultural development today is based upon the adoption of new technologies of farming. Phosphate fertilizer is used on grains and legumes in the Tennessee Valley.

Industrial development of the Valley has occurred at an uneven pace. "Industrial activity in the region in recent years has been characterized by a depression decline, by a period of recovery, by a swift expansion during World War II and a continued growth in the post war period."\textsuperscript{68}

The most significant changes concerned the relative positions of manufacturing and agriculture. In 1929, some 23 per cent of the region's income came from agriculture; whereas manufacturing provided only 15 per cent. In 1953, the positions were virtually reversed with manufacturing industries providing 22 per cent of the region's income compared with 11 per cent for agriculture.\textsuperscript{69}

Implications of the Tennessee Valley Authority's Experience for Ghana

(1) The national objectives must be clearly stated by the Central Government.

(2) Water development and management programmes must be geared to national objectives.


\textsuperscript{69} \textit{Ibid.}, p. 225.
(3) The Central Government does have an interest in regional water development and management programmes more as a means of achieving national objectives than regional objectives per se.

(4) Water development and management in accord with national objectives will increasingly depend on the action of the Central Government. It is necessary to rely primarily on governmental institutions to achieve the most efficient utilization of water resources.

(5) There should be a great concern for the people who are to be directly affected by reservoir construction. The Central Government or its agency should be responsible for resettling them. The people's values and beliefs must be respected.

(6) Wherever possible, displaced people must be encouraged to integrate with existing communities. There should be an educational programme designed to achieve such an integration.

(7) A single public agency for water development and management is most suitable for the integrated river basin development.

(8) The river basin agency should represent the people of the basin broadly and not be representative of a particular clientele within the basin.

(9) As the Tennessee Valley Authority now operates, there
is no effective means of assuring that its policies are consistent with national policies, except in the distribution of power. This is perhaps the most serious weakness of the Authority concept.

III. CRITERIA FOR EVALUATING POPULATION RESETTLEMENT

The criteria which are recommended for evaluating population resettlement in the Volta Basin are described below. These criteria are based on population resettlement schemes in India and the United States.

Declared National Objectives

An explicit statement of national objectives is essential if regional development is to be consistent with the development plan for the whole nation. A clear distinction should be made between long term and short term objectives. The short term objectives must help the country to achieve its long term objectives.

In the Third Five-Year Plan, India has declared both her long term and short term objectives. On the basis of these objectives, policies have been formulated which will guide all regional development projects.

Regional Development Project as Part of a National Plan

Once a country has declared its objectives it becomes necessary for the Government of that country to take
steps to achieve them or at least to pursue them. However, to obtain a balanced and well integrated development for the nation as a whole, there should be a national physical plan. This plan should show in broad terms where future development must go. Regional development projects, such as the Tennessee Valley Project and the Damodar Valley Project must be compatible with the framework indicated in the National plan.

**Education for Resettlement**

Technological change in developing countries is today a widespread phenomenon associated with new projects. In India, the Damodar Valley Project has brought about many changes - some of them anticipated, others not expected. The refusal of some of the displaced people to live in the new villages built for them has focussed attention on the importance of the social aspects of population resettlement. For technological change to be meaningful and lasting, the human beings must play a leading role in it. This is particularly important in induced technological change such as the one taking place in the Damodar Valley because

social change can only occur if human beings themselves change, and can only be lasting if human beings find it rewarding to develop new systems of habits, new attitudes, new outlooks, new incentives and perhaps new ways of valuing time, material goods and even social relationship.70

The displaced people of the Damodar Basin were mainly farmers who used simple tools for cultivating crops. They should not have been asked to leave their ancestral homes without being prepared for life in the new villages. They should have been prepared through education. The benefits of the Damodar Valley Project should have been explained to them by means of the most effective communication media. Educating the people before resettling them would have taken a long time. Nevertheless, it would have ensured a favourable response to the Corporation's offer of accommodation in new villages.

Education for resettlement should not stop as soon as the displaced people have moved into new villages. It is a continuing process.

**Planned Settlements**

The functions which a settlement performs are often related to the functions of other settlements in the region. However, since India has defined her national objectives, the settlements in the Damodar Basin must contribute towards the attainment of these objectives.

An important national objective is the raising of the standard of living of all Indians. In the Damodar Basin, population resettlement offers an opportunity of encouraging rural people to adopt new methods of farming, of increasing agricultural productivity, and thereby of raising their
standard of living. The people must also be given the opportunity of choosing from a variety of jobs. This can be achieved by the introduction into the new settlements of non-agricultural industries which require agricultural raw materials.

It is not possible to achieve the benefits described above unless settlements are planned right from the start and due consideration is given to their future regional functions. Here the hierarchical concept of settlements must be applied. In locating new settlements due regard must be given to the service areas of existing urban centres.

Besides regional functions, settlements must perform local functions as well. Each settlement must have a good layout and provision must be made for its future growth.

The provision of adequate housing is essential in population resettlement. In an emergency, such as population resettlement resulting from the construction of dams, the provision of housing should be the responsibility of the Central Government or the agency to which it has delegated specific powers for resettling the people. The Damodar Valley Corporation is responsible for resettling the displaced people. This does not mean that the Corporation must provide every amenity in the new settlements. The people must be encouraged to participate fully in projects for the development of their villages. The Corporation's role should
be to provide certain basic amenities and then to plan the installation of roads, water power and other works so that the sites for new settlements become the logical and even the inevitable locus of private industries.

Consistency of Project Administration with National Policy

It would seem preferable to entrust the administration of a multi-purpose river basin project to a single authority or corporation, because its various aspects must be coordinated and integrated to bring optimum benefits to the nation.

A critical question which arises is the type of relationship which should exist between the authority empowered to implement the project and the Central Government. It is often advocated that such an authority should be given autonomy in the execution of its functions. An autonomous authority, such as the Damodar Valley Corporation, is not necessarily the best way of ensuring that the activities of the Corporation would satisfy national objectives. Autonomy, interpreted as complete independence, is inconsistent with the concept of democracy.

Some degree of autonomy must be granted the Damodar Valley Corporation, yet the Corporation must be accountable to the people whose interest it is expected to serve.

The national objectives of India must greatly influence the design of organizational arrangement for the
development of water resources. If broad social and economic objectives are sought through water development, then some form of governmental participation in the administration of the project will be essential. Private institutions would not have adequate incentive to make investments intended to realize these objectives.

Some values associated with the provision of water development services cannot be realized through the operation of market forces. No extensive argument need be presented to demonstrate that the realization of cultural and welfare values may necessitate public action in the water resources field. Governmental participation per se is not enough. There should be machinery in the administration of the Damodar Valley Project for ensuring consistency of regional development programmes with national policy.

Devolution of Functions

This criterion deals with the transfer of functions from the Damodar Valley Corporation to some other local or state arm of the Central Government.

No provision was made for the devolution of functions in the original Damodar Valley Act. In 1953, the Rau Committee, an Inquiry Committee appointed by the Government of India, redefined the functions of the Damodar Valley Corporation. As a result of its recommendations, the administration of nearly all social and allied activities in the
Damodar Basin have been transferred to the participating State Governments. For example, in 1957 the participating State Governments decided that the Damodar Valley Corporation need not have a programme for the development of cottage industries and this part of the Corporation's work was turned over to the State Governments concerned. Furthermore, in 1959, the West Bengal Government agreed to take over the cold storage plant at Kanainatsal.

III. SUMMARY

The lessons to be learnt from India's experience and from the experience of the United States of America have been identified and described. These lessons have been listed as criteria for evaluating the population resettlement scheme in the Volta Basin.

Both India and Ghana are independent developing countries. Both countries want to achieve their national objectives through multi-purpose river basin development projects. In Ghana, 80,000 people were displaced; whereas in India, 93,000 people were displaced by reservoirs. Both countries subscribe to the concept of a socialist society. In view of these similarities, it is considered that India's experience in resettling people would have important impli-

In the First Five-Year Plan of India, 1951, a comprehensive review of the resources and needs of the whole country was undertaken. The Second Five-Year Plan, 1956, provided for a large increase in the production of goods and for faster industrial growth. The plan set forth the long term objectives of India and the strategy for economic and industrial development based on the socialist pattern of society. In the Third Five-Year Plan, 1961, it was stated that;

the basic objective is to provide sound foundations for sustained economic growth, for increasing opportunities for gainful employment and improving living standards and working conditions for the masses. 72

Before the Damodar Valley Project was started, the Damodar Basin was a depressed area. Floods, famine, and disease had killed millions of people and the Central Government of India was compelled to take measures to protect human lives and property in the Damodar Basin.

The Damodar Valley Project covers an area of 9,400 square miles with a population of five million people in 1951. The whole agricultural economy of the area rests mainly on the cultivation of rice which requires reliable and sufficient supply of water. Some of this water is being pro-

72 India Planning Commission, loc. cit.
vided by the Durgapur barrage built in connection with the Damodar Valley Project.

The Damodar Valley is rich in minerals, such as coal, iron ore, copper, bauxite and mica. Durgapur district is well situated for the location of basic manufacturing industries. Industrial development in this area however, must be studied in relation to the principal industrial nodes of Asansol and Dhandad.

Population resettlement is the responsibility of the Damodar Valley Corporation. The displaced people were given the option of choosing cash compensation or compensation in kind. Nearly 92 per cent of the people chose cash compensation and the Corporation built villages for the remaining people. Bachhai is a typical example of the villages built for displaced people. Population resettlement problems encountered by the Corporation included the refusal of some displaced people to move into new villages and the unauthorized modification of houses provided for them.

Agricultural and industrial development in the Damodar Valley will generate traffic. There are plans for the development of railways and inland water transportation. The navigation canal linking the Damodar and the Hooghly will facilitate the transportation of bulky goods between Durgapur and Calcutta. It is the policy of the Damodar Valley Corporation to supply electricity for all domestic uses and for rural industries.
In 1948, by an Act of Parliament (India) the Damodar Valley Corporation was created as an autonomous body to implement the Damodar Valley Project. The Corporation was given broad powers to enable it to perform statutory functions. But in 1957, the powers of the Corporation were reduced to enable the Central Government to exercise greater control over the activities of the Corporation.

On the basis of India's experience and that of the United States of America in population resettlement, the following criteria for evaluating the population resettlement scheme in the Volta Basin have been evolved: (1) Declared national planning objectives; (2) Regional development project as part of a national plan; (3) Education for resettlement; (4) Planned settlements; (5) Consistency of Project Administration with national policy; and (6) Devolution of functions.
CHAPTER VI

AN EVALUATION OF THE POPULATION RESETTLEMENT SCHEME IN THE VOLTA BASIN

Evaluation has been defined by O. Klineberg as a process which enables the administrator to describe the effects of his programme, and thereby to make progressive adjustments in order to reach his goals more effectively. It is important to note that evaluation is not restricted to application at the end of a project, but it involves periodic investigation at many stages.

Currently, people are being resettled in the Volta Basin in connection with the Volta River Project. Many displaced families have already been relocated in new settlements. Using the criteria evolved in the previous chapter, an attempt is made below to validate the hypothesis that the new settlements in the Volta Basin must contribute to the attainment of Ghana's national objectives.

Declared National Objectives and Integrated National Development

Every country must have clearly defined objectives. After a country has defined its objectives, it can then consciously find ways and means of attaining them. For the

first time in her history, Ghana’s national objectives have been given careful thought and have been defined. These objectives were described in Chapter III. Ghana’s over-riding objective is to raise the standard of living of Ghanaians. On the basis of the objectives, the Ghana Government has indicated how it intends to achieve those objectives.

National objectives are, by their very nature, broad. The implications of such broad objectives for the regions and the local areas must be stated. This calls for a hierarchy of objectives - national, regional, and community. The attainment of regional and community objectives must help a country to attain its national objectives.

It is difficult to see the relationship between regional and community development objectives, and national objectives unless government policies are translated into a national physical plan. Ghana has prepared such a plan. The Ghana National Physical Plan has translated the national, economic and social objectives into geographic patterns of industry, settlement and supporting facilities and balanced programme of engineering and construction. It also seeks to distribute growth in optimum patterns, by keeping in balance the relationship between employment opportunities and labour.

Within the broad outline set by the national plan, a regional plan for the Volta Basin has been prepared. In this plan, much attention was given to human settlement - in
particular the resettlement of displaced people — and it is related to the recommendations of the national plan on human settlements. The National Plan deals with the determination of approximate densities of urban and rural population, which incorporates factors of national increase and migration. It also identifies the major functions of the main urban centres and their trade areas. Guidance given by the National Physical Plan has made it possible to relate population resettlement in the Volta Basin to the requirements of the whole nation.

At the local level, community plans, which define and set forth standards for major land uses in new settlements, have been prepared. The purpose of this comprehensive approach is to integrate national, regional, and local planning. This integration is extremely important if all developments in the nation are to be regarded as interdependent.

As regards implementation, responsibilities are assigned to existing ministries and public agencies. The Volta River Authority is responsible for population resettlement, ports, and the production and distribution of electricity. In performing these functions, it has to cooperate with many government departments and ministries.

Education for Resettlement

Population resettlement caused by the building of reservoirs has meant a sudden change of the way of life of
displaced people in the Volta Basin. The Volta River Authority should make use of all available techniques to facilitate the adaptation of these people to their new environment.

River Basin development is being used in India and the United States as a means of raising the level of living of the people in those countries. Ghana is doing the same thing with its Volta River Project. Consequently, the displaced people will be called upon to assume roles different from the ones they were used to. This emphasizes the point that education for resettlement should have the following aims: (1) to help the displaced people to adapt to their new settlements; and (2) to train them to assume future responsibilities in their new settlements.

The Volta River Authority realizes the importance of educating the people to be relocated. Because of the shortage of time and the complexity of the resettlement problem, the Volta River Authority invited many government departments and public agencies to assist in resettling the people.

Education for resettlement is a continuing process. It requires the establishment of a permanent institution to ensure that the people in the settlements are taught new skills required for mechanized farming and for
work in the rural industries to be established in the Volta Basin.

Education for resettlement should make full use of the spirit of self-help which already exists among most of the communities to be resettled. Apart from certain basic requirements such as housing, drinking water, and sewage disposal, the settlers must be encouraged to work together at projects for the improvement of their settlements. A significant result of self-help projects is that the people will develop local pride in their settlements and will be prepared to assume more responsibility to promote their growth.

Planned Settlements

With very few exceptions, settlements do not exist in isolation. They are interdependent. The functions which settlements perform depend on a number of factors. One of these factors is a clear indication of what a country wants. Having defined its objectives and prepared its national physical plan, Ghana must expect settlements to contribute to the attainment of the country's objectives.

Settlements in the Volta Basin will perform different functions. Towns, such as Akosombo, Kete Krachi, and New Tamale, will evidently perform national as well as regional functions. These settlements must depend on smaller settlements for agricultural raw materials and for local
foodstuff. By means of the regional plan, the small settlements can be guided to produce the right type and quantity of agricultural products.

Six hundred villages were affected by the Volta Lake. Most of them were small and had on the average a population of less than 1,000 people. This situation made it difficult for the inhabitants of these villages to be provided with urban facilities. It was not economical to provide service to small, isolated settlements.

With due regard to the wishes of the people, all the small communities were resettled into larger communities to form new settlements. The grouping of the villages into larger settlements has made it both economical and possible to provide them with social and physical facilities. Nkwakubew is an example of a settlement which resulted from this regrouping of the communities.

**Housing.** Core houses have been built at Nkwakubew and in many other new settlements for the displaced people. It is the policy of the Volta River Authority that after the people have occupied the new sites, they should be encouraged through self-help to complete these core houses. To ensure that these core houses are completed according to required standards, the Volta River Authority has built model four-room houses on each of the new sites.

The success of core housing depends on the cooperation and self-help spirit of the residents of new settlements.
However, without strict supervision, poor quality building materials would be used to complete the core houses and the new settlements would, in no time, be turned into slums.

This fear is supported by the findings of a field inspection carried out by the Division of Town and Country Planning, Ghana.\textsuperscript{74} According to the report, three sites, New Senchi, New Ajena, and Nkwakubew were settled by the end of 1963. It was observed that in all three settlements, the residents had brought with them building materials from their old houses and some of them had already started completing the core houses with these materials. The building materials used were mostly of poor quality and would cause blight in settlements in which they were used.

The core houses were intended to be residential units; but some of them have been put to other uses. In New Ajena, for example, a settler had converted his core house into a carpenter's shop and another settler had opened a small shop in his. It may be argued that these uses would eventually be located at their right places, with the completion of markets and corner stores. Nevertheless, temporary uses and structures have a habit of becoming permanent.

The report also stated that the core houses, as then completed, had no bath facilities. Consequently, struc-

tures made out of bamboo, iron sheeting and thatch were serving as bathrooms. The same materials were used to build kitchens. These structures have a high blight causing influence.

Core housing is a sound technique for producing houses cheaply. But to make it work, the Volta River Authority must provide all the building materials and then encourage the residents to use them to complete their houses.

The Volta River Authority and the Central Government

Like the Tennessee Valley Authority and Damodar Valley Corporation, the Volta River Authority is a statutory body responsible for the administration of a multipurpose river basin project. Ghana is using the Volta River Project as a means of raising the levels of living of all Ghanaians and consequently there should be some control over the activities of the Volta River Authority by the Central Government. This can be achieved by an outright reduction of the Authority's autonomy through legislation as was the case in India. Similarly in the United States action was taken to narrow the policy-making discretion of the Tennessee Valley Authority.75

Ghana is attempting to solve the problem of the relationship between a statutory body and the Central Govern-

ment by means of the composition of the former. According to the Volta River Development Act, the chairman of the Volta River Authority should be the President of the Republic of Ghana. Being the chief executive of Ghana, the President is in an excellent position to ensure that the Authority's policy decisions and projects are compatible with national objectives.

Devolution of Functions

Democracy implies rights and responsibilities. Therefore, in a democratic society, the citizens must be given the opportunity of assuming responsibility in order to justify their claim to rights.

In the initial stages of the Volta River Project, it is perhaps understandable to assume that the Volta River Authority should assume responsibility for all tasks entrusted to it by the Act. But in the final analysis, the success of the Volta River Project will depend on the degree of active participation in the activities of the Authority by the people in the Volta Basin. The need for the transfer of certain functions performed by the agency for river basin development to the people in the basin is expressed in the following words:

A man wants to feel that he is important. He wants to be able not only to express his opinion freely, but to know that it carries some weight; to know that there are some things that he decides,
or has a part in deciding, and that he is a needed and useful part of something far bigger than he is.76

There should be a policy for transferring certain functions now performed by the Volta River Authority, to the administrative regions of Ghana which constitute the Volta Basin Planning Region. The Volta River Development Act should have provided for the transfer of certain specific functions to the regions.

Conclusion

The need for population resettlement in the Volta Basin is the result of the Ghana Government's decision to carry out the Volta River Project. In this respect, population resettlement and the Volta River Project are inseparably inter-related. The resettlement of the displaced people is the responsibility of the Central Government of Ghana, and it must ensure that the Volta River Authority is resettling the people in a way consistent with the national objectives.

Summary

Evaluation enables the administrator to find out whether his programmes are leading to anticipated objectives. In this respect, the objectives must be clearly stated.

Ghana has declared both her long term and short term objectives. Policies based on these objectives have

been translated into a National Physical Plan. A regional
plan has been prepared for the Volta Basin Planning Region
and this plan is compatible with the proposals of the Nat­
ional Physical Plan.

Since resettlement involves a sudden change from
one way of life to another, the people to be resettled must
be prepared through education for their new situation in
life. The Volta River Authority is performing this educa­
tional function through the assistance of many Government
Departments and public agencies. But education for resettle­
ment is a continuing process and it requires a permanent in­
stitution to guarantee its future. A continuing evaluation
programme is essential.

New settlements must be planned in such a way as
to be able to contribute towards the attainment of Ghana's
objectives. Settlements such as Akosombo, Kete Krachi and
New Tamale will perform nation-wide functions. The continued
existence of the towns, however, will depend in part on the
functions of smaller settlements. Consequently, the new
settlements in the Volta Basin should be made attractive and
livable, both in terms of social facilities and services,
and employment opportunities.

Core housing is a sound device for providing
houses cheaply. In practice, strict measures must be taken
to ensure that core houses are completed according to re­
quired standards.
The Volta River Authority, the agency responsible for administering the Volta River Project must be accountable to the people of Ghana. Consequently, the President of the Republic of Ghana is the chairman of the Volta River Authority.

Local government functions must be transferred to the people of the Volta Basin Planning Region. Therefore, provision should be made in the Volta River Development Act for the transfer of such functions.
SUMMARY AND CONCLUSIONS

The major purpose of this study is to validate the hypothesis that the population resettlement scheme in the Volta Basin must contribute towards the attainment of Ghana's social, economic, and physical objectives.

Many developing countries - that is countries which are industrially under-developed - are faced with the task of making a more efficient use of their natural resources for the use of man. The development of water resources for electric power, irrigation, and other uses is seen by the governments of these countries as a sound way of raising the levels of living of their people. Closely related to river basin development is the problem of relocating people who live in areas which will be flooded for water reservoir purposes. It was indicated in Chapter I that the need for resettling riparian settlers is a problem present in many countries today.

Since the importance which a nation attaches to population resettlement depends on national circumstances, the significance of the problem in Ghana is reviewed. The Volta Lake, which is one aspect of the Volta River Project, is going to displace 80,000 people who live in villages situated
on the banks of the Volta River. These people should be resettled and they should be provided with satisfactory housing, employment, and social facilities.

Population resettlement in the Volta Basin could be carried out in various ways, but the view is held that the interest of the nation as a whole should be the guiding principle in resettling the displaced people.

The Volta Basin, as a planning region, was described. The concept of a region has been investigated by various disciplines; each discipline has defined the region according to its own set of criteria. These definitions on the concept of a region were reviewed to show that a region has physical and human aspects. The physical aspect refers to land and its natural resources; whereas the human aspect refers to interaction among human communities.

Human settlement is the chief factor which integrates human activities in a region. From an evaluation of Christaller's Theory of Central Places, it was concluded that the hierarchical concept of settlements is useful and that it should be incorporated in regional plans.

Regional planning can be defined as a continuous, dynamic process by which a society formulates its goals and tries to achieve them through the development of its environment. The environment is the region. For this study, the Volta Basin Planning Region, as delimited by the Vóltia River Authority, was accepted provided the region was regarded as
an integral part of Ghana. This implies that the development of natural and human resources in the Volta Basin will have significant effects on the whole of Ghana.

In order to relate the population resettlement scheme in the Volta Basin to the national objectives, Chapter III was devoted to a summary of the salient features of Ghana's national objectives and policies as defined in the 'Ghana Seven-Year Development Plan, 1963/64 to 1969/70.' In that plan, a clear distinction is made between Ghana's long term and short term objectives. The overriding long term objective is to raise the levels of living of all Ghanaians to a point comparable with those of people in the industrially advanced countries. This will take time. Nevertheless, the Ghana Government intends to achieve this long term objective through a series of national development plans. The objectives of the present plan are; to increase domestic employment; to substitute as far as possible imported consumer goods with commodities manufactured in Ghana; and to raise the levels of living of the people. The Seven-Year Plan emphasizes the importance of these objectives by stating that all parts of the plan have been designed to achieve these objectives.

The policies for the attainment of these objectives deal mainly with agriculture and industry. Modernization of agriculture is considered in the plan as a necessary
prerequisite for industrialization. Modern agricultural techniques will be applied to agriculture in order to produce sufficient agricultural raw materials for industry and food for consumption in Ghana. Social services and facilities will be provided when they were found to be essential.

The relevance of these objectives to the population resettlement scheme in the Volta Basin is also discussed. A number of manufacturing industries will be established in the Volta Basin and the new settlements will be expected to provide food, and raw materials for the factories. Industries will be located in some of these settlements to diversify and increase employment opportunities. It is therefore concluded that the functions of new settlements in the Volta Basin should be directed towards the attainment of Ghana's objectives.

To put the population resettlement scheme in the right perspective, the Volta River Project is analyzed to show its national importance and its compatibility with the national objectives. The Volta River Project is a multiple-purpose project which will produce an abundant supply of electricity for industrial, commercial and domestic uses. The bulk of the power produced will be used to smelt local bauxite. Other side effects of the project will be the creation of an extensive lake for irrigation, water transportation, and recreational purposes.
The relocation of displaced people is one of the most pressing problems to be solved by the Volta River Authority. The immensity of the problem can be appreciated if one considers the fact that out of a total of 15,000 houses to be provided for the displaced people, 10,000 houses should have been built by the end of June, 1964. In September, 1963, only 2,000 houses had been built. Housing is considered a major item in the population resettlement scheme. The policy of the Volta River Authority is to ensure that the displaced people are provided with new houses and other residential facilities, far superior to the ones they will have abandoned. The Volta River Authority provided core housing. Core housing is a major variant of the self-help technique adopted in community development projects. The core house rests on the premise that having moved into the completed room - that is the core of the house - the occupant would thereafter complete the house as time and finance allows.

Employment opportunities in agriculture and industry in the Volta Basin are also examined. The functions of the Volta River Authority are identified.

Multiple-purpose river basin development projects in India and the United States involved the relocation of people. The Damodar Valley Project in India resulted in the displacement of 93,000 people. Similarly, thousands of
people have been resettled as a result of the Tennessee Valley Project. A review of these projects indicated that population resettlement is a national problem, the solution of which requires the formulation of policies by the highest level of government in a country. On the basis of the lessons learnt from this review, the following criteria for evaluating the population resettlement scheme in the Volta Basin were evolved: Declared National Objectives; Regional Development Project as part of a National Plan; Education for Population Resettlement; Planned Settlements; Consistency of Project Administration with National Policies; and Devolution of Functions.

The actual application of the criteria to Ghana was undertaken in Chapter VI. The Ghana Government has declared the objectives of the country. Both long term and short term objectives were stated in the 'Ghana Seven-Year Development Plan, 1963/64 to 1969/70'. It was determined that the Volta Basin Regional Plan is compatible with Ghana's National Physical Plan.

Education for resettlement is a complex and continuing process. The Volta River Authority recognized the need for preparing the displaced people for life in their new settlements and it is using the assistance of many departments and agencies to educate the displaced people. It would seem that a permanent institution charged with the responsibility of educating the residents of new settlements
would be preferable to ad hoc resettlement teams or committees. Such an institution would be able to coordinate all the assistance given by the different departments and agencies.

The hierarchical function of settlements in the Volta Basin is emphasized. In the Volta Basin the new settlements are all generally of the same size in terms of population. The functional relationship among the new settlements, and the relationship between the new settlements and old settlements in the Volta Basin should be clearly defined.

Though the concept of a single authority for the administration of the Volta River Project is regarded as sound, nevertheless, it is recommended that the Central Government should have reasonable control over its activities to ensure that they are in agreement with government policies. Ghana has solved the thorny question of the relationship between the Central Government and the Volta River Authority by providing in the Volta River Development Act that the Chairman of the Volta River Authority should be the President of the Republic of Ghana.

It is essential that members of the new settlements should become involved in the administration of their settlements as soon as possible. It is therefore recommended that certain functions must be transferred from the Volta
River Authority to the urban and local governments in the Volta Basin.

I. EVALUATION OF THE METHOD OF INVESTIGATION

The method of investigation is based on the premise that population resettlement is not an isolated problem and that it should be examined within a national framework. Consequently, the highlights of the national objectives of Ghana were stated. The population resettlement scheme was analyzed to show its national and regional functions. On the basis of a review of population resettlement in two countries, a list of criteria was drawn up. The criteria were then applied to the population resettlement scheme in the Volta Basin. The findings of this application indicate that the hypothesis, namely:

THE VOLTA BASIN POPULATION RESETTLEMENT SCHEME MUST CONTRIBUTE TOWARDS THE ATTAINMENT OF GHANA'S SOCIAL, ECONOMIC, AND PHYSICAL PLANNING OBJECTIVES

is valid.

The procedure outlined above has a national focus: that is, it attempts to show the relative significance of a regional development scheme in the total economy of the nation. From a regional standpoint, however, a supplementary analysis must be undertaken to determine the benefits and costs connected with the population resettlement scheme. Such an analysis would require both quantitative and qualitative data. Since the population resettlement scheme is
currently being implemented, it was not possible to obtain sufficient data for a detailed regional analysis.

All the displaced people in the Volta Basin will be resettled in new settlements. This is only one approach in the resettlement of displaced people. This approach has an important advantage; it gives the planner the opportunity of incorporating in the location and design of the new settlements, the accepted planning concepts and principles.

Another approach would be to resettle the displaced people in existing communities. And yet another would be a judicious combination of the first two approaches. Perhaps, a fruitful line of investigation would be an evaluation of the relative merits of the three approaches.

The last word on population resettlement has not yet been said. A possible research topic would be to investigate how effectively the new settlements will fulfil their new functions. It should be realized that in the final analysis, it is the people in the settlements who will ensure the success of a regional development programme. It is therefore recommended that permanent administrative machinery should be developed for carrying on a continuing evaluation of the reactions of those resettled, to the changes in their lives and environment, brought about by the implementation of the Volta River Project.
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