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ROLE OF AGRICULTURE IN ECONOMIC DEVELOPMENT
IN NEPAL

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iv

DEDICATION

IN

MEMORY OF

BELOVED FATHER

CHAPTER I. INTRODUCTION

Development planning as a means of accelerating economic progress in less-developed countries has become a sine qua non. Deliberate and rapid industrialization was often advocated as a primary goal for speedier growth in the economy. It is only in recent years that, as a result of experience, progress in the agricultural sector has been recognized as a strategic element in the development process, and it is also accepted that the agricultural sector must not be allowed to remain stagnant if growth momentum throughout the economy is to be attained. The question of agricultural development versus industrial development has become a false issue. Instead the emphasis is on the inter-relationships between industry and agriculture and the contributions that one sector can make to the other. The intimate and complex relationship between agriculture and the rest of the economy, which goes on changing along with economic growth, has been recognized as an important factor in the development process.

It is also recognized that a favorable situation in terms of resources and planning expertise alone is not sufficient to promote rapid economic development.¹ If planning

¹ Waterston's (112) survey of efforts at development planning and Baldwin's (2) case study of development planning in Iran provide an insight into the problems in development planning.

is to be effective, it must take into account the realities of rural life in a particular country and the institutional (structural) arrangements that are necessary to accelerate the process of development. Within agriculture itself, substantial and rapid changes in agrarian structures are considered inevitable in less-developed countries in their quest for development. A prime requisite to bring about these changes lies in national commitment and the leadership willing and able to provide a strong and continuing thrust to the planning efforts to ensure its continuity.

Nepal is a late-comer in adapting to the process of modern development. It remained a closed and remote society for over a century with the history of planned economic development beginning only in 1951. Although the country had a glorious, prosperous, and creative past, it stands now among the lowest per capita income countries of the world. Referring to the history of Nepal, Bholu Chatterji, an Indian Socialist leader and historian, writes: "Way back in time when Europe was struggling to be itself, when America was patiently waiting to be discovered, when Galileo had yet to say E pur si muove, Nepal had a culture that left its imprint on man's civilization through its philosophy and religion, literature and art. The country had the freedom to think for itself; it had the liberty to act the way it thought best" (4, p. 1).

This was brought to an abrupt end in 1845, by no foreign power - Nepal has never been under foreign rule - but by a Nepali, Jung Bahadur Rana, who was the main architect in establishing an autocratic regime with a unique hereditary prime ministership.

From 1846, Nepal was sealed in the cocoon of the petrified thoughts and ideas and despotic politics of the Ranas. For 104 years - through 1950 - they ruled the country this way, rendering the king of the country a mere figurehead and plunging the people into the darkest era of their history.

In 1951, a drastic change took place. The old order gave way to the new. Nepal began the task of economic development and of creating a modern system of government. Suddenly Nepal was also faced with the realities of the need to choose between the relentlessly demanding world of modern social order and technology and the simple and native traditional world. The Nepalese were confronted with the challenge of transforming an ancient society into a modern one. It demanded of their leaders a total commitment to lift the country up, politically, economically and socially, from the century-old feudal and autocratic regime.

An effort will be made to examine - emphasizing economic problems - how far and how seriously this challenge has been accepted. Current efforts at economic development will be studied with emphasis on the agricultural sector. The

successes and failures of economic development will be analyzed with the aim of improving the future role of agriculture.

General Nature of the Economy

The general economy of Nepal is influenced by its physical features. Nepal, with a population of 10.82 million and with an area of 140,800 square kilometers, is largely a mountainous country. Nearly 34 percent of its area lies in the mountains, about 39 percent in the hills and valleys, and the remaining 27 percent in the plains, commonly known as the ¹Tarai.

The mountain area, lying between the hills (2,440 meters) of the South and the world's highest mountains on the North, is generally not suitable for crop husbandry and difficult to harness economically due mainly to the lack of transport and communication facilities. This area is sparsely populated and has remained economically inactive except for a few yak and sheep raisers. The Hills and Valley regions (610 to 2,135 meters) are densely populated and are mostly engaged in terrace farming.

The most fertile land, the Tarai, is a 48-kilometer wide strip of the Gangetic Plain on Nepal's southern border. Economically the Tarai is a very important area. This region contributes most of the farm product surplus, supplies food

¹The sources of data given in this introductory part are HMG/Nepal publications (32,35,45).

for the deficit areas of the Hills and earns 65 percent of the total export earnings of the country. Until recently much of the land was uncultivated because of malaria. The man-land ratio is still relatively low and during the peak seasons of planting and harvesting crops, immigrant labor from the Hills and neighboring India is used.

In the land-use pattern, about 13 percent of the total area of the country is under cultivation, nearly 31 percent is under forest, 15 percent is under perpetual snow, 21 percent is waste land but partly reclaimable, and the remaining 20 percent is under rivers, villages, cities and roads.

Presently there are about 77 people per square kilometer. The annual rate of population growth is estimated at 2.2. Nearly 86 percent of the total households are engaged in agriculture, about 7 percent are in manufacturing and the remaining 7 percent are in services. Agriculture and forestry generate nearly 65 percent of the gross domestic products and 85 percent of the nation's export earnings. Nepal is a net exporter of food, although certain Hill areas are chronically deficit. Direct land taxes provide about 25 percent of the total revenue of the Government.

There is a marked imbalance between the Hills and the Tarai in regard to population density, agricultural production and other economic activities. Two-thirds of the total people live in the Hills, where only one-third of the food is

produced. The Tarai produce nearly two-thirds of the total food, but only one-third of the total people live in this area. Of the total cultivated area in the country, nearly 70 percent is in the Tarai and only 30 percent lies in the Hills and Valleys. Though the Hills and the Tarai both are predominantly agricultural, the general economies of these areas differ inasmuch as the agriculture in the Tarai is relatively market-oriented, with its easy access to the Indian border markets, whereas the Hills are subsistence farming and are deficit areas with no modern transport facilities. The dualistic structure is also manifested in the existence of small industrial towns in the Tarai, which are a small modern part of the economy; and an essentially traditional rural economy in the Hills, which cover the largest part of the country.

Problems Faced in Economic Development

By definition, Nepal is an underdeveloped country and it ranks among the lowest per capita income countries of the world.¹ In 1968, per capita income of Nepal was estimated at 94 United States dollars.

Most of the "universal" characteristics of underdevelopment discussed in the theoretical literature (59, 72) on economic development are readily visible in Nepal, too. For

1

A country is said to be underdeveloped if it has a per capita real income of less than \$500 a year (21 p. 6).

instance, per capita income is low; per unit productivity of land and labor is low; the majority of the people (about 86 percent) are engaged in the traditional agriculture; absentee landlords dominate the economy; the internal market is small; only part of the economic system is monetized. These are the apparent formidable obstacles in the economic development of Nepal.

Along with these, there are a few inherent and important additional factors that are particular to Nepalese economic development problems. Nepal's economy is partly based on export-oriented agriculture and forest products. Since the internal market is small, apart from its underdeveloped and unintegrated nature, even the modest scale of production in the country would require external markets. This makes the country increasingly more prone to the risks of price fluctuations in external markets especially since Nepal's exports are mainly primary goods. At the same time, because of its landlocked nature and its traditional trade pattern based on Indian markets, Nepal has, at the moment, limited scope to take the advantage of "best-price-offer" in the world market.

Traditionally, the economy of Nepal has not been an integrated whole. The lack of modern transport and communication systems, and the difficulty and high initial costs involved in linking the two broad regions, the plains and the mountains - passing through formidable chains of hills and

mountains, starting from as low as 150 meters to the highest point on earth - have made the problem of economic development all the more difficult. The regional disparities, economic and social, between the mountain regions and the plains (Tarai), therefore, add another set of problems of ethnological, sociological and economic nature.

There is also the geo-political problem. Nepal, a small Hindu Kingdom, is flanked on either side by two giants of Asia - the People's Republic of China and the Republic of India, which follow ideologically opposed political systems and economic approaches.

Given the nature of these specific problems coupled with the general characteristics of underdevelopment, Nepal's solutions to problems of development, in broad generalities, are based upon developing:

1. A system of government suited to its own geographic situation and at the same time competent enough to handle the modern process of structural transformation and economic development;

2. A transformation of the society from its traditional state to a modern one while maintaining the traits of its own cultural heritage;

3. An economic system and institutional structure that can transform a traditional, depressed rural economy into a viable growth economy in a small landlocked nation.

It would be therefore hardly possible for Nepal to draw on ready-made solutions to the problems of development. Instead, it must tailor carefully its development policy and strategy to suit its unique economic, social, physical and political character.

Problems of Agriculture in National Development

Agriculture is the largest sector in Nepal in terms of employment, gross domestic products, export earnings and raw material supply to the existing manufacturing industries, and plays a vital role in the national development. Notwithstanding the role of this sector in the national economy, the average product per year per worker engaged in agriculture is estimated as low as one-fourth of the per worker product of those engaged in the non-agricultural sector. It is evident that the low productivity in agriculture is mainly responsible for the low level per capita income, and the growth of Nepalese economy is intimately related to the growth in the agricultural sector.

These factors underline the basic importance of agriculture in Nepalese economy. It is therefore essential that the relationships of agricultural activity to the national development (growth and prosperity of the nation) be treated as a subject of vital concern.

Agricultural development means a positive increase in aggregate agricultural production accompanied with an increase

in per capita real income for the agricultural family. In other words, the solution for agricultural development problems lies in increasing the per unit productivity of land and labor.

The low productivity in agriculture is not due to the inherent inferiority of land and labor. No doubt, the pattern of agricultural production in Nepal is affected by the mountainous topography that ranges from 61 meters to 8,896 meters above sea level. Because of varying altitudes, though Nepal is in the tropical to sub-tropical belt, it has different climatic regions starting from the north with alpine and continuing south with temperate, sub-temperate to sub-tropical climates (58 pp. 20-26). Nevertheless, there are other factors that have contributed to low productivity in agriculture in Nepal, which are introduced in the remainder of this section.

The present institutional framework of agricultural production is based on the system of absentee landlordism that has existed for over a century. Nearly 60 percent of the total agricultural households work as tenants on a crop-sharing basis. The tenants are required to pay 50 percent of the principal crop to the landlord, while bearing all the costs of cultivation except the land tax. In spite of the provision for permanent tenancy rights in the Lands Act of 1964, there can be no guarantee that tenants will not be evicted from the land in the absence of proper land records.

Under this kind of land-tenure structure, there will be little incentive to the tenants to increase the productivity of land and labor through technological and managerial innovations. There will be little scope for capital formation through increased productivity in agriculture or through access to outside capital.

The population density compared to arable land is high. Per capita cultivated land comes to about 0.18 hectares. The net cultivated land per agricultural labor is about 0.45¹ hectares, where over 86 percent of the total labor force is engaged in agriculture.

The size of farm holding is too small and there is excessive subdivision and fragmentation of holdings. The present average size of holding for a family of 5.3 members comes to about 1.24 hectares. The parcels of land cultivated or owned by a family vary from 2 to 30 parcels, with an average size of plot from 0.09 to 0.068 hectares in different regions.

Modern credit, marketing and supply systems are yet to be developed to meet the needs of farmers. The use of modern agricultural inputs like chemical fertilizers and improved seeds, are just now beginning to reach the farmers. The average use of chemical fertilizers in Nepal, in terms of nutrients, comes

¹
"Labor force" includes the economically active population between the ages of 15 to 59, excluding household workers, students, and the handicapped. In Nepal within this group (15 to 59), about 78 percent are considered at present economically active.

to about 2.5 kg. per hectare, whereas the average for Asia is about 8.0 kg. per hectare (80 p. 17). Only about 3 percent of the total cultivated area is brought under the use of improved seeds. There is one extension worker for about 3,600 farm families.

These defects have essentially hindered the process of transforming the low productive agriculture into modern expanded economy by restricting investment opportunities in agriculture. Agricultural development in Nepal, as is the case in many of the underdeveloped countries, depends on institutional and structural changes as much as it does on technological changes.

If structural and institutional defects, such as are prevalent in Nepal - large numbers of tenants, high rent, hard credit, defective markets - distort the distribution of agricultural income among the factor contributors, it will have serious implications for productivity, the level of living and the purchasing power. A low level of per capita income of the large majority of the people lessens the expansion of the domestic market and consequently retards the cumulative economic development.

Objectives of the Study

This study represents an effort to help fill the need for an analytical appraisal of planning processes in Nepal. There were mainly two reasons that motivated conducting this

study. First, Nepal has adopted planning as its development strategy and has accepted it as an essential means of guiding and accelerating the economic development of the country. Over a period of fifteen years, two Plans were executed; the Third Plan is near completion of its execution; and the Fourth Plan (1970-75) is in preparation. It is time now to look back and examine what have been the achievements and where lie the areas of failures and what may have been the possible reasons for success or failure. This kind of assessment of the Plan performance may help in the formulation of subsequent Plans, and especially the Fourth Plan.

Second, there are few studies of the Nepalese economy that present a coherent picture of the economy as a whole in a systematic and objective manner. The present study, too, may not be able to meet the need entirely, because large gaps still exist in the data. Nevertheless, this study as a step toward that direction, may facilitate future studies as a basis for further research and analysis.

The primary purpose of the study is, therefore, to obtain some understanding about the macro-economic characteristics of the Nepalese economy and to examine the policy implications of economic objectives in Nepal. The first concern will be then to provide relevant facts pertaining to the economic problems in Nepal and to explain the course of modernization, focusing the attention on analyzing the process of economic change in essentially a traditional and economically backward society.

The social objective of planning in Nepal, as enunciated in the first Five Year Plan in 1955, were directed to "raise production, employment, standard of living and general well-being throughout the country, thus opening out to the people for a richer and satisfying life" (24 p. 2). It will not be attempted to go into details of what these objectives mean in terms of achievements until a later discussion. However, it may suffice to say that attainment of "well-being" for the society as a whole and for the individual, as a member of the society, in particular, has been the declared policy objective of planning in Nepal.

In analyzing the development policy and programs, most of the attention will be devoted to the agricultural sector. This emphasis appears warranted as most of the people are employed in the agricultural sector and this is the sector in which change must be made in the process of national economic development as implied in the National Plans. The achievement made so far will be examined in relation to the goals and targets set forth in the Plans and efforts will be made to articulate a future policy of development for Nepal in the light of experiences gained in the past.

The specific objectives of the study are:

1. To analyze and examine the progress or change in terms of targets and objectives of the Plans;
2. To identify and appraise the policies and programs that have proved successful;

3. To identify and appraise the failure elements which have hindered the development;

4. To suggest remedial actions to strengthen the success elements and to lessen the failure elements in improving the future development efforts.

Hypotheses and Procedures

In pursuing these objectives, this study will be guided broadly by two sets of hypotheses. One will be a general working hypothesis and the other will refer particularly to the agricultural sector.

The general working hypothesis is that the current tempo of economic activity in Nepal is insufficient to meet the economic development objectives of bringing about significant improvements in the living standards of the people. Translated into targets, the general hypothesis is that the Third Plan long-term target of doubling the national income in fifteen years and increasing the national income at an annual rate of 3.8 percent¹ (31 p. 14) will not be possible to achieve unless some major changes are made in development policies and strategies.

¹
 "National income" mentioned in the Plan document probably refers to GDP. GNP estimates for Nepal are not yet brought out. The annual rate of 3.8 percent national income should also refer to GDP. The growth rate of 3.8 percent was estimated for the period, 1965-70. Subsequent Plans will have to have higher rates of growth.

It is recognized that, while dealing with economic development, it is not always possible to restrict one's analysis to quantitative economic parameters only. The process of economic development is complex and depends on political, sociological and institutional factors as much as it does, say, on availability of capital for increasingly higher rates of investments.

The approach, therefore, will be to explain the economic events in the nature of a general descriptive hypothesis derived from relevant data for Nepal. This will include an empirical assessment of Nepalese economic development efforts insofar as the available data permit.

In coming to the agricultural sector, Professor Timmons' (104) analytical framework will be followed in identifying and analyzing the problems of agricultural development in relation to the national development. It will begin with the pattern of delimiting the segments of the problematic situations.

This is what is in Objective 1. Having delimited the specific problems or the problematic gap in an ex post sense, hypotheses will be postulated as to why such situations exist. Possible reasons and explanations will be advanced for the persistence of these problems. From this type of diagnostic hypothesis (which is suggested in Objectives 2 and 3), remedial hypotheses, implied under Objective 4, will be developed.

In line with the nature of the general hypotheses given above, the delimiting hypothesis for the agricultural sector is that the annual increase in national income in agriculture (as given in the Third Plan) is falling short of the target as will be shown by analysis.

In diagnosing the reasons why the agricultural sector lags behind the target growth rates, the hypothesis is that the incentive factors associated with increasing the productivity of land and labor in agriculture are not fully taken into account in the formulation and implementations of development plans. The diagnostic hypothesis is related to structural factors such as tenancy, rental system, technological improvements, credit and marketing institutions, and investment opportunity. These may be referred to as "structural traps" and are broadly grouped as: 1) the incentive trap, 2) the technical or knowledge trap, and 3) the capital trap.

Following the diagnostic hypothesis, the remedial hypothesis is introduced to serve as a basis for suggesting possible alternative modifications in the "structural traps" consistent with the growth rate. In the search for structural forms that are adaptable to the conditions in Nepal, the criteria of incentives, technical and managerial innovations and capital are considered as essential elements for success. In this sense, the remedial hypothesis may be called the "success" hypothesis. Specifically, the remedial hypothesis is that

the agrarian structures that are characterized by success elements, if identified and extended, will contribute to increased economic growth in Nepal.

To test these hypotheses the data collected from Nepal will be used. The main source of data is the Government publications. Next are studies made by international organizations such as the International Monetary Fund, the International Bank for Reconstruction and Development and the United Nations' agencies. Data are also collected from field studies performed in Nepal to fill in the information gap and also to use as a "correction factor." In the field study, two Districts (Bhaktpur and Bara) were selected from "developed" regions for a detail case study in testing the hypotheses, especially the diagnostic hypothesis. Information has also been collected from other Districts (Jhapa, Parsa, Gorkha and Kailali) which are in "intermediate to preliminary phase" of development.

A conceptual framework will be formulated to examine the existing situation, the goals of development expected vis-a-vis the consequences realized. Certain failure and success elements in the existing agrarian structures will be identified through a study of the overall performance in the economy (with emphasis on agriculture) and also through the case study performed in the Districts mentioned earlier. Finally, suggestions will be made in regard to the alternative modifications

in agrarian structures, from which conclusions concerning specific changes in agrarian structures can be drawn to make the agricultural sector a viable core component in the process of the economic development of Nepal.

Plan of the Report

In view of the emphasis given to the agricultural sector as a focal point of economic development in Nepal, the contribution of this study is to construct a framework of development for the Nepalese economy. This study is made up of seven chapters.

Chapter I is an introductory one. It introduces the structure of the economy and some of the problems in the economic development of Nepal to provide a background and setting for the study; specifies the objectives of the study and presents hypotheses to be tested and the procedures followed.

Chapter II presents a brief summary and review of the first three Development Plans of Nepal. Emphasis is on policies, programs, implementation and achievements in the Plans.

Chapter III deals with the conceptual framework of development and describes the analytical model for appraising the performance of the agricultural sector. In the first section of this chapter the general problem of economic development is reviewed from a conceptual point of view. The review is relevant to Nepalese problems. The Second Section

describes the conceptual analytical model to be applied in examining the performance of the agricultural sector in Nepal by defining the delimiting, diagnostic and remedial phases of the analysis - following the construct of a "means-ends-continuum."

Chapter IV contains a treatment of the relation between goals, means, and consequences dealing with the agricultural sector. Economic implications of development objectives with reference to the agricultural sector are discussed. The contribution of agriculture to the national growth in terms of annual growth rate, supply of factor and products, market interrelations and infrastructure development are examined. The last part specifies the problematic gap in the development goals.

In Chapter V, in view of the problems or gaps specified in preceding chapter, the specific concern is to identify the relevant factors that provide a basis for improving the agriculture in Nepal. This will carry out the diagnosis of the problematic situations and will attempt to identify the success and failure elements in the development processes in agriculture in Nepal.

Chapter VI deals with the developing of an outline framework for the Fourth Plan of Nepal on the basis of the analyses performed in preceding chapters. It will suggest possible alternative forms of agrarian structures and policies for remedial action in light of the success and failure elements

identified in terms of incentives, knowledge and capital - the three necessary conditions developed in the earlier phase of the study.

Chapter VII concludes the study and presents recommendations derived from the study.

CHAPTER II. THE NATIONAL PLANS FOR DEVELOPMENT

The necessity of a national plan for economic development in Nepal was felt for the first time in the 1930's. Nevertheless, in the pre-1951 Nepal, the basic policy of the erstwhile Rana Government had been to ensure the perpetuation of the system that would assure the continuation of the Rana rule in Nepal rather than enhance the welfare of the people. The continuation of their rule, they thought, was possible only by persistent suppression of the people to forestall any desire for changing the status quo. They relegated Nepal, therefore, to a position of deliberate isolation and obscurity as a means for providing effective check upon the infiltration into Nepal of modern ideas and attitudes from the fast-changing outside world.

However, it was not possible to seal the country entirely from the wave of dissatisfaction with the status quo and to suppress the rising desire for change that was sweeping Asia in the 1930's (57 pp. 23-29). To keep the situation in Nepal from becoming volatile, the Ranas moved with some of the development activities. The depression of the 1930's also had its impact. In 1935, with the objectives of initiating improvements in agriculture and industries, some specialized agencies - the Agricultural Board, Bureau of Mines, Forest Office, and Cottage Industries Promotion Office - were created. It was

announced in 1939, just before the outbreak of the World War II, that a 20-year development plan was prepared. Except for the announcement, the people saw nothing and knew nothing about "the plan." Similarly, in 1949, a "National Planning Committee" was set up to prepare a 15-year Plan for Nepal. This "Plan" too was neither brought before the people, nor ever implemented (97 pp. 247-248).

The creation of agencies and announcements of "plans" were more for political reasons than a real desire for economic development.¹ In the absence of effective implementation, a list of activities, by itself, would not constitute progress.

With the political change in 1951, interest in economic development began to take shape. The new Government tried to re-orient development activities toward a planned approach. In the initial few years, however, the urgency of maintaining political stability and establishing a workable system of government oriented toward the new political system, pushed the

1

Notwithstanding the policy of suppression during the Rana regime, some development activities took place, although they had very limited scope and were mainly to satisfy their own needs and, to some extent, to present themselves as "development oriented." Kathmandu, the capital city, had a drinking water facility established in 1808 (26 p. 35); Nepal's first hydro-electric power station, with a capacity of 500 kw., was commissioned in Kathmandu in 1911, followed by a second one with 800 kw. capacity in 1935 (40 p. 87); the first college, Tri-Chandra College, was opened in Kathmandu in 1924 (26 p. 35); the first joint stock industrial enterprise, a jute mill, was established in Eastern Nepal in 1936; in 1939-45, a group of 14 joint stock companies (jute, matches, cotton textiles, hydro-electric power supply, rice and oil, paper, soap, ceramics, furniture) was set up (97 p. 108).

problem of economic development into the background. The political situation and the mood of the leaders at that time is reflected in what a Nepalese scholar, historian and one-time political leader, Dr. D. R. Regmi said:

"We are not so much concerned with economic issues as such as with the question of laying a foundation of the democratic institutions. All schemes of economic development can wait for the duration of interim administration" (23 p. 175).

No doubt, for a new government with a new approach, the issue of establishing new institutions would be more overwhelming than economic issues. At the same time, the Government was faced with financial difficulties, as the current revenue was not enough to meet the current expenditure required for the day-to-day functioning of the administration. Neither had the Government enough reserve balances remaining from the Rana period.¹ Nepal had to look for external assistance.

The Ranas had concluded the Point Four agreement with the United States in the beginning of 1951, about one month before the overthrow of the Rana Government. In 1952, the New Government made a request to the Government of India for a loan. If external assistance were to come, it would also need a program to ask for such assistance. In the meanwhile the rising expectations of the people were turning toward rising

¹
The total balance left by the Ranas in the Government treasury amounted to about Rs. 95 million in gold, silver and coins (23). Exchange rate in 1952: \$1 = Rs. 6.24.

restlessness. The people expected the Government to show what it wanted to do for their well-being. It was no longer possible to postpone the economic issue.

The Government felt the serious urgency of formulating a plan for development. Consequently, a Planning Board was constituted in 1955. The first national plan for development, the Five Year Plan, was announced and put into execution in 1956. This was the beginning of planned economic development in Nepal.

The First Five Year Plan
(1956-57 - 1960-61)¹

The First Five Year Plan (hereinafter referred to as the First Plan) was an effort to re-orient developing the economy through a planned approach. The immediate driving force for the preparation of the First Plan was, among other things (some of which are mentioned in the previous pages), the acceptance by the Government that "planning has essentially an important role to play in the economic development of the country" (24 p. 3).

Although the need for development planning was felt, the prerequisites to formulate such a plan, and the machinery required to implement such plan were not there. Nepal had no experience in planning, nor were there enough technicians.

¹

The Plan years are in fiscal years 15 July to 14 July of the following year.

All the information that was available about the economy was that "it was a poor economy."¹

With the lack of basic knowledge and statistical information about the economy it would have been hardly possible to formulate a comprehensive plan of any type (10 pp. 1-2), defining objectives in terms of aggregate targets for employment, output, income, investment criteria, quantifiable policy measures, etc. The First Plan was essentially a departmental investment program based on a list of project activities prepared by various departments. In regard to a theoretical planning model, it was based, to the extent possible, on the "project approach."²

Having provided a sort of frame of reference, the First Plan (subsequently the Second Plan and the Third Plan) will

¹
The data available during the formulation of the First Plan were only about a) population, b) current revenues and expenditures of the Government, and c) rough estimates of exports and imports.

²
The project approach, or "from bottom up," was used to the extent of drawing up the list of projects on the basis of departmental recommendations regarding the feasibility of the project. Priorities were allocated as per the broad objectives already specified in the Plan.

The "project approach" to planning was used in the initial stage of planning in other developing countries, too, e.g. Ghana Five Year Plan (1959-64), Cambodia (1960-64), Jamaica Ten Year Plan (1957-67). The Indian and Pakistani First Five Year Plans also had followed to some extent a similar approach (110 pp. 7-15).

However, in the case of Nepal, there was no analytical framework to assume any rate of income growth, nor was there any way to estimate market demand, productivity, etc., and hence no way to examine the consistency in the Plan. The First Plan was, therefore, in many respects, incomplete and without a sound base in a conceptual sense.

be briefly reviewed in terms of 1) objectives and priorities, 2) programs and targets, 3) financing and resource allocation, 4) implementation and achievements, and 5) policy implications.

1. The main purpose of the First Plan, as stated by the Government, was to establish an institutional base for development and to provide a base for information about the economy to help formulate the subsequent development plans. The broad objectives of the First Plan were (24 pp. 1-6):

- a. To increase production and provide more employment opportunity;
- b. To provide opportunity for all the people to raise their standard of living;
- c. To establish institutions necessary for the successful execution of development activities;
- d. To carry out necessary economic surveys to establish a base for future planning.

To achieve these objectives, programs were formulated by giving priority to such projects that would 1) increase production by using local materials to the extent possible and generate income in a shorter period of time, 2) provide useful information into the methods of increasing production, 3) help improve and strengthen institutional and administrative structures, and 4) help develop infrastructures.

Transport, communication and construction had the highest financial priority followed by village development, and agriculture and forestry. It was realized that, although Nepal depended very much on agriculture, transport was the main bottleneck for any development activity. In village development programs, along with some essential programs like drinking water facilities, the rest of the resources were meant to be utilized in the promotion of agricultural programs in the rural communities.

2. The programs of projects proposed to be implemented during the Plan period were not mentioned in a specific manner. They were in general terms. In broad groupings, they were divided into the following activities:

- a. Transport and communication
- b. Village development and cooperation
- c. Agricultural development
- d. Land survey and land reforms
- e. Forestry
- f. Irrigation development
- g. Power development
- h. Industrial development and mining
- i. Commerce and tourism
- j. Administrative reforms, training and survey
- k. Social services - health and education
- l. Area development and resettlement

The targets of these activities were specified, in most of the cases, in terms of the number of projects or centers to be established or completed. There was no mention of physical targets for the growth of the economy as a whole, nor were there sectoral targets of agricultural production or industrial production. (See Table 3.)

3. Resources were allocated on the basis of project priorities. Nevertheless, it was an arbitrary choice rather than one based on economic criteria. The difficulty in making such a choice, in the absence of relevant information, and the guesswork involved in making the allocation are obvious. As mentioned in the First Plan, "One of the most difficult and crucial tasks in planning is that of making a wise allocation of resources available" (24 p. 12).

The difficulty faced in the allocation of resources notwithstanding, financing the Plan was also not easy in the beginning. The annual regular expenditures of the Government were running to Rs. 50 million, whereas the revenues received were about Rs. 35 million. The Government was running a deficit budget by about Rs. 15 million annually.

The total outlay for the First Plan was estimated at Rs. 330 million; on an average, annually Rs. 66 million. It was estimated that from the regular sources of revenue only an additional sum of Rs. 170 million could be raised in five years.

Table 1. Sources of additional revenue^a

Income	Rs. Million
Land tax	8.2
Customs duties	67.6
Development bonds	26.0
Utility services and forest	68.2
Total	170.0

^a
(24 p.11).

Of this amount Rs. 75 million had to be earmarked for stabilizing the regular budget. Only the remaining Rs. 95 million would be available for financing the Plan. The balance of Rs. 235 million to meet the Plan total outlay of Rs. 330 million, was proposed to be financed from external resources and some, if necessary, from the treasury reserves. It shows that as much as 71.2 percent of the total development outlay was expected to be financed from external resources, either in the form of outright grants or loans.

The First Plan included only the activities of the public sector. Private sector programs were left out because of the lack of information on the activities of this sector.

Resource allocations for the public sector were made as follows:

Table 2. Allocation of resources in the First Plan^a

SN	Items of Expenditure	Plan outlay (Rs. in million)	Proportion of total outlay (percent)
1	Transport and communication	124.0	37.6
2	Agriculture forestry	32.0	9.7
3	Social services	44.0	13.3
4	Industry and commerce	25.0	7.6
5	Power	30.0	9.1
6	Irrigation	20.0	6.0
7	Organization and methods and village development	55.0	16.7
	Total	330.0	100.0

^a
(29).

The First Plan placed highest priority on transport and communication, allocated 37.6 percent of the total planned outlay. It was proposed to construct 1,444 kilometers of road.

Next priority was given to the village development program (a detailed breakdown is given in Table 4 of the total proposed outlay of the Plan); 12.9 percent was allocated for

Table 3. The First Plan targets and achievements during Plan period ^{a, b}

Projects	Unit	Situation before Plan	Plan target	Achievement	Percentage of target achieved
Roads	Km	624	1,440	902	42.2
Railway	Km	74	86	Only survey	-
Ropeway	Km	26	45	3/4 done	75.0
Airfields	Number	5	-	7	-
Telephone	Number	350	1,500	700	46.6
Post Office	Number	124	100	292	292.0
Power	Kwts	7,700	20,000	750	3.7
Irrigation	Hectare	2,620	119,000	2,630	23.7
Village Devel. Center	Number	-	48	55	114.6
Agri. Devel. Center	Number	3	18	8	44.4
Livestock Devel. Center	Number	1	7	4	57.1
Dairy Develop. Center	Number	2	-	5	-
Cottage Devel. Center	Number	na	-	21	-
Cooperatives	Number	1	4,500	378	8.4

^a The Three Year Plan.

^b Departmental Reports, HMG/Nepal (26).

Table 3 (Continued)

Projects	Unit	Situation before Plan	Plan target	Achieve- ment	Percentage of target achieved
Industrial Estates	Number	-	-	3	-
Primary Schools	Number	1,200	630	2,000	317.6
Secondary and High School	Number	385	136	165	121.3
Colleges	Number	13	-	15	-
University	Number	-	1	1	100.0
Hospital beds	Number	649	423	148	34.8
Health Centers	Number	15	54	94	170.0
Health Centers (Ayurvedic)	Number	43	43	57	132.5

this program. The village development program, was designed to provide an integrated approach toward the rural development. To achieve this, a total of 48 development centers were planned to be opened in rural areas.

The agricultural sector, including forestry, received 9.7 percent of the total outlay. It was proposed to set up 25 agricultural centers, representing different climatic regions of the country, to carry out experimental work on agronomic crops, livestock, horticulture and fisheries.

Industries, mining, and commerce were given relatively less priority in the First Plan. The existing industries were all in the private sector. The absence of required infrastructures may have been the reason for relatively less outlay in this sector. The main activity in the industrial sector included the establishment of an Industrial Development Corporation to provide institutional facilities for encouraging private investments.

In the Social Services, health and education together had 13.3 percent of the planned outlay. Out of this, education had 5.7 percent and the remaining 7.6 percent was allocated to health services. In the field of education, the First Plan target was to establish 630 primary schools, 136 middle and high schools, and one university during the Plan period. In health services activities, it was proposed to provide 423 additional beds in hospitals and to set up 54 health centers and 43 Ayurvedic Ausadhalaya (Hindu discipline in medical treatment).

Among the structural and institutional reform programs, agrarian reform was considered an area that needed topmost attention. "Land reform has been one of the basic problems in our development to raise the living standards of the people as the fate of nearly 95 percent of our people is tied with agriculture" (24 p. 34). The programs in agrarian reform included enactment of laws to protect the tenancy rights, to fix the rent, to regulate hours of work, fix minimum wages for agricultural labor, and to improve the existing land-tenure systems. As to the problem of subdivided and fragmented holdings, it was proposed that consolidation of holdings would be carried out gradually through cooperatives.

It was also proposed to develop modern agricultural credit institutions through cooperatives so as to regulate the rate of interest and to find out ways and means to reduce the burden of old debts on farmers. As a first step in implementing the programs of agrarian reform, a high power Land Reform Commission with representation both from the tenants and landlords was to be constituted.

4. The implementation of the programs seems, on the whole to have moved in line with the proposed activities in the First Plan. Since the main aim of the First Plan was to provide an institutional and structural base for the growth of the economy, it will not be possible to evaluate the achievements in terms of quantifiable economic progress. Wherever possible the targets and achievements are presented in Table 3.

It was estimated that to implement the above-mentioned programs a sum of Rs. 215 million was spent during the Plan period.¹ The breakdown of expenditures is provided in Table 4.

Table 4. The Plan outlay and actual expenditures during First Plan by major activities^a

Project/Sector	Plan outlay (Rs. in million)	Actual expenditure	Percentage to actual expenditure	Percentage of actual to planned
1 Transport, communication	124.0	94.9	44.22	76.5
2 Power	30.0	13.3	6.22	44.3
3 Irrigation	20.0	13.1	6.12	65.5
4 Village development	42.5	26.7	12.44	62.8
5 Agriculture, forestry	32.0	6.9	3.24	21.6
6 Industries, mine, tourism	25.0	10.4	4.83	41.6
7 Health	25.0	16.0	7.46	64.0
8 Education	19.0	21.3	9.93	112.1
9 Miscellaneous	12.5	11.8	5.49	94.4
Total	330.0	214.4	100.00	65.0

^a
(27).

¹

There was no separate accounting system for regular and development expenditures. It is all possible that the the resources allocated for development activities may have been spent for regular activities of the Government.

From the aspect of resource use, it appears that the programs were implemented in the same general manner as outlined in the Plan. Performance in education and transport and communications were quite satisfactory both from the achievement of targets and resource use. Performance in other sectors, except in agriculture and forest, was on the whole satisfactory. Agriculture and forestry were given high priority in the Plan. In resource allocation this sector had received the third highest priority with 9.7 percent of the total outlay. In actual performance they could use only 3.24 percent of the total actual expenditures in the Plan, the smallest amount used by any sector.

In a resettlement program in the Rapti Valley, in the Southern plain of Nepal, 5,000 families from the Hills were resettled and about 12,000 hectares of new land were brought under cultivation during the Plan period.

In the area of structural and institutional reforms, some foundations were laid down. Six technical training Institutes and one teachers' training institute were established in the Plan period. These are listed in Table 5. Approximately 5,000 people were given training in these institutes, with training periods ranging from three months to two years. In addition, in the same period 1,400 people were sent abroad for higher training in various technical and general administration branches under the Colombo Plan, Participant Program, the United Nations and other agencies' fellowships programs.

Table 5. Technical training institutes established during the First Plan^a

	Name	Year
1	Agricultural school	1957
2	Health assistant training school	1957
3	Home science training center	1957
4	Cadastal survey training center	1957
5	Engineering school	1957
6	College of education	1956
7	Cottage industries training center	1956

^a
(26).

The first industrial finance corporation of the country, the Nepal Industrial Development Corporation, was established in 1959 with a total capital of Rs. 10 million, to promote private industrial enterprises by providing credit facilities, financial advice and by conducting feasibility surveys. The first airlines, the Royal Nepal Airlines Corporation, was commissioned in 1958.

In the field of agrarian reform, legislations were enacted to regulate rent and to protect tenants from eviction. The Land Reform Act of 1956 fixed the maximum rate of rent at 50 percent of the produce. Those tenants who had cultivated the land for more than one year were declared as protected

tenants and could not be evicted so long as they paid the rent. Maximum rate of interest was fixed at 10 percent. Landlords were also forbidden to exact anything from the tenants in cash or kind over and above the legitimate rent.

The Birta¹ Abolition Act, 1959, was enacted with an objective of eliminating the feudal system. Under this act, all rights and authority relating to ownership of Birta land were taken away from the Birta owners and were made taxable by the state.

5. The First Plan, as noted earlier, was basically a document of piecemeal programs. And these programs were drawn by collecting the list of discrete projects from various Departments and Ministries with very little interdependence, essentially following the traditional government budgetary practice of presenting a program of government expenditures. There was, as such, no way to meet the balancing of goals and economic coherence in the Plan, nor in its implementation.

From a policy point of view, an examination of the First Plan and its performance in terms of the fulfillment of physical targets alone may not, therefore, be meaningful. The foremost reason for this is that the annual programs prepared

¹ Birta, a system of tenure in Nepal, was a specific grant given by the State to an individual. The Birta owners, in most of the cases, were exempted from the land tax. The tenants would pay the land tax to the Birta owner. For various land tenure systems in Nepal see (91).

by the Governments were not drawn adhering to the Plan outline. From the inception of the Plan to the last year of Plan implementation, a period of six years, the Government was changed six times - Direct Rule by His Majesty, the King, to single-party governments, a coalition government, an elected parliamentary government, and back to the Direct Rule (57 pp. 178-347). "Criticism of the plan . . . [therefore] is academic . . . decisions on expenditure were usually made without reference to it (Plan) . . . but were rather the product of . . . momentary enthusiasms of the various ministries which competed with each other to come up with the most attractive projects - on paper. The Plan never played the role marked out for it, mainly to give a sense of direction and coherence to the multi-faceted development efforts" (69 p. 67).

The First Plan was implemented during the most critical period of experimentation in establishing democratic institutions in Nepal. The Plan was treated by various Governments as no more than an illegitimate child. Half-way through its execution, in mid-1957, the newly-appointed Prime Minister discarded the Plan and asked the Cabinet to formulate a modified Two Year Plan. Meanwhile, a new Government came in, dismissed the idea of the Two Year Plan and revived the First Plan. The political and administrative environment was very uncongenial and less than favorable for carrying out development plans.

In spite of all these bewildering situations, the Plan was executed and the gain, if nothing more, was the experience Nepal had in planning. One of the striking experiences was learning - much against the prevailing belief - that for Nepal it was not really the limited investment fund that was a critical factor in getting a "big push" in development as much as it was the elementary capacity to utilize such funds. Although there were some initial difficulties in financing the Plan, money was always available.

The total Plan outlay was estimated as Rs. 330 million. But at the end of the Plan, the total of the annual budgets earmarked for development amounted to Rs. 600 million.¹ Out of this, the Government was able to spend only Rs. 214 million, which comes to only 35.6 percent of the total annual budgets. The extra money came from external assistance. The external assistance during the Plan period amounted to Rs. 382.8 million.²

The huge gap in the actual expenditures and the annual budgets outlay also shows that little attention was paid to

¹ However, in the annual budget estimates, there may have been some double counting of carry-over amounts from previous year. There was no information available to check. In any case, more funds were available to spend than the Government could spend.

² How much of the total foreign assistance was disbursed on development projects and how much went for technical assistance, fellowships, or commodity assistance is difficult to ascertain, as some of the foreign assistance funds were disbursed outside the Government budget.

the Plan outlay and the capacity to spend in preparing the subsequent annual budgets.

Although Nepal was successful in receiving foreign aid more than it expected, the success of mobilizing domestic resources was disappointing. Notwithstanding the caution warned in the First Plan that "to rely wholly upon external aid would not only be damaging to our national self-interest and our capacity to manage our own affairs; it would also be futile, for in the absence of a strong effort on our part, that aid would soon dry up" (24 p. 1) if the Government depended heavily on foreign aid.

The contributions from internal resources to the development fund could not go beyond Rs. 60 million, only about 28 percent of the total expenditures during the Plan period. The Government could not raise internal resources, as envisaged in the Plan, through increased taxation and sales of bonds, etc. This failure made Nepal rely more on external aid and this went on increasing during the Plan period. In the fourth year of the Plan the contribution from external assistance was 71 percent of the total development budget; in the fifth year it went up to 88 percent; and in the following year after the First Plan it rose further to 94 percent. Obviously injection of outside capital did little to spur the economy in terms of internal capital mobilization.

Thus, given due consideration to the political, administrative and social upheaval during the period, the First Plan

has been more of an adventurous experiment in planning than a real development plan, partial or comprehensive. To this extent it was successful, provided such experience bears fruits in the subsequent Plans. This will be examined in the Second and Third Plans.

The Three Year Plan
(1962-63 - 1964-65)

The Three Year Plan (referred hereinafter as the Second Plan) did not follow immediately after the First Plan. A number of significant changes took place in the meanwhile. The parliamentary system of Government was disbanded. A new Government was sworn in under the Chairmanship of His Majesty, the King, in the last year of the First Plan. A new political system, called Panchayat Democracy¹ was being evolved.

The Planning Board established in 1959, which had already prepared a draft outline for the Second Five Year Plan, was dissolved. A new planning organization under the name "National Planning Council" with His Majesty as the Chairman was constituted. The Council started working on a new Second Five Year Plan to follow immediately the First Plan. The outline was prepared (06). On second thought, the Council considered

¹

Panchayat Democracy is a partyless political system adopted by Nepal, designed to suit its own political and social conditions, as a viable alternative to the various systems of political institutions of the West and the East such as practiced in India and China, Nepal's neighbors.

it wise to go for one year with annual programs extended from the First Plan and take some time for the collection of necessary information to prepare a better plan, rather than produce a hastily drawn one.

Subsequently, it was also decided to launch a Three Year Plan instead of a Five Year Plan, "recognizing that a general plan for development over a period of years would require larger internal resources of money and organizational and technical skills than are available . . . His Majesty's Government, [therefore] proposed over the next three years to devise and implement a program of specific projects with the object of providing at the end the basic infrastructures which will then support a wider and more comprehensive plan" (85 p. 13). The Second Plan was termed, therefore, a preparatory plan as was the First Plan.

The objectives of the Second Plan were as general as those of the previous Plan: 1) expansion of production and improvement in the standards of living; 2) expansion of employment opportunities; 3) maintaining economic stability and social justice The priorities in the Two Plans did not differ much except that, in terms of resource allocation, more emphasis was given to industries in the Second Plan, "because of the need of completion of projects already underway." The Second Plan gave more emphasis to the collection of data on economic conditions and organizational reforms and improvements.

It was more explicit about the role of the private sector in economic development. The Plan stated, "In an underdeveloped country like ours, the responsibility of planned economic development lies ultimately in the Government But this does not necessarily mean that all the development works should be under government management. The private sector also must make reasonable contribution in the development" (26 p. 10). The First Plan had directed its economic policy toward what is called a "mixed-economy" approach and advised following a pragmatic approach rather than following any set pattern in deciding the nature of industries or programs to be run under the private or public sector. "The Government would initiate only such programs as are necessary in the larger interest of the society and where private initiative is not forthcoming" (24 p. 6).

The total outlay for the Second Plan was estimated at Rs. 600 million. As in the First Plan, there were no estimates for the private sector. However, Rs. 70 million were set aside, in addition to Rs. 600 million, for providing loans to support private initiative in development. Because of the lack of information on existing economic conditions, there were no quantified overall targets and goals. The sectoral and project targets were fixed in more or less a similar manner as in the First Plan.

The allocation of resources in the Second Plan was made as shown in Table 6.

Table 6. Allocation of resources in the Second Plan ^a

Sector/Project	Planned outlay (Rs. in millions)	Percentage to total outlay	Loans to institutions (Rs. in millions)
Transport and communications	143.5	23.9 (37.6) ^b	
Agriculture, minor irrigation, forestry	41.6	6.9 (9.7)	10.0 ^c
Industry and tourism	102.0	17.0 (7.6)	50.0
Power	91.0	15.2 (9.1)	
Irrigation (major) and drinking water	40.0	6.7 (6.0)	
Education	40.0	6.7 (5.7)	
Health and recre- ation	62.7	10.4 (7.6)	
Reforms, survey, training	79.2	13.2 (16.7)	10.0 ^d
Total	600.0	100.0(100.0)	70.0

^a
(26 pp. 33-34).

^b
Figures in parentheses are those of the First Plan.

^c
Loan for resettlement.

^d
Agricultural credit through land reform program.

There are some noticeable differences in the pattern of resource allocation in the Second Plan as compared to those of the First Plan. The allocation for transport and communications in the First Plan was 37.6 percent (this included construction of buildings); in the Second Plan it was 23.9 percent. Agriculture and forestry, excluding minor irrigation, had received 9.7 percent in the First Plan; this came down to 6.9 percent including minor irrigation. Industry and power together were allocated as much as 32.2 percent in the Second Plan as against 16.7 percent in the First Plan.

In the sources of finance, of the total outlay of Rs. 670 million (includes Rs. 70 million for loans) Rs. 500 million were expected to be contributed from external aid, Rs. 100 million from revenue sources, Rs. 60 million from external loan and Rs. 10 million from internal loans. Excluding loans, the share of foreign grants to the development program was expected to be as high as 83 percent.

The achievements of the Second Plan, when viewed from the expenditure side, seem quite satisfactory. The development expenditures during the Second Plan period were disbursed through the Government budget as well as directly through aiding agencies. Table 7 shows the planned expenditures and actual expenditures within the Government budget.

Table 7. Planned and actual expenditures in Second Plan within HMG budget^a

	Planned ^b expenditure	Actual expenditure	Percentage of actual to the planned
	(Rs. in million)		
Transport and communication	133.19	66.82	50.16
Agriculture, forestry	44.40	33.01	72.54
Industry and tourism	79.88	64.87	81.20
Power	31.50	41.53	131.84
Irrigation ^c	29.08	36.10	124.14
Education	51.07	38.43	75.25
Health and recreation	61.21	39.63	64.90
Reforms, survey ^d	90.76	48.17	53.07
Miscellaneous	33.98	26.54	78.10
Total	555.07	395.10	71.17

^a Compiled from Three Year Plan - Progress Report (29, Appendix).

^b Does not include supplementary budget.

^c Includes drinking water.

^d Includes planning, loan payments, constructions, contingency, re-balloting.

The expenditures on projects carried directly by aiding agencies, which were not included in the original programs, and the expenditures on commodity aids during the Plan period amounted to Rs. 220.46 million as shown in Table 8.

Table 8. Other expenditures during the Plan period^a

Activity	Expenditure (Rs. in million)
Transport, communication and power	115.47
Agriculture, forestry, irrigation	29.21
Industries	44.19
Education and health	18.83
Reforms, survey, training	12.76
Total	220.46

^a
(29).

This amount when added to the expenditures shown in Table 7, the total development expenditures in the Second Plan, comes to Rs. 615.56 million.¹

¹
Although this indicates considerable progress in the development expenditures, it may be misleading, to some extent, in the absence of a clear definition of the development program to put all under the development budget. It was not possible to ascertain the exact amount of development expenditures from the information available.

On the loan side to the private sector, out of the total amount of Rs. 70 million for loans, only Rs. 22.78 million were spent. The distribution was: Rs. 19.62 million disbursed through the Nepal Industrial Development Corporation primarily to larger industries; Rs. 1.78 million in cottage industries; Rs. 1.17 million through the Cooperative Bank to village cooperatives and Rs. 0.21 million for resettlement programs.

In the sources of finance, the Government received Rs. 488 million as grants from external sources as shown in Table 9 below.

Table 9. Grants received from external sources^a

Agency	Amount received (Rs. in million)	Amount expected Rs. in million)
USA	194.5	210.0
India	123.2	140.0
China	46.2	40.0
USSR	87.5	80.0
UK	14.0	15.0
Others	22.5	15.0
Total	487.9	500.0

^a(29).

As against the expected contribution from internal sources of Rs. 100 million (Rs. 40 million by deficit financing and the rest through increased taxation and other receipts), the actual contribution from internal savings came to Rs. 107 million without recourse to deficit financing. The Government was able to increase its revenue and savings from the regular budget¹ to contribute funds to development programs (34). The increase came from savings and bond issues (Rs. 20.6 million) and increased taxes and other receipts. (See Appendix.)

Thus the share of internal contribution in the development budget reached 22.4 percent as against the planned estimate of about 17 percent. Foreign loans contributed 5.1 percent and the share of external grants was 72.5 percent, whereas in the year before the Second Plan it was as high as 94 percent. On the whole, the performance in the Second Plan was relatively satisfactory in increasing the relative absorptive capacity of the economy, as far as spending was concerned.

The achievement of the Second Plan in terms of physical targets is summarized in Table 10.

1

Regular budget expenditures are distinguished from development budget expenditures in that the regular budget encompasses established government activities, whereas the development budget is concerned with the outlay for new or development projects and activities (31 p. 35).

Table 10. Some of the main targets and achievements of Second Plan ^a

Sector/Project	Unit	Situation before Plan	Targets of Plan	Achievements	Percent of target
A. Transport and communications					
1. Roads					
a. All-weather	Km.	701	320	72	22.5
b. Fair-weather	Km.	1,010	1,158	848	73.2
2. Airfields					
a. DC-3	Num.	12	3	-	nil
b. Stol	Num.	-	20	4	20.0
3. Postal branch	Num.	376	26	26	100.0
4. Telephone lines	Num.	1,120	900	-	nil
5. Wireless stations	Num.		57	57	100.0
B. Power	Kwt.	8,982	22,000	4,430	20.1
C. Irrigation	Hectare	51,598	57,287	40,628 ^b	70.9

^a Compiled from Departmental Progress reports (29).

^b Includes minor irrigation.

Table 10 (Continued)

Sector/Project	Unit	Situation before Plan	Targets of Plan	Achievements	Percent of target
D. Education and health					
1. Primary schools	Num.	4,165	1,200	1,200	100.0
2. Secondary and high	Num.	585	50	163	326.0
3. Students (primary secondary, high)	'000	302	77	199	258.5
4. Hospitals	'000	39	3	3	100.0
5. Hospital beds	'000	930	290	230	79.3
6. Health centers	'000	94	10	12	120.0
7. Malaria eradication	ooo people	2,000	4,500	4,100	91.0
E. Agriculture, forestry					
<u>Agriculture extension center</u>	Num.	5	9	6	66.6
1. Agronomy farms	Num.	10	8	-	nil
2. Horticulture farms	Num.	11	14	5	35.7
3. Livestock farms	Num.	4	7	-	nil

Table 10 (Continued)

Sector/Project	Unit	Situation before Plan	Targets of Plan	Achievements	Percent of target
4. Fish farms	Num.	5	3	1	33.3
5. Veterans hospitals	Num.	11	21	21	100.0
6. Pasture centers	Num.	-	5	5	nil
<u>Forestry</u>					
1. Forest demarcation	Km.	1,272	7,910	3,940	49.8
2. Fire lines	Km.	224	630	425	67.6
3. Forest roads	Km.	122	610	567	93.0
4. Afforestation	Ha.	392	4,500	2,445	54.2
F. Cooperatives	Num.	581	2,214	542	24.0
G. Technical training ^c		6,351	7,976	5,662	72.2
H. Cadastal survey	000 Ha.	462	1,930	719	37.2

^c Includes training of junior level technicians in agriculture, forestry, cooperatives, overseers, health assistants, nurses, teachers.

Among the measures taken in the areas of institutional and structural reforms and economic surveys, the one in agrarian reforms bears significance. Two legislative measures were taken to bring changes in the existing size of holdings and tenancy pattern. The Agricultural Reorganization Act and, with some amendment, The Lands Acts were promulgated in 1963 and 1964, respectively. The main provisions of these Acts are (33):

1. Fixation of ceilings on land holdings - as owner (for each adult member in the family - in case of male, above 16 years of age; for female, if unmarried and 36 years old): 17 hectares if it is in the Tarai; 4.11 hectares for the Hills; 2.67 hectares in Kathmandu Valley plus a homestead of about 2 hectares. As tenant (for each adult member as in the case of owner): 2.67 hectares in Tarai; 1.02 hectares in the Hills; and 0.51 hectares in Kathmandu Valley without mentioning homestead.
2. Provision of inheritable tenancy rights by one of the heirs, whomsoever landowner assigns without subdivision.
3. Interception of all agricultural loans repayments to private lenders by the Government and provision for reassessment of old loans.
4. Provisions of collecting from owners and tenants a certain amount of the product (about 6-9 percent) in cash or kind as compulsory savings.

The rate of rent to be paid by the tenant was maintained the same as in previous Acts, to the maximum 50 percent of the total gross produce of the land. During the Plan period the provisions of this Act were applied in 16 out of 75 districts.

In other areas of structural reforms, especially in public administration, nothing substantial was achieved except some basic surveys in the decentralization of administration. The area in the country was divided into 14 zones and 75 districts for the purpose of development activities.

The census of population and the first agricultural census initiated during the First Plan were compiled and for the first time preliminary estimates for Gross Domestic Products and foreign trade statistics were released.

Summing up the performance of the Second Plan indicates that there were improvements in the fiscal side, and the institutions established during the First Plan were strengthened. However, the achievements in terms of physical progress do not seem to have moved in line with the actual expenditures vis-a-vis the targets. From the expenditure side, if the expenditures were added up - incurred within the budget and outside the budget - all the projects seem to have spent all the planned outlay, except for transport and communications (65 percent) and reforms and organizations (65 percent). But in comparing the achievements with the targets, all seem to have come below the targets, except in education where achievement was more than 200 percent of the target and actual expenditure

was about 92 percent of the total educational budget. (See Table 10.)

Further analysis of the annual budget and expenditure would show that none of the sectors was near the mark of spending what it had asked for or had had allocated. (See Table 7.) Power and irrigation spent more than they were allocated; other projects could spend, on an average, only two-thirds of the budget allocated to them. Apparently, there were shortcomings in estimations and in technical assessments of the projects.

The Government's inability to incorporate all the development expenditures within the annual budget and need to make provisions for some projects to be implemented from outside the Government machinery, would indicate either the incompetency of the regular administrative machinery to carry out the projects and the Government's inability to improve upon them or that the aiding agencies had considerable influence in the selection of projects and in the manner of their implementation.

Some of the aid programs were already tied to specific projects, which the Government apparently was not in a position to alter. For instance, some of the industries such as a sugar factory, tobacco factory, and leather factory were already committed to Russian and Chinese aid programs. So were some of the US and Indian aid programs.

The targets for establishing veterinary hospitals, supported under Indian aid, were fully achieved, whereas the achievements in establishing livestock improvement and breeding farms and pasture development centers were nil. Without question, veterinary hospitals were needed; but it is doubtful if it was justified to open such a large number of hospitals in such a short period of time, amidst so many other needs in livestock improvement. The choice was between treating the sick animals of local stocks which in a majority of the cases were uneconomic to maintain, except for perhaps psychic satisfaction, on a massive scale and providing, in the meantime, certain facilities for improved breeding and feeding along with improved management. The former attitude prevailed.

This review closes with the observation made by the National Planning Council: "Our increasing dependence upon foreign assistance has affected the nature of our development programmes. . . the all-round development of the country is not possible only by means of foreign aid."¹

The Third Plan

(1965-66 - 1969-70)

The Third Plan was launched in July, 1965, immediately after the termination of the Second Plan. Experience gained in the last two Plans helped considerably to make the Third

¹
Quoted in (97 p. 266).

Plan more comprehensive. At the same time, some of the basic information was available such as agricultural census data, gross domestic products estimate and trade statistics. Some measures like agrarian reform and the process for decentralization of public administration were already initiated. The political stability that prevailed in the country after the political change in 1961 provided relative continuity in the administration.

Financial institutions were improved and strengthened. A Cooperative Bank was established in 1963 to finance the agricultural sector. The Nepal Industrial Development Corporation was able to expand its activities in financing the industrial sector. The establishment of the National Commercial Bank was initiated. The chronic problem of exchange rate fluctuation that had troubled the economy since 1950 was stabilized. The Foreign Exchange Regulation Act was enforced in most parts of the country, making illegal circulation of currencies other than Nepalese currency.¹ Tax receipts were improving. (See Appendix.) The convertible currency reserve position was better, with a balance surplus increased from Rs. 26.24 million in 1962-63 to Rs. 30.44 million in 1964-65 (76 pp. 59-60.)

1

Nepal had a dual currency system allowing Nepalese and Indian currencies to circulate as local currencies in many parts of the country. In 1966, all the area in the country was brought under a single currency system - making the circulation of Indian currency in Nepal illegal.

Consequent to these developments, the planners of the Third Plan were in a better position to deal with more specific targets and more explicit operating plans derived from the better factual information than in the previous Plans. The main distinguishing features of the Third Plan as compared to the previous Plans are:

1. The long-run perspective view of development and growth was taken into account. The target set was to double the national income in fifteen years, by 1980. To achieve this, the Third Plan was formulated with the primary objective of increasing the national income by 19 percent in the Third Plan period, i.e., in five years and, considering the estimated 2 percent population increase per annum, per capita income by 9 percent. Accordingly, sectoral targets, specifically in agriculture, were fixed to raise food grain production by 15 percent.

2. Investment estimates for the private sector were included in the Plan in addition to Central Government outlays for the first time. Similarly, investment from the "panchayat" sector, consisting of the district, village and town units of the government created after the political change in 1961, were also presented in the Plan.

3. The Plan envisaged making the panchayat system a medium for development. The Plan adopted the constitutional objectives of the panchayat system (promulgated in 1962) as its

social objective: promoting welfare and social justice in the nation; providing equal opportunity for all for the betterment of life and access to resources; stimulating equitable distribution of income, and raising the standard of living (25). As stated in the Third Plan:

" . . . the panchayat structure is designed to create the institutional arrangements necessary for the political, social and economic growth of the nation. It will involve the people at all levels of administration and executive action within the country. In view of the basic objectives, all important activities must be undertaken within the framework of the panchayat system " (31 p. 13).

The mode of political thinking in the preparation of the Third Plan notwithstanding, the general objectives were about the same as those of the previous Plans. In the areas of priority, more emphasis was placed on those sectors that would contribute most to the national production. The agricultural sector had a major role to play in fulfilling the targeted rate of growth in the economy. Accordingly, this sector received high priority in the Third Plan.

The total outlay of the Plan was estimated at Rs. 2,500 million: Rs. 1,740 million in the public sector, Rs. 520 million in the private sector and Rs. 240 million in the panchayat sector. The planners were presumably encouraged by the rising absorptive capacity of the economy, the increasing ability of the Government to provide funds, and the growing number of trained persons available to make a considerably large outlay in the Third Plan. The annual total Government

expenditures in the Third Plan became, on an average, five times more than that of the First Plan. As against the average annual Government expenditures of Rs. 74 million and Rs. 200 million in the First and Second Plans respectively, Rs. 348 million were budgeted in the Third Plan.

The Government's greater optimism was also reflected in raising the internal revenue. It was estimated that the Government would be able to contribute Rs. 550 million from its revenue; Rs. 1,050 million was expected to come from foreign aid; Rs. 200 million from external loans; Rs. 50 million from internal loans; Rs. 350 million from private savings; Rs. 200 million from panchayat; and the balance of Rs. 100 million either from deficit financing or from other internal and external sources. Domestic contributions were thus estimated to cover 46 percent of the total envisaged development expenditures, including the private investment, whereas foreign assistance, grants and loans, would cover 50 percent. The remaining 4 percent would be met by drawing on reserves or other sources (31 pp. 34-38).

However, when analyzed in comparable terms with the previous Plans, the share of external assistance would be higher than 50 percent. The total outlay for the Government expenditures in the Third Plan was estimated at Rs. 1,740 million, as mentioned earlier. In addition to this amount, the Plan also envisaged provisions for loans by the Government of Rs. 170

million and Rs. 40 million to the private and panchayat sectors through financial institutions to make up the deficit in the planned investments from these sectors. Adding these loan provisions to the public sector investment, the actual investment expenditures of the Government sector would come to Rs. 1,950 million instead of Rs. 1,740 million. Comparing foreign assistance with the total government expenditures, as in the previous Plans, the share of foreign assistance would amount to 64 percent of the total development expenditures from the public sector.

In the allocation of funds, Governmental resources were concentrated on expanding the economic overhead in the form of transport, power and communication. The allocation of resources per sector is presented in Table 11.

The largest portion of resources was allocated to the development of transport, communication and power which received about half of the total Government expenditures, and agriculture and forestry which received about 16 percent of the public sector expenditures. If power combined with industry and irrigation with agriculture (see Table 12), the priorities in terms of resource allocation would be transport and communication 35.4 percent, industry and power 22.1 percent, agriculture 21.6 percent and others 20.9 percent of the total public sector investment.

Table 11. Planned outlay in Third Plan by sector ^a (Rs. in million)

	Public expenditure (amount)	Panchayat expenditure (amount)	Private expenditure (amount)	Total expenditure (amount)
Transport, communication, power ^b	875.0 (50.3)	36.0 (15.0)	20.0 (4.0)	931.0 (37.2)
Agriculture, forestry ^c	277.5 (15.9)	105.0 (43.8)	130.0 (25.0)	512.5 (20.5)
Industry, commerce	125.0 (7.2)	12.0 (5.0)	300.0 (57.8)	437.0 (17.5)
Irrigation	100.0 (5.8)	15.0 (6.2)	20.0 (3.6)	135.0 (5.4)
Education, information	145.0 (8.3)	25.0 (10.4)	15.0 (2.9)	185.0 (7.4)
Health	147.5 (8.5)	25.0 (10.4)	15.0 (2.9)	187.5 (7.5)
Miscellaneous ^d	70.0 (4.0)	22.0 (9.2)	20.0 (3.8)	112.0 (4.5)
Total	1740.0(100.0)	240.0(100.0)	520.0(100.0)	2500.0(100.0)

^a The Third Plan (31).

^b The figures in parentheses are percentages of the respective totals.

^c Includes agrarian reform, cooperatives, Cadastal survey, food program, panchayat (village development) and medical herbs.

^d Includes public administration, statistics, economic surveys, building construction and others.

A comparison of the public sector expenditures allocated among various departmental categories in the three Plans is presented in Table 12.

Comparing the public investment programs in the three Plans shows that transport and communication received top priority in the First and Third Plans. Industry and power received first place in Second Plan. Agriculture and forestry was in second place in the First Plan and near the third place in the subsequent two Plans.

The progress made by various sectors in the Third Plan appeared to be moving in line with the targets from the expenditure side; the achievements in terms of physical targets¹ seemed to have remained below the targets.

The planned outlays and expenditures are presented in Table 13.

1

It is not possible at this stage to have a full appraisal, especially in terms of physical targets. The Plan has nearly six months more to go, to be completed by June, 1970. Nevertheless, from the expenditures side, almost a full account can be obtained as the budgets for the last year have already been approved. For appraising the progress in the physical targets, it refers to the progress made in general development and growth up to July 14, 1969.

Table 12. Planned public sector investment outlays in the three Plans by major departments (Rs. in million)

Department	Outlays			Percent of Total		
	Plan I	Plan II	Plan III	Plan I	Plan II	Plan III
<u>A. Transport, communication</u>	<u>124.0</u>	<u>143.5</u>	<u>615.0</u>	<u>37.6</u>	<u>23.9</u>	<u>35.4</u>
Roads		112.5	500.0			
Aviation		25.0	70.0			
Telecommunication, postal		6.0	36.0			
Railway			9.0			
<u>B. Agric. Village Dev.</u>	<u>94.5</u>	<u>117.1</u>	<u>377.5</u>	<u>28.7</u>	<u>19.6</u>	<u>21.6</u>
Agric. resettlement	32.0	28.0	130.0			
Land reform		2.5	20.0			
Cadastral survey		10.0	25.0			
Food			10.0			
Panchayat (Vill. Dev.)	42.5	20.0	30.0			
Cooperatives		3.0	10.0			
Forestry		13.4	61.5			
Irrigation	20.0	40.0	100.0			
<u>C. Industry and Power</u>	<u>55.0</u>	<u>193.0</u>	<u>385.0</u>	<u>16.6</u>	<u>32.2</u>	<u>22.1</u>
Industry	25.0	90.0	85.0			
Cottage industry		10.0	15.0			
Mining			20.0			
Tourism		2.0	5.0			
Power	30.0	91.0	26.0			

Table 12 (Continued)

Department	Outlays			Percent of Total		
	Plan I	Plan II	Plan III	Plan I	Plan II	Plan III
D. <u>Social services</u>	<u>44.0</u>	<u>115.2</u>	<u>292.5</u>	<u>13.3</u>	<u>19.1</u>	<u>16.8</u>
Education	19.0	40.0	130.0			
Health	25.0	37.0	120.0			
Drinking water		24.0	20.0			
Sports		1.7	2.5			
Training		12.5	15.0			
E. <u>Miscellaneous</u>	<u>12.5</u>	<u>31.5</u>	<u>70.0</u>	<u>3.8</u>	<u>5.2</u>	<u>4.1</u>
Public administration		5.0	10.0			
Statistics		23.0	9.0			
Buildings			20.0			
Hydrological survey			14.0			
Broadcasting publicity		3.2	17.0			
Total	330.0	600.0	1740.0	100.0	100.0	100.0

Table 13. Planned and actual outlays in the Third Plan by major activities^a

Activity	Planned outlays (Rs. in million)	Actual expenditures ^b (Rs. in million)	Percentage of planned outlay
Transport, communication, power	875.00	883.37	100.9
Agri., forestry, panchayat	277.00	276.47	99.6
Industry, commerce	125.00	161.60	129.2
Irrigation	100.00	116.06	116.0
Education, publicity	145.00	129.96	89.5
Health	147.50	113.36	76.8
Miscellaneous	70.00	149.82	214.0
Total	1740.00	1830.64	105.2

^a Budget speech (38,41,43,47).

^b "Actual" expenditures include the actual expenditures incurred during 1965-66, 1966-67 and 1967-68; the expenditures for 1968-69 are revised estimates; the ones for 1969-70 are budget estimates.

Table 13 shows the expenditures incurred in the public sectors. There are no estimates of expenditures available for the private and panchayat sectors. However in the panchayat sector savings worth about Rs. 114.4 million were collected from the farm sector during the four years of the Third Plan in cash and kind under the land reform program Compulsory Savings Scheme. Out of this, about Rs. 62 million were disbursed as loans to farmers and to other individuals to support agricultural activities (45 p.5).

The annual Government budgets also show that a sum of about Rs. 160 million was disbursed as loans to the private and panchayat sectors from the Government sector expenditures of Rs. 1,830.64 million. Taking this into account, comparing the original estimates of Rs. 1,950 to be spent in the public sector with the actual expenditures of Rs. 1,830.64 million, shows that the Government sector expenditures would come to about 94 percent of the total planned outlay.

In the sources of finance, it appears that the amount of contribution from the revenue surplus would come to Rs. 708.56 million, as against the planned estimate of Rs. 550 million. The total amount of foreign aid made available during the Plan period would come to Rs. 1,019.12 million, whereas the expected contribution was Rs. 1,050.00 million. The Government

would raise Rs. 57.80 million from internal loans and Rs. 19.52 from external loans, as against the stipulated Rs. 50.0 million and Rs. 200.0 million loans from internal and external sources. (Table 14)

The total resources available for the Third Plan come to Rs. 1,805 million, whereas the total expenditures would be Rs. 1,830 million, showing a deficit of Rs. 25 million. The external assistance share comes to 56.7 percent; that of Government revenues 38.7 percent; internal loans 3.1 percent; and deficit financing 1.5 percent of the total public sector expenditures. The heavy rate of reliance on external aid shows a gradual decrease during the Third Plan as compared to the previous Plans (the First Plan 90 percent; the Second Plan 78 percent).

The rate of increase in revenue receipt during the Third Plan is on the average 21 percent per year. The rate of increase in regular expenditures is 12 percent. The savings from revenue receipts over the regular expenditures show an average annual rate of increase of 40 percent. The annual rate of increase in external assistance, as outright grants, is 18 percent.

The Third Plan has shown relatively satisfactory results in resource mobilization and expenditures. Following is a brief review of the progress made in achieving the main objectives and some of the physical targets.

Table 14. The revenue income, regular expenditures, external aid and loans in the Third Plan^a (Rs. in million)

	<u>1965-66</u> <u>Actual</u>	<u>1966-67</u> <u>Actual</u>	<u>1967-68</u> <u>Actual</u>	<u>1968-69</u> <u>Rev. Est.</u>	<u>1969-70</u> <u>Estimates</u>	<u>Total</u>
Revenues	216.50	256.60	325.98	400.19	442.26	1641.53
Expenditures	147.33	170.60	180.79	201.50	232.75	932.97
Balance	<u>69.17</u>	<u>86.0</u>	<u>145.19</u>	<u>198.69</u>	<u>209.51</u>	<u>708.56</u>
External aid	175.30	142.20	158.11	214.24	329.27	1019.12
External loans	3.30	3.70	-	-	12.52	19.52
Internal loan	7.50	0.70	10.00	19.60	20.00	57.80
Total	<u>186.10</u>	<u>146.60</u>	<u>168.11</u>	<u>233.84</u>	<u>361.79</u>	<u>1096.44</u>

^a Budget speech (34, 38, 41, 43, 47).

The main objectives of the Third Plan, as mentioned earlier, were: 1) to increase production; 2) to provide institutional reforms - to facilitate transfer of the labor force from the agricultural sector to the non-agricultural sector; 3) to build up economic infrastructures - transport, power, efficient markets; 4) to accelerate the industrial development process by establishing basic and essential industries; 5) to improve foreign trade by diversifying the trade pattern and to earn and spend more foreign exchange for development; and 6) to bring social justice by the allocation of benefits to a larger number of people, and by increasing health and education facilities.

The production targets and the progress made during the first four years of the Plan are presented in Table 15.

Considering the outlook for agricultural production in 1969-70, it appears that given the normal rainfall, production of cereal grains will increase by 12 percent by the end of the Plan period as against the Plan target of 15 percent increase. Similarly, in cash crops, production will increase by only 36 percent as against the Plan target of 73 percent.

In industrial production, there is practically no progress, except in a few cases like sugar and cigarettes. Some of the new industries envisaged in the Plan, such as paper, cement, beer distillery, cotton textiles, solvent extract, flour mills, etc., have not yet been established.

Table 15. Some of the main production targets and the achievements in four years of the Third Plan^a

Items	Unit	Situation in 1964-65	Plan target 1969-70	Achievement 1968-69	Percent of achieved target
A. Agricultural production					
<u>Food grains</u>					
	'000				
Paddy rice	metric ton	2201	2368(7.5) ^b	2321(5.45) ^c	98.0
Wheat and barley	metric ton	152	425(179.5)	256(68.4)	60.2
Corn	metric ton	854	918(7.5)	899(5.33)	97.9
<u>Cash crops</u>					
Sugar cane	metric ton	126	252(100.0)	188(49.20)	74.9
Tobacco	metric ton	9	23(150.0)	6(-33.3)	nil
Jute	metric ton	39	39(40.0)	33(-15.60)	nil
Oilseeds	metric ton	51	60(19.0)	57(11.76)	95.0
Potato	metric ton	285	-	290(1.40)	--

^a The target figures are from the Third Plan Document; production figures up to 1964-68 are from official released in the progress report of respective ministries; those for 1968-69 are preliminary estimates.

^b Figures in parentheses are the planned percentage increase over 1964-65 production.

^c Figures in parentheses are the percentage increase in production over 1964-65 production.

Table 15 (Continued)

Items	Unit	Situation in 1964-65	Plan target 1969-70	Achievement 1968-69	Percent of achieved target
B. Manufacturing					
Sugar	metric ton	7	43(614.0)	17(142.9)	3.95
Jute products	metric ton	19	34(79.0)	17(-10.5)	50.0
Paper	metric ton	-	15	nil	nil
Soap	metric ton	11	23(19.0)	16(45.5)	69.6
Cement	metric ton	-	61	nil	nil
Cigarettes	million sticks	410	3000(631.0)	90(34.0)	64.3
Cotton textiles	'000 meter	435	18400	2658 ^d (14.4)	15.0

d

This is mainly synthetic fiber textile production.

The overall growth rate of the economy is bound to fall short of the target. The estimate for gross domestic products is presented in Table 16.

The aggregate growth in GDP in four years was 12.3 percent. This growth falls short by 6.7 percent of the planned target of 19.0 percent growth in five years. Although there is one year more to complete the Plan, it would be obviously difficult to have a growth rate of 6.7 percent in the remaining one year of the Plan, when so far the annual average growth rate has been 3.0 percent.

The per capita GDP is estimated to have increased from Rs. 590 in 1964-65 to Rs. 610 in 1968-69 (Table 17) and the population increased by about 8.6 percent in the same period, thus leaving an annual average per capita real GDP increase¹ of 0.9 percent at 1964-65 constant prices.

The available information is not sufficient to examine the occupational shifts and employment patterns. Nevertheless, some estimates can be obtained by studying the employment patterns, production, potential and existing employment in some of the industries and the new jobs opened in the service sectors. It is assumed that the additional labor required in these sectors have come from the agricultural sector and the

¹

Prices in 1968-69, as compared to 1964-65 prices, are estimated to have increased by 17 percent for non-agricultural and 11 percent for agricultural commodities. The general un-weighted prices have increased by about 15 percent (49).

Table 16. Gross domestic products of Nepal for 1964-65 to 1968-69 at 1964-65 prices^a (Rs. in million)

Year	Agriculture		Non-Agriculture		Total		Sectoral contribution percent	
	Value	Percent change	Value	Percent change	Value	Percent change	Agric.	Non-Agric.
1964-65	3915		1968		5883		67	33
1965-66	3954	1.0	1902	-3.4	5856	-0.5	68	32
1966-67	3849	-2.7	2043	7.9	5892	0.6	65	35
1967-68	4153	7.9	2129	4.2	6282	6.6	66	34
1968-69	4265	2.7	2341	9.9	6606	5.1	65	35
<u>Aggregate growth</u> (percent)		8.9	18.8		12.3			
<u>Average annual rate</u> (percent)		2.22	4.7		3.0			

^a

GDP for 1964-65 to 1967-68 are from revised estimates of the Central Bureau of Statistics, National Planning Commission Secretariat's Fourth Plan Working Papers; the ones for 1968-69 are from the preliminary estimates of the Economic Analysis and Planning Division, Ministry of Food and Agriculture, HMG Nepal, August 1969.

Table 17. Population and GDP per capita in 1964-65 and 1968-69^a

	1964-65	1968-69	Percent change
Total population (million)	9.86	10.82	8.60
Total GDP (Rs. in million)	5883.00	6606.00	12.30
Per capita GDP (Rs.)	590.00	610.00	3.70

^a

In terms of United States dollars the per capita GDP in 1968-69 would come to about \$84 at 1968-69 prices, making adjustments for the devaluation of Nepalese rupees by 24.78 percent in December 1967. There are no official estimates for per capita national income. The main sources of income from abroad are Gorkha soldiers, remittances from the UK and India and the few Nepalese working abroad. The Gorkha remittances in convertible currencies are estimated at Rs. 44 million; remittances in Indian currency for Gorkha soldiers and other sources from abroad are estimated at about Rs. 830 million. Deducting from this about Rs. 56 million for payments to foreign nationals (mostly seasonal agricultural laborers, about 200,000), the per capita national income in Nepal would come to about \$94.00.

natural increase in population in agricultural and nonagricultural sectors have remained the same. The estimates show that in 1968-69 the labor participation rate was 46.5 percent or 5.03 million people of the total population of 10.82 million. The percentage of labor force in agriculture was 86.3 and in nonagriculture 13.7. In 1964-65, labor participation was 45.8 percent or 4.56 million people. Out of this total labor force, 90.0 percent were in agriculture and the remaining

10.0 percent were outside of agriculture. These estimates show that there was an increase in labor participation rate by 0.7 percent, and that the total labor force increased by 10.3 percent in four years. Although the percentage change in labor engaged in agriculture in 1968-69 decreased by about 3.7 percent, in absolute number, it increased from 4.10 million laborers in 1964-65 to 4.34 million in 1968-69, an increase by 6.0 percent.

The other major areas the Third Plan addressed itself to were toward developing the economic infrastructures (viz transport and power, foreign trade, convertible foreign exchange earnings and the tax structures. In the field of transport and power, only about 50 percent of the planned targets have been achieved so far. In the Plan targets of constructing 757 kilometers of all-weather and 607 kilometers of fair-weather roads by the end of 1968-69, 425 kilometers of all-weather and 290 kilometers of fair-weather roads were constructed. In all, Nepal has now 1198 kilometers of all-weather and 2,148 of fair-weather roads. In power generation, 25,604 kilowatts of power will be available by the end of 1968-1969.

The foreign trade deficit does not seem to have improved during the Plan period. The export-import statistics up to 1964-65 show that from 1956-57 to 1964-65 the annual average export of Nepal was Rs. 212.53 million, while the total import

was of the value of Rs. 412.11 million, showing an average deficit of Rs. 199.58 million annually. In 1964-65 alone the deficit was Rs. 378 million (42).

In trade diversification (moving away from Nepal's traditional trade pattern of depending almost entirely on India), the export and import statistics in 1960-61 and 1966-67 (beyond 1966-67 statistics are not available) show that 96 percent of Nepal's total exports went to India and 94 percent of the total imports were from India in 1960-61. In 1966-67, there was a slight change in this pattern. Of the total exports from Nepal, 73 percent went to India and of the total imports, 69 percent were from India. Table 18 shows that the trade deficit in 1966-67 was reduced as compared to the 1960-61 figures. This reduction is not due to an increased rate of export in relation to import, but seems rather due to the devaluation of Indian currency in 1966 and, as Nepal did not devalue its currency then, the automatic revaluation of Nepalese currency from the IC?NC exchange rates of 1:1.60 to 1:1.01. In fact, Nepal's trade deficits are actually rising. (See also 1 and 95.)

The trade deficit notwithstanding, Nepal's income and expenditures and the surplus in convertible foreign exchange have shown a steady rise in the Plan period, except for 1969-70 as shown in Table 19. On an average, the annual income will have increased by about 45 percent, expenditure by about

Table 18. Foreign trade statistics of Nepal in 1960-61 and 1966-67^a (Rs. in million)

	1960-61				1966-67			
	India	Overseas	Tibet	Total	India	Overseas	Tibet	Total
Exports	202.17	7.00	0.57	209.74	156.60	51.00	8.10	215.70
Imports	375.09	19.13	3.76	397.98	264.60	110.00	9.00	383.60
Balance	-172.92	-12.13	-3.19	-188.24	-108.00	-59.00	-0.90	-167.90

^aData for 1960-61 are from the Central Bureau of Statistics, Nepal, (42); for 1966-67, overseas trade data are from the Nepal Rastra Bank (76); India trade data are from Department of Commerce and Intelligence, Calcutta, India, as quoted in 1 and 95; data for Tibet are projected from the past data.

Table 19. Nepal's income and expenditure of convertible foreign exchange, 1964-65 to 1969-70^a (Rs. in million)

<u>Year</u>	<u>Income</u>	<u>Expenditure</u>	<u>Balance</u>	<u>Remarks</u>
1964-65	70.29	39.84	30.45	Actuals
1965-66	100.05	41.66	58.39	Actuals
1966-67	122.48	71.62	50.86	Actuals
1967-68	223.00	122.60	100.40	Actuals
1968-69	248.80	108.40	140.40	Estimate
1969-70	216.00	235.20	- 19.20	Estimate

^aBudget speech (34,38,41,43,47).

45 percent, expenditure by about 38 percent and savings by about 65 percent. However the fact that Nepalese currency was devalued in December 1967 by 24.78 percent should be borne in mind as well. This was the reason for the steep rise in 1967-68 in all the items.

Coming to the tax structure and revenue, it was mentioned earlier that revenue incomes have risen at the rate of about 21 percent annually during the Plan period. The relative rise in the rate of revenue contributions from different components in the revenue structure of the Government may be examined in the table presented in Table 20. The major share of revenue comes from customs duties; second is land revenue. Taxes (item 5) were insignificant until 1964-65; it is only during the past three years that they have taken third place. When compared with the 1964-65 situation, taxes in 1968-69 have increased by nearly eight and one-half times. Taxes on income and wealth account for about 5 percent of the total revenue of the Government.

The rate of increase in domestic resource mobilization and the rate of increase in taxes appear encouraging. However, if we examine further these performances in relation to the need and the potential for mobilization of the resources in the economy, it will be less than satisfactory. The total revenue income in 1968-69 was only 6.5 percent of the total GDP of the country. This is low not only by

Table 20. Revenue income of Nepal by sources in 1964-65 to 1969-70^a (Rs. in million)

	1964-65	1965-66	1966-67	1967-68	1968-69	1969-70
Customs	83.31	93.51	121.75	129.73	170.79	193.12
Excise	13.88	20.06	19.96	21.48	29.82	31.20
Land revenue	43.16	44.52	56.65	83.29	86.00	86.50
Forestry	20.87	19.39	16.53	21.82	20.08	20.37
Taxes ^b	7.41	16.37	24.84	44.25	64.50	69.30
Others ^c	<u>23.72</u>	<u>22.63</u>	<u>16.94</u>	<u>25.41</u>	<u>29.00</u>	<u>41.77</u>
Total	192.35	216.48	256.67	325.98	400.19	442.26

^a 1968-69 figures are revised estimates; 1969-70 are budget estimates and the rest are actuals (47,76).

^b Taxes include income, entertainment, sales, urban property taxes.

^c Others include registration fees, water charges, transport and postal fees, interest and dividend, royalties, presents.

Western standards, where tax ratios to national income come to 30 to 40 percent in countries such as Germany, the Netherlands, Norway, The United Kingdom, the United States (18 p. 115), but also by the Asian standards. In India and Pakistan, government revenue was 11 percent, in Burma 19 percent, in Ceylon 20 percent and in Thailand 14 percent of the national income in 1963 (11 p. 87).

The reviews of the development Plans indicate that Nepal has undergone both problems and fruitful experiences. For example, during the First Plan the absorptive capacity of the economy was terribly low; given the relative gain in the absorptive capacity during the Second Plan, lack of proper identification of problems and weaknesses inherent in the economy and thereby heavy reliance on external assistance caused the priorities for development to be shifted. Having tried to correct some of the weaknesses and having been able to set a goal for development in physical terms, the Third Plan made some headway in economic growth, but failed by a considerable extent to achieve the desired goals. The lessons and policy implications for a future development policy which may possibly be derived from the experiences of the past fifteen years are considered in the following chapters.

CHAPTER III. AN ANALYTICAL FRAMEWORK FOR APPRAISING THE PERFORMANCE OF THE AGRICULTURAL SECTOR

In the preceding chapter, the general macroeconomic structure was reviewed in terms of some basic economic aggregates. The overview of the economy thus obtained suggests a variety of problems. The economic structure, reviewed for the period 1956 to 1969, shows positive as well as negative features from the standpoint of development.

The aggregate growth has crossed the stagnation or status-quo condition that had been prevailing for a long time. Considered on a per capita gain basis, the progress has not yet achieved the momentum necessary to escape from their impoverished condition for the vast majority of the people. The gap in regional imbalance is widening. The distribution of development activities has favored the relatively prosperous parts of the country. Given the nature of population distribution and the nature of wealth distribution among few prosperous areas, disparities in income distribution are growing.

The activities of the Government sector has been growing and have shown some impact on the economy; on the other hand, the private sector has been too slow to move forward, both in manufacturing and agricultural activities. The service sector, such as marketing, has not shown any appreciable progress. Structural reforms, as envisaged in the Plans, have not brought significant changes in the economic system.

The Development Framework

The major problem in economic development in Nepal, as described in the preceding chapter is related to the agricultural sector. The major areas of policy concern in economic development - such as level of income, investments or capital formation, employment, income distribution, balance of payments - therefore weigh heavily on the performance of this sector.

However, this is not meant to imply that agricultural development can be pursued without support or interactions with other sectors of the economy. Although agricultural progress is a strategic element in the development process in Nepal, it cannot be the only one. It is only one part of the economy or development system, though a major one, and other parts of the system--such as services, manufacturing, must move along with it. In the initial stage of development it is important to focus on interrelationships between agriculture and other sectors and the contributions that each can make to the other.

This interrelationship in the context of Nepal may be illustrated as in Figure 1.

The development system, as illustrated on the next page, has agriculture as a core component or part of the system. The rate of progress in the economy will depend upon the policy measures taken to strengthen the mutual interdependence

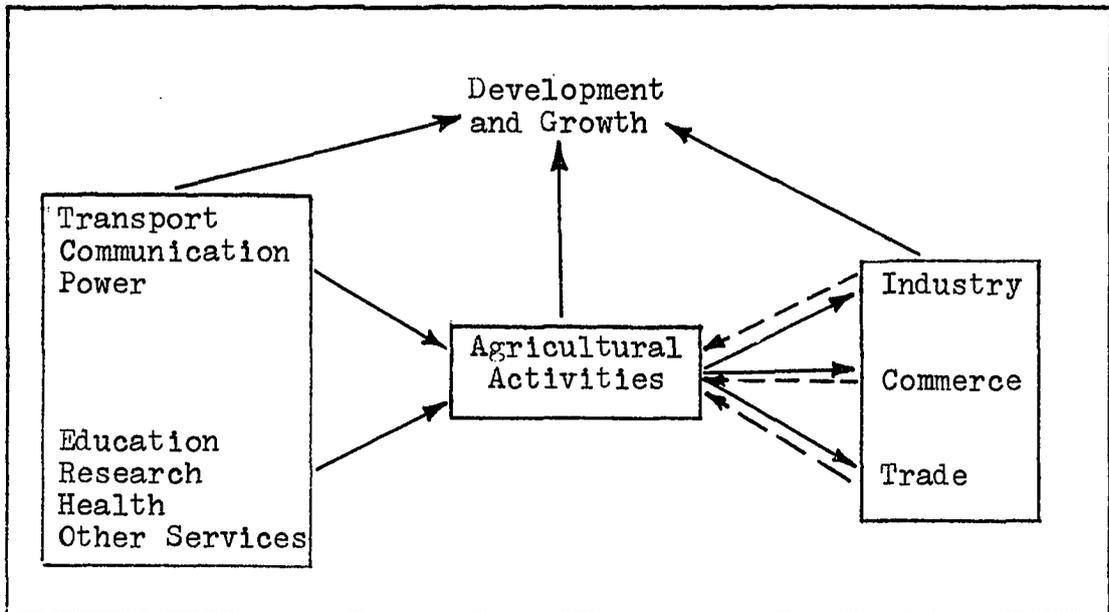


Figure 1. Development system of linkage with agriculture as a core component

of the core part with other identifiable parts such as transport, communication and power, social services, knowledge, manufacturing and trade, in order to enable the system to adapt to the overall objective - national development. The concept of the interrelationships may be broadly categorized as inflow and outflow linkages. In the present example, the transport, communication, power, and social services provide inflow linkage; manufacturing, processing, commerce, and trade provide outflow linkage.

In the agriculture based outflow-inflow-linkages concept, the emphasis on development policy guidelines will converge around agricultural activities in such a manner that the

development activities in other parts of the system serve basically inducement mechanisms to the development in agriculture. The rate of reinforcement or inducive effects of linkages (that show the lateral linkage movement path in the system as presented in the above figure)¹ depend on the degree of absence or presence of traps, such as structural traps in the path, related to incentives, knowledge and capital, about which more will be said later.

It is not possible to examine the linkage effects or the degree of structural interdependence in a quantifiable manner in Nepal's present economic structure. Also, since in Nepal's case it is not possible to examine the interdependence by deriving information from an already existing system of activity, since a new activity is introduced, (e.g. opening hitherto isolated areas by constructing new roads, establishing a new industrial structure), the degree of interdependence cannot be analyzed in a quantifiable manner as Chenery and Watanabe (6)

¹The outflow and inflow linkages may appear similar to Hirschman's (22 pp. 98-119) backward and forward linkages. However, there is some difference to the extent that in Hirschman's case, it is based more on direct effects of an increase in the final demands of any one industry on the other sector of the economy. In his analysis of linkages, forward linkage cannot be regarded as an independent inducement mechanism, though it works as an important reinforcement to backward linkage. In the present analysis, the linkages provide a sort of cumulative mix of effects and causes; the same activity may provide both inflow and outflow linkage and the activity may provide independent inducement mechanisms, when we consider agricultural activity rather than industrial process of growth as a core activity in the system.

did by using data from Italy, Japan and the United States in working out the ratios of inter-industry purchases and sales to total production and to total demand. Their analysis is more of an intra-temporal nature, where the cause and effect of interrelationships are fairly settled and structural interdependence show a fairly well-developed pattern of providing a relatively measurable impact on the economy. Such a situation does not exist in the present case.

Nevertheless, the concept of outflow-inflow-linkages will be valid in designing a development policy for the present situation in Nepal. The policy decisions will be derived from intuitive judgment rather than empirical testing in identifying interdependence with linkage effects. Since intuitive judgments are unavoidable in the policy-decision-making processes, this concept will help refine intuitive judgment guidelines.

The existing pattern of development in Nepal, described in the preceding chapter, indicates that in the public sector investments (estimates for private sector investments are not available) made in development activities for fourteen years (1956-57 to 1969-70), nearly 71 percent and 10 percent of the total investment were on activities that would provide inflow linkage and outflow linkage effects respectively to agricultural activities, while investments in agriculture were about 19 percent as shown in Table 21.

Table 21. The public sector investment on development activities in 1956-57 to 1969-70^a (Rs. in million)

<u>Activities</u>	<u>Investment</u>	<u>Percent to the Total</u>
Agriculture	541.36	19.0
Transport, communication, power	1273.01	46.0
Industry, trade	285.39	10.0
Social services, etc.	670.88	25.0
Total	<u>2770.64</u>	<u>100.0</u>

^a

Compiled from Chapter II, see Appendix, Table.

As long as investments are made on the activities that are within the development system, the amount of investment spent on A or B per se is not really so important as the complex issues of time (both in an inter-temporal and intra-temporal sense within a specified prospective planning horizon) and the spacial location of activities in regenerating and reinforcing the linkage effects for speedier growth of the economy. For instance, to spend as high as 46 percent of the total development investment on activity with considerably high capital-output ratio such as transport, may appear at the outset rather an unwise allocation of scarce resources. But, for all those who are familiar with conditions in Nepal, it

will be inconceivable to think of development in Nepal with the present rudimentary transport facilities.

In the development system presented above, agriculture has been considered to become "the vehicle" for the growth of Nepal's economy. A well developed transport system is a necessary condition to induce speed in this vehicle too. It will be therefore a perfect logical and sound policy decision to give high priority to this activity. The crux of the problem in policy decision and the focus of emphasis in the present analysis is in the selection of a spacial location for transport development and the nature of the transport facility. This must be guided by the concept of inflow linkage from transport to agricultural activities. Similar will be the case in manufacturing and processing industries. In the case of these industries, however, the timing of establishing such industries will be as important as the location.

Decisions on these issues can be made in a fairly simple manner. The agro-climatic regions of the country are broadly known, the areas of population concentration are known, and along with these the existing cropping patterns will provide good ideas regarding the prospects of agricultural development in different regions. At this stage of decision-making, it is irrelevant whether area A has a comparative advantage over B in growing crop x. If known, so much the better for

the successive phasing of programs, but presently little is known about this in Nepal.

The transport facilities and the industries established during the past fifteen years will provide helpful guidelines in policy decisions. The highway that connects the Pokhara valley with the plains (Tarai) has substantially increased market activities in the area. The farmers can buy improved inputs (chemical fertilizers, seeds, tools and implements) at much cheaper prices than before, as they are now transported by trucks instead of by aeroplane. The sugar factories in Birganj and Bhairahwa have encouraged the farmers to switch over to the cash crop sugar cane from the traditional cropping pattern of cereals.

The activities catering to the needs of agricultural development can be developed without friction as a complement to the development system. To activate the large labor reserves in agriculture would require a relatively small amount of additional capital. The export sector that generates the highest proportion of domestic savings is agriculture based and, therefore, would not compete with other sectors of potential development for those resources that constitute a bottleneck in economic growth, namely skilled labor, managerial and technical skills.

The major areas for policy concerns mentioned earlier - raising the level of income, capital formation, employment,

income distribution and balance of payments - can be effectively implemented via the process of agricultural development. Given the high existing weight of the agricultural sector in the economy (nearly 2/3 of the national income, 4/5 of employment and 4/5 of the export trade), the autonomous growth in this sector will substantially contribute to the national growth in terms of direct contribution and indirectly through outflow-inflow linkages that effect growth in other sectors. While increased productivity in agriculture will contribute to raising the level of income, to releasing farm surplus (and capital) to support activities in other sectors and to help improve the balance of payments, income distribution can be effected through the redistribution of wealth and assets, as land is the major form of assets and wealth in Nepal.

Conceptual Framework for Appraising the Agricultural Sector

The theory of economic development in agriculture is traced basically through three phases in the literature. The concept follows essentially Rostow's (94) stages of development - emphasizing the traditional stage, and transitional or precondition stage for take off and the take-off stage. After take-off, it appears that other sectors, not agriculture, will take the floor and "drive the economy to maturity and to the age of high mass consumption."

The recognition that agricultural progress is a strategic element in the development process in underdeveloped countries is recent, possibly starting from Arthur Lewis's (63) article on "economic development with unlimited supplies of labor" in 1954. Rostow's explicit emphasis on productive investment implied more investment in manufacturing on the basis of an analogy derived from the experiences of the Western countries' development process. Nurske's (79) emphasis on capital formation through the employment of "unlimited supplies of labor" from agriculture to the capital goods industry with a "reasonable balance" in agriculture to provide "growth through trade" between agriculture and manufacturing, would be probably more suitable for a long-established private enterprise economy, where there are enough market inducements. Such a condition is exceptional rather than general in the underdeveloped economies.

It is not intended to go into the details of the general theory of development as whether it should follow Rosentein Rodan's (93) theory of "big push" or Hirschman's (22) theory of "unbalanced growth," "development as a chain of disequilibria" and so on which are essentially growth theories via industrial development. The present analysis is concerned with the development of the agricultural sector as a strategic process in the transformation of a traditional rural economy into a modern economy.

It was probably after Arthur Lewis wrote that "it is not profitable to produce a growing volume of manufactures unless agricultural production is growing simultaneously. This is also why industrial and agrarian revolutions always go together, and why economies in which agriculture is stagnant do not show industrial development" (63 p. 173), an intensive analysis on the importance of agriculture in economic growth was rediscovered.

Agricultural development, as stated earlier, is classified as in traditional, transitional and commercial stages. Arthur T. Mosher (71) follows this pattern, putting emphasis on "getting agriculture moving" through provisions of "accelerators and essentials" such as fertilizer as a "leading" input. His greater emphasis is on physical inputs to provide an accelerating effect, specially in the traditional stage as an educative process. Institutional structures are assumed as given and the process of development follows by providing incentives to the private sector.

Maurice Perkins and Lawrence Witt (88) go one step further and include institutional reforms in the process of development. They classify stages by the nature of development: intensive use of unused available resources without technological change but with institutional changes such as land tenure to accumulate capital within agriculture. This is followed by technological change and investment in social overhead

(education, research, extension) to bring changes in the rate of output. In the third stage, commercialization of agriculture takes place with changes in production functions and agriculture becomes capital intensive.

Johnston and Mellor (56) specify three distinct phases of agricultural development. In Phase one, preconditions for agricultural development are provided by creating an environment suitable for change, making available knowledge of improved techniques, and market outlets. In Phase two, expansion of agricultural output takes place on labor-intensive and capital-saving techniques supported by technological innovations. In Phase three, agricultural production is increased through the use of capital-intensive and labor-saving technology.

Clifton Wharton, Jr. (113), while synthesizing the "staging models" brings them down to two stages: static and dynamic. He defines the static stage as one where motive for change is negative and agriculture is practiced for survival with bare necessities within the traditional techniques and decision-making processes. The dynamic stage arrives when resources are fully used and technological change becomes dynamic and decision-making, rational. Farming becomes commercialized and external economic forces begin to operate in agriculture.

If we try to fit "the theory of stages of economic development in agriculture" to Nepal's stage of economic

development, none would be found to have met the boundary lines. There is a labor surplus in the Hills; the Tarai imports substantial agricultural labor; the Hills are subsistence and below subsistence level; the Tarai produce for market. Apart from some dualism in agriculture and industry, which is a recent phenomenon, there is economic dualism within agriculture itself. In some parts of the country, especially the Hills, agriculture is traditional and may be considered relatively static; in other parts (e.g. Kathmandu Valley and nearby areas and the Narayani zone) the transitional stage with some modern inputs and technology being used is assuming "dynamic" nature. The economy within agriculture itself may be characterized by having Gerschenko's (15) scale of "degree of economic backwardness."

Nepal's economy would fit possibly into Ranis and Fei's definition of an underdeveloped economy, with a "labor surplus, resource poor variety in which the vast majority of the population is typically engaged in agriculture" (89 p. 533). It is more of a "one sector agricultural economy type" of Nicholl's, where agriculture is engaged "in food production and any agricultural surplus consists only of food" (77 p. 19). Here again the economy is not entirely engaged in food production; though most of the surplus consists of food, there are products like jute cultivated for export on small owner and/or tenant-operated farms.

The stage models and the concepts of development presented in these theories nevertheless help in examining the economy and provide some insight into the problems of development. They describe the characteristics of an economy rather than the policy means that would be required to effect a development process within the agricultural sector. Except for some implicit mention about the institutional set-up, there is nothing specifically mentioned about the institutional arrangements that may be necessary to provide incentives for increasing production efficiency in agriculture.

Thorbecke (102) has presented a somewhat different analytical approach to agricultural development insofar as policy measures are concerned. His analysis of the agricultural problem follows essentially the same characteristics of phase structures as in Lewis, Ranis and Fei and others. A stagnation or static phase is characterized by surplus labor; the transitional or take-off phase starts when the industrial sector begins to draw on surplus labor from agriculture and subsequently reaches the phase of commercialized agriculture. Agriculture becomes integrated into the modern developed system and a further process of sectoral development continues under competitive market conditions, giving rise to factor mobility between agriculture and other sectors in response to economic incentives. Contrary to the other models presented above, in Thorbecke's analysis, the development process in

agriculture does not taper off after take-off stage but continues as a viable part of the system.

In his framework of analysis, Thorbecke has incorporated policy means that bring changes in agrarian structures in each phase of the development process and it can also indicate how changes in the agrarian structure interact with other aims of an economic policy. This approach has substantial relevance for Nepal's economic development. Given the nature of the existing agrarian structure, substantial and rapid changes such as in the land tenure are inevitable in Nepal in its quest for economic development.

In the analysis of the agricultural sector, therefore, an attempt will be made to identify the defects in the agrarian structure that obstruct the process of development in Nepal. Timmons' (104) conceptual framework will be applied as an analytical tool in examining these structures.

The "means-ends-continuum" is the framework of analysis that helps identify, develop and test various structures in agriculture as variables in a development inquiry which is policy-oriented. The analysis proceeds with the construction of a conceptual framework for identification and analysis of defects in agrarian structures; alternative modifications are identified in the light of national development goals or ends. The ends perform two-fold functions in the continuum: they establish the norm to determine the problematic situation,

which is a gap between the established norm and the existing situation. They also can be used to evaluate particular means in terms of their consequences that narrow or eliminate the gap between the present (the existing situation) and the expected or realized situation.

In the "means-ends-continuum" the immediate end can become an "end-in-view" in relation to a higher end; the immediate end can be looked upon, therefore, as the end-in-view, as a means to another end-in-view, until we reach the basic goal of a given society. There is a hierarchy of ends or goals (105, 106). In the development process we may view this hierarchy as something like pushing the society up the hill toward a pass. Once the society has been able to reach the pass, this pass, which was to begin with an end-in-view, also becomes a means to move on into a new frontier and a different landscape.

This may be illustrated as shown on page 100.

In this framework, economic development, which is the goal or broad objective of the National Plans in Nepal, is a means in relation to a higher or superior end - life, liberty and opportunity, a common goal of all societies, irrespective of the approach they may follow in the development policy.

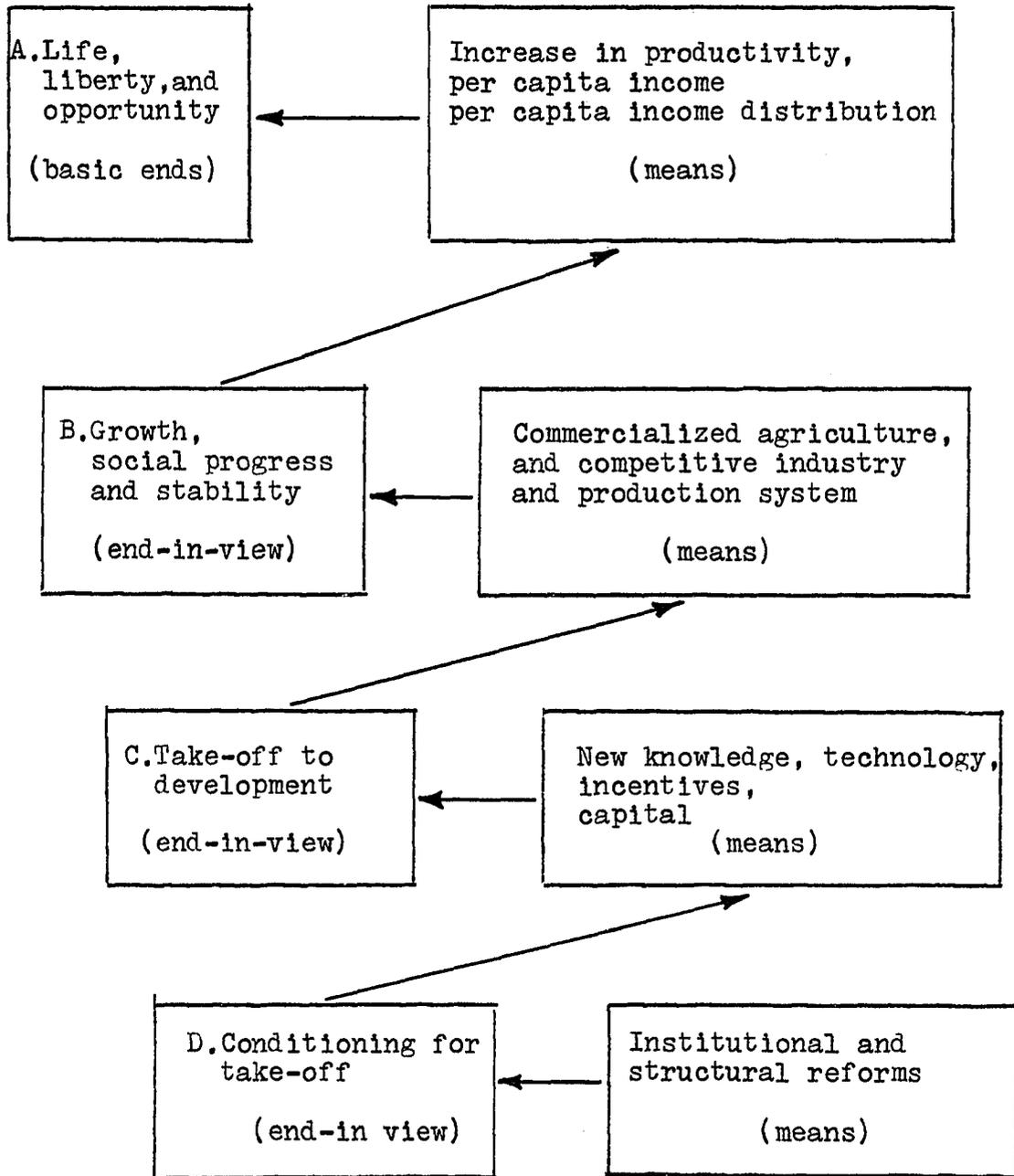


Figure 2. Means-ends-continuum :

The basic ends are not competitive when we look at them in their entirety (as a matter of fact there cannot be a single end functioning as an entity by itself in today's world); they are essentially complementary. Nevertheless, the relationships may become competitive and conflicts may arise in the process of achieving these ends. For instance, as Timmons points out "life might be purchased with the cost of liberty and opportunity. Similarly, liberty might be purchased with the cost of life. Wars have been fought with huge sacrifices in human life for liberty. Thus conflicts in achieving unitary units must be resolved in an optimum achievement of all ends" (106 p. 19).

In the present analysis of the Nepalese agricultural structure, the end-in-view would have, in the context of overall development as implied in the National Plans, three constituent components: economic growth, social justice, political or social stability - a lower level end in relation to the "basic ends." An increase in per capita real income (the case of population decline excluded) denotes economic growth. Social justice means an equitable distribution of income and equal opportunity for individuals to develop their potential talents. Thus they are endowed with equal opportunity to participate in the social, economic and political life of the country to the extent of their inherent ability. Political and social stability means creating and maintaining a

sufficiently dynamic political and social order to accommodate necessary orderly change toward economic growth and social justice. Apparently conflicts may arise in maximizing the achievements in economic growth and/or social justice, and political stability. If tenants remain suppressed, or, for that matter, if landlords are pressed too hard, disorganization and chaos may erupt.

It is therefore that the concept of proportionality for "optimum achievement of all ends" will have to be applied. What proportion of which component to give in the interest of achieving a little more of another component and what is optimum depends upon the knowledge of the situation, will, determination, and desire of the Nepalese people and their leaders. In other words, the substitution rates between the components is influenced by the relative weights the decision makers assign each component and its alternative.

The analytical framework of the "means-ends-continuum" concept to be applied in analyzing Nepalese agriculture structure will proceed in the following manner.

The development goals for agriculture specified in Nepal's National Plans (31) are:

- a. Increase in agricultural productivity by efficient allocation of resources;
- b. Equitable distribution in the ownership and control of the material resources and thereby income;

c. Increase in per capita income of farm families.

Among the means are: agrarian reform measures (fixation of rents, a provision of permanent tenancy rights, a ceiling on holdings, the saving of farm produce); providing employment opportunity outside of agriculture: structural reforms such as credit and marketing; agricultural research and dissemination of knowledge about improved agricultural practices.

Given these goals and means, the consequences, both realized and expected, will be examined. The interrelationships between goals and means and consequences will be analyzed by following the construct as illustrated by Timmons (104), which is presented in the diagram on the following page.

In the diagram, the goals have been translated into Target Variables, as specified in the Plans. Those are ends-in-view to be accomplished by bringing changes in the agrarian structures in Nepal. Considered in terms of Instrumental and Structural Variables, these targets are an integral part of Nepal's development goals and are to be achieved by means of Instrumental Variables as specified. The Structural Variables are basic in providing the instruments to achieve the targets. The Non-Target Variables are side effects of changes on other facets of economy. They are relevant to other sectors as influenced by side effects of the change.

The analysis will be divided into a. Delimiting Phase, b. Diagnostic Phase, and c. Remedial Phase. In the

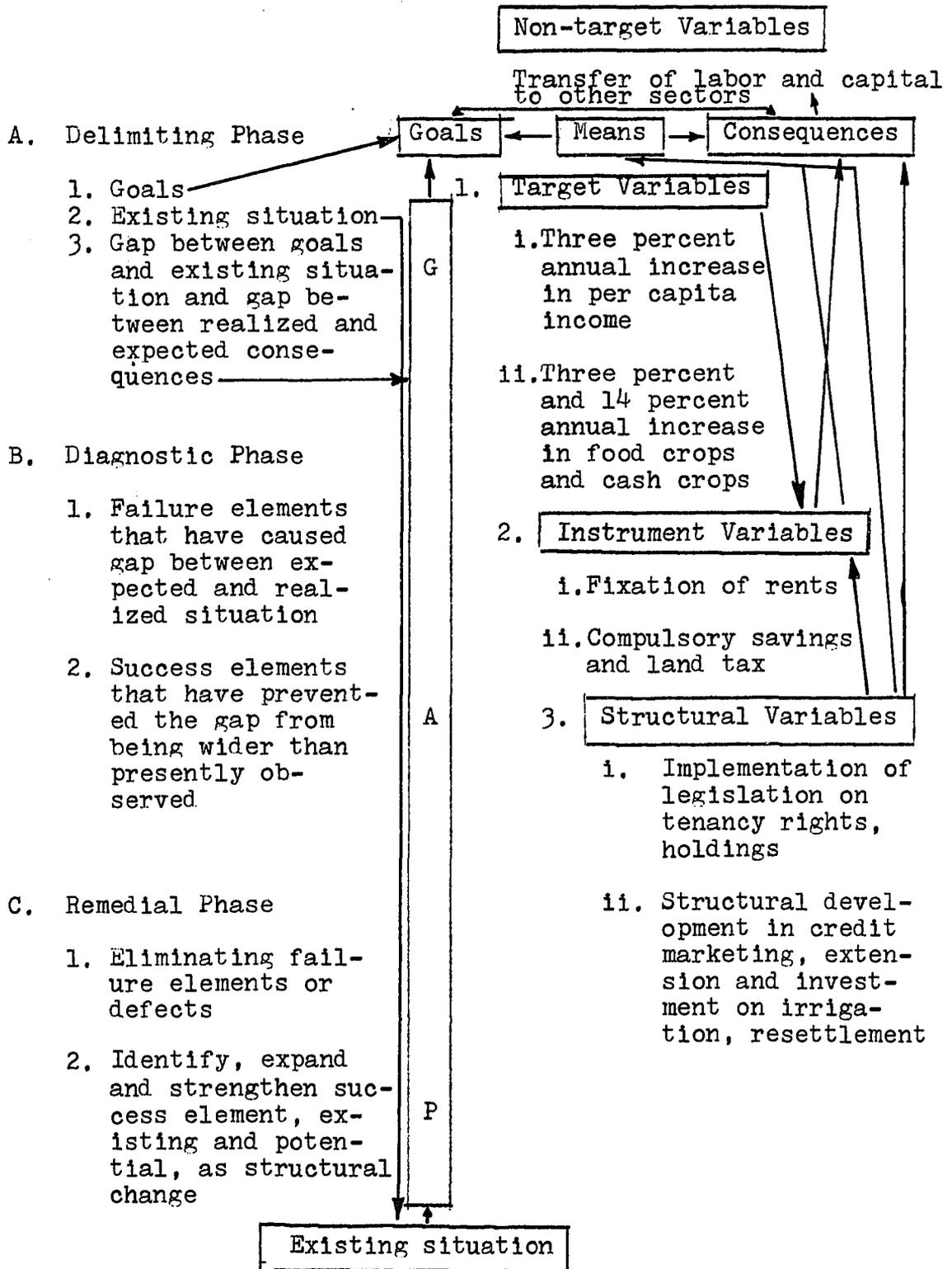


Figure 3. Analytical construct

Delimiting Phase the existing situation in terms of the goals realized and specified is analyzed. This will also indicate the extent to which the existing agrarian structures obstruct and impede the achievement of development within agriculture and the nation. This is what was earlier referred to as the problematic gap.

b. The Diagnostic Phase evaluates and determines the nature of a specific structure, such as land tenure structures, in terms of their defects or failure and success or contributing elements in the development process. In this part of the analysis, using the proposition that conditions for development center on incentives, knowledge and capital, an attempt will be made to answer the questions of how and why a particular structure in agriculture affects adversely or favorably i) the incentive to increase productivity given ample capital and knowledge; ii) the technical and managerial innovations given sufficient capital and incentives; and, iii) the formation of capital or access to capital given incentives and knowledge, and bring about developmental consequences short of the developmental goals or how they have contributed to the achievement of developmental goals. In short, this provides an answer to the question of how a particular structure causes or restricts the problematic gap. These questions together provide the general proposition regarding the characteristics of agrarian structures which deny agriculture the incentives, the knowledge and the capital necessary for its development.

c. In the Remedial Phase, ways to remove the defects inherent in the agrarian structure and means to expand the contribution of success elements by strengthening them and by introducing new ones as identified in the Diagnostic Phase are sought.

The modifications suggested will be appraised in terms of the simultaneous achievements of the goals of agricultural development as identified in the Delimiting Phase. The conformity of these goals will also be assessed along with the goals for overall economic development and for building up a "development system" with agricultural activities as a core component as discussed in the beginning of this chapter - in terms of the Five Year Plan and the Perspective Plan objectives discussed in Chapter II.

CHAPTER IV. AGRICULTURAL SECTOR IN NATIONAL GROWTH
UNDER THE NATIONAL PLANS

The present chapter deals with the Delimiting Phase of the analysis in agriculture in the light of the hypotheses presented in Chapter I and the analytical framework presented in Chapter III, regarding the economic development goals in general (Chapter II) and agricultural development goals in particular.

It was mentioned earlier that agricultural activities form the core component in the development system in Nepal; and that, along with the interrelationships of outflow-inflow linkages, the process of economic development involves the interaction of forces that provide incentives, knowledge and capital. These elements are then related to individuals or functions that are to be performed in a given phase of development.

Nepal's process of development is characterized as being in the initial phase. Development activities have been initiated and absorbed into the system with some positive results. In this sense, the economy has been introduced with some elements of dynamism. However, since the growth process has not yet got rid of the institutional lags that create frictions in the movement, the growth has not gained

sufficient momentum to move the economy far from a stationary position. To this extent, static elements are still persistent in the economy. The initial phase has, therefore, partly dynamic and partly static elements. This is also a crucial phase in the development process for the reason of the nature of activities involved, most of which are new to the system. In deciding upon the course of economic approach the society would want to follow in the subsequent phases of development the whole process of development in the initial phase thus becomes 'experimental.'

In the preceding chapter it was proposed that in the process of agricultural development, the interactions of growth elements - incentives, knowledge and capital - are influenced and conditioned by the agrarian structures,¹ which may be broadly defined as the institutional framework of agricultural production. The central point of analysis in the present study is the agrarian structures as influencing and conditioning factors in the initial development process in Nepal.

The National Plans of Nepal, reviewed in Chapter II, indicate that the Government policy for agricultural

1

Agrarian structures in the present context include: a. tenancy and ownership patterns of land; b. financing, credit and marketing organizations; c. taxation in agriculture; and d. systems of services - agricultural extension, education and research, health, and communication facilities. (See also 108.)

development is oriented toward 1) institutional reforms, 2) adaptive research and extension service, and 3) development of infrastructures as broad strategies of development. The implications of these policies, in terms of the economic objectives and goals specified in the Plans and the consequences realized, will be analyzed in the following pages.

Implications of Nepal's Economic Objectives
for the Agricultural Sector

In all the three Plans special consideration was given to the agricultural sector, although in the Second Plan the relative share of financial allocation was slightly reduced as compared to the First and Third Plans. The national economic development objectives of the Third Plan, noted in Chapter II, were stated as follows:

1. To increase national income at an annual rate of 3.8 percent, or 19 percent in five years.
2. To move labor out of agriculture to other productive activities.
3. To improve the condition of tillers by effectively implementing the agrarian reform program.
4. To develop an economic infrastructure "as this development will increase agricultural output and lead to a more efficient market system" (31 p. 15)

5. To increase foodgrains production at an annual rate of 3 percent and cash crop production at an annual rate of 14 percent.

The progress achieved so far in various sectors has been presented in Chapter II. It was noted that any measure of economic development in Nepal, in its initial phase, must by necessity focus its attention on agriculture. One obvious reason may be found in the fact that although the growth in the non-agricultural sector in 1968-69 was estimated at 9.9 percent, the growth in the whole economy was only about 5.1 percent as the growth in the agricultural sector lagged behind that of the non-agricultural sector. Considering the fact that nearly 86 percent of the total labor force is engaged in agriculture and the agricultural sector contributes as much as 65 percent to the gross domestic products, low productivity in agriculture has been the main factor for the low level per capita income in Nepal, estimated at about \$94.

The development of underdeveloped economies implies that although the total income from agriculture goes on increasing, its relative share in the aggregate national income goes on decreasing. This is caused by sufficiently expanding the productive activities in the non-agricultural sectors and by providing employment opportunities to transfer labor from agriculture, including the transfer required by

population growth. To sustain the process of labor transfer, the agricultural productivity of the labor remaining in agriculture must go on increasing, if the country is going to meet the growth goals.

In Nepal, agricultural development has to meet this problem on three fronts. First, food production must be increased to feed an increasing population. Second, existing industries and additional industries (restricted by the factor endowment of the country other than agriculture-based resources) must be provided enough raw materials for manufacturing and processing. Third, foreign exchange earnings must continue to grow, by export of agricultural commodities to support the increase in import requirements.

These, along with the growth in population, which is projected to be rising at 2.4 percent annually in the 1970's, indicate that agricultural production will have to increase at an annual rate of 6.14 percent¹ to catch up with the rate

¹Estimated on the basis that the domestic demand for food will rise at an annual rate of 4.15 percent (see the following section); the demand for industrial crops will rise at an annual rate of 14.0 percent (in want of other information, calculated under the assumption that to increase 1 percent in employment in manufacturing the total value added from this sector will have to increase by about 3.5 percent; the Third Plan estimate is also about the same;) maintain the present rate of percentage of export to GDP, which is about 9 percent. Given the relative weight of cash crop to total agricultural production as one-tenth and assuming that employment in manufacturing will have to increase by about 4 percent, agricultural production will have to increase by about 1.45 percent annually; and to maintain the present rate of the share of export to GDP, an additional 0.54 percent increase in agricultural production will be necessary, assuming that the rise in GDP is 6 percent.

of development in developing southeast Asian countries by 1980, as implied in Nepal's perspective plans.

With the present rate of growth in agricultural production, about 2.2 percent per annum, to reach the target of 6.14 percent per annum the present efforts of increasing agricultural production will have to be more than doubled. Most of the increase in output will have to come from the increase in productivity of labor and land, as there is not much potential from which to bring new land under cultivation.

One of the means of increasing productivity of the given land is the extensive use of modern practices in farming. However, given the nature of present employment, labor must be transferred from agriculture to other productive activities. But it is questionable if such transfer, taken without supporting measures (which has been broadly grouped as incentives, knowledge and capital) would not affect production of agriculture in Nepal.

Regarding the situation of surplus labor, one estimate by the Ministry of Economic Planning, HMG/Nepal, shows that almost 48 percent of the total labor in agriculture is surplus (39). Nepalese economists, Dr. Y. P. Pant (86) pp. 11-13) and Dr. B. P. Shrestha (97 pp. 30-49) seem to support this view of surplus labor. There is no clear definition

of agricultural labor nor of surplus labor in these estimates. Presumably, they adopted the definitions used in the National Agricultural Census (32), which defines agricultural households to include all those who "depend" for their living on farm income and the members of these households who are between the ages of 15 and 59 as in the agricultural labor force. Child labor (below 15 years) is also considered, but under a separate category. As per this definition, absentee landlords and their children who may have been in services or other jobs and part-time wage earners all are included as agricultural, hence "surplus labor."

There is the problem of surplus labor if we analyze by regions. The Hills, which have nearly two-thirds of the total labor force and about 12 people per hectare of cultivated land, have surplus labor. It is not the same with the Tarai with only one-third of the total labor force residing in the area and with about 3.5 people per hectare of cultivated land. It would seem that this fact was overlooked in the estimates of the Ministry of Economic Planning. They indicate that the Hills (including Kathmandu Valley) have 24 percent of the labor surplus and the Tarai has 60 percent of the labor surplus (39). It is inconsistent with the common observation as well as with the information we have. In the case of the Hills, it is possible that there would be surplus labor to

the extent of 24 percent, although many of the Hills people go for outside the farm, such as in the army or as watchmen or non-farm laborer jobs, both inside and outside Nepal.

But the Tarai have labor shortages especially in the peak crop season. One estimate shows that as many as 200,000 laborers come from outside the region, mostly from India, as seasonal labor during the planting and harvesting of crops (9). There are also many Indian laborers working in construction and factories as skilled and semi-skilled laborers, in addition to agricultural laborers, while many Nepalese workers go to India to work.

In the context of transferring labor from agriculture to other sectors, the problem needs to be examined both from its real and apparent nature. It may be necessary to distinguish between "actual" laborer, working on the farm, and the "disguised laborers" who do not work on the farm and do not contribute anything to raise the farm income but derive income from the land by holding the ownership title of the land. As per the present definition, the tenants, owner cultivators, landless agricultural laborers and their dependents would constitute the "actual" agricultural labor force. All the absentee landlords and their dependents are "disguised" labor.

Considering the fact that nearly 40 percent of the total land is cultivated by tenants, the owners of this land,

who come under agricultural households in the census definition, constitute the surplus labor. Following the conventional definition of disguised unemployment (92 p. 225ff) and underemployment (109 pp.7 and 41), though given essentially under static conditions, the surplus labor of absentee landlords has zero marginal productivity in agriculture. To follow the Ranis and Fei definition (89 pp. 533-535), the absentee landlord in Nepal is redundant labor force disguisedly employed in agriculture and his displacement out of agriculture would not decrease total output.

Although the present purpose is not to go so much into the theoretical controversy on employment or unemployment, however, it may be necessary to clarify some of the points that bear upon the problems in Nepal. The problem of providing employment or reducing the problem of unemployment is a very important and pertinent one. The problem will be approached from the point of productivity over time in a dynamic sense. A deliberate change in the economic policy is conceived, the objective of which is to increase aggregate production in agriculture, not only to reduce the existing labor in agriculture. More relevant to Nepal is the approach to the problem of employment suggested by Myrdal (73), to consider it in a dynamic sense and the one suggested by Viner where he says, "As far as agriculture is concerned, I

find it impossible to conceive of a farm of any kind on which, other factors of production held constant . . . it would not be possible, by known methods, to obtain some addition to the crop by using additional labor in more careful selection of planting of the seed, more intensive weeding, cultivation. . . ." (111 pp. 79-80).

It is necessary that the policy implications of development, the problems of unemployment, and the transfer of labor from agriculture will have to bear heavily on this aspect. If the policy measures are directed toward withdrawing or transferring labor from agriculture, without altering the present position of landlords and without providing substitutes for existing labor, output in agriculture is more likely to be adversely affected. There will be little scope left to introduce modern inputs in agriculture. For instance, the farmers in Nepal have experienced difficulties in growing the new variety of Lerma wheat as it takes more time and labor in threshing by conventional methods of beating against a hard surface or by the method of using animals to walk over it. They are looking for small mechanical threshers. They have problems with the so-called Japanese method of rice cultivation, which requires transplanting seedlings in a row, weeding, interculturing, and so forth, as against the hitherto followed practice of broadcasting the paddy seeds.

If the economic objective is to increase the aggregate production in agriculture, not only to reduce the surplus labor in agriculture; and if the problem is approached from the point of increasing productivity over time, policy measures could be directed toward transferring either the landlords or the actual tillers to be replaced by landlords as actual laborers. In either case, the question is related to increasing the efficiency of the actual labor in agriculture and to releasing the redundant ones. For increasing labor efficiency (along with more investment and better knowledge in terms of better needs, more fertilizer, better water management and control), personal incentives and prospects for more remuneration are essential.

The National Plans have emphasized the need for increasing the efficiency of labor. The agrarian reform programs are measures taken to provide an institutional base conducive to increasing productivity in agriculture and causing the transfer of labor to other productive activities. The program was initiated primarily as a tenancy reform program to provide permanent and inheritable tenancy rights to the tiller as a first step toward the ultimate transfer of ownership of land to the actual tiller. Along with this, fixation of a ceiling on holdings was considered to usher the transfer of the landlord class to non-agricultural sectors. The landlord class was chosen for shifting to other sectors

since this class constituted the best available source of managerial talent and private capital. Although the experience of landlords as such may not be much in the non-agricultural sector, nonetheless, the emphasis was on their sons and daughters who have had the best available opportunity for education.

How far these objectives are fulfilled is difficult to assess at this moment. Perhaps the six or seven years that have elapsed since the initiation of the agrarian reform program are not enough to provide a visible impact on the economy. Nevertheless, some evaluation can be made of the program itself and on implementations thus far carried out.

Agrarian reform The main program of agrarian reform, from its implementation side, was focused on: 1) the acquisition of land above the ceiling limit and its distribution to tenants and landless agricultural laborers; 2) the identification of tenants and the land tilled by them, with provisions for permanent, inheritable tenancy rights, protection from unlawful eviction and prevention of illegal rent payments; 3) the assessment of agricultural loans and interception of payments by the Government; and 4) the collection of savings from the farmers on a compulsory basis, and provision of institutional arrangements for credit and input supply.

The implementation of these programs has not all been successful. The identification of land above the ceiling

limit (17 hectares for owners and 2.5 hectares for tenants) has brought insignificant results. Only about 62,000 hectares from owners and about 17,000 hectares from tenants were identified as excess land by the middle of 1969. Out of this, the Government acquired only 28,000 hectares and so far only 16,000 hectares have been distributed, although the Government expected to acquire and distribute more than one-fourth million hectares of land. One of the main reasons for little progress in this area was that most of the owners who had excess land made false transfers of ownership and some did not report all the land they had. In the absence of proper land survey records the land could not be identified, nor had the Government the machinery to enforce the law. Even the meager distribution of land that was made was taken mostly by the government officials or their relatives and friends.

In the distribution of permanent tenancy certificates, in five years only about 30,000 tenants have received such certificates, out of a total of about 1.9 million tenants. So far cadastral surveys have been completed in 18 out of 75 districts. Until such surveys are completed and land records properly maintained, there can be no meaningful and effective implementation of land reforms as envisaged in the program.

Credit reforms Agricultural loans amounting to Rs. 10 million were assessed and debt repayments were intercepted

by the Government; but this has brought nearly 1.5 million cases of complaints regarding loan assessments and they are still pending with the Government. This has benefited the poor farmers little. The traditional source of money lending by village money lenders, landlords and village merchants has virtually dried up in many areas. The new institutions engaged in the program to replace the traditional source of money lending have not been able to cover all the areas, nor has their performance been satisfactory to provide loans to the farmers. The traditional money lenders are gradually resuming their operations with higher charges on credit, in some cases to the extent of 40-50 percent per annum as against the 10 percent rate allowed by law, to cover the higher risk and cost of an operation that has to be carried out now from the "backyard."

Credit has been regarded as the villain in the misery of the farmers in Nepal. Without provisions for outside credit, even the protected tenants would eventually be at the mercy of landlords. It was estimated that one village panchayat would need about Rs. 500,000 of credit a year to run the farming operations. To provide this much for each of the 3,800 village panchayats that exist in the country was clearly impossible for the central government. A device was created in the form of the "compulsory savings scheme" to mobilize local resources for agricultural development (7).

The compulsory savings scheme was a noble idea, never tried before, not only in Nepal but probably also in Asia, and an unique experiment with unprecedented prospects for the mobilization of savings in the rural sector. This scheme originated from the agrarian reform program of 1964. Under this scheme, the landlords, owner-cultivators and tenants were required to deposit with the local Ward Committees¹ a fixed amount of farm produce in kind (roughly about 7 percent of the produce) in the case of general crops such as cereals, and about 9 percent of the produce in cash in the case of cash crops like jute and sugar cane. The deposited savings would be refunded after five years with 5 percent interest on the savings. Meanwhile, the farmers could borrow at 10 percent interest from the Ward Committees, when they needed seasonal loans.

The program went smoothly for the first two years and a total of Rs. 83.4 million equivalent savings were collected. In the meantime, the whole program got involved in political maneuverings and bickerings, both at the village level and at the national level. Consequently, only about Rs. 31.0 million of savings were collected in the subsequent three years of the program, mostly from small farmers. The

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Each village panchayat is divided into nine Ward Committees. There are 3,800 village panchayats in Nepal, each panchayat with about 26,000 people.

Central Government has accepted the liability for all the savings collected, which is about Rs. 114.3 million, plus the interest on it. But the actual savings in the hands of the Government does not exceed Rs. 30.0 million; the rest is with the Ward Committees (there are about 34,000 such Committees and each Committee has three members to run the business) in the hands of local leaders, most of them former money lenders and landlords functioning now under the disguise of "progressive panchas." The truth has not gone far from what one could expect of such leaders, who have become no more than the creation of a rural petite-bourgeoisie in the political, social and economic systems in Nepal. And the truth is that the hard-earned and equally hard-squeezed savings of the poor farmers are so far just in paper. Savings collected in kind are reported by several Ward Committees to have been damaged by insects or destroyed by fire or water.

In 1968-69, the Government decided to abandon the collection of savings in kind and lowered the rate of savings also. The farmers were asked to deposit the savings in cash, about Rs. 22 per hectare. However, most of the farmers, roused and supported by landlords and local leaders, refused to deposit savings either in cash or kind after the harvest of 1968-69. They argued that the Government was not competent enough to look after their savings. The Government was

forced to accede to their demand and finally abandoned the collection of savings with the announcement that "the collection of savings is postponed until further notification." The year 1969-70 is said to be devoted to settling all the accounts, preparing an inventory, publishing balance sheets and beginning refunds to the depositors.

These developments led the "compulsory savings scheme" to a complete failure. The reasons for the failure are (1) lack of strong commitment from political leadership; (2) maneuvering by local leaders as described in an earlier paragraph; (3) an ambitious program but immature thinking on the part of the Government in deciding on collecting savings in kind without proper storage and supervision facilities, and without establishing competent machinery to handle and manage the savings properly and efficiently.

The savings that were collected and were in the hands of the Government have not been fully utilized except to provide lucrative jobs for a few persons, who seem to have the least concern with the farmers' problems, by the creation of the Land Reforms Compulsory Savings Corporation. The Corporation has been buying Government saving bonds with the money deposited by farmers for the purpose of providing agricultural credit. This clearly results in the act of defeating the purpose of collecting the compulsory savings.

The other reason for the debacle in the agricultural credit and savings program was the failure of the cooperative movement which was launched as an integral part of the agrarian reform program to provide an alternative source of credit in rural areas. The entire agricultural development program in Nepal regarding the use of improved seeds, chemical fertilizers, provisions of credit, and distribution of products was founded upon the premise that a strong, efficient and modern credit and marketing system was being organized on a cooperative system." . . . and yet "the Cooperative Review Committee, appointed by the Government in 1968, observed, "Disappointment in the performance of this system has come to prevail. So great is the disparity between expectations and performance that a serious review is warranted" (44 p. 1).

The findings of the Committee were that of the total 1,295 cooperative societies established in the country, only 185 were functioning relatively satisfactorily; the rest were either delinquents or existed only in register-books. The membership in the societies was dominated by landowners who gave their lands to the tillers for cultivation. Loans were distributed mostly among the Directors of the Board of the society. The Directors, prior to the commencement of the agrarian reform program, were themselves money lenders

and landlords or village traders. The actual tillers for whom the societies were primarily meant to provide help were kept far in the background. Most of the financing provided by the Cooperative Bank (the Agricultural Development Bank since 1968) went into the hands of people other than the actual tillers. The amount of outstanding loans are enormously increasing (44 Ch. 2). The problem of agricultural credit is becoming acute due to the lack of efficient institutions at the village level.

Next is dissemination of new knowledge, adaptable to the conditions in Nepal based on research findings. This was to be effected through efficient networks of agricultural extension activities which were envisaged as a supporting measure for the agrarian reform program, the ultimate objective of which was to increase productivity in agriculture.

Agricultural research The program of agricultural research was initiated by establishing agricultural experiment stations during the First Plan. There exist now nine agronomical experiment farms, eighteen horticultural, four livestock, three sheep, four poultry centers, and seven fish-breeding farms in various climatic regions of the country. Nearly one-fourth of the total development budget of the Ministry of Food and Agriculture (Rs. 12.41 million out of Rs. 53.3 million in 1969-70) goes to support these activities

directly. Out of a total of 210 "senior technicians": (B.S. or higher degree holders in agriculture, horticulture or animal sciences) in 1968-69, 122 (nearly 60 percent) were involved in activities related to research fields, whereas in agricultural extension only 55 such technicians (not even one per district with an average population of about 140,000) were working.

The purpose of the farms, centers, and stations is described as to do adaptive research in various branches of agriculture and animal sciences, presumably such as testing new seeds, horticultural grafts and animal breeds, soil survey and soil analysis, plant and animal protection measures, agricultural tools and implements, water management, etc. The direct impact of the adaptive research purported to be carried on in these farms, most of which have been in existence for the last eight or nine years, is nowhere discernible except in wheat. In wheat there is a relatively successful introduction of Mexican Lerma wheats. Improved varieties of wheat have been increasingly replacing the low-yielding local varieties. New varieties in other crops like rice and corn, have not yet entered the farmers' fields successfully.

In horticulture and livestock practically nothing has come out of the research farms. Entire programs in these activities cannot be regarded as more than a sale-and-purchase type of activity, They bring in indiscriminately

plant saplings or seeds and animals from outside the country and distribute them to the farmers. This kind of importation, especially in horticulture, has also imported pests and insects not previously found in Nepal, such as a suspected virus disease in citrus which has almost wiped out one of the best citrus orchard areas in the country, in the Pokhara valley. The same is true with wooly aphids. The Government Plant Pathologists suspect that Nepal may have imported more insects and diseases than the number of improved varieties of seeds, plants, or animals imported in the last decade.

In fisheries, some new varieties of German carp were successfully introduced. In poultry, improved breeds of New Hampshire and white birds have almost replaced the local low-productive breeds in city areas. Similarly, in vegetables such as radishes, tomatoes, green peas and carrots, the introduction of new varieties has been successfully adopted by the farmers in the cities and nearby areas.

The performance in the field of agricultural research, on the whole, is less than expected. However, research in agriculture, by its very nature, is not something that will yield quick and positive results. This is the case especially in fundamental types of research. But, given the fact that the purpose of agricultural research in Nepal is not so much to be involved in fundamental types of research or basic

research, but to test the adaptability of already invented technology and knowledge in other parts of the world to the conditions in Nepal, an eight- or nine-year period need not be considered too short a test time.

The major bottleneck is not so much the time factor or resources-men-and-material-availability. It is due mainly to the lack of specific research policies and guidelines. There is no mention about research policy in Plan documents, except that "work will be done to determine suitability in Nepal of agricultural techniques that have been successful in other countries" (31 p. 65). Nor is there any mention in other documents except in the preface of the Ministry of Food and Agriculture Annual Report 1968 that the research policy in agriculture is to follow "adaptive research." Unless these are specified and translated accordingly into specific research programs related to the purpose of research in the context of overall national development, this cryptic phrase may mean anything or nothing in terms of policy guidelines for various research activities.

The Department of Agricultural Education and Research that deals with agronomical crops publishes a list of research projects. This contains just what the title says, serialized items of trials and experiments to be conducted by the various Divisions in the Department drawn according to the desire and whim of the research workers who will conduct

the trials (51). Other departments, such as Horticulture, Livestock and Fisheries, do not have even this kind of research project list, although all these departments are supposedly involved in research activities in their respective areas.

Agricultural extension program This program was started in the early 1950's under the Point Four Program of the U.S.A. as the village development program. In 1959, the Agricultural Extension Section was created in the Department of Agriculture to provide technical supervision and guidance to the Village Development Department in running agricultural extension activities in rural areas, partly supported by the Indian-aid program in Nepal. In 1962 all operations were brought into the Department of Agriculture under the USAID program and the Village Development Department was dissolved. In 1965, USAID assistance was withdrawn from other activities such as horticulture, livestock and fisheries and was concentrated in cereal grains production. Agricultural extension activities were likewise limited to these crop areas. The Agricultural Supply Corporation was established in 1966 in the public sector to function as the sole importer of chemical fertilizers and the wholesale seller of improved seeds of cereal grains in the nation.

The coordinated program A package-deal program called the "coordinated agricultural development program"

was introduced in 1966 to provide better seeds, chemical fertilizers, credit facilities, and technical know-how. Cooperative societies were organized with a view of providing a vehicle to carry these inputs to the farmers "as and when they need them," and agricultural extension personnel were to function as a catalyst in the process of adoption and diffusion of improved agricultural practices with the research departments poised to provide technical backstopping. The Cooperative Bank (now the Agricultural Development Bank) and the Land Reforms Compulsory Savings Corporation, both under the public sector, would finance the credit. There was a separate agency, "District Minor Irrigation Development Committee," to look after water problems. A District Land Reform Officer, who had almost equal power with the District Magistrate, was given the function of coordinator in launching the "coordinated program." The Districts were phased out on the basis of their "stage of development" as: exploratory or preliminary districts, intermediate or transitional districts, and coordinated districts, probably similar to Rostow's "stage model" classification. There were thus all the ingredients one could think of available in the "policy-program-briefcase" to make Nepalese farming better off, except perhaps the farmer himself. Of this more will be said later.

"To provide greater impetus and efficiency in the administration" in 1966 the Department of Agriculture was split into five full-fledged departments: (1) Agricultural Extension; (2) Agricultural Education and Research; (3) Horticulture; (4) Livestock and Veterinary; and (5) Fisheries. This led to further proliferation and strengthening of the "Central Coordination Committee" and "District Coordination Committees" to coordinate the agricultural development policies and programs at the center as well as at the district levels. By 1968-69, 37 districts were declared "coordinated districts" by establishing "District Coordination Committees"; 28 were put under intermediate categories, and the remaining 10 were left as preliminary districts. The main emphasis of the so-called "coordinated development approach" has been on cereal grains.

There is no information available to determine the impact of the development programs in terms of actual production prior to 1961. Production trends of the major crops in the past years have been presented in the Appendix. Table 22 provides information on the total area, total production, and yield indices for major crops.

Table 22. Nepal index of production, area and yield for major crops, 1964 to 1968^a

Crops/year	1964-65	1965-66	1966-67	1967-68	1968-69
<u>Paddy rice</u>					
Production	100.00	100.07	91.18	100.75	105.4
Area	100.00	101.09	100.00	102.80	103.55
Change in yield	100.00	99.20	91.18	97.95	101.78
<u>Wheat</u>					
Production	100.00	116.66	126.19	150.79	180.15
Area	100.00	94.37	100.80	120.90	126.61
Change in yield	100.00	123.61	125.18	124.72	142.28
<u>Corn</u>					
Production	100.00	100.23	96.49	102.45	105.21
Area	100.00	103.45	102.97	99.34	99.73
Change in yield	100.00	97.16	93.70	103.13	105.48
<u>Sugar cane</u>					
Production	100.00	152.38	166.66	132.53	150.79
Area	100.00	144.67	109.57	126.15	150.40
Change in yield	100.00	105.32	152.04	105.05	100.25
<u>Jute</u>					
Production	100.00	99.80	98.93	101.77	85.02
Area	100.00	100.00	100.13	156.62	109.37
Change in yield	100.00	99.80	98.62	64.97	77.73

^a Calculated from the data in Appendix, Table 47.

Except in wheat there is no appreciable increase in the area and productivity of other crops. Farmers have gradually increasing the area under a second crop by growing wheat after the rice harvest.

In the use of improved farm practices (better seeds, chemical fertilizers) only a small fraction of the area is brought under such practices. In 1968-69, only 4.3 percent of the total area under rice was sown with improved seeds; in wheat it was more than 29 percent; in corn just 1 percent - Table 23; however, the Third Plan target is to cover 800,000 hectares with the use of improved seeds by 1969-70 - an obviously impossible task.

Table 23. Area under improved seeds by major cereals, 1968-69

Cereal	Total area ha.	Area under im- proved seeds ha.	Percent of total
Paddy rice	1,138,800	49,000	4.3
Wheat	172,900	51,000	29.5
Corn	449,600	4,500	1.0
Total	1,761,300	104,500	5.9

The use of chemical fertilizers is not impressive, in spite of heavy emphasis put on their use to increase production and in spite of the government's liberal policy in releasing convertible foreign exchange, almost without any limitation, to buy fertilizers in the cheapest possible international market. The prices of fertilizer are kept on a par with the prices prevailing across the border in India.

(See 98.) In 1968-69, only 24,000 metric tons (in ammonium sulphate equivalent) of fertilizers were used. In terms of nutrients, about 2.5 Kg. per hectare were used, whereas the average for India is 5 Kg. per hectare; for Japan, 322 Kg.; and for Asia, 8 Kg. (80 p. 17). As with improved seeds, so it is with the use of chemical fertilizer; it will be impossible to meet the Plan target of using 86,000 metric tons annually by 1969-70.

Almost negligible are the uses of plant protection materials and improved agricultural tools and machinery. Only the equivalent of about 8,000 hectares of plant protection materials were used in the country in 1968-69. The Agricultural Tools and Implements Factory started in 1967-68, is still looking for buyers. It is estimated that there were 425 tractors (most of them 28-35 HP) in use in 1968-69, which comes to about one tractor for about 4,300 hectares of cultivated land.

In other fields of agricultural activities such as horticulture, livestock and fisheries, extension services virtually do not exist. The progress, from the research side or from actual production side is barely discernible. Although the distribution of new varieties of fruit grafts, vegetable seeds, new breeds of animals and fish fingerlings has been going on for the last eight or nine years, their impact on overall production is nowhere significant, except in vegetables and poultry in city areas, especially the Kathmandu Valley. Improved poultry birds, as said earlier, have been popular and poultry-keeping is growing as a profitable enterprise. Egg prices have come down from 70 cents a dozen in 1966-67 to 53 cents a dozen in 1968-69 in the Kathmandu Valley (49).

National food balance The National Food Balance Sheet for Nepal (Appendix, Table 48) shows that the per capita per day calorie intake in 1968-69 was 2,031 calories. The contribution from cereals and other starchy foods was 1,817 calories; animal products provided only 120 calories in daily diets. The consumption of animal protein was 4.7 gm. per capita per day. The intake of proteins add protective food in the Nepalese diet is alarmingly low and cereal consumption is fairly high (87).

Assuming that all the cereals produced in the country in 1968-69 are made available for local consumption, 210 Kg. of

cereals (rice, corn, wheat, millets and barley in edible form) will be available per capita per annum for human consumption, which converted into calories would come to about 2,600 calories per day.¹

Compared with the situations in neighboring countries, in 1964-65 India had 1,430 calories; Pakistan, 1,627 calories; Ceylon, 1,280 calories (14); and Nepal, 1,895 calories from cereals. In calorie intake from proteinous diets (pulses and nuts, meat, fish, eggs, milk), India had 321, Pakistan 258, Ceylon 375 (14), whereas Nepal had 195.

The policy directions of the development programs seem to have gone more toward cereal grains. There is clear evidence for the need of redirecting the policy toward the nutritional aspect of the diet. Of course, cereals would command a larger share of the development programs in agriculture. The development of livestock and horticultural crops, apart from the nutritional aspects in the food consumption pattern of the people, is important from the point of reducing the regional imbalance in the economy.

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The actual calorie intake in 1968-69 from cereals was estimated at 1,765 (87). The remaining cereals go for export. In the total agricultural and forest produce exports, 65 percent is rice. One estimate showed that production of cereals in edible form in 1961-62 was 2.01 million metric tons and consumption requirements (at the rate of 187 Kg. per capita per year) would come to 1.75 million metric tons; the balance for export was 0.26 million metric tons (28 pp. 33-34).

The Hills have a high population density: nearly 12 people per hectare of cultivated land as against 3.5 people per hectare in the Tarai. In the Hills, except for some potential to increase production by the use of better seeds, better water management, and chemical fertilizers, unless road transport is available, there is no other way to increase cereal grain production. Practically every piece of land suitable for grain production has been brought under cultivation. Even the steep mountain slopes are used for grain production, which has aggravated the problem of soil erosion. The terraces on high mountains demonstrate the struggle of Nepalese farmers in raising food grains. The only possibility left is to use the hill and mountain slopes by growing fruit trees and pasture crops to support the increasing population and to provide a means of living for the Hill people. No doubt some forest lands in the Tarai can be opened to resettle some of the Hill people - but only some.

The survey conducted on cereal grain production and consumption in 1964 estimated that there was a deficit of cereal grains in the Hills to the extent of 230,000 metric tons (30). Taking this figure and assuming that 187 Kg. of cereals in edible forms per capita per year is to be made available for human consumption, then nearly 2 million people from the Hills need to be resettled elsewhere to leave the people in the Hills self-sufficient in food grains.

Providing the minimum size of holding of 2.4 hectares per family, as allowed for tenants by the Lands Act, and taking the national average size of the family of 5.3 members, 950,000 hectares of land will be required for cultivation to resettle the surplus hill people. The estimates of the Ministry of Forest show that at the most, possibly 100,000 hectares of new land can be brought under cultivation. Besides, new land is already required to settle displaced Nepalese families from outside the country. Of course, it is not necessary that all the people should be in farming. In fact, the economic objective of development is to shift the population from agriculture to other occupations. The analysis made here is to examine the magnitude of the overpopulation in the Hills. There are also problems of a sociological nature in migration, if it is to be affected, and, problems of a political nature (from the point of regional development) that have to be considered.

Contribution of the Agricultural Sector to the Development of Nepal's Economy

The most obvious contribution expected of a growing agriculture is to raise the level of national income. However, the development of agriculture and its contribution must be considered within the context of the overall economy. This broader setting requires an understanding of the mechanism

by which the agricultural sector relates to the whole economy. The intersectoral relationships,¹ as explained in Chapter III under the development system as outflow-inflow linkages, between agriculture and the rest of the economy, will be examined for the agricultural sector in terms of:

1. National product
2. Supply of factors of production of other sectors - labor and capital
3. Market interrelations, both domestic and foreign trades
4. Development of infrastructures

These classifications are not mutually exclusive but emphasize the fact that agriculture's contribution has many dimensions in its interrelationship with the rest of the economy.

National product contribution Historically, the economic growth of a country is measured by the aggregate product growth of the various sectors of the economy weighted by their respective relative sizes. There are no detailed data available to study empirically the rate of contribution of agriculture over a longer period of time. The first estimates of national products were made for 1961-62. Although the relevant data are incomplete and for some years of doubtful reliability, an analysis is made by dividing the

¹The general framework follows Kuznets (60) and Johnston and Mellor (56).

period 1961 to 1969 into two periods: 1961-62 to 1964-65 (in 1961-62 prices) and 1964-65 to 1968-69 (in 1964-65 prices), by using the equation used by Kuznets (60 pp. 102-119) to express the gross contribution of a sector:

$$\frac{P_o^a \cdot r^a}{P_{nl} - P_{no}} = \frac{1}{1 + \frac{P_o^{pb}}{P_o^a} \cdot \frac{r^b}{r^a}}$$

This measures the contribution made by the agricultural sector expressed as a proportion of the total Gross Domestic Product Growth. The symbols represent:

P_o^s = product at the beginning of the period, superscript "a" and "b" representing the agriculture sector and all other sectors respectively;

P_1 = product at the end of the period, the superscript representing the same as above;

P_{no} = product at the beginning of the period, Nepal total;

P_{nl} = product at the end of the period, Nepal total;

r^a = rate of growth of P^a such that: $P_1^a = P_o^a (1 + r^a)$;

r^b = rate of growth of P^b such that: $P_1^b = P_o^b (1 + r^b)$.

1961-62 to 1964-65 GDP in millions of Nepalese Rupees of
1961-62¹

$$\begin{array}{lcl} P_o^a = 2,393 & ; & P_l^a = 2,465 \\ P_{no} = 3,748 & ; & P_{nl} = 3,973 \\ P_o^b = 1,355 & ; & P_l^b = 1,508 \end{array}$$

$$r^a = \frac{P_l^a}{P_o^a} - 1 = \frac{2465}{2393} - 1 = 0.030$$

$$r^b = \frac{P_l^b}{P_o^b} - 1 = \frac{1508}{1355} - 1 = 0.113$$

$$P_{nl} - P_{no} = 3973 - 3748 = 225$$

$$\frac{P_o^a \cdot r^a}{P_{nl} - P_{no}} = \frac{2393 \times 0.030}{225} = 0.319$$

This indicates that the contribution of agriculture to the national growth was a little less than one-third of the total growth. The output of the agricultural sector at the beginning of the period (1961-62) was about 64 percent of

¹The data are from the Ministry of Economic Planning estimates as quoted in (100). The agricultural sector also includes forest products.

the total national output. The relative size of the sector decreased slightly to about 62.5 percent in 1964-65.

1964-65 to 1968-69 GDP in millions of Nepalese Rupees of 1964-65.¹

$$P_o^a = 3915 \quad ; \quad P_l^a = 4265$$

$$P_{no} = 5883 \quad ; \quad P_{nl} = 6606$$

$$P_o^b = 1968 \quad ; \quad P_l^b = 2341$$

$$r^a = \frac{P_l^a}{P_o^a} - 1 = \frac{4265}{3915} - 1 = 0.089$$

$$r^b = \frac{P_l^b}{P_o^b} - 1 = \frac{2341}{1968} - 1 = 0.190$$

$$P_{nl} - P_{no} = 6606 - 5883 = 723$$

$$\frac{P_o^a \cdot r^a}{P_{nl} - P_{no}} = \frac{3915 \times 0.089}{723} = 0.468$$

¹ 1964-65 figures are revised estimates of the National Planning Commission Secretariat; 1968-69 figures are preliminary estimates made by the Economic Analysis and Planning Division, Ministry of Food and Agriculture, Nepal.

It appears that the contribution of the agriculture sector in the second period increased from about one-third to a little less than half of the national growth, which goes contrary to the historical economic growth process. In the sectoral contribution, the share of agriculture to the total GDP in 1964-65 was 67 percent¹ which came down to less than 65 percent in 1968-69.

Apart from the fact that agriculture is making substantial contributions to the national growth, a marked increase in agricultural productivity means an increased food supply and increased raw material supply for manufacturing and processing industries at relatively lower prices.

The present 2.2 percent rate of population growth is estimated to rise to 2.3 percent (lower estimate) to 2.5 percent (higher estimate) during 1970 to 1980. There are reasons to believe that higher estimate will hold true. Nepal has achieved success increasingly in controlling malaria, cholera and typhoid. Nepal had been in one of the highest death rate countries (28 per thousand) in the early 1950's, and the population growth was only 1.6 percent, which reached 2.1 percent in mid-1960's.

¹
There seems to be some discrepancy in the figures. The share of agriculture to the total GDP in 1964-65 at 1961-62 prices was about 62.5 percent, but at current prices of 1964-65 the revised estimates show agriculture's share as 67 percent in 1964-65. There was perhaps underestimation of agricultural products in the first estimates and this was subsequently revised upward.

If we assume that the projected per capita income growth of 3.5 percent for 1970's will be achieved and the income elasticity of demand for food will stay around 0.50, food production will have to increase by 4.15 percent¹ annually during 1970-80 to meet the internal demand. If the food supply lags behind the general growth in demand, food prices may rise substantially. Rising food prices will place a damper on economic growth. Because higher food prices means lower real wages, as Nepalese spend nearly 70 percent of their expenditure on food (87), lower real wages would lead to less money left for other goods.

In the case of Nepal, however, unlike in food-deficit countries, an increase or decrease in agricultural production affects favorably or adversely the export trade as well as industrial production.

Supply of Factors of Production The process of historical economic growth is characterized by a marked transfer of population from agriculture to the manufacturing and service sectors. This transformation was achieved in now developed countries even when the natural rate of population growth in the agricultural sector was higher than in other

¹ Using the Ohkawa equation, demand for food, $D = p + ng$, where p and g are rate of growth of population and per capita income and n is income elasticity of demand for food (quoted in 56 p. 572) $D = 2.4 + 0.50 (3.5) = 4.15$.

sectors. The data analyzed by Kuznets (61 pp. 106-107) show that the proportion of the labor force in agriculture declined from 85 percent (the same as that of Nepal in 1969) to 33 percent between 1872 and 1960 in Japan; and from 68 percent to 12 percent between 1840 and 1950 in the United States. Structural, technological and institutional changes that took place in these countries during that period made it possible for such transfer without creating food shortages.

The second factor of production, capital, may be transferred from one sector to the other. As indicated by Kuznets (60 p. 114) this may occur either by compulsory transfer through price controls or taxation where a sector is taxed above the value provided by the government, or from investments made in one sector using savings originated in other sectors. Historically, compulsory or forced capital transfers have been made from agriculture to other sectors in the initial phase of development. The second type of transfer usually has also been from agriculture to nonagriculture in the form of embodied capital in human labor, when the labor force raised with agricultural income (savings) in the farm is transferred to nonagriculture.

In Nepal, to the extent that redundant labor exists, especially in the Hills) and considering the relatively high population growth, the agricultural population provides a

a steady source of labor force.¹ It appears that it will require formidable efforts to maintain even the present labor in agriculture and transfer only the additional labor force brought about by the natural growth in population. There will be about 0.114 million new additional labor force every year, assuming that the labor participation rate is 46 percent and the population growth 2.3 percent. To keep this additional labor force outside of agriculture the present rate of transfer from agriculture to nonagriculture will have to be stepped up about eight times.

In the meantime therefore, it appears that the contribution of agriculture to the economic development in Nepal will also have to be made by providing employment for a growing labor force which, in the short run, has no alternative employment. This means that an increase in per unit productivity of land is crucial for increasing the absorptive capacity of the farm with regard to surplus labor.

This is possible, to some extent, if the earlier mentioned basic propositions of incentives, knowledge, and

¹ Given the lower estimate of population growth of 2.3 percent and the present distribution of labor in agriculture (86 percent) and nonagriculture (14 percent), to keep the present number of labor force in agriculture, other sectors would be required to absorb labor to the extent of:

$$\begin{aligned} 100 (1 + 0.023) &= 14 (1 + na) + 86 (1 + 0a) \\ 102.3 &= 14 + 14na + 86 \\ na &= 16.3 \text{ percent in the initial period} \end{aligned}$$

This is nearly eight times the present rate.

capital are made good that will facilitate the direct labor investment of the local farmers. Although some activities other than regular farm work, such as working as hired-out labor or working within-farm production activities for self-consumption purposes or for side-income as kitchen gardening, poultry-keeping are observable, their contribution would not in any way be substantial enough to demand additional labor.

The present cropping intensity index is about 121, a considerably low figure. The yield rates are also low. These are shown in Tables 24 and 25.

Table 24. Areas under different crops and yield rates in Kg. per ha. in 1968-69^a
(Total area under cultivation: 1.845 million ha.)

Crops	Area	Percent of total	Yield rate
Paddy rice	1,138,800	50.84	2040
Corn	449,600	20.07	2000
Wheat	172,900	7.72	1312
Other cereals	120,500	5.16	1540
Potato	43,000	1.42	6705
Jute	28,000	1.21	1170
Oilseeds	97,000	4.33	585
Tobacco	8,200	0.37	763
Sugar cane	11,700	0.54	16090
Pulses	80,000	3.59	900
Vegetables	50,000	2.23	-
Miscellaneous	40,000	1.80	-
Total	2,239,700	100.00	-

^a Ministry of Food and Agriculture, HMG/Nepal (45).

Table 25. Average yield of some of the principal crops in Nepal as compared to selected countries (1963-64)^a, Kg. per hectare

Counties/ crops	Rice	Wheat	Corn	Sugar cane	Tobacco
Nepal	2010	940	1970	13,200	680
India	1540	790	1000	29,090	880
Pakistan	1720	830	1030	27,000	1150
Japan	5240	-	2670	-	2160
USA	4440	1700	4240	48,440	2230
World	2050	1200	2120	-	1130

^a For other countries FAO (13).

There is large potential area left for double cropping. The estimates show that wheat as a second crop can be cultivated in nearly 1.4 million hectares of land (27), whereas the present area under wheat is 0.173 hectares. In the last four years the area under wheat has increased by about 33 percent partly due to the intensive efforts made under a grow-more wheat campaign.

Similarly, rice also can be grown twice a year in some areas, especially in the eastern Tarai where some farmers have done so when water is available. It would require a substantial investment in irrigation and water control and a supply of fertilizers. Presently only about 11 percent of the total cultivated area is irrigated by man-made irrigation systems. The estimates of the Ministry of Power and Irrigation indicate

that nearly two-thirds of the present cultivated area can be brought under intensive production under irrigation (46).

The contributions of agriculture by supplying manpower to other sectors cannot be rapid until capital and other facilities are available in the form of machinery, plants, transportation, and raw materials. In the initial phase of development, the agricultural contribution in supplying capital is likely to be of considerable importance since agriculture provides and receives the largest part of the national income.

The net direction of capital movement from agriculture to nonagriculture or vice versa is difficult to measure. Historically agriculture has provided capital to develop the non-agricultural sector. The transfer of the labor force itself represents an important contribution in the form of past investments as it demands a sizable investment in the upbringing of a human being. Each laborer carries the investment made in the past in the form of embodied capital.

Apart from this, agriculture in Nepal has been contributing to the total revenue of the Government to the extent of 25 percent of the Government income. The land tax has been one of the easily manipulative items in the Government budget to meet the deficit in expenditures. In a period of ten years (1951-52 to 1960-61), the land tax was increased by 112.7 percent. In 1962-63, there was an additional increase

of about 75 percent as compared to that of 1965-66 was made. In 1967-68, there was a further increase by about 50 percent as compared to the previous year.

In terms of the total GDP contribution from the agricultural sector (forestry included) and the Government revenue in 1968-69, as against a total GDP of Rs. 4,153 million from this sector, the revenue contribution was about Rs. 116 million (land revenue and other taxes pertaining to agriculture), which is about 2.8 percent of the total agricultural GDP. There is no scientific basis for collecting the land tax relating to the value or the production of land. There seems to be a possibility of increasing the land tax provided productivity in the value of land is determined on a scientific basis.

However, when we compare the land tax with the development expenditures incurred by the Government on agriculture, agriculture has made contributions to the development funds for other sectors. For instance, in 1968-69, income from land revenue was about Rs. 86 million and the development expenditure from the Government budget was about Rs. 22 million (47). In addition to the land revenue, farmers were making contribution in the form of compulsory savings, essentially a forced savings, discussed earlier, which would support agriculture-based industries.

Market interrelations Economic development implies increasing interdependence between different sectors. One major implication of the relatively low per worker product in agriculture is that it is operating under a condition of isolation that is difficult to penetrate by modern economic methods. For instance, inputs used in production are almost restricted to land and labor with some capital in the form of draft animals and simple tools. Most of its products are consumed in situ. This relegates it to isolation from the rest of the economy.

The development of agriculture, which implies technological transformation in terms of manufactured inputs such as chemical fertilizers, better tools and machinery, pesticides, and so on, brings changes in economic isolation and increases sectoral interdependence both from the factor and product sides. The contribution to the national growth brought about by the increasing interdependence comes through the provision of intermediate goods to the agricultural sector, which contributes directly to the growth of the non-agricultural sector; and, secondly, an increase in the supply of agricultural commodities is likely to be accompanied by a decrease in the prices of these commodities rendering an upward effect on the level of real wages and, consequently, a favorable competitive position of the non-agricultural sector.

Historically, the economy of Nepal has not been an integrated one. The sectoral interdependence is not yet well developed. The difficulties in transport and communication have forced large areas of the country into isolation; market operations have been severely restricted. Nonetheless, the areas newly opened by roads (c.g. Pokhara, Trishuli, Araniko) have had an increased flow of goods and services. Similarly, the sugar factories and tobacco factories have encouraged the farmers to switch over to cash crops.

The contributions of Nepal's agriculture have been more prominent in its participation in external trade rather than internal. Since the first and the most important activity in Nepal's economy has been agriculture, Nepal has been exporting agricultural (mainly foodstuffs) and forest products for a long period of time to India, from where it obtains the basic consumer goods. The long-run advantages and disadvantages of exporting primary goods and importing finished goods have been widely discussed in the literature (19, 107). In Nepal's case because of its size and the traditional pattern of trade, depending on almost entirely one country for exports and imports, the importance of trade and the obstacles thereby are very prominent.

The more advanced methods of production become economic when they can be employed upon a sufficiently large scale. If it has no trade, a small country like Nepal cannot

adopt advanced methods of production which depend on economies of a large scale. A small country is hampered thus by diseconomies of a small size. For such countries Hicks suggests that they concentrate production on things that are best suited to achieve an output limited not by its own size but by the world market for such commodities (20 pp. 348-352). But here again landlocked countries like Nepal situated far from a seaport and having no other alternative outlet than passing through a single country, have the additional disadvantage of being unable to take advantage of the best price offer in the world market. Nepal is extremely vulnerable to the disadvantage of specialization in production.

A similar kind of situation occurred in 1968-69. The good harvest in that year, especially in paddy rice in Nepal as well as in the border States in India, created the problem of a sudden price decline in rice. Nepal's bid to find an alternate market did not succeed since the existing rice mills were geared toward parboiled rice and its quality particularly suited to the Indian markets. Tibetan markets (importers) would want a higher-quality plain rice with lesser percentage broken. The rice mills in Nepal were not equipped with such facilities.¹ The continued and steady improvement in production and rice milling in India poses the greatest

¹ For details see "expanding export market for Nepali rice," Grigsby (16).

and immediate threat to the continued development of paddy rice production and the existing rice milling facilities in the Tarai.

The gains from external trade in Nepal have been so far of a static nature, in the sense that although Nepal has been trading goods (mostly primary goods), the indirect benefits such as the spread of technical knowledge, increased use of capital, and so on, have not been visible in the production process. Trade statistics are not available prior to the period 1955-56; however, it is generally believed that during that period the exports and imports were almost in balance and the economy remained, in a sense, in a self-contained position, though poor and entirely agricultural. After the depression and around World War II, efforts were made to alter the economic structure by introducing the process of industrialization, which brought little effect in the economy.

It was only after 1951 that the importance of trade came to focus on development. The process of development required large imports of goods, both capital and consumer goods. Since 1956-57 Nepal had a regular deficit in the balance of payments, as shown in Table 26.

The figures in Table 26 indicate that during the period 1956-57 to 1964-65 the trade deficit had been rising on an average of about 45 percent. Although the exports were

Table 26. Nepal's foreign trade - 1956-57 to 1964-65^a
(Rs. in million)

Item/Year	1956-57		1957-58		1958-59	
	X ^b	M ^c	X	M	X	M
Food ^d	72.95	37.59	47.79	38.77	87.90	43.02
Beverages and tobacco	1.35	14.29	1.83	13.22	0.89	21.53
Raw materials	16.18	14.50	18.25	9.31	25.80	7.78
Minerals, fuels	0.05	12.64	0.08	11.10	0.02	15.43
Oils and fats	0.17	8.21	0.66	10.21	0.61	10.50
Chemicals, drugs	0.03	7.98	0.06	6.60	0.10	9.31
Manufactured goods	1.22	57.69	1.13	46.84	1.61	91.69
Mach. and transport eqpt.	0.03	5.61	0.05	6.54	-	6.37
Misc. Mfd. goods	1.48	7.11	1.24	11.13	0.36	12.13
Miscellaneous (n.e.s.)	2.00	4.27	2.21	4.61	0.64	5.63
Total	95.47	169.89	73.30	158.35	117.93	223.39

^a Central Bureau of Statistics, Nepal (42).

^b X = Export.

^c M = Import.

^d Includes live animals for food.

Table 26 (Continued)

Item/Year	1959-60		1960-61		1961-62	
	X	M	X	M	X	M
Food	98.89	65.86	158.57	55.18	174.14	63.77
Beverages and tobacco	0.92	20.65	2.48	21.81	2.14	39.27
Raw materials	27.33	13.27	43.45	20.30	50.58	25.92
Minerals, fuels	-	20.87	0.08	28.31	0.01	36.56
Oils and fats	0.37	4.76	0.68	10.32	1.66	11.09
Chemicals, drugs	0.54	11.94	0.09	22.52	0.12	23.73
Manufactured goods	2.31	106.78	1.94	185.91	34.41	192.69
Mach. and transport eqpt.	0.02	8.33	0.11	25.83	0.13	24.78
Misc. Mfd. goods	0.89	18.71	1.38	16.37	1.49	23.16
Miscellaneous (n.e.s.)	0.46	16.35	0.94	11.42	0.53	3.43
Total	131.74	287.53	209.74	397.98	265.22	444.41

Table 26(Continued)

Item/Year	1962-63		1963-64		1964-65	
	X	M	X	M	X	M
Food	166.78	42.66	196.42	97.43	258.92	102.23
Beverages and tobacco	1.85	40.08	3.31	35.24	1.12	58.80
Raw materials	67.32	32.81	59.23	30.87	115.94	82.26
Minerals, fuels	-	46.20	0.07	71.53	0.07	72.35
Oils and fats	3.17	11.97	3.08	14.94	8.73	16.66
Chemicals, drugs	0.53	23.58	1.35	35.28	1.78	37.85
Manufactured goods	46.06	296.37	25.26	247.21	50.36	352.61
Mach. and transport eqpt.	0.12	32.84	0.52	30.98	0.14	53.30
Misc. Mfd. goods	1.65	26.91	1.77	40.34	3.17	41.94
Miscellaneous (n.e.s.)	0.16	0.60	0.16	0.73	0.33	0.86
Total	287.65	604.02	291.17	604.56	440.56	818.87

also rising (about 40 percent), the imports were rising at a higher rate (about 42 percent). The share of food to the total export is about 66 percent on an average for the period and its share to the total import is about 16 percent. Exports of raw materials also have increased. On the import side, manufactured goods import increased from Rs. 57.69 million in 1956-57 to Rs. 352.61 million in 1964-65; the import of machinery and transport equipment increased from Rs. 5.61 million in 1956-57 to Rs. 53.30 million in 1964-65.

The relatively high rate of increase in manufactured goods indicates the increasing expansion of domestic markets for such goods. The traditional pattern of production based on rice export is beginning to cast doubts on its possibility of sustained expansion in the future, though not in the immediate future, as long as India remains deficit. While the importance and the need for diversifying Nepal's traditional trade direction has been realized, the time has come, it appears, to diversify the traditional agricultural production pattern. This could be directed toward supporting the manufacturing and processing industries that use agricultural products. Even domestic markets for such products as sugar, canned fruits, vegetables, milk and meat products are gradually expanding.

Development of infrastructures As the increase in inter-sectoral relationships tend to expand the market

structures, and when a dual economy exists, the ultimate problem for the country's future development depends upon, among other things, how fast the modern exchange sector expands while the indigenous sector contracts. This interrelationship is very much influenced by the infrastructure, and by the contribution that one sector makes to the development of the basic infrastructures of another sector.

The most important components of the basic infrastructure, with general reference to agriculture, are classified by Wharton (114) in three groups: 1) capital intensive components such as irrigation and public water facilities, transport and power; 2) capital extensive components, mainly research, extension, credit and marketing institutions, education and health; and 3) institutional components related to formal and informal political, social and cultural institutions. Wharton points out that the increases in productivity experienced by a developing agriculture are most likely the results of investments made on the whole infrastructure complex.

Historically, the development of infrastructures has been one of the prerequisites for an overall economic growth of a country. Although no empirical analysis can be made regarding the contribution of infrastructures in the development process in Nepal at this stage, its importance, foremost among them the transport system, is self-evident. The

The historical or conventional transport in Nepal consists almost entirely of porters, a few pack animals and in the Tarai, bullock and buffalo carts.

In 1968-69, there were 10,500 registered motor vehicles¹ for a population of 10.82 million people, which comes to about 1,000 people per vehicle. There are 1198 kilometers of permanent and 2148 kilometers of fair-weather roads - about 30 kilometers of road per 100,000 inhabitants or 0.024 kilometers per square kilometer of the area, which is very low even by developing Asian countries' standards. For instance, India had 737 people, Ceylon 69 people, Malaysia 46 people per vehicle and the UDA 2.4 people per vehicle in 1963 (53 p.3). No wonder, one Western observer remarked, that Nepal was 20 times bigger than the U.S.A. - from the point of transport.

The importance of transport development and the need for giving it high priority may be summarized in the words of the IBRD transport Mission to Nepal: "The special high-priority problems facing Nepal which can be ameliorated by improved transport are: (1) food distribution; (2) food shortages; (3) the rising cost of living, particularly in the Hill areas and in Kathmandu Valley; (4) transport bottlenecks restricting the benefits of maturing existing

1

Registered by Police Departments. Includes all transport vehicles such cars, jeeps and trucks. Information supplied on request by the Department.

investments from accruing to the country; (5) transport bottlenecks inhibiting the exploitation of tourist potential; (6) concentration of population in areas which are completely inaccessible except on foot; and (7) concentration of investments and services in Kathmandu" (53 p. 28).

Along with the transport, the other areas of priority concern are irrigation development and structural and institutional developments, which were partly discussed in the first section of this chapter and about which more will be said in the following chapter.

The Problematic Gap

The preceding analyses show that the agricultural sector has been the most important sector in the economy and also the most important single contributor to the nationwide growth. It also shows that its share of contribution has not changed during the last decade or so. Contributions to the GDP, the employment structure, and foreign trade patterns have remained almost the same. Labor migrations out of agriculture have not been very significant; however, it appears that it is likely to be more significant once the agrarian reform programs are implemented to their full intent, which may eventually stir up the landlord class sufficiently to make employment policy outside of agriculture an important variable in overall planning.

An examination of the growth in real per capita income and the increase in agricultural production show that the slow rate of growth in the agricultural sector has been the main reason for the slow rate of growth in the economy. The growth in the average annual real per capita income fell short of the targeted growth rate of 1.8 percent to 0.9 percent in the first four years of the Third Plan. Thus the realized growth rate is only 50 percent of the expected growth rate. Since the share of the agricultural sector in the economy is exceedingly high, the poor performance in this sector has held back growth in the overall economy. The average annual growth rate in the non-agricultural sector, during the above-mentioned period, was 4.7 percent, whereas the growth in the overall economy came to 3.0 percent since the growth rate in the agricultural sector stayed at 2.22 percent. The share of the agricultural sector in the GDP was about 65 percent, but its contribution to the growth was only about 46 percent, as against the non-agricultural sector, which contributed more than 50 percent to the overall growth, though its share in the GDP was 35 percent.

Compared to the goals, the realized consequences have shown a gap in performance. Nevertheless, the economy has also shown some positive results. This implies that, with some success elements introduced in the economy, the failure elements still persist in the system. These elements that

have contributed to or impeded the growth of agriculture in Nepal and thereby the growth in the overall economy are discussed in the following chapter.

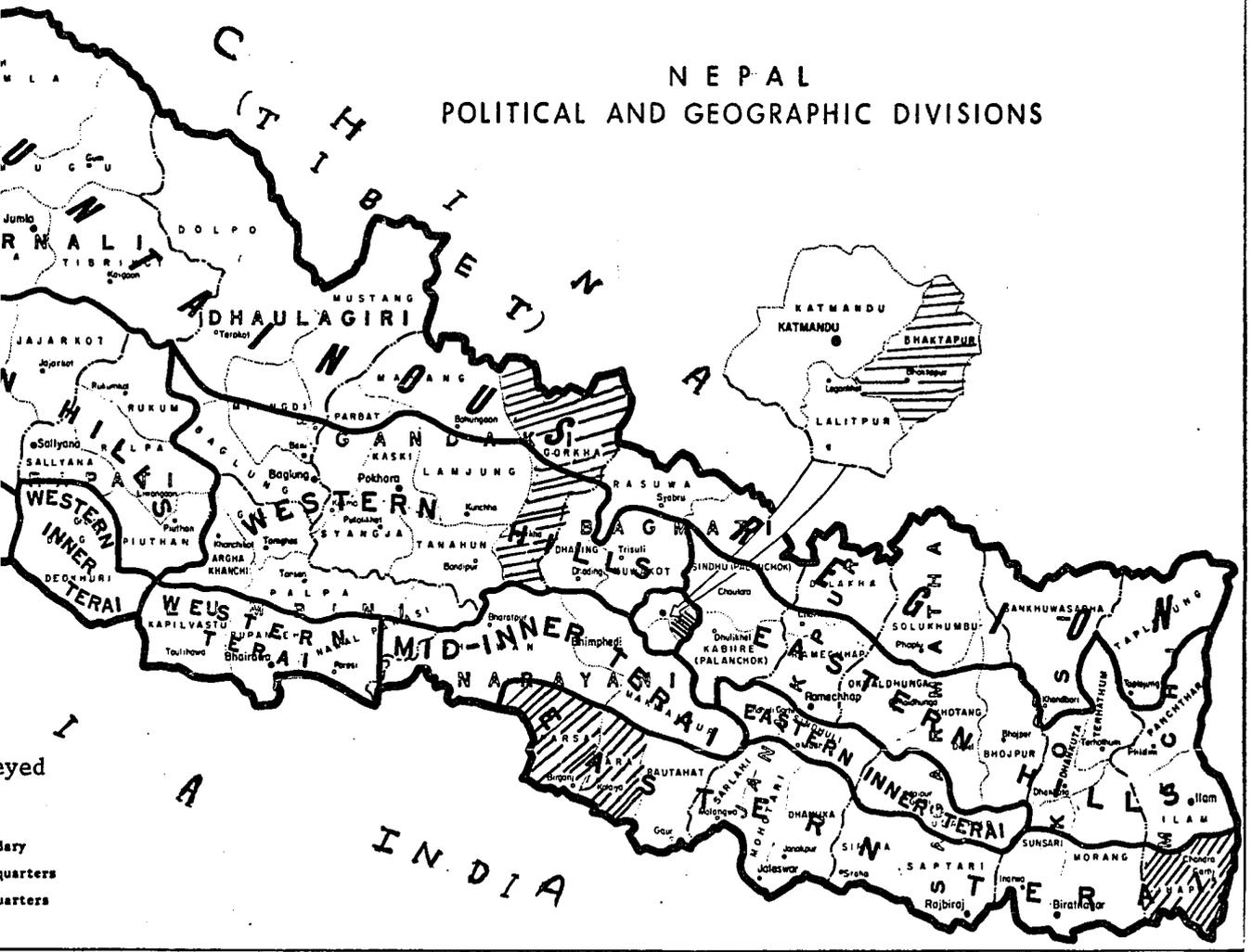
CHAPTER V. POSSIBLE EXPLANATIONS FOR
PROGRESS OR LACK OF PROGRESS

The analysis of performance in the agricultural sector in the preceding chapter showed that this sector was lagging behind the targeted rate of growth. Considering the relatively heavy weight of the agricultural sector in the national economy, the slow progress in this sector had considerably retarded the growth of the economy as a whole. This chapter identifies and explains the elements that caused the slow rate of growth in the agricultural sector. It evaluates both the success and failure elements in line with the conceptual framework outlined in Chapter III.

Since it is not possible to deal with the entire problematic situation in a single study, this chapter is concerned with the segment of the situation delimited in the preceding chapter and follows the headings concerned with incentives, knowledge and capital.

Inasmuch as agriculture is not homogeneous in its nature, its problems and solutions to these problems are bound to be heterogeneous. Thus, both the defects and contributions will be examined within this perspective. While some aggregative analysis for the agricultural sector as a whole on a national basis will be provided toward the end of the

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chapter, case studies recorded in selected districts in Nepal will be discussed first.

Agricultural Performance in the Selected Districts

Nepal's total area is divided into 75 districts for administrative and development purposes. Each district has on the average about 140,000 people. The district consists of panchayats (village panchayats and town panchayats), which function as the lowest tier in the political-administrative system in Nepal. Six of these districts were selected from different regions for detail study. They are: (1) Jhapa, (2) Bara, (3) Parsa, (4) Bhaktpur, (5) Gorkha, and (6) Kailali.

The selected districts together produce nearly 16 percent of the total agricultural products in Nepal on about 15 percent of the total cultivated area of the country. Nearly 10 percent of the total population of Nepal live in these districts. These districts provide a broad approximation of the existing agricultural and economic structures in Nepal.

Jhapa, in the far eastern Tarai, produces the largest quantity of rice of any single district and is a net exporter of agriculture products. Along with foodgrains, Jhapa exports substantial amounts of jute (second highest district in jute production), which is one of the main sources of convertible foreign exchange earnings for Nepal. This is also

one of the tea-producing districts in Nepal. It receives monsoon rain in fairly good amounts and is relatively prosperous in terms of the agricultural productivity potentials. It also has the advantage of easier access to the Calcutta markets in India where prices (especially for rice) are comparatively high.

The first phase of the implementation of the present agrarian reform programs in Nepal was initiated in this district on an experimental basis in 1964. Until then it was one of the "neglected" districts, sparsely populated and adversely affected by tenancy problems, for the fertile forest soil and the damp jungles were havens for both the absentee landlords and mosquitoes. (Although DDT succeeded in eradicating the latter, the former still persist.)

Bara and Parsa are situated in the central Tarai. (The two adjoining districts were selected from the same region because of the difficulties encountered in separating the leakage and interflow of the development activities.) These districts rank at the top of the advanced districts in the Tarai. They have fairly well developed transport systems. Birganj, the district headquarters of Parsa, is one of the growing industrial towns in Nepal, representing the modern part of Nepal's economy. These districts have easy access to both the internal (Kathmandu) and the external markets. Development activities in these districts have been

going on since 1956. Bara and Parsa were among the first 16 districts to initiate the application of the 1964 Lands Act.

Bhaktpur, one of the three districts in the Kathmandu Valley, is adjacent to the capital and is agriculturally the most prosperous and advanced district in Nepal. It has a long tradition of being the best farmers' district with modern facilities that go with incentives, knowledge and capital, including a good tenurial system, better prices for its products, good transportation, extension services and credit facilities. Bhaktpur is also a show place for the efforts of foreign and domestic agricultural technicians and advisers.

Gorkha is one of the least developed hill districts, remote and almost abandoned except for its name. This is one of the deficit districts where agriculture is at a subsistence level. Corn is the main crop and is grown in small high-altitude valleys and plateau areas. The northern part borders Tibet and has rugged Himalayan terrain characterized by a continuum of ecological differences and fragmentations of agricultural zones. The farmers located at less than 200 meters apart on a slope pursue various activities - cereals on the south to potato, buckwheat (Teete Phaper), and cattle (some yak) and sheep on the north. Except for an airfield on the southern tip of the district, it has no modern transport facility.

Kailali, a far west Tarai district, is a net exporter of food, mainly rice. It also produces substantial amounts of oilseeds as a cash crop. Like Jhapa, because of malaria Kailali, too, remained one of the neglected districts in the Tarai until 1964. Agrarian reform programs have not moved as fast in Kailali as in Jhapa. Although the land records show large areas under owner-operatorship, most of the land is cultivated under a cultivation-by-proxy method, where the actual tiller is called a manager instead of a tenant. This is gaining momentum in other districts too, as an aftermath of the agrarian reform programs. Kailali also has the worst credit and marketing systems (8).

The main source of credit was Indian traders (Mahajan) who would visit the villages during the planting season and provide the farmers with not only money but also consumer supplies - including grains on credit - and fix the price of the produce when the farmers were hard-pressed for money and supplies. The traders, with their business acumen, provided services to the villagers which the cooperatives could not replace but the traders also provided themselves with most of the produce the farmers had at the time of harvest. After the agrarian reform program through lessening of the influence of traders, though not in terms of credit availability through alternative sources, the situation improved.

Kailali has great potential for agricultural development and area expansion under cultivation. Nearly 50 percent of the total area is under forest, half of which has marginal forest which could be used for resettlement if irrigation facilities - one of the bottlenecks in Kailali - and water control are improved. Settlers from the Hills have been squatting in the area and the Government has recently begun a program for resettlement.

Expected production targets in these districts calculated on the basis of a proportional share in the national agricultural production, and the achievements realized are presented in Table 27.

Except for Gorkha and Kailali, in cereal production the districts were above the target level with Bhaktapur as high as 48 percent above. In cash crops, Jhapa was much behind, partially due, perhaps, to the failure of the jute crop because of a long dry season. Bara and Parsa did well in cash crops, as the area under sugar cane increased substantially, a result of an extensive grow-sugar-cane campaign launched by the Birganj Sugar Factory (a public enterprise). The farmers were apparently encouraged to switch to sugar cane cultivation since the factory provided credit facilities in cash and kind including tractors on an installment basis. Also in 1968-69 the price of sugar cane increased from about Rs. 10 per quintal to Rs. 15 per quintal. Even the Indian

Table 27. Targets and production of cereal^a and cash crops^b in the selected districts in 1968-69 (in metric tons)^c

Districts	Target		Achievement		Percent of target	
	Cereal	Cash crop	Cereal	Cash crop	Cereal	Cash crop
Jhapa	173,755	24,950	176,210	12,723	101.3	50.5
Bara	132,129	17,797	133,678	26,443	101.0	148.0
Parsa	94,377	15,848	98,635	29,730	104.5	130.0
Bhaktpur	22,650	-	33,521	-	148.0	-
Gorkha	27,425	-	26,321	-	96.0	-
Kailali	113,326	10,662	88,432	5,836	78.0	51.0
Total	563,662	69,257	556,797	65,752	98.8	95.0
Nepal	3,775,092	389,846	3,657,588	283,402	96.8	72.6

^a Cereal crops include paddy, corn, wheat, barley and millets.

^b Cash crops include sugar cane, oilseeds, jute and tobacco.

^c Targets are calculated using existing areas under different crops in the respective districts as weights on the basis of the Third Plan total production figures. Achievements are compiled from the respective districts.

farmers from across the border found it profitable to sell their sugar cane to the Birganj sugar factory, whereas in previous years Nepalese farmers used to take their sugar cane to Indian factories.

In the use of improved seeds, chemical fertilizers and provision of loans from the Agricultural Development Bank there was a marked difference in these districts as shown in Table 28. Loans were also advanced from Ward Committees' funds collected under the Compulsory Savings Scheme, but district breakdowns were not available.

Table 28. Proportion of the total area using improved seeds, chemical fertilizers, and loans (ADB) in 1968-69.^a

Districts	Area under improved seeds			Share of fertilizer use and credit as a percent of the total used in the country	
	Rice ^b	Wheat ^b	Corn ^b	Fertilizers	Credit ^c
Jhapa	2.6	35.0	1.0	0.8	9.0
Bara	10.0	45.0	3.0	8.0	-
Parsa	6.0	68.0	3.0	6.0	1.6
Bhaktpur	33.0	84.0	6.0	20.0	24.0
Gorkha	1.0	2.1	nil	nil	nil
Kailali	1.5	20.0	nil	0.3	5.0
Nepal	4.3	29.5	1.0	100.0	100.0

^a Compiled from the District Office Records.

^b Percent.

^c Credit figures are for 1967-68.

In the use of improved seeds, chemical fertilizers and credit, Bhaktpur was first, followed by Bara and Parsa; the remainder of the districts showed negligible use. In the use of improved seeds, wheat was well ahead. In most of the Tarai districts, sowing wheat as a second crop was a new practice, thus easier to introduce. (The research farms had been successful in testing and proving high yielding wheat but not new varieties of rice. New corn, too, had been a failure. The Experiment Stations came out with high-yielding synthetic corn - Rampur yellow and Khumal yellow - but the new corn turned out to be unsuitable for storing under local storage conditions as it was, unlike local varieties, highly susceptible to insects and disease. Farmers could not adjust themselves to these sophisticated varieties.)

The data in Table 29 indicate that the broad occupational patterns in the districts have followed the same stages in the development of agriculture - the more developed the agriculture, the fewer people on the farms. Bhaktpur, Parsa and Bara have fewer households in agriculture than other districts and also than the national average. Information was not available for examining the detailed pattern of employment, income status, or level of education of the people in the area. During the survey it was observed that a large number of people had migrated to the Tarai districts, especially in Jhapa and Kailali, during the last five years

Table 29. Total population, area under cultivation and proportion of agricultural to non-agricultural households in the selected districts in 1968-69^a

Districts	Total population ^a	Total area under cultivation ^b	Proportion of agricultural and non-agricultural households ^c	
			Agricultural	Non-Agricultural
	(Number)	(Hectares)	(Percent)	(Percent)
Jhapa	195,000	92,000	86	14
Bara	340,000	60,500	76	24
Parsa	211,000	45,000	64	34
Bhaktpur	97,000	8,600	55	45
Gorkha	165,000	10,875	90	10
Kailali	162,000	58,000	87	13
Total	1,170,000	274,975	85	15
Nepal	10,820,000	1,845,000	86	14

^aTotal population projected from the National Agricultural Census, 1961, and adjusted for possible migration from Hills to the Tarai as observed in the surveyed districts.

^bTotal area under cultivation (45).

^cProportion of households estimated from the field surveys.

or so. It was generally observed that farmers in the Hills follow relatively more intensive methods of cultivation. This observation was supported by the fact that, on an average, per unit yield of land in the Hills is higher than in the Tarai,¹ which is attributed to the intensive method of cultivation in the Hills.

In terms of soil fertility, Tarai lands are more fertile than the Hill lands. Useful information may be provided by studying the performances and cultural practices in farming of Hill farmers in the Tarai vis-a-vis the local Tarai farmers.

There were also marked differences in tenure systems, average size of holdings and the average number of parcels of land per holding. The total number of owners and tenants for the districts are given as provided in the land survey records. However in terms of actual households of owners and tenants, the actual figure may be smaller than presented in Table 30 for if the owners as well as the tenants have land

¹Average yield rates of major cereals by regions, 1967-68 (kg./ha.) (99 p. 42).

<u>Cereal</u>	<u>Hills</u>	<u>Valleys</u>	<u>Tarai</u>
Paddy	2122	2870	1621
Wheat	836	1280	780
Corn	1726	2022	1495

Table 30. Pattern of tenancy, size of holdings and number of parcels of land in the selected districts in 1967-68^a

Districts	Total owners	Total tenants	Proportion of tenant owner		Average size of holding	Average number of parcels	Average size of parcel
	(number)	(number)	(percent)	(percent)	(ha.)	(number)	(ha.)
Jhapa	19,441	34,456	63	37	1.70	3.0	0.61
Bara	85,000	52,951	38	62	0.45	2.3	0.19
Parsa	39,338	42,122	52	48	0.55	2.4	0.23
Bhaktpur	44,147	18,380	30	70	0.14	2.6	0.06
Gorkha	na	na	27	73	-	-	-
Kailali	9,405	5,243	38	62	3.90	5.0	0.80
Nepal	-	-	40	60	1.10	5.7	0.08

^a Calculated from the land survey records made available by the Land Administration Department, HMG/Nepal. For Nepal as a whole, taken from the 1961 Census (32).

above the ceiling limit the land is under the name of each of the adult members in the family. It was not possible to differentiate the actual household from the legal household.

Information indicates that Bhaktpur, which had the second highest percentage of owners, is also the most prosperous district. On the other hand, Gorkha, which had a slightly higher number of owners than Bhaktpur, was also one of the least developed districts. Bhaktpur also had the smallest size of holding, while Kailali had larger than average size holdings among the group. In general, Bara, Parsa and Jhapa illustrate that tenancy patterns and size of holding, while providing some positive effects on growth, alone may not be sufficient to increase agricultural production. For instance, Gorkha, with a relatively high percentage of owners, in the absence of other facilities and credit remained below the targeted growth rate.

Bhaktpur, with a high percentage of owners, coupled with good markets, credit, transport, and the availability of modern techniques, surpassed all the districts. Because of these facilities and their proximity to one of the biggest markets in Nepal (Kathmandu), Bhaktpur farmers grow crops all year round. The scattered holdings in Bhaktpur may have, in fact, helped the farmers to plant different crops during different seasons. Given the undulating nature

of the land, and some upland and low land in the district, farmers have found crop rotation convenient and profitable.

Comparable data were not available for examining the situation over time in regard to production and per unit yields on a district basis.

Table 31. Yield of major crops by selected districts in 1968-69^a (kg./ha.)

Districts	Paddy	Wheat	Corn	Sugar cane	Jute	Oilseeds
Jhapa	2,132	1,100	1,740	15,000	1,407	500
Bara	2,028	1,210	1,625	18,000	700	600
Parsa	2,100	836	1,625	18,000	-	-
Bhaktpur	3,900	1,320	2,135	-	-	-
Gorkha	2,500	1,320	2,135	-	-	-
Kailali	1,600	833	1,600	16,000	700	679
Nepal	2,040	1,312	2,000	16,090	1,170	585

^a Economic Analysis and Planning Division, Ministry of Food and Agriculture, HMG/Nepal (48).

In the yield rates of cereal crops, Bhaktpur again topped the list and Kailali was last. In cash crops, the trend appeared to have followed the agro-climatic conditions in the area. For instance, Kailali with its relatively dry weather appeared to have a comparative advantage over Jhapa

in growing oilseeds. Bara and Parsa did better in sugar cane. Unlike cereal crops which are grown in all the districts in Nepal, different cash crops are concentrated in different pockets in the country. Growing cereal crops in all the districts without regard for the comparative advantage would also suggest the nature of subsistence farming conditioned by the lack of facilities for the movement of products between the regions.

The historical pattern of cropping in the country as a whole indicates that farmers in their own way, however naive as it may appear, have in general taken into consideration the comparative advantage of growing a particular crop (other than cereal) in a particular region. The eastern Tarai produces more than 95 percent of the total jute crop, where jute yields are highest. The central Tarai has more area under sugar cane followed by oilseeds and the western Tarai grows oilseeds as a cash crop as shown in Table 32. There are some deviations in the pattern caused mainly by the market situation. Rupandehi, for instance, has a relatively large area under sugar cane supplying sugar cane to the Mahendra Sugar Factory and Distillery located in the district although productivity appears comparatively low. Similarly, Jhapa and Morang have large areas under oilseeds, although yield rates are relatively low. Morang has the first industrial town of

Table 32. Area and yield rates of major cash crops in some of the Tarai districts in 1968-69^a

Districts	Sugar cane		Oilseeds		Jute	
	area	yield	area	yield	area	yield
	(ha.)	(Kg.)	(ha.)	(Kg.)	(ha.)	(Kg.)
Jhapa	50	15,000	1,200	500	8,000	1,407
Morang	500	16,500	1,800	500	9,800	1,164
Saptari	60	15,000	2,200	707	2,700	1,600
Mahottari	60	15,000	1,400	500	30	800
Bara	1,400	18,000	2,000	600	35	700
Parsa	1,100	18,000	1,500	600	-	-
Chitwan	150	15,000	13,500	625	30	700
Rupandehi	1,300	15,800	1,500	450	60	700
Dang	25	14,800	10,500	673	20	700
Bardiya	20	15,000	7,085	625	35	628
Kailali	25	16,000	7,800	700	50	679
Nepal	11,700	16,090	97,000	585	28,000	1,170

^aEconomic Analysis and Planning Division, Ministry of Food and Agriculture, HMG/Nepal (48).

Nepal at Biratnagar, which has a number of oil mills, and Bhadrapur in Jhapa also has several oil mills. Saptari which supplies jute to the jute factories at Biratnagar had the highest yield rate in jute.

The prices of agricultural commodities are generally higher in the eastern Tarai and lower in the western Tarai. Kathmandu Valley has higher prices than in the Tarai. In the Hills there is the chronic problem of scarcity of both goods and money. Comparable price data are not available at the time of this writing. The paddy rice price data obtained from the districts¹ indicate that Bhaktpur had the highest price and Kailali, the lowest in the group. Jhapa has the advantage of the West Bengal (Calcutta) market in India where rice prices are generally higher. Bara and Parsa have access to both an internal deficit area (Kathmandu) and the external markets in Bihar in India. Kailali has a less favorable situation both in internal and external markets. The

¹Average price of paddy in the selected districts in 1964-65 and 1968-69 (Rs. per quintal) (49)

<u>District</u>	<u>1964-65</u>	<u>1968-69</u>
Jhapa	80	77
Bara	73	65
Parsa	75	67
Bhaktpur	87	80
Gorkha	82	81
Kailali	69	59

Western Hill districts in Nepal are deficit in food grain production, except for small amounts carried by Hill people on their backs when they come down to Kailali for seasonal employment for there are no possible facilities for the movement of goods. The adjoining markets in Uttar Pradesh in India are not in as much of a short supply of rice as those in West Bengal. There are no restrictions on the inter-state movements of food grains in India.

In June 1969, Nepal finally convinced India to allow Nepal to export rice into the rice-deficit States in India (Maharashtra and Kerala). But the rice bags containing Nepalese rice turned out to be manufactured in the People's Republic of China and the cargo was seized by Indian authorities at the point of entry into China.

Among the irrigation projects undertaken by the Government after 1956, one project (Mahadev Khola Project) was located in Bhaktpur, completed in 1960, and provides irrigation facility for 940 hectares. Two minor irrigation projects also were completed that provide water for about 405 hectares. In Bara the Sirsia Dudhawa Project was completed in 1959 and provides water for 1,350 hectares of land. In Parsa, the Tilawe Project completed in 1959 provides irrigation facilities for 4,300 hectares of land. Minor irrigation projects were constructed in Jhapa districts with an estimated capacity providing irrigation facilities for about 1,500 hectares of land.

There were no additional irrigational facilities available in Gorkha and Kailali.¹

Regarding the general farm income, one study shows that the gross income from a hectare in Bhaktpur in 1967-68 was about Rs. 7,200 as against the average similar income of Rs. 3,200 in Tarai. The average net farm income ratio between the two areas was estimated at 2.5:1 for Bhaktpur and Tarai farmers respectively. In Bhaktpur about 500 laborers (man-days) were used per hectare, while in the Tarai it was about 250 laborers (67 pp. 7-8).

An Explanation for Success and Failure

An examination of the agricultural performance in the selected districts showed that Bhaktpur ranked first followed by Bara and Parsa. Bhaktpur is also agriculturally the most prosperous district in Nepal. The average net income of the Bhaktpur farmer is as much as 150 percent more than that of the average Tarai farmer and would be still higher than that of the average Hill farmer. Product per unit of land is more than double as compared to the Tarai area. The average amount of labor input per unit of land used in Bhaktpur is 500 compared with 250 in the Tarai.

¹

The information was provided by the Ministry of Irrigation and Power. Detailed data regarding minor irrigation projects constructed by local panchayats could not be compiled.

The total production of cereal grains in Bhaktpur in 1963-64 was estimated at 21,457 metric tons. This rose to 33,521 metric tons in 1968-69, more than 56 percent or more than 11 percent per annum. This is a clear indication that a substantial increase in the rate of growth in agriculture is possible and practicable in Nepal.

Possible propositions for success elements in the process of agricultural development are identified and explained as follows:

1. Land tenure structures with reasonably low (one-fourth) and fixed rental systems and well established inheritable tenancy rights have provided favorable incentives for the farmer - provided knowledge and capital were made available.

Bhaktpur is one of the districts which have no tenancy problems as such. Apart from the high ratio of owner-cultivators (70 percent), the tenants have permanent and inheritable tenancy rights, well established over the last ten years. Rents have been fixed at an absolute quantity, equivalent to about one-fourth to one-third of the principal product. In other districts permanent tenancy rights have not yet been fully implemented and rents are fixed at 50 percent of the principal produce. The farmers in Bhaktpur are thus certain regarding their future control over the land and also are certain that they will be rewarded fully if they expand their

efforts in farming, since the landowner is entitled to a fixed amount, low as compared to those in other districts. The districts of Gorkha, although having a high percentage of owners, is still behind, because there are no facilities for improved farm practices nor access to capital and it is isolated due to lack of transport facilities.

Bara and Parsa, although having transport facilities and access to modern knowledge (improved inputs and chemical fertilizers) and capital, have not come up to the level of Bhaktapur. Many of the farmers still do not use fertilizers although they are available, since the extra cost must be borne by the tenant while 50 percent of the benefit goes to the landowner. The tenants have little incentive and motivation to improve their productivity.

The experience of Budhabare village panchayat in Jhapa district may be a case in point to provide further illustration. Budhabare village panchayat is the one where the agrarian reform program was tried for the first time in Nepal. This was an experimental program started in late 1963. Based on experience gained in Budhabare, subsequent land reform programs were developed and applied in other districts in the country. The approach followed was that first the actual tiller and the tract of land he tilled were identified. Rents were fixed to provide incentives for the tiller to increase outfit. Cooperatives were established to provide credit for

the tillers. The result was that in the second year of the implementation of the program, paddy production increased by 3.3 percent. A substantial area was brought under a second crop, and as a result, the total crop production in the panchayat increased by 4.8 percent. When compared with the situation before reform, the incomes of the owner-tillers increased by 8 percent and that of the tenant-tillers increased by 35 percent in the year following the reform (64). Jhapa, before the agrarian reform program had the worst tenancy situation. Wolf Ladejinsky who surveyed this area in 1962-63 found that "in eastern Terai in Nepal, an area of relatively sparse population, landownership is for the exceptional few. The economic consequences are such that even a landlord admitted that 'the tenants are often getting no more than the rice straw'" (62 p. 447).

The market facility in Bhaktpur has also been an important factor in providing incentive to the farmers to grow different crops throughout the year. Bhaktpur is one of the three cities that comprise Kathmandu Valley, seat of the capital. Kathmandu Valley has been a food deficit area for over 25 years. There are modern transport facilities that reach almost all the villages. There are many traders who travel from village to village buying regular agricultural products and moving them to intermediate markets. In many instances, the farmers themselves take their products to the

market.¹ Bhaktpur has been one of the best and largest vegetable-growing districts. The farmers in Bhaktpur (Kathmandu Valley as a whole) have not only the advantage of finding a ready market for their product but also are benefited with higher price margins in the sale of their produce as compared to the farmers in other districts.

2. Given favorable tenurial system and market structures, technological innovations associated with the transfer and adaptation of modern knowledge have favorably affected the increase in agricultural production in the districts.

Bhaktpur has been one of the first districts in receiving knowledge regarding improved agricultural practices. New varieties of wheat were first tried extensively in this district. Now so are rice and corn varieties (see Table 28). This district was also one of the first experimental districts to try the coordinated development program discussed in Chapter IV.

Of an estimated 24,000 metric tons (gross) of chemical fertilizer used in Nepal in 1968-69, nearly 5,000 metric tons were used in this district, though it has only 8,600 hectares of land under cultivation as against 92,000 hectares in Jhapa.

¹There are also problems associated with moving a new product, for instance wheat, as Kathmandu Valley has been traditionally a rice-consuming area. This aspect will be dealt with later.

Bhaktpur used nearly 124 Kg. of chemical fertilizers (in terms of plant nutrients) per hectare of the net cultivated area, whereas the average for Nepal is about 2.5 Kg. per hectare. In addition to the agricultural extension services which were supervised from the Center, cooperatives played a substantial role in the credit and distribution of inputs in the initial period, which since 1968 exist only in name.

Bara and Parsa come next in the use of modern farming knowledge. Agricultural extension services have been working in these districts for the last thirteen years. These districts were also among the first to start the Village Development Centers initiated during the First Plan (1956-61). Parsa had the first village level workers' training center. (Since 1961-62 it no longer exists.) The first Agricultural Experiment Station opened in the Tarai, the Parwanipur Agricultural Station (now one of the best), is in the Bara district. Along with horticulture and fisheries experiment programs, the Government's Central Poultry Hatchery is also located in the Station. The Agricultural Tools and Implements Research Station and the Agricultural Tools and Implements Factory are located in Parsa. This shows that if the farmers of Bara and Parsa have enough incentive to use modern practices in farming, technical knowledge and materials are available. Apparently the 50 percent rate of rent and the

large number of unindentified tenants do not provide as favorable a situation for adapting to new practices as does that of Bhaktpur farmers.

Jhapa saw the extension worker and probably the first grain of improved seed in 1964 when the agrarian reform program was initiated. The activity remained confined for about two years in one village panchayat, Budhabare. The Agricultural Extension Office started functioning only in 1967-68 with little support from the Center. Kailali had practically no access to improved practices until 1967-68. Gorkha is still an abandoned case as far as new farm practices are concerned. The Agricultural Extension Office was opened in 1968-69, but had no men or material support to provide meaningful technical help to the farmers.

3. The formation of capital and access to outside capital were favorably affected where incentives to use capital and technical knowledge were provided.

Complete information on capital formation in the districts is not available. This too needs further investigation. However, the data on credit use and the use of purchased inputs (improved seeds, chemical fertilizers) will provide some indication. Table 28 indicates that of the total agricultural production loans advanced by the Agricultural Bank in 1967-68, as much as 24 percent was used by Bhaktpur. (Of the total agricultural credit advanced,

Rs. 3.6 million, Rs. 0.877 went to Bhaktpur.) Next with 9 percent was Jhapa, followed by Kailai with 5 percent. While Gorkha received no loans, Bara and Parsa together had only 1.6 percent for which no explanation was available. Presumably Bara and Parsa had received substantial loans from Compulsory Savings through Ward Committees.

In Bhaktpur, during the past ten years, nearly 1,100 hectares of land were improved by terracing in the higher slopes and by providing drainage in the low-lying areas. A sizable amount had also been invested in irrigation. Of the cultivated area of 8,600 hectares, nearly 6,200 hectares get water for about ten months, the highest figure for any district. Since Bhaktpur farmers used the maximum amount of fertilizer for the country, this implies that these farmers have spent the maximum amount on purchased inputs. Even in labor input, Bhaktpur used the highest man-days per hectare (500 against 250 in the Tarai), The increase in productivity and the increase in income helped the farmers to invest more on land both by way of fixed capital as well as operating capital.

In the area of the technical trap caused by the size of holdings and the fragmented and noncontiguous nature of the holdings, data available from the selected districts is not sufficient. Considering the complexity of problems associated with the heterogeneous nature of agriculture in

various heterogeneous areas, it is difficult to ascertain the magnitude of the roles played by different factors in the process of development. The problem of the size of holdings and the nature of holdings require a broader setting or a broader picture of the economy rather than a district-level approach. For instance, to associate the size of holding with the increase in productivity in terms of one input (per hectare) may be misleading. In the development process, land also becomes a variable input like labor (management) and capital. The problem of the size and nature of holdings will be dealt with in the following section from the point of national as well as regional economy.

Observations made in the selected districts suggest that 1) the district which has incentive factors, ceteris paribus, tends to use more modern knowledge and capital (e.g. Bhaktpur); 2) although incentive factors are necessary, they are not sufficient to increase productivity in the absence of infrastructures, knowledge and capital (e.g. Gorkha); and, as a corollary to suggestion (1) it may also be stated that 3) in the districts where incentive factors are absent, farmers seem not encouraged to use the modern knowledge and the capital even when they are made available (e.g. Bara and Parsa).

An Explanation for the Failure of Nepal's Agriculture to Achieve the Target

The discussions in the preceding chapter and the observations made on the performance of agriculture in the selected districts show that if agriculture is to perform its role effectively in the national growth and achieve the expected goal, it is not the question of one single factor that can make agriculture successful in fulfilling its objective. There is a whole range of interacting factors that must be satisfied before agriculture can perform its role effectively. It was also noted that the range of factors differ even within the district according to the situation.

The most obvious reason for the agricultural sector not being able to achieve the targeted rate of growth in Nepal is that farmers inter alia did not produce more than currently realized. It may appear a simple tautological statement. But this is nonetheless the crux of the problem. The possible reason for not producing more by Nepalese farmers could be: 1) they are conservative and nonresponsive to more productive methods of production, or 2) the environment within which they have to operate the farms does not provide opportunities and incentives to increased production.

Nepalese economist Dr. Y. P. Pant believes Nepalese farmers are essentially more conservative, though earlier he mentions them "as efficient as other fellow cultivators in

advanced countries." He writes, "But they are essentially more conservative and fatalistic in their views. Due to their conservative outlook and illiteracy they are reluctant to use good seeds, compost manures, chemical fertilizers, improved techniques of cultivation, irrigation water and pesticides on their own initiative" (86 p. 43).

Mr. K. B. Malla, an agriculturist by profession, who now occupies the position of the Chief Secretary to His Majesty's Government of Nepal and who has probably contributed more than any other single individual to shaping the Government's present nature of agricultural development in Nepal, finds Nepalese farmers just the opposite of what Pant believes. Malla observes: "Nepalese farmers are responsive to change. The most encouraging lesson of the past almost two decades' experience is that, unlike the reported resistance to change by farmers in some parts of the world, Nepalese farmers accept change when they have the knowledge, the skills, the inputs and incentives. This has been demonstrated in Kathmandu, Chitwan, numerous places along the Tarai and in some hill areas" (66 p.4).

The facts indicate that to attribute low agricultural productivity to "the cumulative effect" of the conservative outlook and fatalistic attitudes of Nepalese farmers is no less than a grossly misleading and overly distorted view of

the real matter of fact. It is no longer true, probably never was true, that Nepalese farmers are not responsive to change or that their conservatism has prevented them from using modern methods of farming, e.g. the farmers in the Kathmandu Valley. They have responded to change whenever such opportunity came. It was not the lack of response to change, but it was merely the lack of a progressive structure with incentive, adequate capital and knowledge that kept them bound to the traditional farming. They have always aspired to more income and a better way of life.

Frequent studies have shown that farmers want to possess the most prized pair of bullocks in the village so as to grow the best crop of the village on their farms. If they were satisfied with a bullock cart ten years ago, they now want a bicycle in addition to the bullock cart. They do not shun a transistor radio, nor a tubewell in place of a dug-in open well. If twenty years ago, the choice was between sending a son to school or keeping him in farm work, now for farmers with better incomes the choice is between sending a son and daughter to a village or district school or to Kathmandu and an English boarding school. Farmers also know that it all requires money and they need to earn that money. If the means are there, and if one shows them a better way of farming to earn more income, and if they are sure that they and their families will be the beneficiaries of that income,

seldom will one ever find the Nepalese farmer refusing that opportunity, and turning to his old unproductive practices and considering his life a fait accompli. District performance figures support these statements.

The exodus of farm boys to enlist in foreign armed forces, the millions of farm terraces carved by hand in the steep hills overlooking the formidable chains of mountains, the toil of Tarai farmers in the damp jungles bear evidence of the hard work of Nepalese farmers - not only to earn a subsistence for their families but also to provide a living for those who resided in palatial buildings and, in addition, to build such buildings. They would certainly have liked to provide a shelter for their family in a stone or brick-built house instead of in a thatched hut.

If the situation is such that the farmer is uncertain about the outcome of an extra input but is certain that the additional benefit will go to someone else, whereas if there is a loss only he and his family will suffer it and if he also knows that his and his family's very existence on the farm is uncertain, he had better be a "conservative" than a "progressive" farmer. Only the farmer who operates on a subsistence level knows how substantially high is the marginal utility of a rupee lost and that of a rupee gained under these circumstances.

The reason agriculture failed to achieve its target and the Nepalese farmer did not produce seem to lie in the fact that 1) the situation of tenant-at-will, rack-renting, usurious money lending, and small size of holding and non-contiguous tiny parcels of land leave him with little incentive; 2) the lack of tested knowledge regarding better farm practices and the lack of facility to procure them, even if they were available and 3) the lack of capital to own a farm, to bring water into the field and to improve the farmland, and the lack of capital to buy better inputs, deny him the opportunity to farm in a better manner.

1. Since nearly 60 percent of the farms or about 40 percent of the cultivated land is operated by tenants (excluding the manager-run farms) and the tenants bear all the cost of production but receive only 50 percent of the produce, the total production of agriculture in Nepal is bound to be less than the "optimum" level of owner-operated farms. Professor Heady maintains that "an industry composed of tenants would have a supply function to the left of that for an industry composed of owners" (17 p. 588).

Using Heady's illustrations (17 pp. 507-588) one can examine the effects of tenancy and the production level for tenant- and owner-run farms.

The owner-operator maximizes his profit when the marginal product is equal to the factor/product price ratio for

for each resource. A tenant maximizes his profit by equating the share of marginal product he receives to the factor/product price ratio multiplied by the proportion of input cost he furnishes.

If rents are fixed at $1 - r$ proportion of product for landlord and r proportion for tenant, while the tenant furnishes s proportion of the input x_1 , the tenant profit is maximized when:

$$r \frac{\partial y}{\partial x_1} = s \frac{P_{x_1}}{P_y}$$

$$\frac{\partial y}{\partial x_1} = \frac{s}{r} \cdot \frac{P_{x_1}}{P_y}$$

Since in Nepal the tenant has $r = 0.5$ and $s = 1$, we have the ratio $sr^{-1} = 2$. This means that the marginal productivity of the i^{th} nonland resource for the Nepalese tenant must be twice that for the owner for maximum tenant profit. Under this situation the Nepalese tenant can double the marginal productivity of the resource, given a production function identical to that of the owner-cultivator, by decreasing the input of the resources rather than by increasing them.

If all the farms were operated by tenants under the present rental system, the total production of agriculture in Nepal would more likely be less than it has been. Conversely,

productivity in agriculture in Nepal can be increased more than it is today if: a) all tenants are made owner-operators, or b) rents are reduced substantially, or c) landlords are made to bear an equal proportion of the cost of additional input.

The performance of farmers in the Kathmandu Valley lends support to these assertions. The rents in the Kathmandu Valley are fixed at an absolute amount, which is, on an average, 25 percent of the produce; in the rest of Nepal it is 50 percent (there are only negligible exceptions). The tenants of the Kathmandu Valley can use an input (e.g. fertilizer of up to two-thirds times more than that of the rest of the tenants, other things being equal). That, in fact, has been done. The Kathmandu Valley uses more than 70 percent of the total chemical fertilizers used in Nepal, in spite of higher prices of fertilizer in the Kathmandu Valley as compared to the prices in the Tarai.

2. The nature and the size of the farm holdings are other factors that have caused Nepalese agriculture to fail to achieve the target. The sample survey of the National Agricultural Census, 1961-62 (32), shows that the average size of holding for the country as a whole came to about 1.1 hectares. Nearly 46 percent of the households, cultivating nearly 50 percent of the total cultivated land were between 0.5 to 3.0 hectares. The remaining 8 percent of the total

households were more than 3 hectares in size and occupied as much as 39 percent of the total cultivated land. This shows that 92 percent of the total agricultural households had 61 percent of the total cultivated land, whereas 8 percent of the households had 39 percent of the total cultivated land.

A survey conducted in the selected agricultural areas in 1964-65 by the Ministry of Economic Planning and the Tribhuwan University (36) also came up with similar information, which is presented in Table 33.

In the Hills as much as 83 percent of the households in the selected areas were less than 0.5 hectares. In the Western Tarai 66 percent of the households in the selected areas were larger than 4 hectares. On the whole, the Hills had much smaller holdings (6 percent of the households were less than 1 hectare) followed by the Valley.

Regarding the number of parcels of land cultivated by a household and the size of the parcels of land, it was mentioned earlier that the number of parcels of land varies from two to ten and the area of parcel or the average size of the plot was 0.09 for the Tarai and 0.068 hectares for the Hills.

The number of parcels of land in five districts selected from the Hills and Valley of the Tarai are shown in Table 34.

The percentage of households possessing one parcel of land is higher in the Hill districts (Dhankuta and Gulmi) and

Table 33. Number of households by size of holdings and by regions^a

Regions	Size in hectares					Total
	0.5	0.5 - 1.0	1.0 - 2.0	2.0 - 4.0	4.0	
Hills	350 (83) ^b	57 (13)	14 (3)	1 (1)	0 (0)	422 (100)
Eastern Tarai	52 (15)	69 (17)	117 (29)	92 (23)	70 (18)	400 (100)
Western Tarai	6 (1)	26 (6)	41 (9)	77 (18)	285 (66)	435 (100)
Central, Inner Tarai	15 (4)	28 (1)	76 (18)	164 (39)	136 (32)	419 (100)
Valley	207 (52)	120 (30)	65 (16)	7 (2)	1 (-)	400 (100)
Total	630 (30)	300 (15)	313 (15)	341 (17)	492 (23)	2076 (100)

^a
(36).

^b
Figures in parentheses indicate the proportion of households in a respective size-group.

Table 34. Proportion of households according to the number of land parcels held in selected districts in 1961-62^a

Districts	Number of parcels of land						Total
	1	2	3 - 5	6 - 9	10 - 14	14	
Dhankuta	15.70	21.90	39.90	16.50	4.70	1.30	100.00
Jhapa	5.02	31.38	46.44	11.04	4.19	1.93	100.00
Kathmandu	20.29	12.10	30.58	24.04	10.06	2.92	100.00
Gulmi	16.76	16.17	35.97	20.06	7.76	3.27	100.00
Banke	1.80	7.30	29.50	38.70	17.40	5.30	100.00

^a
(32).

highest among the group in Kathmandu. The average size of holdings, less than 0.5 hectares, also indicates the pressure of population on the land in these districts.

The majority of the farmers in all the five districts had between 3 - 9 parcels of land. In Dhankuta, 6 percent of the households had more than 10 parcels; in Gulmi, more than 11 percent; in Banke about 22 percent; in Jhapa, 6 percent; and in Kathmandu, 13 percent.

The parcelling and fragmentation of land holdings into noncontiguous tracts tend to preclude the use of many improved technologies which could yield economies of scale and proportionality. This, of course, depends on the stage of development. For instance, in the case studies, Bhaktpur has the smallest average size of holdings and the smallest size of land parcels, but at present it is also one of the districts which has the highest per unit land productivity in Nepal. If one tries to establish the relationship of productivity with the size of holdings or parcels from this information one may say that productivity is not affected by the size of holding. Given all the facilities that Bhatkpur has, one might as well ask, "Would not Bhaktpur have had a greater increase in production than it now has if the size of holdings were bigger and less noncontiguous?" No precise answer can be provided at this stage. Meanwhile, with the increase in cropping intensity and with the introduction of new

varieties of wheat and rice which require more labor, especially in threshing, the farmers of Bhaktpur have felt the need for a mechanical thresher. They have also found that even the smallest possible thresher is big when compared to the size of their harvest.

Historically, increased productivity in agriculture, especially in the Western countries, is associated with the increase in the size of holding since this makes it possible to employ more effective methods of production and improve the technical efficiency of fixed capital. The experience in countries like Japan and Taiwan shows that productivity could be raised manyfold without any significant enlargement of farm size. In these countries the small size of farms has been in a way compensated for by a high multiple-cropping system (5, 81).

In the Western Countries, Japan, and Taiwan, farm size and productivity are measured under different contexts. Farm size in Japan and Taiwan is measured in terms of a single input; the land and productivity are also measured on the same basis. In the Western Countries productivity is measured in terms of land, labor and capital, all as variables. The conclusions derived from the experiences of Japan or Taiwan (similar conclusions may be drawn from the Bhaktpur case in Nepal) may be misleading under different conditions.

Under certain conditions the small size of holding or scattered holdings may also help increase production by necessitating, if pressure of population rises, intensive cultivation and, in case of scattered holding, by providing a sort of built-in insurance against hazards and uncertainty. Such considerations are more likely to be sustained essentially in a static sense. As long as farmers have no choice other than concentrating on the use of traditional factors of production, the size of holding per se may not have an appreciable effect on productivity. But once the process of development is introduced, this implies that changes will occur in the resource and product mixes. And for such changes to occur, the unit of operation must be above that of the minimum threshold.

Comparing the average size of a farm with those of other Asian countries, Nepal has slightly larger holdings than Mainland China, Japan and South Korea, but smaller holdings than other countries. (Table 35). Although the Tarai region has relatively large farms, the Hills have an average size per farm household of less than 0.5 hectare. For Nepal as a whole, 46 percent of the total farm households have less than 0.5 hectares. The agrarian reform programs implemented during the Third Plan, although making a breakthrough, are far from providing a satisfactory impact on the economy. No

program has been initiated regarding the economic size of holdings or regarding the problem of fragmented and noncontiguous holdings.

Table 35. Average cultivated area per farm household in Asian countries^a

Country	Year	Av. cultivated area per farm household ha.
Nepal	1961-62	1.105
Burma	1938-39	3.520
China (main)	1956	0.920
India	1954-55	2.307
Japan	1960	0.884
Korea (South)	1960	0.874
Pakistan	1956-57	3.769
Taiwan	1960	1.106

^a For other countries (54 p. 213).

3. The provision of credit and modern input supply, as explained in the preceding chapter, has not made any headway into the rural areas. Apart from the lack of proven varieties of better seeds, the dissemination of knowledge of better farm management practices and the general agricultural extension service and research activities, and new credit institutions are still entrenched in administrative inefficiencies and in organizational wrangles. The cooperatives envisaged as a vehicle to carry credit and distribution

functions into the rural areas have emerged as a failure. Market structures, the distribution system, and the sectoral market interdependence have not shown signs of improvements.

Investments in agriculture, either through the private sector or public sector, have not moved to the extent of expectation. Progress in irrigation and water management is lagging behind; only 11 percent of the total cultivated area is irrigated. Much of the chemical fertilizers has not moved out of the godowns.¹

The gap in the performance of the economy lends support to the earlier proposition that agriculture is the core component in the development system in Nepal and its development must therefore be considered in the context of the overall economy. It also shows that agricultural production can be increased and it can make substantial contributions to the overall growth, if the persistent problems and the inherent obstacles that are present in the system are remedied.

¹
The sale of chemical fertilizers in Nepal, 1963-64 to 1968-69 (nutrients in metric ton)^a

<u>Year</u>	<u>N</u>	<u>P O</u> <u>2 5</u>	<u>K O</u> <u>2</u>	<u>Total</u>
1963-64	345	90	24	459
1964-65	370	180	42	592
1965-66	342	90	12	444
1966-67	1,070	276	104	1,450
1967-68	1,839	728	167	2,734
1968-69	3,050	900	225	4,175

^a
(45, 48).

The policy implications of these observations and findings may be briefly restated. Since the major policy objectives of economic development are to increase per capita real income and to provide social justice, these objectives may be specified as: (1) maximization of products (income), and (2) optimization of the distribution of income.

To accomplish these, the process of economic development implies that the traditional self-contained type of economy moves toward the modern exchange economy where sectoral interdependence gets reinforced through outflow and inflow of products and resources - between and among the sectors. The implications of moving toward the modern exchange economy are that the conditions must be made consistent in the policy framework to satisfy the minimax concept of allocating and utilizing the factors of production in such a manner that their costs are minimum, or if the cost given, the production is maximum, producing that output which will equalize the marginal social cost to the marginal social returns.

It follows then that, conceptually, the farm, the unit of production, needs to be viewed in the context of a business firm in the Hicksian sense. This is possible only if the structures, economic as well as institutional, allow for a perfect association of cost and benefit. With the economic and institutional control over his unit of production, the farmer (the decision maker) would have greater flexibility

in choosing the production plan, in a dynamic sense, so that it would bring him a greater positive value of flow of services (satisfaction). Then - in the context of decision making - land, labor and capital can become dependent variables (the degree of dependence depending on the stage of development), and given the competitive nature of agricultural industry, the consideration of profit maximization would lead to efficient configuration of resources.

With this sketch as a premise for development policy implication, which is the subject for the next chapter, the failure of Nepalese agriculture to meet the target may be briefly summarized as follows:

The economy predominantly traditional agriculture with little support from the modern sector, suffers from the problems of land tenancy, market structures, labor redundancy, lack of modern technical knowledge, and capital inefficiency. The problems are related to incentives, knowledge and capital, which were earlier characterized as "structural traps" and have hindered the growth of the total economy.

The disassociation of benefit from cost that is brought about by the prevailing tenancy and marketing systems is the "incentive trap" of a technical nature.

The lack of proven varieties of better seeds, of information regarding improved farm practices, cropping patterns and production techniques suitable to the different

agro-climatic regions of the country, and the inefficient communication facilities to disseminate the knowledge of better farm management practices provide for the "knowledge trap."

High fixed costs associated with the land that prevent a tenant from becoming an owner, high fixed costs associated with irrigation and water management, land improvement and drainage, and financing and credit for purchasable inputs are "capital traps."

CHAPTER VI. IMPLICATIONS FOR DEVELOPING THE
FOURTH PLAN (1970-71 - 1974-75)

The analyses in the preceding chapters have shown that the current tempo of economic activity in Nepal is insufficient to meet the economic objectives of bringing about significant improvements in the productivity and living standards of the people. The achievements in the Third Plan may well fall short of the targeted growth by 40 to 50 percent. It was also seen that agriculture formed the key component in the development process and the lag of growth in this sector held back the total economy.

In an attempt to identify and appraise the causes for the slow rate of growth in the agricultural sector, three hypotheses - the delimiting, the diagnostic, and the remedial - were advanced and verified to the extent that available data permitted. The preceding chapter dealt with the first two types of hypotheses with the objective of examining the performance vis-a-vis the target and identifying and appraising the elements that hindered or contributed to the growth of the economy. Some of the failure elements identified and examined were 1) the failure to integrate agricultural development as a core component into the process of overall development; 2) the failure to improve the agrarian structures: high rents, insecure tenancy, inefficient organizations for credit and

and factor and product distribution, especially at the village level; slow progress in agricultural research; 3) the failure to improve upon the extension service; and 4) the lack of investment in irrigation, water management and land improvement.

In the districts where these failure elements were diminishing, success in the development of agriculture had moved at a satisfactory rate (e.g. the Kathmandu Valley). The success element in developing agriculture in the rest of the districts lies, therefore, in the reform of the structures (as identified above) that have proved a hindrance. The present chapter suggests modifications and to strengthen success elements in the development process, especially in developing the Fourth Plan, with emphasis on the agricultural sector. Implications for developing the Fourth Plan are presented in terms of the national economy, size and structure of the Plan, modifications for agricultural development and modifications in agrarian structures.

The National Economy

The development Plans in retrospect Nepal's efforts at development planning in the last fifteen years have included both successes and failures. In examining the successes and failures in the development process, no deliberate attempt is made in the present study to make a comparative evaluation. The areas of successes are new while the areas of failures

have been entrenched in the system for over a century. With this fact in mind, an examination of the performance of the development process in the last fifteen years provide reasons to be optimistic regarding the future growth in the economy and the prospects for development in Nepal.

Such optimism springs from the realization among the people of their dissatisfaction with the status quo and the awareness of the failures in the areas of development - better institutions, better organizations, and better ways of development. This phenomenon has put the people in search for effective ways of development - better institutions, better organizations, and better ways of production and distribution. The impression given by an examination of the economic development of Nepal is that the country is undergoing the process of experimentation - political, social and economic. There are, therefore, a large number of factors to be brought under control before a dynamic growth process can be initiated in the economy to engender a visible impact on the living standards of the people.

The major areas of success are seen in the establishment of foundations for education and training. New skills have been acquired to use the modern inputs and the modern production practices. Institutions have been established for research and for the dissemination of new knowledge. New industries have been introduced and industrial infrastructures

are being gradually extended. Areas in the countryside have been opened to settlement by the construction of roads and airfields. Public administration is in the process of modernization. There has been some remarkable progress in the area of public health, for instance, malaria eradication and control of major diseases such as typhoid and cholera. While these developments provide reasons to be less apprehensive concerning the future of Nepal, there is little room for complacency. There is yet a long way to go to put these development processes into practice.

The most striking failure in the development efforts in Nepal has been the failure in the planning process itself. Apart from the weaknesses in the Government organization and the techniques in planning, the determination and commitment from the Government and its leaders is sadly lacking. The planning process has fallen into the disarray of experimentation because of the extreme flexibility in its design and the Government's lack of commitment and determination in the performance and implementation of specific functions.

Dr. Devendra Raj Pandey, under-secretary in the Ministry of Economic Planning, observes: "An examination of our experience so far indicates a practice of putting greater emphasis upon creating elaborate structures than upon functional compliance. The structural emphasis has been both the cause and effect of our apparent illusion that establishment and

continuation of a central planning organization of one kind or another alone will ensure effective planning. . . . The planners in Nepal will have to eat their pride and accept the fact that, except for brief intervals, there has been little planning as such in Nepal" (83).

Development planning still continues to be a rather elusive concept in Nepal. The aggregate national plans have been drafted and promulgated, but in terms of policy changes and execution of programs they have had little impact. Despite the existence of the formal plans, development planning has not yet resulted in a determined national commitment, functioning to accelerate economic development through rational and coordinated policies and programs. It is surprising, therefore, to find that some growth took place¹ even under such conditions.

There is no doubt awareness of disappointing performance; however, much of the self-criticism has not been pushed through to the cores of the problems that have hindered the development planning. Instead it has fallen back on modifications of the structure, which have turned out so far to be a proliferate breeder of organizations - commissions, committees,

1

In a period of fifteen years (from 1955 to 1969), the planning organization was reconstituted eight times and the planning secretariat (ministry) was headed by nine different secretaries.

departments and so forth - rather than an effective performer of a committed task. Planning has thus been misconceived as merely having symbolic status. The least consideration has been given to its functions and realistic capabilities.

Similar is the case with the executive branches or the ministries of the Government. The Ministry of Agriculture is such a case in point. It has passed through the spate of eight or nine organizational experimentations in the past fifteen years. Except for changing the legal pad of the Ministry, it has had little impact on policy formulation, investment programming or the implementation required for the resurgence of the agricultural sector - pointing to such critical areas of action as agrarian reforms, extension service, research, credit and overhead capital to enhance agricultural productivity.

A development policy in agriculture is conspicuous by its absence in program formulation. The agricultural development policy is said to have placed emphasis upon "an integrated development program based upon specific objectives rather than piecemeal projects and programs" (31 p. 27). This has in essence resulted in the proliferation of organizations and committees, which were noted in Chapter IV. New ideas and concepts were visualized and put into practice, but there was little consideration for their execution or implementation. The striking example is the Compulsory Savings Scheme. Noble ideas were invented or borrowed and applied without due

consideration to the local situation and the realities of the rural areas. The result is a failure, e.g. the cooperatives. Similarly, in the implementation of the programs, rules, procedures and guidelines are specified, job descriptions and activities are written down and circulated, but disciplines to follow through are seldom maintained. Such is the case with the Coordinated Agricultural Development Program.

These happenings have led many to believe incorrectly that a list of activities by itself constitutes progress. Activities are not interpreted in terms of their actual achievement but, rather, are confused with their stated function. This has misled some of the people into becoming complacent about the development efforts. Such instances abound. Village development programs in the First Plan ended with the establishment of 55 village development centers at the cost of Rs. 26.7 million, the second highest amount of investment made on any activity in the Plan. It was no doubt a remarkable accomplishment to establish 55 centers exceeding the Plan target of 48 centers. But it did not take long to find out that although the community development approach through village centers may have been good for other countries, it was no good for Nepal. The remains of village development activities are seen in the ruins of buildings and offices built up to the plinth level and abandoned in places like Janakpur, and in the unused equipment and machinery dumped as useless in several places.

Agriculture experienced another flurry of activities in the Second Plan and in the first two years of the Third Plan in establishing agriculture experiment stations. Agricultural research farms and research stations were opened and abandoned or neglected (e.g. Dhankuta, Jiri, Pokhara and Doti). Campaigns were launched to increase production, such as to grow more rice, grow more wheat, grow more corn, grow kitchen gardens, and so forth. The most discernible aftermath of these campaigns was the formation of the Coordinated Agricultural Development Program, which suffers from the lack of coordination. Similar was the case with the minor irrigation campaign. Its only impact was the virtual paralysis of the Irrigation Department and the breakdown of the irrigation program. More than 80 percent of the technicians of the Irrigation Department were involved in the campaign with a detrimental effect on the major irrigation programs. The minor irrigation campaign did satisfy the political purpose of distributing funds to the various districts, but it could not serve the purpose of bringing water into the farmers' fields.

The failure of these programs indicates that although the concept of experimentation and the pilot project was understood, it was not sufficiently practiced to provide meaningful information and training for the personnel responsible for carrying out these programs on a national scale - the main reason for the failure of the national level programs.

The obvious lesson is that no matter how noble the ideas may appear and no matter whosoever initiates such ideas, they must be tested properly and the techniques to implement them must be mastered before they are successfully carried out at a national scale. The success of the Fourth Plan, which will have to achieve a much higher rate of growth to make up for the shortage of the rate of growth in the Third Plan, very much depends upon the avoidance of such mistakes.

The national growth target Nepal has set a long-term target of doubling the national income in fifteen years and of increasing per capita real income by 62 percent by 1980. The target for 1965-70 was set to increase the per capita real income by 9.0 percent. The performance in the first four years of the Third Plan shows that the annual growth in the per capita income has been only 0.9 percent, as against the annual target of 1.8 percent. The population is estimated to have increased by 2.1 to 2.2 percent during the Third Plan while the projected estimate was 2.0 percent. Making allowances for the gap in growth during the Third Plan and the increase in population, the annual aggregate growth between 1970-71 and 1974-75 will have to be 6 percent and the per capita income will have to increase by 3.7, assuming that the population does not increase by more than 2.3 percent, if the long-term target is to be achieved.

The rapid increase in population has been another crucial factor holding back the gain in per capita income. As shown earlier, the aggregate annual growth in the economy was 3 percent, which is about 21 percent lower than the targeted growth rate of 3.8 percent. But in terms of per capita growth it was only 50 percent of the target (0.9 percent against the target of 1.8 percent).

If the present trend in the population growth is not checked, it is more than likely that the population growth rate will reach 2.4 percent before 1980. It is also equally likely that, if substantial improvements are not made in the economy, the present rate of aggregate growth in the economy may not be able to go beyond a 4.0 percent level. This means that there will be only 1.6 percent annual per capita income growth. If this happens, it will require 43 years to double the national income from its present level and by then, the population will have increased almost threefold. On the other hand, if Nepal succeeds in keeping the population stationary, even a 5.0 percent increase in aggregate national income would double the per capita income in about twelve years.

The demographic pattern With the malaria almost eradicated typhoid, cholera and smallpox controlled, and the gradual improvements in the public health services, the crude death rate from its early 1960 level of 29 per thousand is estimated to decrease to 19 per thousand by 1975. This could

easily reduce further to 12 or 14 per thousand in a matter of five or six years. The data in Table 36 show that the percentage decrease in the crude birth rate may be in aggregate 6.6 percent in a period of fifteen years; the percentage decrease in the crude death rate could move to to 34 percent and the population growth could increase by 43.7 percent. This has happened in other countries. In Ceylon, the death rate was reduced from 22 per thousand to 12 per thousand in just seven years from 1945 to 1952, after malaria was wiped out. It took seventy years for England and Wales to achieve such a fall (72 p. 31).

Nepal is among those countries that have high child mortality. In 1961, the ratio of young (less than 15 years of age) to the 15-59 age-group was 0.70. The present birth rate of 44 per thousand is at its limit of natural fecundity. It was only due to the high death rate (29 per thousand in 1961) that the growth rate was held to 1.6 in the early 1960's.

Since children become the first victims of malaria and epidemic diseases, the control of these diseases also brings about a sudden change in the infant mortality. Without a corresponding change in the birth rate, the result could be a rapid shift in age distribution in population toward younger ages (see Table 36). The increase in the number of children also means a sudden increase in the number of demanders, while the proportion of working-age population is diminished.

The proportion of working ages (15 to 59) will decrease from 55.7 percent in 1961 to 51.6 percent in 1975 in the projection shown in Table 36.

If the birth rate does not decline and the infant mortality goes on diminishing, with the expansion of the longevity of the working-age group, it will be difficult to increase per capita growth. A consistently declining proportion of the population of working age will have to support the constantly increasing proportion of non-working age. This will leave little resources to spare for investment. In addition, the increase in children would demand sizable increases in human investment (education, health) required for economic growth.

The slower rate of population growth would in most cases make it easier to accumulate capital in the form of productive equipment, education and health protection. A slower population growth is likely, therefore, to stimulate the growth of the total economic products and larger total production, for a more slowly growing population means more rapidly increasing per capita income (78 p.23).

The problem in economic development is based, therefore, both on economic and demographic factors. Professor Kenneth Boulding observes that in underdeveloped countries "inability to cope with problems of adjustment to an unprecedentedly rapid rise in population and in the proportion of the young

Table 36. Actual and projected demographic patterns of Nepal, 1961 to 1975^a (Population in million)

Items	1961	1965	1970	1975
A. <u>Total population</u>	9.39	10.0	10.97	12.23
Male	4.62	4.95	5.47	6.11
Female	4.77	5.05	5.50	6.12
Birth/1,000	45	45	44	42
Death/1,000	29	28	23	19
Growth/1,000	16	17	21	23
B. <u>Age-group</u>				
Less than 5 years	1.25	1.42	1.81	2.18
5 - 14 years	2.37	2.59	2.70	3.03
15 - 59 years	5.23	5.42	5.83	6.31
60 years and above	0.54	0.57	0.63	0.71
C. <u>Group ratios</u>				
Ratio of young ^b to 15 - 59 ^c	0.70	0.74	0.77	0.82
Ratio of old ^c to 15 - 59	0.10	0.10	0.11	0.11
Ratio of young and old to 15 - 59	0.80	0.84	0.88	0.93
Ratio of young to total	0.385	0.401	0.410	0.426
Ratio of 15 - 59 to total	0.557	0.542	0.532	0.516
Ratio of old to total	0.057	0.057	0.058	0.058

^a Projected from the 1961 Census (35).

^b Young include those less than 15 years of age.

^c Old include those 60 years and above.

Table 36 (Continued)

Items	1961	1965	1970	1975
D. Children of school-age (5 - 14)	2.37	2.59	2.7	3.03
E. Labor force ^d	4.30	4.57	5.04	5.68
F. Density/sq. Km.	66	71	78	86

d

Labor force includes the population between the ages 15 to 59, excluding household workers, students and the handicapped. In Nepal, nearly 78 percent of the population of the age-group 15 to 59 are estimated to be economically active. Nearly 40 percent of the female population are estimated to be economically active. The labor participation rate is estimated to increase to 46.5 percent of the total population by 1975.

people may prevent them making the transition to a developing economy" (3 p. 104).

The developed countries in the West and Japan made rapid economic development when population growth was low - around 1 percent. In these countries large populations have grown up after and as a consequence of economic development (61 pp. 34-46). In Nepal, it has been the reverse. The population growth is outstripping the economic growth. This makes development very much dependent on the decrease in population growth. If the rate of increase in population is not slowed down, even the best economic efforts will become nullified.

The problem of employment The available information is not sufficient to examine the magnitude and nature of the current unemployment level. The Third Plan has not set the target for employment, apparently due to the inherent difficulties associated with estimating the employment level. The current unemployment level (i.e. the people openly unemployed who are actively looking for work at the going rates and employment conditions) may be estimated at 15 percent of the total labor force.¹ If the partially or disguisedly unemployed are also included, this figure would go considerably higher, because of the existence of a large number of household enterprises where each individual's job is hardly defined.

¹This is estimated by using the sample survey data on labor mobilization, which had estimated 48 percent of the agricultural labor force to be "surplus" (39). In the present estimate, those who do not look for employment at the going rates or employment conditions are excluded, e.g. the landlord class.

An examination of the demographic pattern and estimates (Table 36) indicates that in 1962, 0.420 million children were born and the population increased by 0.15 million people. In 1971, 0.483 million children will be born and the population will increase by 0.230 million people, as compared to the 1970 level. This shows a considerable rate of increase in dependents. If the young people (less than 15 years of age) and the old (60 years and above) are grouped as dependents, the ratio of dependent to working age (15 to 59 years) will increase from the level of 0.80 in 1961 to 0.88 in 1970, 0.93 in 1975. This implies that along with the problem of providing more job opportunities for a larger number of people, there will also be the problem of providing higher real wages to the laborer as the number of dependents will be larger in the subsequent years.

It was mentioned in Chapter II that in 1964-65 there were 4.56 million people in the labor force and 4.10 million of them were in the agricultural sector. In 1968-69, 5.03 million people were in the labor force, out of which 4.34 million were in the agricultural sector. Assuming that 15 percent of the labor force is unemployed and that the increased production activities in agriculture envisaged during the Fourth Plan will provide employment for the estimated backlog of unemployed labor force, the additional labor force brought about by the natural growth in population need to be provided with jobs outside of agriculture.

The total labor force for 1974-75 is estimated at 5.68 million. In 1974-75, to keep the number of the labor force in the agricultural sector the same as that of 1968-69 (4.34 million), there will be 0.65 million additional laborers that may need additional jobs outside of the agricultural sector. This is nearly three times more than was achieved during the Third Plan. (The number of labor force in the non-agricultural sector increased from 0.46 million in 1964-65 to 0.69 million in 1968-69). If this is achieved, then 76.4 percent of the total labor force will be engaged in the agricultural sector, as against the 86.3 percent in 1968-69 and 90.0 percent in 1964-65.

A shift in employment of this magnitude is required to increase the degree of labor utilization in agriculture. However, it may be difficult to provide new jobs in the non-agriculture sector to attract rural labor, unless there is a prospect of a significant differential output per worker in the non-agriculture sector, which would need to provide employment for as many as 0.65 million additional people during the Fourth Plan. An examination of the past trend in employment shift indicates that it may be possible to cause a transfer of labor from the agricultural to the non-agricultural sector to the extent of 6 to 7 percent. If this is achieved, then there will be about a 4.5 million labor force in the agricultural sector by 1974-75.

The Size and Structure of the Fourth Plan

The considerations of the required rate of growth, demographic patterns and the problem of employment underline the necessity that the size of the Fourth Plan will have to be substantially high. There appears also the need for changing the structure in the Plan so as to make the agriculture sector a contributor to the growth by removing the drag it has had in the growth of the economy.

The estimated size and structure of the Fourth Plan in terms of investment to achieve the required rate of an aggregate growth of 6 percent per annum is presented in Table 37.

Table 37. The GDP estimate and the investment requirement in the Fourth Plan by major sectors (Rs. in million)

Sectors	Projected GDP in 1969-70	Targeted GDP 1974-75	MCOR ^a	Total investment
Agriculture and forestry	4551 (65)	5620 (60)	2.0	2138 (27.0)
Transport, power, communication	420 (6)	749 (8)	8.0	2632 (33.3)
Manufacturing, trade, tourism	1611 (23)	2342 (25)	2.2	1608 (20.2)
Social services	<u>420 (6)</u>	<u>656 (7)</u>	<u>6.6</u>	<u>1557 (19.5)</u>
Total	7002 (100)	9367 (100)	3.3	7935 (100.0)

^a Marginal Capital Output Ratio.

The estimates of the GDP target for 1974-75 are calculated on the basis of a 6 percent annual aggregate growth for each intervening year. The sector contribution to GDP is calculated under the assumption that only about 79 percent of the total labor force will be engaged in the agricultural sector and the remaining 21 percent will be in the non-agricultural sector (transport, power, and communication 10 percent, manufacturing and trade 6 percent and services 5 percent), and the per worker product ratio of the agricultural to the non-agricultural will be 0.42. This ratio is slightly higher than the ratio observed in the Third Plan. This is due to the envisaged larger percentage of shift of the labor force from the agricultural sector to the non-agricultural sector.

The marginal capital output ratio (MCOR) is based on the estimates made by Dr. Bhekh Thapa (100). The MCOR was arrived at by "relating the average increment of capital to the average increment of the GDP" (100 p.30). Estimates are not available to calculate the actual incremental change in GDP on a year-to-year basis and to relate this to the incremental change in the capital outlay. Besides, the estimates of the private sector investors are not available. The total investment outlay shown for the agricultural sector reflects mostly the monetized part of the investment. The non-monetized investment may be as high as 12 - 14 percent. The investment outlay shown for

the agricultural sector is mainly of a capital nature, hence the higher MCOR.

It may appear at the outset an impossible task to provide an outlay of Rs. 7935 million in the Fourth Plan, which is about three times larger than the Third Plan. If the past trends of development outlay were considered, the proposed size of the Fourth Plan may be within the reach. The contributions from the private and the panchayat sectors in Third Plan were estimated to be 30 percent of the total investment. Information is not available to determine the actual investment from these sectors; nevertheless, considering the activities of these sectors undertaken during the Third Plan, their contribution may have been well over 35 percent. The contributions from these sectors can be brought to the level of 40 percent during the Fourth Plan by providing incentives for private investment. The development of industrial infrastructures and the backlog of technical skill acquired during the preceding Plans will provide some multiplier effects for growth in the private sector investment.

If the contributions from the private and the panchayat sectors are brought to the 40 percent level, the total outlay for investment from the public sector will come to Rs. 4791 million. (Table 38).

Table 38. Investment outlay for the public sector and the private and panchayat sectors in in the Fourth Plan by major sectors (Rs. in million)

Sectors	Public sector	Private and panchayat sectors	Total
Agriculture and forestry	1275	863	2138
Transport, power and communication	2211	421	2632
Manufacturing, trade and tourism	496	1112	1608
Social services	779	778	1557
Total	4761	3174	7935

The contribution from the public sector to the agricultural sector is estimated at 55 percent of the total investment in this sector. This is partly due to the higher rates of investment required in irrigation and reclamation of land. In transport, power and communication the share of public sector comes to about 84 percent. This is warranted because the contribution from the private sector may be negligible and the panchayat sector can make only some investment in transport. In manufacturing and trade development, most of the burden lies in the private sector. In social services such as public health and education, the private and the panchayat sectors' contribution is estimated at 50 percent. This may

appear low, but given the fact that the Government will have to provide substantial amounts to support some institutions in the form of subsidies, and even the entire expenditure may have to be borne by the Government in activities such as family planning, the public-sector contribution should not be less.

The public sector will have to mobilize resources to the extent of Rs. 4761 million during the Fourth Plan. The total development expenditure during the Third Plan is estimated at Rs. 1830.64 million and in the Second Plan at Rs. 615.56 million. There remains substantial scope in the mobilization of internal resources. The share of the Government revenue to the GDP was 6.5 percent (in 1968-69). Dr. Bhekh Thapa estimates that internal resources could be mobilized to the extent of 13 percent in the Fourth Plan (101 p. 14). This is still a low figure compared to those of neighboring countries (see Chapter II). The other estimates by Dr. Puskar Pant (84 pp. 17-21) and Mr. T. M. Shrestha (99 pp. 24-32) indicate the possibilities of raising the investment level to 2 percent of the national income.

Assuming that the Government is determined to mobilize internal resources in the quinquennium of the Fourth Plan to the extent of 13 percent, Rs. 4958 million will be raised from the revenue (Table 39), out of which Rs. 1773 million will go for the regular budget expenditure. The rate of increase in

the regular budget during the Third Plan was on an average of 12 percent per annum. During the Fourth Plan this rate of increase will be 10 percent. Even at this slightly reduced rate of increase, the proportion of regular expenditure to the total development outlay comes to about 22 percent, and nearly 36 percent of the total revenue will be spent on regular activities or on current outlays. The proportion of regular expenditure to revenue is high.

Table 39. Estimated revenue income and regular expenditures in the Fourth Plan (Rs. in million)

Year	GDP	Revenue income	Regular expenditure	Revenue surplus
1969-70	7002	442 (6.3) ^a	232	210
1970-71	7422	574 (7.7)	256	318
1971-72	7867	747 (9.5)	283	464
1972-73	8338	917 (11.0)	317	600
1973-74	8838	1060 (12.0)	334	726
1974-75	9367	1218 (13.0)	351	867
Total		4958	1773	3185

^a The figures in parentheses are the percent of the GDP in the respective years.

The surplus from the Government revenue available for development investment will come to Rs. 3185 million. This leaves a gap of Rs. 1576 million to meet the public sector investment of Rs. 4761 million. This deficit will have to be

met through external assistance and internal borrowings. External assistance during the Third Plan was Rs. 1019 million in the form of grants. It is plausible to assume that external assistance would be available to the extent of Rs. 1576 million, if the Government is determined to mobilize internal resources. The external assistance share of the public sector investment in the Fourth Plan will be 33 percent as against 90 percent in the First Plan, 78 percent in the Second Plan and 57 percent in the Third Plan.

Doubts may be raised regarding the administrative capability of the Government to raise this amount of revenue. In absolute amounts the figure appears large, but in terms of percentage increase on a yearly basis it is not really high. There was, on the average, an increase of 21 percent per annum in Government revenue in the Third Plan. In the first year of the Fourth Plan the revenue will have to increase by about 29 percent, in the second year it will be 30 percent, in the third year it will be only 15 percent. Since the existing tax rates are low and there is enough scope to increase the revenue by changing the existing tax structure in agriculture, trade, and direct taxes, the suggested estimates of revenue are not beyond the capacity of the economy.

Secondly, questions may be raised as to the absorptive capacity of the economy to utilize large amounts of investments. The past trends show that there has been an increasingly

higher rate of investment. In the First Plan, the average investment per year was Rs. 60 million; in the Second Plan it increased to Rs. 200 million; and in the Third Plan the average was Rs. 366 million. In the Fourth Plan the yearly average will come to Rs. 952 million. The development expenditure in the last year of the Third Plan (1969-70) is estimated at Rs. 608 million. Compared to this figure, the average of Rs. 952 million may not be beyond the absorptive capacity of the economy. The experience accumulated in the past fifteen years, the growing numbers of skilled manpower, the technological improvements, and the groundwork laid in the development of infrastructures will facilitate the absorptive capacity.

The Preliminary Draft Outline of the Fourth Plan (52) published by the Government has tentatively fixed the target of growth for the Fourth Plan at 4 percent per annum. There are no total development investment estimates. However, it is indicated that the total investment in the Fourth Plan may not be much higher than in the Third Plan. The public sector investment may stay around Rs. 2000 million and the share of domestic financing may be to the extent of 26 percent, with the remaining 74 percent coming from external sources (52 p. 43). It also suggests that the Fourth Plan "should aim at creating conditions required for a higher rate of growth in the future" (52 p. 35). To achieve this, the Draft Plan

recommends earmarking a substantial proportion of the total outlay for expansion and improvement of infrastructure facilities. The agricultural sector is accorded top priority for the reason, among other things, that it has a low capital coefficient and short gestation period, which may compensate to a large extent for the low rate of growth from investment in transportation and other overhead facilities.

If a 4 percent rate of growth is accepted, then the long-term target of growth must be discarded and Nepal must be contented with the lower rate of per capita income of about 1.7 percent annually, which is about the same as that of the Third Plan target. To achieve this rate of growth, the total investment would come to about Rs. 4851 million, assuming the average marginal capital output ratio of 3.3. It will not be possible to lower the ratio, if the objective of creating conditions for a higher rate of future growth is to be achieved. The public sector investment in the agricultural sector will be essentially of a capital nature (e.g. irrigation, land improvement, research, and training). It is not possible to have a low capital coefficient even in agriculture when there is a lack of basic overhead facilities.

The analysis of the past performance and the consideration of the capacity of the economy to save and invest indicate that it is possible for Nepal to operate and execute a development plan three times larger than the Third Plan in

1970-71 and 1974-75 and achieve a rate of growth of 6 percent per annum. The estimates presented are, of course, not so much a prediction of what will necessarily occur as they are an effort to show what must happen (and is possible) if Nepal plans to achieve a sustained growth in the economy. The essential ingredient to make this happen lies in the political leadership and depends on how effective, willing, and able the leaders are to take the action necessary to achieve the targeted growth. It also depends on whether or not those who have the effective will and knowledge also have the power to effect such actions. Professor Malenbaum observes, on the basis of the recent experience in developing countries, that". . . it seems unlikely that the economic case - however logical - will in itself prompt action; it is political factor which must take the lead" (65 p. 57). The choice is the continuation of poverty or making a dynamic, really strong effort to develop the economy.

Modifications for Agricultural Development

The experiences of the past development efforts have demonstrated that the pace of development in agriculture sets the limit for the development and growth of the economy in Nepal. Agricultural production can be enhanced, it was shown, if conditions necessary for increased production are provided. The farmers responded enthusiastically to improved farm

practices. In the areas with facilities for higher production, the farmers used high-yielding seeds and fertilizers. The total increase in aggregate production was not very significant only because many areas lack the necessary conditions for increased production.

The districts where agrarian structures were improved have experienced tremendous boosts in production. This has made abundantly clear the fact that improvement in the existing agrarian structures is a necessary condition for increasing production. The creation of conditions necessary for sustained growth in agriculture is therefore basic to the approach in the Fourth Plan, for the success of the Fourth Plan depends heavily on the performance of agriculture.

The production target The targets estimated for the Fourth Plan suggest that the agricultural sector will have to contribute 60 percent of the total GDP. This means that the GDP from this sector will be Rs. 5620 million in 1974-75, a 23.5 increase over the 1969-70 level. There will be a 4.7 percent increase in aggregate production or 2.4 percent per capita increase annually. The agricultural sector also includes forestry. However, in want of necessary information, estimates are not presented for this subsector. The production targets for various activities in agriculture, necessary for achieving the targeted rate of growth, are presented in Table 40 and Table 41.

The total food grain production target is increased from 15 percent in the Third Plan to 18.1 percent in the Fourth Plan. Among the crops, the paddy production target is increased substantially to 15 percent in the Fourth Plan as against 7.5 percent in the Third Plan. This is due to the fact that there is great potential left for increasing paddy production by increased irrigation facilities. If the new high-yielding varieties of paddy are proven successful in Nepal, there will be a tremendous scope for further increase. Corn is also increased from 7.5 percent to 13.2 percent in the Fourth Plan. There was little effort made during the Third Plan to introduce better seeds both in paddy and corn. The Fourth Plan will have to devote greater attention to these traditional crops. The target for wheat is reduced to 77.0 percent in the Fourth Plan as compared to the Third Plan. The Third Plan target for wheat and barley production was 179.5 percent and the achievement is estimated at a 90.0 percent increase over 1964-65 production. The lower target for wheat production in the Fourth Plan is due to the fact that, unlike in paddy where irrigation water can be trained relatively easily from monsoon rains, irrigation is becoming a limiting factor for winter crops. The area under wheat had substantially increased during the Third Plan wherever irrigation facilities existed.

The Third Plan target in cash crops was a 73 percent increase over 1964-65 and the achievement is estimated at about 36 percent. This target was obviously unrealistic. In addition, some of the factories such as sugar factories, envisaged in the Plan did not get started. The Fourth Plan target for cash crops is 44.0 percent. Experience indicates that it may not be possible to go higher than this. Other crops such as potato and pulses were not included in the Third Plan; they are included in the Fourth Plan.

Tea is another cash crop which has so far remained almost neglected. Even the production figures are not reported. The manufactured tea production in 1968-69 was estimated at 20,000 Kg. under the management of the Tea Development Corporation established in 1965. The tea estates in Ilam and Suktin which were planted around 1865 were prosperous and were producing good quality, high-flavored tea until the 1930's. Now Nepal imports tea worth Rs. 800 to 900 million annually from India. The flavorful and high quality tea produced in eastern Nepal may have a good demand in Europe and the U.S.A.

There was practically no progress in livestock and horticulture production during the Third Plan. The Plan did not fix production targets in these activities. Since Nepal is endowed with varying types of climate and also has difficult terrain, livestock and horticulture production demand greater attention during the Fourth Plan.

Table 40. Crop production targets for the Fourth Plan

Crops	Expected production 1969-70	Target 1974-75	Percent of change
(in .000 metric tons)			
<u>Cereal grains</u>			
Paddy	2353	2706	15.0
Corn	915	1036	13.2
Wheat	260	460	77.0
Barley	30	33	11.0
Milletts and others	120	120	-
Total	3678	4355	18.1
<u>Cash crops</u>			
Sugar cane	200.0	310.0	55.0
Jute	40.0	50.0	25.0
Oilseeds	58.0	70.0	20.7
Tobacco	7.5	10.0	33.3
Tea	-	-	-
Total	305.5	440.0	44.00
<u>Other crops</u>			
Potato	320	384	20.0
Pulses	72	87	20.8

Table 41. Meat, fish and fruit production targets for the Fourth Plan

Items	Expected production 1969-70 (metric tons)	Target 1974-75	Percent of change
Fruits	266,000	277,000	4.0
Meat ^a	54,000	71,000	32.0
Fish	560	1,040	86.0
Milk	583,000	717,000	23.0

^a Meat includes buffalo beef (40%), pork (15%), mutton (24.6%), poultry (13%), yak (7.4%).

The additional production in fruits (tropical and temperate fruits) is projected mainly on the basis of the trees planted during the Third Plan. The production from horticultural crops (tree fruits) planted in the Fourth Plan will be available only in the Fifth Plan period. To sustain the growth in horticultural production, 10,000 hectares of additional land will have to be planted with fruit trees. Information is not available to project vegetable production.

The production target for meat is estimated on the basis of the existing slaughtering animals (810,000) and the projected supply of animals available for slaughtering. In

1974-75, 1.4 million animals (buffalos, 270; hogs, 205; and sheep and goats, 665 thousand) and 7 million poultry will be required to meet the target of meat production for the Fourth Plan. Nepal presently imports about 160 thousand head of animals (mostly sheep, goats and buffalos). However, it may not be possible (by 1974-75) to reduce the import substantially and at the same time increase meat consumption by 32 percent during the Fourth Plan and thus raise the annual per capita consumption from 5.1 Kg. in 1969-70 to 5.6 Kg.

In fish production, nearly 375 metric tons is estimated to be produced from the public sector commercial fish farms established in the latter part of the Third Plan. Lake and pond fish production is estimated to increase from 410 metric tons in 1969-70 to 815 metric tons in 1974-75. There are no reliable estimates for river fish; this production may be about 250 metric tons in 1974-75. To meet the target of fish production, nearly 500 million fish fingerlings will have to be made available by 1974-75 for distribution from the government and private fish-breeding farms, as against the estimated distribution of 100 million fingerlings in 1969-70.

Presently more than 60 percent of the milk is consumed in the form of milk products (mainly as ghee - a clarified butterfat). The estimated milk production in 1969-70, if consumed as fresh milk, would provide 53 liters per capita per annum. This will be raised to 58 liters by 1974-75 if the production target is increased by 23 percent is increased by

in 1974-75 over that of 1969-70. To achieve this, the herds of milk animals, 650 and 850 thousand buffalos and cows in 1969-70, should be raised to 760 of 950 thousand buffalos and cows respectively by 1974-75, in addition to yaks, sheep and goats as milk animals (estimates are not available to make projections), or milk yield per animal should be raised to the extent of targeted additional milk production by better breeding, feeding and management.

Requirement of major inputs The development outlay for the agricultural sector in the Fourth Plan was estimated at Rs. 2138 million. The share of public sector outlay is Rs. 1275 million. The breakdown of public sector within the agricultural sector by major components will be: Agriculture, Rs. 825 million; Irrigation, Rs. 320 million; and Forestry, Rs. 130 million. The investment from the private and panchayat sectors is envisaged to come mostly for operating types of expenditures and less for capital nature investment. The public sector will therefore provide funds for overhead investment - research, extension, training, and capital investment - irrigation, water control, land reclamation, afforestation, forest fire-line construction and forest surveys.

Among the major inputs considered for the Fourth Plan are 1) additional land to be brought under irrigation; 2) new land to be cultivated; 3) use of chemical fertilizers; 4) use of improved seeds; and 5) measures for insect and disease control (Table 42)

Table 42. Estimates of major inputs for the Fourth Plan

Items	1970-71	1971-72	1972-73	1973-74	1974-75	Total
Additional area to be irrigated (ha)	30,000	40,000	53,000	40,000	45,000	208,000
New land (ha)	4,500	5,500	5,500	5,000	4,500	25,000
Fertilizers (N:P:K: 2:1:1) (m.t.)	6,800	8,000	10,500	16,000	24,000	-
Improved seeds use (ha)	250,000	375,000	525,000	700,000	750,000	-
Insect and disease control (ha)	30,000	45,000	70,000	105,000	231,000	-

Irrigation will have to be the major factor in increasing production in the Fourth Plan. Water is already becoming a critical factor for multiple cropping and for the use of chemical fertilizers and improved seeds. The Third Plan had set a target of providing water for an additional 0.221 million hectares of land - the achievement is estimated to be 0.130 million hectares. The total area under irrigation in 1969-70 is estimated at 0.208 million hectares. It is proposed to bring under irrigation 0.208 million hectares of additional land, thus making the total area under irrigation in Nepal by 1974-75 0.416 million hectares, which would be about 40 percent of the total cultivated area. The proposed target for irrigation for the Fourth Plan is less than that in the Third Plan. Experience shows that in the absence of the proper survey, feasibility and economic studies, the irrigation program in the Third Plan suffered a great deal. These problems still persist. Besides, most of the minor irrigation projects undertaken during the Third Plan will have outgrown their life-period. It is assumed that these projects will be kept at work by proper repair and maintenance. The share of contribution from irrigation to the additional production during the Fourth Plan will come to 31 percent, about the same as the Third Plan target.

In the area of reclamation of waste land and marginal forest land, the target of 25,000 hectares of land is phased

out on the basis of the experience of the Third Plan. Excepting the squatters, only about 12,000 hectares of land are estimated to have been brought under cultivation during the Third Plan through an organized resettlement program by the Government and by individuals. Apart from bringing additional land under resettlement, the Fourth Plan will have to accomplish a great deal in solving the problems of unauthorized settlers, who are estimated to have occupied more than 20,000 hectares of land and settled unscientifically.¹ This program is estimated to contribute 8 percent to the additional production.

It is also envisaged that along with bringing the new land under cultivation and providing proper facilities for those squatters who may get authorization to settle, multiple cropping will contribute about 6 percent to additional production during the Fourth Plan. Nearly 0.170 million hectares of additional area need to be brought under multiple cropping.

The Third Plan put a heavy emphasis on the use of chemical fertilizers. It envisaged raising fertilizer use from its almost zero level to providing 8 Kg. nutrients per hectare on the national aggregate level. The achievement was 2.5 Kg.

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Replying to a supplementary question in the National Panchayat, the Minister for Forestry stated that "some 80 thousand people in about 300 places had settled unscientifically, occupying about 30,000 bighas (20,400 hectares) of land." (The Rising Nepal, August 7, 1969).

nutrients per hectare. The use of chemical fertilizers was expected to contribute 33 percent to the additional production during the Third Plan. The Fourth Plan target is to use 24,000 metric tons of chemical fertilizers in terms of plant nutrients by 1974-75. Assuming the present general rate of application (30 N: 15 P₂O₅: 15K₂O Kg/ha), 0.4 million hectares of land will use chemical fertilizers in 1974-75. Fertilizer use will contribute about 28 percent to the planned additional production. The use of chemical fertilizers, on the national average, will come to 12 Kg per hectare in 1974-75.

In 1974-75, 0.75 million hectares of cropped area is planned for the use of improved (high-yielding) seeds - paddy 0.25, corn 0.16, wheat 0.20, and others, 0.14 million hectares. This is expected to contribute about 24 percent to additional production in the Fourth Plan. Nearly 30 percent of the cropped area will have used improved seeds. The Third Plan envisaged the use of improved seeds on 0.80 million hectares, and the achievement is estimated at about 0.16 hectares. The use of better seeds was expected to contribute 33 percent to additional production.

Insect and disease damages in Nepal are estimated at 12-15 percent. In addition to plant and crop damages, damage in storage may amount to 5 - 6 percent. There were no significant measures taken to facilitate crop protection measures in the Third Plan, although the Plan set a target of using plant

protection measures 0.15 million hectares of land. Crop protection measures will be provided for 0.231 million hectares by 1974-75. It may be as hard to save a quintal of crops from pests as to grow another quintal for the farmer in the absence of protective measures. And it may be much easier for the Government to provide crop protection than to provide, for example, improved seeds. Crop protection measures are expected to contribute about 3 percent to the additional production by eliminating damage from field and storage pests.

Diversification in agriculture Little is known about the possibility of diversification in agriculture except for the broad regional patterns determined by altitude and the agro-climatic conditions. Some information may be inferred from studying the existing agricultural patterns. On the basis of altitude and agro-climatic conditions, the regions may be broadly categorized as: 1) the mountain region between the altitudes of 2,700 to 4,700 meters above sea level with villages at an average altitude of 3,600 to 3,900 meters, where yak and sheep raising is the main agricultural activity; 2) the lower mountain region between the altitudes of 2,100 to 2,700 meters, characterized by rhododendron and pine forest, where along with livestock, potato, buckwheat, and barley are grown; 3) the hill region between 1,200 to 2,100 meters altitude, containing some of the fertile valleys, with mixed agriculture - livestock, horticulture, potato, corn, wheat, millet

and rice cultivation; 4) the lower hill region between the altitudes of 600 and 1,200 meters with several valleys and river basins where crop farming (rice, corn, wheat, potato, sugar cane) and fruit-growing are practiced; and 5) the Tarai region between the altitude of 125 to 600 meters (inner Tarai), a fertile plain area which has tropical agriculture.

No possible modification in the existing pattern of agriculture can be planned in the absence of sufficient information about the regions. Efforts should be confined primarily to collecting information about the area. It may be possible to alter the cropping pattern and the animal husbandry practices if frost and drought resistance and short-duration crops are evolved and more productive breeds of animals are found that will adapt to the conditions in the upper regions.

There may be, however, scope to diversify the cropping patterns in the lower regions (especially in the Tarai). The development Plans have mentioned "the need for diversification." The Third Plan laid emphasis on switching to cash crops (sugar cane, jute, tobacco) from the traditionally almost monoculture-pattern of rice growing in the Tarai. It was planned to increase the production of these crops by 73 percent during the Plan period. The achievement was about 36 percent. In rice, the Plan envisaged increasing production by 7.5 percent during the Plan; the achievement came to about 7.0 percent.

Information is not sufficient for examining the comparative advantages of growing different crops. The preliminary findings of a recent study¹ have raised doubts as to whether sugar cane can compete with monsoon rice and winter wheat. This may have been the reason for farmers' reluctance to grow sugar cane in the Birganj sugar-factory area until they were attracted by subsidies and the Government's raising the price of sugar cane nearly double that of previous years. The case may be similar with jute.

The crops that provide import substitutes, save convertible foreign exchange, and earn such exchange by export need to be evaluated differently. It may be wiser to devote more attention to examining the nature and extent of diversification of cropping patterns during the Fourth Plan rather than emphasizing diversification on a large scale.

Development in the Hills The development efforts carried on during the past fifteen years have been concentrated mostly in the Kathmandu Valley and the Tarai; the Hills have remained almost neglected so far. As noted earlier, two-thirds of the total people live in the Hills. This indicates that the

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The Economic Analysis and Planning Division of the Ministry of Food and Agriculture had performed the first round of study to examine the comparative advantages of growing sugar cane over rice plus wheat in Bara and Parsa in early 1969. The study is not yet complete.

development efforts carried on so far have favored only about one-third of the total population and have caused a great regional imbalance.

No doubt, agricultural development programs are difficult in the rugged mountain terrain, but they can be made successful by assigning the land to its appropriate use. The lack of infrastructures in the Hills is obviously the bottleneck for development and, therefore, priority must be accorded to developing infrastructures in the Hills. Nevertheless, it would be futile to neglect the Hills now and wait for facilities to initiate the development work.

The question, the Hills versus the Tarai in development priority, is an irrelevant question. It would be foolish, for example, to try to develop jute farms in the Hills and apple orchards in the Tarai. Both are needed and Nepal has the potential to develop both. It is true that the return on the investment in the Tarai can be obtained in a generally shorter period of time than in the Hills. This does not, however, justify neglecting two-thirds of the area of the country, nor will it be prudent to think that one-third of the area could contain the entire population. It is not necessarily true that the Hills cannot provide a living comparable to that of other areas. People have lived there for centuries. Living in the Hills has now become more difficult than before for the simple reason that the population has gone on increasing without a corresponding increase in production.

The lack of knowledge about the physical environment, the soil and the biological types adaptable to the environment is a factor that has limited development in the Hills. The agricultural experiment stations are mostly located in the Tarai. Information is not available to deal with the problems of hill-farming and high-altitude agriculture. This is one of the main shortcomings in the development of agriculture in the Hills. Many of the research findings that may be adaptable to the Tarai agriculture can be obtained from the experiences gained in the research farms across the Gangetic plains in India and Pakistan. There is little work done in high-altitude agriculture (livestock) elsewhere to draw on for information that may be suitable for the Nepalese Himalays. Since Nepal has most of its land in high altitudes, efforts must be made to develop research facilities in this area.

Several experiment stations were opened in the past fifteen years. Except for obtaining budget approval, the Central Departments seem hardly to care to know about the performance in these stations (Chapter IV). It is not so important how many experiment stations are opened and budgets earmarked for them as it is to know what they are required to do and what they are doing.

It would be a wiser and more productive use of resources to establish well managed experiment stations only in the major ecological regions of agricultural importance, with a supporting

network of substations at different altitudes for verification and testing, to determine what germplasm, skill and farming methods would work in the Hills. These stations should be able to create a viable base for research in various branches of agriculture - food and pasture crops, animal husbandry, horticulture and medicinal herbs. The present tendency of scattering experiment stations all over the administrative district units should be abandoned. Of utmost importance during the Fourth Plan is completing a natural resources survey in the Hills regarding land capability - soils, hydrological and natural vegetation.

The mountains and hills which are now apparently considered a liability and a poor choice for investment, may turn out to be assets, not only in an esthetic sense (and to promote the tourism industry) but also in economic terms. Research findings in the United States report that "It is possible to feed seven times as many people on crops consumed directly as it is on crops first consumed by livestock and converted into meat, milk and eggs" (82 p. 42). Considering the comparative advantage the Tarai has in crop production, it may be comparatively uneconomic to produce meat and milk in the Tarai. The highlands in the Hills have barren stretches of grassland, unsuitable for food crop production (by so far known methods) and vast areas of stony and poor soil and there has not as yet been a truly productive use of this land. It

may be thus more economic to shift and concentrate livestock production (meat, milk and wool) to the Hills. Similarly, all the marginal forest land suitable for agriculture in the Tarai, instead of being developed as productive forest, could be converted into crop land and the land in the steep slopes and difficult terrain could be used for forest, thus developing watershed areas for the river basins and helping to prevent soil erosion in addition to producing forest product.

The major areas of concern in the Fourth Plan to develop the Hills should be, therefore, to concentrate on research and surveys. The development in transport should have priority for opening up the best potential agricultural areas. There are areas in the Hills which can be profitably used for food-crop production by promoting the use of modern inputs, providing transport facilities. There are several valleys and river basins that may be developed further for profitable crop farming.

Modifications in the Agrarian Structures

The analyses of agricultural performance in past years have shown that the defects and maladjustments in the agrarian structures impeded the growth in this sector and that wherever such defects were corrected substantial growth took place. The agrarian structures identified as the success and failure elements were related to three conditions examined in the preceding

chapters: incentive, knowledge and capital. The analyses have made it clear that modifications in agrarian structures to remedy the defects are essential if agriculture is to achieve the targets of growth envisaged for the Fourth Plan.

The agrarian structures that require modifications in the present context are: 1) tenurial system - rent, size and nature of landholding; 2) marketing structures; 3) agricultural research and agricultural extension; 4) credit and investment.

In the context of developing peasant agriculture in countries such as Nepal, Japan's experience in modifying the agrarian structures is a case to consider. The development of Japanese peasant agriculture began mainly with three kinds of improvement in the agrarian structures: 1) land tenure reforms (70 pp. 94-95; 2) land improvement, including better irrigation and drainage facilities (54 pp. 99, 180); 3) superior seeds, increased inputs of manures and fertilizers, and better methods of cultivation (81, 55).

Japan emphasized ownership of land for the majority of tenants through the abolition of absentee ownership. The rent was set low - one-fourth of the produce, and there was genuine security of tenancy provided. The land was valued arbitrarily at a low price and repayment terms were made easy to facilitate the tenant's becoming the owner. These reforms led to the redistribution of property, income, political power and

social status in favor of those who actually tilled the land. These reforms thus provided incentives for increased production in agriculture. The basic proposition in these reforms was that "half-measures or attempts to satisfy both parties [landlords and tenants] could not bring about conditions under which those who cultivate the land would enjoy the fruit of their labor" (70 p. 95). Before the reform, 54 percent of Japan's land had been owner-operated; after the reform it was 92 percent (70 p. 98).

The Government played an important role as an investor in irrigation, land improvement and flood control throughout the long period of investment. The Government also induced the landlords to invest substantially in land.

Along with the technological advance in providing better seeds and better farm practices, the prices of rice rose pari passu, with the general price level providing incentive to improve practices of cultivation. Most of the landowners lived in the farming areas and many of them frequently acted as leaders in introducing new methods. Local and central Governments established experiment stations and extension services and provided technical and general education through the organization and support of the school system.

Population growth was low. During 1878-1917, labor productivity increased annually by 2 - 6 percent. The total population increased by 0.8 to 1.3 percent and per capita real income increased by 2 percent per annum (81 pp. 50-65).

The Japanese experiences indicate that the transition from a subsistence to a cash economy can be achieved if the incentive factor is strong enough to stimulate labor beyond the point where subsistence needs are satisfied.

As determined earlier Nepalese agriculture is characterized by low yields but high rents, a low level of technology, a low level of income, small and scattered holdings, inefficient marketing and credit facilities, poorly managed research and extension services, and little investment in land. It will require massive structural changes before agriculture can become a viable base for the growth of the economy.

Tenurial modifications The policy of making the actual tiller ultimately the direct owner of the land is basic to the improvement of the tenancy structure. This may, however, require some time before it can be effectively implemented - to enable the transfer of absentee landlords to other occupations. Meanwhile, the provisions of the Lands Act, allowing the tenant permanent inheritable tenancy rights need reinforcement in their implementation.

The lack of up-to-date land records with clear identifications of land tracts has been a serious handicap in providing genuine security of tenancy. In the absence of these records, the tenant is left without formal rights. Even in the areas where cadastral surveys were completed and the tenants were provided with tenancy certificates, evictions have taken

place. The existing procedure of deciding the case of eviction in the regular court puts the tenant, in most cases, in a disadvantageous position due to his ignorance, the time and money involved. This has encouraged the landlords to declare the tenant an agricultural laborer. Informal and disguised tenancy is growing. During the initial period of implementation of the land reform program (1965-1967), the Land Reform Officer was authorized to deal with cases of eviction or any other malpractices concerning the tenancy. This arrangement was more easily accessible to the tenant; the decision was quicker; and the cases of eviction were very few. Apparently it was too early to transfer eviction cases to the regular courts. There is a need to revert to the old arrangement and to continue it for some years - until tenants get fairly settled.

The rate of rent which is fixed at 50 percent of the principal produce is not only high but is also unscientific. In the first place, the 50 percent rate of rent precludes the use of purchased inputs such as fertilizers since the tenant has to bear all the cost. Secondly, the fixation of rent on a principal crop will tend to make the tenant try his best on the second best crop and neglect the principal crop. This will put a damper on increasing the output of the most profitable crop. This has already happened. A wise tenant would put his extra effort and resources into wheat, which is a

second crop, rather than into rice, of which he has to part with half. Unless the present rental system is modified, there will be little prospect for increasing production.

The rent should be reduced to one-third of the level of the produce, fixed once and for all at an absolute amount. This is justifiable for both the owner who provides only the land, and the tenant who provides all the costs. Once the rent is fixed at an absolute amount, the tenant will have a better incentive for investing more in farming. With the provision of permanent tenancy, he will also be encouraged to make capital investments in land, as the capitalized value of the investment may eventually accrue to him.

Under this modified rental system, with the present practices of farming, the tenant will gain, on an average, Rs. 200 per hectare extra income. Then the Government would be perfectly justified to tax the tenant a minimum of Rs. 50 per hectare, in addition to whatever general land revenue increase the Government may decide on for all the land. The landlord now pays Rs. 75 per hectare as land revenue. Any further increase in land revenue may be shifted to the tenant. If the tenant is taxed Rs. 50 per hectare, the total revenue would amount to about Rs. 24.8 million per annum, plus the general land revenue increases.

The size and nature of holdings are important in deciding the application of improved farm practices. To secure

positive increases in agricultural production, the application of improved knowledge and increased capital investment on a wide scale is necessary. These conditions are easier to obtain where land is worked and managed in fairly large units than in the form of fragmented holdings. To keep pace with the expected change in the national development and to make agriculture a growing proposition along with the other sectors of the economy, changes are necessary in the present size of holdings and the nature of discrete holdings.

To a considerable extent the present Lands Act has helped in reducing the large size of holdings by fixing a ceiling on holdings, notwithstanding some of the cases where false and malefide entries have been made in several individual's names. There is an inherent danger in the size of holdings getting decreased and the number of contiguous holdings per family increased as the customary laws of Nepal allow equal distribution of parental land among the heirs. These laws of inheritance will gain further influence once a system of land tenure and land use has been established. To arrest the deterioration in the nature and size of holding, the process of change would involve remedial as well as preventative measures. Through remedial measures, the size of holdings and the parcels of land are brought to a desirable level. The preventative measures would help maintain the level adjusted by the action of remedial measures. The present land policy of Nepal will only help

remedy the formation of large holdings. The breaking up of a large holding has a built-in process that tends to make farm size too small and uneconomic and fragment and excessively subdivide the land, if measures are not incorporated in legislation to prevent such a process. The Lands Act of Nepal lacks such measures.

It is essential, therefore, that changes be made in the present land policy and the Lands Act. The following lines of action with reference to improving and maintaining the economic size of holdings and preventing the fragmentation of holdings are suggested.

1. Legislation should be enacted to prevent subdivision and fragmentation of holdings beyond a floor limit of one hectare. (This will vary according to the regions. In the Hills, considering the present state of agriculture and employment, the floor limit on holding could be 0.25 hectares.) If the distribution of land among the heirs leads to an irrational size of holdings and fragments, they may be required to sell the land to one of the heirs and if the buyer is unable to finance such purchase, a long-term credit should be made available through the Agricultural Development Bank. Alternately, an heir could be asked to draw dividends on the share of his property or an usufructuary mortgage could be arranged for a definite period of time.

This measure would help: a) curb capital rationing and prevent the farmer who stays on the farm from paying a high

fixed cost; b) deter the speculative dealings on land; c) induce the people to look for other opportunities rather than to stick to a small piece of land; and d) filter out those who may not be really capable in farming but stay there because they inherited the land free.

(It will no doubt be difficult to apply this as a sweeping measure. This can be started with those who already are engaged in other occupations than farming, but still maintain the right to divide the land as heirs)

2. Consolidation of holding may be effected by providing exclusive rights of purchase to the immediate cultivator of an adjoining plot when the land is offered for sale. This should include the prohibition of fractional sales of farm land beyond a certain size, ss noted above.

The range between the minimum and maximum price of land should be fixed by the Government on the basis of the productivity of land. This will prevent the prices of land going too high or too low. Land prices have been increasing enormously in the past few years and thus much of the prospective farmers' capital gets tied-in to the land, with little money left for further improvements.

3. Consolidation as well as increasing the size of holdings to economic units may be enhanced by lifting the present restrictions imposed on the tenant (as ceiling on tenancy holdings of 2.67 hectares) and by allowing him to cultivate land

up to the ceiling limit allowed for owners (17 hectares), with priority given to the assumption of additional land, when such land is available, to those who are cultivating the adjacent plots. This will enable the tenants to try to rise above the bare minimum of subsistence by making more efficient use of resources - which the existing law has prevented him from doing.

4. Consolidation and increase in the size of holding for more commercialization of agriculture may be ushered in by allowing the owner-cultivator to purchase land beyond the present ceiling limit up to a maximum of 40 hectares - while maintaining the present ceiling of 17 hectares as a rule - only if such land is adjacent to the land he is cultivating. Restrictions may be set to allow him to hold his entire land, excepting homestead, in more than three parcels within a radius of 4 kilometers. This will, while encouraging consolidation, motivate the capable and enterprising people to join agriculture as a commercial venture.

The 40-hectare size of holding is recommended for making efficient use of farm machinery. The estimates in Nepal indicate that a tractor of 28-35 HP would require 40 hectares of land for its efficient use. The restriction on occupying farm land in more than three places will discourage the present practice of holding farm land in several places and making money from speculation rather than from farming.

These measures, while providing better opportunities for increased production, will not disturb social stability, nor will they adversely affect the distribution of property. The recommended increase in size will be only for those who have the capital and ability to work as farmers. Such people, presently, will be a few, and they need to be encouraged if agriculture is to play its proper role in the economic development of Nepal. This will not create an unemployment problem when the present ceiling is maintained as a general rule. These are evolutionary measures and the process has built-in guards that go on loosening along with the pace of the general economic development.

Market structures The targets for the Fourth Plan and the development activities for agriculture outlined above are based upon the premise that there will be more use of better factors of production. This can occur when producers invest more capital and effort as required and they are more likely to do so if they expect to benefit. Improved tenancy system provides incentives for additional efforts. If the better part of the additional benefit gained from an improved tenancy situation goes to the traders and/or to the consumers, it alone is not sufficient to bring forth much effort.

There has been little effort made toward building up efficiently functioning internal markets. The absence of transport and communication facilities in most parts of the country

has also hampered the development in internal markets. This situation is gradually changing. The food shortage in India had created a brisk demand and a ready market for any kind or quality of rice. Nepal had, in a sense, a sellers' market for its food grain. This is now changing toward a selective buyers' market with the increase in food grain production in the Indian states across Nepal's border. The internal market is expanding as some of the interior areas are connected by roads. There are "new products" coming into the market.

A small increase (from 15,000 to 20,000 metric tons) in wheat production, for instance, in the Kathmandu Valley in 1967-68 caused anxiety among the producers. Until recently the production of wheat was small enough for home consumption on the farm. The Kathmandu Valley being primarily a rice-consuming area, little market existed for wheat grain. Unlike in rice where there is a fairly competitive market and many buyers and small traders traveling from village to village buying rice for bigger traders, there were no small traders to collect wheat for them from the villages.

At present, consumption of wheat is increasing but the demand is for fine flour from the bakery in Kathmandu. The demand is met partly from imports of fine flour from Australia and India as there is only one flour mill in Kathmandu that produces the desired flour.

The price of wheat in Bhaktpur was reduced from Rs. 110 per quintal in 1966-67 to Rs. 88 per quintal in 1967-68 (49) while the cost of production increased from Rs. 66 to Rs. 73. The cooperative societies played a substantial role during 1966-67 in the collection of wheat. Some of the societies bought and stored the wheat at Rs. 125 per quintal. The prices later fell to Rs. 102 per quintal; the members (mostly the directors, chairmen and managers) made substantial profits although most of the societies were declared bankrupt.

These illustrations fairly represent the types of marketing problems with which the Fourth Plan will have to deal. The approach will be fourfold as follows:

1. To facilitate the creation of conditions necessary for reasonably stable prices at a remunerative level.

Timely market information and the knowledge about the market structures are prerequisites for creating such conditions. This is required both for the internal and external markets. This facility should be established during the Fourth Plan. It may be premature and the facilities inadequate for the Government to enter into a price stabilization by procurement-policy during the Fourth Plan.

2. To find satisfactory outlets for products.

To find satisfactory outlets, Nepal should prepare itself to enter into the world market. So far this kind of problem has not arisen for India is the world's largest

importer of rice and Nepal's principal export is rice. Although it is unlikely that India may be able to stop importing rice in the immediate future, it is also unlikely that Nepal can benefit much by remaining always a passive seller.

Apart from the problems of transit facilities, the grading, standardization and quality control of a product must be effectively carried out before making an effort to find a market. These facilities do not exist in Nepal. The production, utilization, processing and milling, and marketing of rice involves the largest amount of private investment in Nepal and is one of the basic industries. There are no grades, standards or quality control in rice, except for the categorization of rice into coarse or fine types. And there are probably more than 500 varieties of rice grown in the country. One of the major problems is to cut back these varieties to a manageable number for efficient milling and quality control. While this will be the problem to be solved first by market research, efforts should be made in the Fourth Plan to provide facilities for grading, standardization and quality control and legislation for their maintenance.

3. To stimulate the development of an efficient marketing system.

Theoretically competitive markets would tend to create an efficient marketing system. Since the underlying assumption in such consideration, such as perfect market with perfect

knowledge are not found to exist, more so in case of Nepal, the public sector has a role to play in its development. Often this logic has been stretched too far and the traditional organizations have been replaced by new cooperatives and Government agencies have been created for bringing about efficiency in the distribution system. However, experience with cooperatives and public sector enterprises such as the Food Management Corporation, the Timber Corporation and The Salt Trading Corporation indicates that creation of such agencies alone does not ensure efficiency in the marketing system. Therefore, it would be unwise to ignore the private sector in the distribution system. The public sector participation will be necessary to lead the private sector to an efficient marketing system since Nepal is in its initial phase of development and many imperfections exist. This necessity will have to be fulfilled by making the public sector a supplementary mechanism in providing guiding controls rather than as a supplanting device. Ultimately it is the private sector that will have to play the major role in marketing.

Along with the development of market information and knowledge about the market structures, the public sector role should be directed toward promoting participation of the private sector in the storage and processing aspects of marketing, by providing credit and, if necessary, by making feasibility studies and studies and surveys without charge. During the

Third Plan, the Nepal Industrial Development Corporation provided this service to some extent, but little work was done on storage problems.

4. To facilitate the supply of agricultural inputs at reasonable prices where and when needed.

There has been so far little use of purchased inputs in agriculture. The problem of supply of inputs has not been seriously felt. Now that farmers have begun using purchased inputs - fertilizers, high-yielding seeds, pesticides, and equipment - and, as envisaged in the Fourth Plan, there will be a large volume of fertilizer, seeds, pesticides and equipment to handle, efficient distribution of these inputs will become a critical factor in promoting the use of better inputs and in achieving the targeted rate of growth. The policy decision regarding the supply of inputs will have, therefore, serious implications on the process of development itself.

The role of the private sector in the distribution of agricultural inputs has been insignificant. The private sector may not be interested in carrying on business if there is little or no chance for profit. On the other hand, if it is allowed a larger margin of profit and the price is too high, the farmer may not be interested in buying.

The use of chemical fertilizer was initiated in Nepal in 1954 by importing 100 metric tons of ammonium sulphate through private dealers. In 1963-64, the public sector entered

into fertilizer distribution when National Trading Limited imported 2,000 metric tons of ammonium sulphate from the Soviet Union. In 1965-66, the Agricultural Supply Corporation was established in the public sector and was authorized to function as the whole dealer and the sole importer of fertilizer into Nepal. Notwithstanding its primary role as the wholesale dealer, the Corporation has been forced to enter into the retail business now and then, wherever the private dealers and the cooperatives did not come forward. On the whole, the private dealers' role in the distribution of fertilizer has been insignificant except in the Kathmandu Valley where nearly 50 percent of the total fertilizer distribution is channeled through private dealers.

Apparent reasons for the lack of enthusiasm in the private sector for entering into the distribution of agricultural inputs are that the margin of profit is low (e.g. 5-6 percent commission on the sale of fertilizer) and the volume of transaction is small. The experience in the Kathmandu Valley indicates that if the volume of transaction is sufficiently large and if there is a large number of competing traders, even a 5-6 percent profit margin is enough to attract the private sector. Such a situation does not exist in other parts of the country. The only possibility of attracting the private dealer at present seems to be to provide a margin of profit sufficiently large to make for competition among the traders.

There seem to be three possible alternatives for handling the distribution of agricultural inputs: 1) the Agricultural Supply Corporation can function as a wholesale dealer and leave the retailing entirely to the private sector; 2) the private sector can carry the entire business - import, wholesale and retailing; 3) The Agricultural Supply Corporation can enter the retailing business, along with its present function of wholesale dealership.

The importance of promoting the use of new inputs is that its use will pay more than its cost. The cost also includes the distribution charge, whether the distributing service is provided by the private sector or the public sector. The private sector is generally more efficient to manage the distribution and thus can sell the goods at a cheaper rate than the public sector. There are other services such as education, training, health, and public administration where the public sector has a direct major role to play and the private sector is not likely to make more direct contributions. It will not be, therefore, profitable and wise for the Agricultural Supply Corporation to enter into the retail distribution of inputs.

However, there are some functions in the distribution process where public participation will be necessary, for instance, the handling of foreign exchange components in the procurement of inputs. It is likely that the foreign exchange

released for importing fertilizer, for instance, would be used by the private sector in importing something else, such as liquors, cigarettes, nylons and other consumer goods where the margin of profit will be larger than in fertilizer. It is also likely that the foreign exchange (convertible exchange) would be sold to Indian merchants or goods be delivered in India, as has happened in the past. It may, therefore be necessary for the public sector to engage in import until the private sector can be entrusted to do this job.

The only alternative left is to continue with the Agricultural Supply Corporation as a wholesaler dealer and encourage the private sector to carry the retailing job in the supply of inputs. Since it will not be possible to increase the volume of transaction immediately in all places, the profit margin has to be more than 5-6 percent. There are possibilities of increasing the profit margin. The price of inputs, especially fertilizer, the farmer buys in the Tarai has to be at par with the price the Indian farmer pays the inputs in India. If it is made cheaper than in India the inputs may be sold in India and thus cause a drain on foreign exchange. Since Nepal buys fertilizer in the world market - and will have to continue until it can manufacture its own, the purchase price could be comparable to the price in other countries.

The profit margin presently is low mainly due to the high overhead incurred by the Agricultural Supply Corporation.

Once the volume of transactions is increased and the corporation is made responsible only for the wholesale job and after some measures are taken to reduce the overhead by increasing the efficiency in the operation of the Corporation, the overhead should be reduced. This will provide margin to allow for larger profits.

The profit margin allowed for the retailer may be fixed at a graduated-scale, determined by the volume of transaction - the larger the volume of transaction, the higher the possible rate of commission. The profit margin or the rate of commission may be fixed at the maximum possible upper limit to the extent that the Agricultural Supply Corporation can be managed at a no-loss-no-profit basis to create competition among the retailers.

High-yielding seed is another important purchased input that requires an efficient distribution system. The Agricultural Supply Corporation was entrusted with the procurement and distribution of these seeds during the Third Plan. The distribution program did not go well partly due to the failure of technical supervision from the Research Departments. An organization of registered seed growers and a seed inspection program as envisaged in the Third Plan were not implemented, due mainly to the lack of close cooperation among research, extension and distributing agencies.

There does not seem to be any other possible alternative than organizing registered private seed growers and providing them with proper technical supervision and inspection from the Research and Extension Departments. Alternately, the job of technical supervision and inspection could be carried by the Agricultural Supply Corporation. Since a Research Department with qualified staff already exists, and extension personnel are in the field, it would add unnecessarily to the overhead cost of Corporation. The Corporation also would not have adequate competency to carry out such inspection. The Corporation should continue as a stop-gap measure in the seed business and, at the same time, with adequate supervision from the Government technical departments promote the private certified seed growers.

The distribution of pesticides and equipment is presently carried on by both the private dealers and the Agricultural Supply Corporation. No change seems required in the distribution of these inputs. The Corporation may have to continue for some years in this job by providing services in the area where private dealers are well established. Here, too, the responsibility of the Corporation will be that of a wholesale dealer, but unlike in fertilizer, the Corporation will function side by side with the private dealers to provide encouragement as well as a controlling device if the private sector falters.

The role of the Agricultural Supply Corporation should be primarily to facilitate the smooth functioning of the

private sector in the distribution of agricultural inputs and intervene only if the private sector falters or misbehaves.

Research and extension The output from agricultural research has not yet been significantly discernible in Nepal. This was in part due to the time required in providing for the research establishments and the trained research staff. Research facilities are now fairly well established - funds, trained personnel and research equipment are available. In 1969-70, two Ph.D., forty-two M. S. (or M.Sc) and fifty-eight B. S.(or B. Sc.) agricultural technicians were in payroll for research. About Rs. 12.41 million (in a total population of 10.82 million) were earmarked for agricultural research departments. This compares fairly well with budgets in other developing countries. Nepal will have spent Rs. 1.14 (\$0.112) percapita for agricultural research in 1969-70. Per farmer, this would come to about \$3.20. The Government research budget cost per farmer in other countries in 1965 was India, 0.05; Japan, 0.69; Philippines, 0.27; Mexico, 0.35; and the USA 45.90 dollars (82 p. 73). In the case of Nepal, however, more than 60 percent of the above-mentioned budget would have been spent on the establishment of research facilities rather than on current expenses.

Now that the facilities are available, a concerted effort is required to make these facilities bear fruits with maximum effectiveness in the Fourth Plan. So far, only the Department of Agricultural Education and Research has made some efforts

to promote research activities in a systematic manner, especially during the last two years, although the research projects undertaken do not seem always to have moved by the "adaptive" type of research as envisaged (51). Other departments - livestock, horticulture and fisheries - exist, by and large, only in name as far as research activities are concerned. Special efforts will have to be made during the Fourth Plan to orient these Departments toward research, especially in livestock, including pasture and forage crops and horticulture, as these activities have to make major contributions in the development of the Hills.

The importance of research in increasing productivity no longer needs any elaboration. The importance of policy guidelines regarding the type of research activity, coordination and proper planning of research, however, is yet to be realized and put into practice.

The guiding principle to an approach to the research policy in Nepal would be to concentrate research efforts on programs that find solutions to the most pressing problems of the farmer with an immediate application in view. This approach is often called "practical experimentation," e.g. varietal trials to find the suitability to adapt to the local condition and field experiments on chemical sprays on insects (without much study of insect physiology life-cycle of insects).

There is no central organization to provide guidelines, coordination, and planning of research activities. The need has become more important since research activities have been growing and the number of departments has been increasing. The present practice of scattering research stations or experiment farms in many places and providing separate centers for each branch of agriculture side-by-side under the control and management of different agencies should be abandoned and the existing different research units should be amalgamated and managed under one research organization. The existing Central Coordination Committee in the Ministry of Food and Agriculture, which was organized to provide general policy guidelines and to bring coordination among the activities of various agencies related to development programs, should be reorganized in such a manner that it can function effectively as a central research organization. The main function of such an organization would be 1) to provide policy guidelines for the selection of research activities; 2) to coordinate the various fields of research in agriculture, livestock, horticulture and fisheries; 3) to identify the areas of importance and priority in planning research activity; and 4) to periodically evaluate the program and its performance. To make research more objective, purposeful, and problem-solving and less academic, greater coordination is required between research and extension than presently exists.

The Fourth Plan should concentrate on establishing agricultural research stations in some of the major ecological regions of the country and these stations should be entrusted with the work of research in various branches of agriculture on a region-wide basis, working as teams rather than independently of each other.

The first step would be to identify and delineate the major ecological areas in the country. If the findings of ecological identifications support the existing four stations (e.g. Biratnagar, Jiri, Parwanipur, Pokhara) they can be reorganized as regional stations. One new station for high-altitude agriculture might be established in Jumla, depending, among other things, upon the planned priority area for road construction. The rest of the existing research stations, experiment farms, and centers need to be reexamined. If found useful, they should be entrusted with the jobs of testing centers and/or multiplication farms under the direct supervision of the regional research stations.

The existing central farm at Khumal in the Kathmandu Valley could function as the central agricultural research station for Nepal. It has almost all the facilities needed to function as a central station in all the branches of agriculture and livestock. The nearby Godavari Fish Farm, the Kirtipur Horticulture Station, and the Veterinary Laboratory at Tripureshwar could be brought under the management of the central research

station at Khumal, which in turn would be under the supervision of the central research organization or coordination committee of the Ministry.

If this approach is accepted, a reorganization of the present departments in the Ministry of Food and Agriculture is required. It is a waste of resources - men, money and material - and bad management for a country like Nepal to have five departments in agriculture. Two central departments, one for research and training and the other for extension, serving all the branches of agriculture, can serve the same purpose. The reorganization will be more economic and purposeful for coordination in research, teaching and extension. For proper coordination between research and extension (that is, between the Department of Agricultural Research and Education, and the Department of Agricultural Extension) extension-personnel will have to be posted to each regional research station to function as extension advisors, while at the same time supervising the extension activities entrusted to the District Agricultural Extension Officers in the respective regions.

An economic approach to research or a consciously planned effort concerning production problems of economic importance is vital to the research policy, for the basic purpose of agricultural research is to bring economic dividends to the farmer. Planning a national research program and allocation of resources for research and education will require, therefore,

an interdisciplinary analysis of physical, biological, economic, and social factors and a close coordination between agricultural scientists and agricultural economists. This link in research activities has been missing in Nepal.

It has been missing because the agricultural economists have been preoccupied with administrative work in the Ministry and the research aspect of agricultural economics has been relegated to a secondary position. The Third Plan program in agricultural economics and statistics was to "study and analyze land use, crop production, livestock use, weather conditions, prices of agricultural products, marketing systems, the village economy, cultivation and techniques. Grading of agricultural products and quality control will also be started" (31 p. 66). Except for a few case studies, nothing substantial has been accomplished so far in the area of agricultural economics. The lack of information about agriculture has forced planning in agriculture almost into the realm of guesswork.

The time has come now to separate the functions of economic analysis and planning from those of research in agricultural economics. The planning agency will be pressed most of the time with the immediate problems of planning, programming, budgeting, evaluation, and coordination of various development activities. There will be little time left for serious thinking about the main research activities and research problems to perform them with the required vigor. Earlier, it

had not been possible to separate these functions due mainly to the lack of trained staff. However, the number of trained staff has now increased to a point where these functions can be carried out separately.

The present Economic Analysis and Planning Division (formerly the Agricultural Economics Division) would continue with the functions of planning, programming, budgeting, coordinating and evaluating programs in the Ministry. The functions of research and survey and the collecting of information would be carried out by a separate division - the Agricultural Economics Division - to be placed in the Department of Agricultural Research and Education, to which the College of Agriculture is also attached. The agricultural economies in the division would do both the research and teaching. The Economic Analysis and Planning Division and the Agricultural Economics Division in consultation with each other would determine the priority areas for research in agricultural economics, in line with the guidelines provided by the proposed Central Research Coordination Committee.

Credit and Investment The failure of the cooperative system has created a serious bottleneck in the programs for agricultural development. Because agricultural growth is contingent upon the performance of the small farmers who make up the bulk of the population, there is considerable emphasis being put on the use of purchased inputs by these farmers

during the Fourth Plan. Since it would not be possible for the small farmers on subsistence to finance the use of these inputs on their own, the provision of credit becomes one of the limiting factors in raising the productivity and income of these farmers.

There are two organizations at the center to finance agricultural credit, namely, the Agricultural Development Bank and the Land Reform Savings Corporation, although virtually none exists at the village level, where the credits are to be made available. This has been a delinquent area in the agricultural development program. There is no need for two central organizations at this stage. It would be wise to amalgamate these organizations, reduce the overhead cost of financing agriculture credit, and concentrate on establishing a viable credit system at the village level during the Fourth Plan.

It may be argued that the savings collected under the Compulsory Savings Scheme from the farmers are specifically meant to be plowed back into the agricultural sector and the Government has guaranteed to repay the farmer. Therefore it is not possible to entrust the savings to the Agricultural Development Bank which carries a limited liability. However, the fact stands that both the Bank and the Corporation are in the public sector. The Government and the Nepal Rastra Bank (the Central Bank) finance most of the resources of the Bank. If the Bank goes out of business, the Government loses money.

(The same can be said concerning the Corporation.) If the Corporation has a better chance of survival, then there is no need for the existence of the Agricultural Development Bank and the Corporation could take over all the financing of agricultural credit. Both have the same objective and function: to finance the agricultural sector. All the same, if preferred, the savings collected could be maintained under a separate account in the Agricultural Development Bank, to be spent to support the types of financing specified by the Government. Whatever the choice, there is clearly no need at this stage for two separate central agencies to finance agricultural credit.

The program for credit provisions at the village level does not seem to have any other alternative than entrusting the job to the Agricultural Development Bank, inasmuch as there does not appear a chance for the revival of the cooperatives, at least during the Fourth Plan. There are still a large number of delinquent cooperatives. A few more years may be needed before a clean start can be made, if a second attempt to form cooperatives is desired.

The program of credit at the village level will have to be undertaken jointly by the Bank and the agricultural extension personnel. While the Bank would manage the credit in a group of villages as an operational unit (depending on the expected volume of transaction) by providing managerial service, a council of village representatives would form the board of

directors for the loan policy. However, it would be left up to the discretion of the manager, guided by certain procedures, whether to approve or reject a loan. It would also be the responsibility of the manager to see that the loans are recovered on time.

The loans would be advanced on the recommendation of the District Agricultural Extension Officer or his assistant in the village. It would be his responsibility to supervise the use of the credit. He would also see that the provisions of supply are there and correctly used, and that there is provision for and recovery of credit. It may be argued that if the extension worker functions as a credit man, the farmers may have a psychological fear of approaching him or to listening to his advice on adapting to improved practices. Granted that this is true (which is unlikely), if the technical advice is offered without provisions for putting it into practice, the advice serves no purpose. On the contrary, if the extension worker takes the job of supervising the credit, the inputs can be tied up with credit, the program can be implemented effectively, and the chances will be that more credit will be recovered on time.

The cost of credit service may be high for the Bank even on a no-profit-no-loss basis, especially during the initial years of operation, since the volume of transaction may be small, the organizations many. The Government should bear part

of the expense to the extent that the cost of operation at the village level should break even. This provision could alleviate the usual tendency of the Bank to avoid small loans and concentrate on bigger types, which provide security in property, and thereby ignore the main borrower: the small farmer.

The criteria for advancing the loans should be the anticipated increase in production and income, which the extension worker will advise the Bank, rather than the credit-worthy person or collateral. More caution is required for stricter supervision than hitherto followed.

Management of village credit by the Bank is not suggested for the entire country. At first, the Bank would handle mainly the short-term productive loan, only in a few selected areas - where there is good potential for the use of purchased inputs. Meanwhile in the areas where cooperatives are doing well, they would be encouraged, if necessary, by providing the services of a trained manager. Thirdly, it may be a worthwhile experiment to start licensing a few private money lenders in the villages where the Bank would not be entering and where viable cooperatives do not exist, and in even some places allowing licensed money lenders to operate in addition to the operation of the Bank. The Bank should finance these money lenders if they need external financing. The Bank would also supervise their operation and could cancel the license and/or penalize them if they misbehave.

If the experiment of licensed private money lender succeeds or the cooperatives should become useful, the Bank could withdraw its village-level operation gradually, but continue to function as a watchdog - ready to intervene in the operation by entering into the business. During the period of experimentation, which may cover the Fourth Plan, the cost of servicing the credit should be considered as an overhead cost in agricultural development. The basic assumption in these recommendations is that efforts will be made to make the Agricultural Development Bank more efficient than it is and it is easier to make the effort in the Bank than in other areas. If this assumption does not hold true, probably there is no other way out for the small farmer than to revert to waiting and being complacent in his despair and lack of power.

The increased allocations for the agricultural credit program and other development services would not by themselves increase capital formation in agriculture. They would improve the quality of the resources and are, of course, important in increasing the productivity of resources already devoted to agriculture. For sustained growth, on the other hand, investments to exploit the natural resources as well as investments to make up for the deficiencies in these resources will be necessary. These investments would improve the productive structure of the land itself. It is essential, therefore, to provide a net added investment in agriculture, such as through

long-term investment programs in irrigation, drainage, terracing and other measures of land improvement. The major activity of long-term investments in agriculture during the Fourth Plan should be concentrated on irrigation and soil conservation, as these are becoming critical factors in the sustained increase in agriculture. While the Government should invest in major overhead items such as irrigation and feasibility studies of surface and underground water resources, the panchayat and private sectors should be encouraged in the repair and maintenance of the irrigation projects undertaken during the Third Plan and in the construction of feeder channels in the new projects. There are instances of water wasted, drilled wells capped, and inadequate care taken of existing capital, presumably due to the lack of effective incentives and organization structures. Rural labor can make a substantial contribution in non-monetized investments in agriculture, providing the institutional base is improved.

The magnitude and the structure of the agricultural development envisaged for the Fourth Plan as a factor contributing to the overall growth of the national economy is based on predictions that require a host of action roles. These roles include making greater efforts in the search for the problem-solving public administration and bringing more cohesiveness in the implementation of programs.

The difficulties involved and some of the bold assumptions held in making these predictions are recognized. They depend on many factors - some visualized, some anticipated, and many more unknown. Accuracy in such a prediction can be increased only when the stock of knowledge is improved.

In the agricultural development of the countries like Nepal, technological change or availability of capital, though important, is not the only base of the process in change. Much depends on the structures and institutions which demand massive changes. A marginal change in these structures would not provide an effective base for the process of development. These do not lend to accurate prediction as these are entangled in the configuration of forces - political, social and economic.

The process of development can be kept moving, therefore, only with constant attention to the problems that may be encountered in the process of implementation. This will require continuing evaluations of performance in the districts to identify obstacles, to devise means of overcoming them, and to make revisions in the programs wherever necessary. This will facilitate improving both the diagnostic and remedial mechanisms for subsequent development planning.

CHAPTER VII. SUMMARY AND RECOMMENDATIONS

Summary

This study is an analysis of the performance of Nepal's efforts at development planning with emphasis on the agricultural sector. Its main objective is to analyze the progress made in the area of economic development during the past fifteen years and the role played by agriculture in economic development of Nepal. The progress is examined in terms of the targets, objectives and policies and programs that have proved successful or have retarded growth. Remedial actions are suggested to strengthen the success elements and to lessen the failure elements in improving future development policy for Nepal and to suggest an outline framework toward developing the Fourth Plan based on the experience gained from the performance of the earlier Plans.

The present structures of the economy in general and the agricultural sector in particular are analyzed. The inter-relationships of the agricultural sector with the rest of the economy are examined. The contributions of the agricultural sector with the rest of the economy are examined. The contributions of the agricultural sector to the national growth are empirically examined for the period of 1960-1968.

The study is guided by two sets of hypotheses. One set states that the current tempo of economic activity in Nepal

is insufficient to meet the economic development objectives of Nepal. The other set states that the poor performance in the agricultural sector has held back the rate of growth in the national economy.

In analyzing the performance of development and in appraising the problems faced in the development of agriculture vis-a-vis the national economic development, a conceptual framework of development with agriculture as a core component is developed. The role of agriculture in the development system is identified and appraised by following the conceptual framework of "means-end-continuum." The analytical framework of the study is constructed under the delimiting phase, the diagnostic phase and the remedial phase of analyses.

The examination of the progress made shows that the rate of growth in the economy has fallen short of the Plan target by nearly 50 percent. The slow rate of growth in the agricultural sector held back the general growth rate. In aggregate, the agricultural sector is the largest contributor with 86 percent of the total labor force engaged in the agriculture sector and 65 percent of the total GDP generated from this sector. And, yet the contribution of this sector to the percentage increase in growth is about 45 percent.

Reasons for the failure of the agricultural sector to achieve its targets are identified with the defects in the agrarian structures - tenurial defects (high rents, unsecured

tenancy, fragmented and small holdings); defects in market structures; the lack of new knowledge (insufficient research organization and the failure to reorient research activities toward the pressing needs of the farmer); an ineffective extension service to disseminate information regarding improved farm practices; and the failure to develop an effective credit system at the village level.

Defects in the agrarian structures are related to incentive, knowledge and capital. The district with improved agrarian structures that offered better incentives, knowledge and capital performed well above the rest of the districts that lacked such facilities. The fact that agrarian structures play an important role in increasing the productivity in agriculture is further demonstrated by the examination of the case studies performed in selected districts.

The factors related to incentive, knowledge and capital have such interrelationships that absence of one factor hinders the productive effectiveness of the others. For instance, the incentive provided by an improved tenancy system cannot make significant contributions in terms of increased productivity if other factors such as improved seeds and fertilizers are not available, or if funds are not available to buy them, or if the prices are too high.

Agricultural development, though a strategic element in the process, would not be able to move without support from

other sectors of the economy. This is made particularly clear from the examination of performance and problems of development in the Hills, where the lack of infrastructure has isolated the area from the general program of development. An examination of the problems in the Hills also show that the problems of development are heterogeneous in nature, not only within the country but also within the regions as determined by topography, climatic differences and population. The solutions to the problems in various regions would, therefore, vary in their nature. Thus information must be gathered through in-depth studies of the particular region.

In addition to the lack of transport and communication and the defects in agrarian structures, the pressure of population has made the development in the Hills all the more difficult. The number of unemployed has exceeded the capacity of the present agricultural sector in the region and there seems hardly any opportunity left to absorb the additions to population. Efforts to reduce the growth in population would be as important as the efforts to increase the productivity in agriculture. It is also necessary for development in other sectors to be expanded at a rate sufficient to absorb the increasing outflow of labor from agriculture.

Some of the problems faced by Nepal in its quest for development and some of the failures encountered bear similarity with such experiences of India and Pakistan. In examining

India's experience in development, Professor Mellor points out some major areas of errors in agricultural development policy as: 1) the lack of effective organization to produce a flow of highly profitable innovation suited to the particular condition; 2) the failure to view agricultural development as a process in which one must be constantly looking for new limiting factors; 3) too formal planning process and excessive centralization; and 4) excessive emphasis on the public sector and too little emphasis on stimulating the private sector (68 pp. 363-373). Falcon and Gotsch find similar kinds of problem in Pakistan's experience (12 pp. 269-315).

The problems faced by Nepal, especially those of basic nature, are identified in the present study in relation to the development in Nepal in terms of (1) the low growth rate of the economy, (2) the increasing rate of population, (3) the slow-moving agriculture aggravated with the defects in the agrarian structures, (4) inadequate transport and communication facilities and (5) the regional imbalance in the development. All of these factors have strong implications for future development policy in Nepal.

The low rate of growth in the economy during the Third Plan implies that if stronger efforts are not made in subsequent Plans, the long-term target of doubling the national income by 1980 will not be achieved. And if the long-term development target is to be sustained, aggregate growth rate in the

economy will have to be 6 percent per annum and the rate of population growth could not exceed 2.3 percent.

The possibilities of achieving 6 percent annual growth rate during the Fourth Plan (1970-75) are examined in terms of investment requirements, sectoral contribution and investment, the possibility of domestic resource mobilization, plausible external assistance, and the absorptive capacity of the economy to save and invest.

The agricultural sector's contribution to the GDP would be 60 percent, against 65 percent in the Third Plan. Of the total labor force in 1974-75, nearly 79 percent would be in the agricultural sector, as compared to about 86 percent by the end of the Third Plan. The aggregate growth rate in this sector will have to be 4.7 percent. The agricultural sector has a major role to play in achieving the targets in the Fourth Plan.

The indications are that it is possible to achieve the targeted rate of growth of 6 percent annually during the Fourth Plan, providing the necessary measures are taken. These measures are outlined in the following section.

Recommendations

An examination of the performance of the National Plan indicates that it should be possible to raise the aggregate rate of annual growth to a 6 percent level during the period

of 1970-71 to 1974-75, providing remedial actions are directed toward (1) lessening the failure elements characterized as "structural traps" and (2) strengthening the success elements. To facilitate the higher rate of growth, the recommended measures are grouped into three categories as follows:

1. Recommendations for remedial actions permitted by the present knowledge of the economy;

2. Recommendations for improving the performance in the economy through continuous evaluation process of the program and performance;

3. Recommendations for generating knowledge to fill the gaps in existing information as a basis for future planning.

Recommendations for remedial action The lower than expected rate of growth in the Third Plan has made it necessary that the size of investment in the Fourth Plan be tripled if the targeted long-term rate of growth is to be achieved. It will, therefore, require more vigorous efforts in the mobilization of domestic resources. The possibility for such mobilization exists, as there is potential in the general tax structure including land revenue in terms of its productivity potential.

1. The proportion of revenue to the GDP, which is estimated at 6.3 percent in 1969-70, will have to be raised to 13.0 percent by 1974-75 to meet the public sector domestic

financing of Rs. 3185 million out of the total public sector development expenditure of Rs. 4761 million estimated for the Fourth Plan. The balance of Rs. 1576 million will have to be financed through external assistance and internal borrowings. Assuming that Rs. 1576 million would be available from external assistance, the share of external financing for development would be 33 percent as against the 57 percent in the Third Plan. The present share of agricultural revenue to the total revenue will be required to be raised to 50 percent by 1974-75 from its present level of 25 percent.

Consistent with the provisions of incentives, the adoption of improved technology and operating capital, the targeted public revenue within the agricultural sector can be generated substantially through land taxes. Such taxes could be derived from (a) absentee owners and from (b) graduated land taxes above a minimum size and value consistent with the size of holding varied by region and enterprises. To implement this recommendation, improvements in assessment, collection and enforcement procedures are required. This, in turn will require improvements in land measurement and description, title registration and land records.

In providing the basis for obtaining and using the targeted external financing, there is urgent need for project planning. The project plans will have to meet the tests of the World Bank, the Asian Development Bank and other aiding

agencies. The criteria for such assistance will require that the investment be related to the productivity to be generated by the investment in terms of specific products. Within this evaluation, it must be demonstrated that the capital is required, that it will generate productivity increases, and that Nepal will be able to repay the loan as a result of this productivity enhancement.

2. Further specific changes within agrarian structures are suggested which include (a) improvement in land records, titles, transfer procedures as indicated earlier (greater speed and efficiency is required in the cadastal survey currently in progress in Nepal to accomplish a purposeful and complete survey of the land, without which agrarian reforms cannot be made effective); (b) reduction of rent to an average of one-third of the product, fixed in absolute amount from the present level of one-half of the product; (c) consolidation of fragmented holdings by fixing a minimum limit of holdings; (d) allowing exclusive rights of purchase to the farmer cultivating the adjacent land when such land is offered for sale; (e) amending the present Lands Act to allow tenants to cultivate the land up to the general ceiling limit of 17 hectares allowed for owner-operators; (f) allowing capable owner-operators to cultivate up to 40 hectares as a special case where mechanization is possible. These minimum and maximum limits would be varied by enterprises and regions consistent with realizing the

productivity potential. Such variations have been effected in southern Italy, in the Philippines and in Taiwan.

More importantly, these changes are required in order to remove the difficulties constantly faced by cultivators in the improvement and development of agricultural resources. This is consistent with the reasoning presented earlier in providing incentives, knowledge and capital.

Also such adjustments in land structures are constituent component of basis for obtaining and utilizing the resources, both internal and external.

3. Improvements in the marketing system are suggested (a) to insure reasonable prices of products; (b) to facilitate the development of alternate outlets for products; and (c) to improve storage, processing and delivery of products.

There is no regular channel established for market information and price situation, nor are there legislative or administrative mechanisms for grading, standardization, and quality control of products. Unless these are set up, farmers would not have incentives to produce the amount, kind and quality of products demanded both for internal and external markets.

As a first step toward creating an efficient marketing system, establishment of regular channels for internal and external market information, legislative and enforcement mechanisms for grading, standardization and quality control of

products are suggested. As a part of market information, differential prices by kind and quality of products should be announced in refining the incentives for farmers.

Inasmuch as there is an open border and most of the agricultural products are marketed in India, the prices in Nepal may have to move in conjunction with the prices in India until Nepal is able to enter the international market. Regular and up-to-date information on market situations in India and other neighboring countries will be necessary for adjusting price policies in Nepal.

The private sector should be stimulated to participate in processing, storage, and delivery of the products. Apart from the inadequate facilities for processing and storage, the existing facilities are not efficiently run, and the wastage, for instance, in rice milling, is estimated at 10-15 percent higher than in modern milling systems. There is an immediate need for minimizing the cost and wastage in storage, processing and delivery of the products.

The production, utilization, milling, storage and marketing of rice involves the largest amount of private investment in Nepal. In the total export of agricultural commodities rice represents 60 percent. The rice millers are operating the equipment designed thirty to fifty years ago. The need for modernizing rice milling has been most urgent. With increased production in wheat and the increased demand for good

quality flour (which is met by imports of fine flour from Australia and India although there is a surplus of wheat grains in Nepal), the need for establishing flour mills has become apparent.

Along with the problem of marketing farm products, the distribution of agricultural inputs is becoming a critical factor. This problem is likely to be more serious during the Fourth Plan as there are large volumes of fertilizers, seeds, pesticides and equipment envisaged to be used by the farmers. The distribution of inputs, it is suggested, should be handled by both the private sector and the public sector. In the case of fertilizers, the Agricultural Supply Corporation would continue functioning as a wholesaler and importer of fertilizers; the retailing would be done entirely by the private sector. Registered, certified seed growers could be organized to multiply tested seeds. Distribution would be carried by the private sector, in general, and in places where such facilities do not exist, the Corporation would function as a wholesale dealer. Pesticides would be distributed mostly through the private sector and the Corporation would provide the service of wholesale dealer in the areas where private dealers are not available. The distribution of equipment should be carried by the private sector in a similar manner.

4. The provision of agricultural credit is becoming an acute one, especially after the freezing of agricultural loans

by the Government. There is no provision as such for land credit. The provision for long-term land credit is necessary to meet the objectives of agrarian reforms, making the tenant the owner of the land. The Agricultural Development Bank should also finance the tenants to purchase the land on long-term loans (extended up to 20 years) in such a manner that the farmer is able to repay the loan while improving the living standards of his family. The criteria for advancing the loans should be based on the productivity of the land and its ability to repay the debt.

Special efforts are required to develop an efficient credit system at the village level for the short-term loans, since the existing channel of cooperatives has proved a failure. It is suggested organizing provisions for credit in the villages: (a) through the Agricultural Development Bank in selected potential areas; (b) by strengthening the cooperatives wherever economically viable societies exist; and (c) by licensing private money lenders on an experimental basis under the supervision of the Agricultural Development Bank.

5. In providing the farmers with the improved knowledge, two sources will be relied upon: (a) the extension service, which would help farmers to plan their farm operations with the up-to-date and relevant technology; (b) credit agencies, which would insist upon the use of the improved knowledge as a condition for loan and these loans would be made available mostly in kind at the time and place of need.

Recommendations for continuous evaluation process of

Plan performance Since the development plans are formulated on the basis of certain expected changes in the political, economic and social factors, and are only a general framework designed under the existing limited knowledge, continuous evaluations of their performance is a prerequisite for success. Reorientation and strengthening of evaluation machinery in the executive ministries and planning agencies are suggested as of significant importance, both for successful implementation of the plan and for the formulation of future plans.

The detailed programs for the Fourth Plan should include targets by districts to facilitate implementation as well as evaluation of performance at the district level. A continuous process of evaluation will help identify the area of failures and successes of the programs and policies, providing a circular feedback in the planning process.

Such evaluations could be molded after the district case studies developed in this thesis. The studies could be undertaken at two levels: (a) a minimum level of reporting should be established annually for all the districts; (b) in-depth studies and analyses should be undertaken in sample districts representative of the Tarai, Hills and Valley Regions.

Through this continuous monitoring and analysis of plans at the district level, performance defects and weaknesses can

be determined and remedied annually within the Plan period without awaiting the end of the period. Thus failures and deficiencies realized at the end of previous Plans can be identified and remedied prior to the conclusion of the period.

Recommendations for future research As emphasized throughout this study, planning is hampered seriously by the lack of relevant data. The urgent need for timely research has become apparent. In processing to remedy data deficiencies as the necessary foundation for improving the planning process including the implementation, the needs for certain high-priority studies have been apparent. These include (1) input-output studies by enterprises and by regions; (2) projecting demands for products by quality and kind; (3) employment opportunities in various sectors; (4) regional analysis for development potential and for examining agriculture in relation to other forms of economic activity; and (5) structural studies related to marketing (both product and factor), land taxes, tenancy, and tenure forms.

1. Input-output studies by enterprises and by regions are required for evaluating the potentials for development, for translating them into programs, and for establishing criteria for choosing an alternate program. These studies are also a basis for determining the size of holding, credit and extension outlook. They would be carried on as coordinated research activities between the physical scientists and economists.

2. Demand projection studies for products by kind, quality, and grades for internal consumption as well as export are required in developing the production targets. As a part of internal demand study, price studies related to the price-elasticity of demand for products in urban and rural areas for various projected income levels need to be determined. As a first step, household consumption surveys in both rural and urban areas will have to be performed.

3. Studies on the nature and magnitude of employment opportunities in the agricultural and non-agricultural sectors together with the demand and supply conditions approximated above would be essential in light of the projected population increase and the large number of underemployed that exists in the agricultural sector. This finding will also suggest guidelines for the birth control policy. Studies on employment are also important for the fact that while large numbers of underemployed and unemployed exist in Nepal, there is also a substantial number of Indian laborers working in Nepal.

4. Regional studies for development potential have become necessary due to the growing imbalance between the Hills and other areas of the country. These studies are also important for both examining the relation of agriculture to other forms of economic activity and examining the need and potential for developing diversification within agriculture. Ex-

tensive surveys of the Hills for determining the production potential, employment problem, and areas of priority by regions and by activity are suggested for in the initial years of the Fourth Plan. These will also help determine the areas of priority for transport development.

5. Structural studies, such as empirical analyses of cost of marketing of major crops - rice, corn, wheat - and of individual components in the marketing system are needed to indicate the type of improvements required in efficient marketing system. Price variations by season and from region to region will have to be analyzed to determine the costs of processing, transportation and storage to establish a public policy toward insuring a reasonable level of prices.

Studies on the distribution of inputs and credit are badly needed to indicate the most suitable types of distribution systems, and credit institutions. The performance of the suggested distribution agencies and the credit agencies should be studied and evaluated in terms of cost and efficiency, to help provide policy guidelines in developing an efficient distribution system and credit agency.

The suggested increase in research activities will require proper planning, coordination and supervision to make them effective and oriented toward fulfilling the most pressing needs. It is suggested establishing a central research

committee in the Ministry to carry out the outlined functions.

Further areas of research and their priority in terms of urgency would be indicated by the results of the continuous evaluation process outlined in the previous section, which will help make research relevant to the needs of planning and to the implementation of plans.

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Ames, Iowa

15 December 1969

APPENDIX

Table 43. Income and regular^a expenditures of HMG/Nepal 1952-53 to 1969-70^a (Rs in million)^b

Fiscal Year	Income	Expenditure	Surplus + Deficit -
1952-53	38.74	57.40	- 18.66
1953-54	38.61	39.92	- 1.31
1954-55	37.15	37.89	- 0.74
1955-56	51.65	50.78	+ 0.87
1956-57	66.70	66.40	+ 0.30
1957-58	70.79	83.86	- 13.07
1958-59	76.46	79.80	- 3.34
1959-60	86.60	86.10	+ 0.50
1960-61	97.40	110.10	- 12.70
1961-62	105.40	103.50	+ 1.90
1962-63	129.70	124.40	+ 5.30
1963-64	157.93	114.31	+ 43.62
1964-65	192.34	117.94	+ 74.90
1965-66	216.50	147.33	+ 69.17
1966-67	256.66	170.59	+ 86.07
1967-68	325.98	180.79	+145.19
1968-69 ^c	400.19	201.50	+198.69
1969-70 ^d	442.26	232.75	+209.51

^a

Data for 1952-53 to 1955-56 are from 40 pp. 100,104; for 1956-67 to 1962-63, 26 p. 174; for 1963-64 to 1966-67, 76 pp. 50-51; and for 1967-68 to 1969-70, 47 Appendix A. See also 74,75.

^b

The income-expenditure figures appear different in different publications. The above figures are taken from the latest and as far as possible from the original source.

^cRevised estimates

^dBudget estimates.

Table 44: Income and development expenditure^a of HMG by major activities 1956-57 to 1969-70^b (Rs. in million)

Fiscal year	Income				Expenditure					
	HMG revenue surplus	In-ternal loan	External Grant	External Loan	Total	Agric. ^c	Trans- port ^d	In- dust ^e	Others ^f	Total
1956-57	0.30	-	59.45	-	59.75	2.81	3.95	1.52	6.43	14.71
1957-58	nil	-	21.48	-	21.48	3.33	3.16	1.44	4.46	12.39
1958-59	nil	-	35.05	-	35.05	7.81	12.37	2.28	10.23	32.69
1959-60	0.50	-	89.11	-	89.61	7.97	44.60	3.56	22.80	78.93
1960-61	nil	-	131.80	-	131.80	11.70	44.17	1.55	18.26	75.68
1961-62	1.90	-	69.60	1.00	72.51	16.89	57.56	4.39	31.16	110.00
1962-63	5.30	-	83.70	11.60	100.60	22.38	28.91	20.78	46.21	118.28
1963-64	43.62	13.10	165.90	11.40	234.02	28.60	77.13	53.06	55.25	214.04
1964-65	74.90	7.50	182.50	4.90	270.10	47.34	117.79	35.21	82.94	283.28

^a (40, 26, 76, 47. See also 74,75).

^b

As explained in the text there is no clear definition of "development expenditure." For instance, expense of re-balloting is also included under development expenditures. Actual foreign grants may be larger than shown above, as in some years such grants were spent outside the HMG budget and technical assistants and commodity purchases are not always included in the HMG budget.

^c Include agriculture, forestry, irrigation and rural development.

^d Include transport, communication and power.

^e Include industry, commerce and tourism.

^f Include health, education, survey, statistics publicity and not included elsewhere.

Table 44 (Continued)

Fiscal year	Income				Expenditure					
	HMG revenue surplus	In-ternal loan	External Grant	Loan	Total	Agric.	Trans-port	In-dust	Others	Total
1965-66	69.17	7.50	175.30	3.30	255.27	64.30	122.14	28.26	66.08	280.78
1966-67	86.07	0.70	142.20	3.70	232.67	75.71	116.08	21.92	54.53	268.24
1967-68	145.19	10.00	158.11	-	313.30	60.27	129.93	18.90	72.10	281.20
1968-69 ^g	198.69	19.60	214.24	-	432.53	71.18	188.30	50.88	81.86	392.22
1969-70 ^h	209.51	20.00	329.27	12.52	571.30	121.07	326.92	41.64	118.57	608.20

^g Revised estimates.

^h Budget estimates.

Table 45. Government revenues by major sources 1952-53 to 1969-70^a (Rs. in million)

Fiscal year	Customs excise	Land revenue	Forest	Trading Department ^b	Taxes ^c	Others ^d	Total
1952-53	12.37	15.62	4.06	2.25	1.12	3.31	38.74
1953-54	10.72	15.86	4.66	2.67	1.42	3.28	38.61
1954-55	8.43	14.26	5.79	2.76	1.40	4.51	37.15
1955-56	14.13	16.74	6.29	2.07	1.62	9.80	51.65
1956-57	14.55	15.15	7.37	2.17	1.83	25.63	66.70
1957-58	21.32	17.55	7.86	3.18	2.25	18.63	70.79
1958-59	30.18	17.75	8.25	3.40	2.76	14.12	76.46
1959-60	32.15	16.22	11.63	4.54	2.03	20.03	86.60
1960-61	39.83	20.98	15.53	4.48	2.36	14.22	97.40
1961-62	46.33	28.20	11.78	4.18	3.10	11.81	105.40

^a(40, 26, 76, 47. See also 74, 75).

^b

Include transport and communication revenues.

^c

Include income from income tax, sales tax, entertainment tax, house rent tax contract tax, urban property tax and other direct taxes.

^d

Include registration, interest and dividend, civil administration and miscellaneous (passport, royalty and presents). Also for the years 1952-53 to 1956-57 and 1959-60 to 1962-63 sales proceeds from foodgrains undertaken by the government are also included, presumably to match income and expenditure. It does make much sense in our analysis. Information was not available to separate the amount.

Table 45 (Continued)

Fiscal year	Customs excise	Land revenue	Forest	Trading Department	Taxes	Others	Total
1962-63	49.79	52.94	9.80	5.20	3.65	8.32	129.70
1963-64	69.49	40.00	16.44	8.31	5.48	18.21	157.93
1964-65	97.19	43.16	20.87	8.96	7.41	14.75	192.34
1965-66	113.58	44.52	19.40	8.64	16.37	13.99	216.50
1966-67	141.71	56.67	16.53	3.89	24.84	13.02	256.66
1967-68	151.21	83.29	21.82	4.98	44.25	20.43	325.98
1968-69 ^e	200.60	86.00	20.08	7.26	64.50	21.75	400.19
1969-70 ^f	224.32	86.50	20.37	12.64	69.30	29.13	442.26

^e Revised estimates.

^f Budget estimates.

Table 46. Nepal's income and expenditure of convertible foreign exchange by major items and convertible foreign exchange reserves 1956-57 to 1969-70^a
(Rs. in million)

Fiscal year	Income ^b					Expenditure ^c				
	In- visible exports 1)	Mdse. exports 2)	Dipl. For. mission aid 3)	For. aid 4)	Misc. 4)	In- visible imports 1)	Mdse. imports 2)	Dipl. mission 3)	Misc. 2)	Reserves ^d
1956-57	- ^e	-	-	3.40	8.76	-	-	-	-	0.36
1957-58	0.49	-	0.32	2.28	0.19	-	-	0.26	0.99	11.40
1958-59	0.48	-	0.18	6.90	0.17	-	-	0.76	1.95	18.43
1959-60	0.89	0.27	1.68	20.74	0.19	-	0.36	1.87	1.05	41.75
1960-61	15.06	4.95	1.26	1.23	2.05	-	9.21	4.08	1.66	52.18
1961-62	21.94	6.90	1.25	14.45	2.99	0.30	10.39	7.37	3.26	76.36

^a (76 pp. 58-60; 47, Appendix).

^b Income: 1) Invisible exports include pensions and salaries (Gorkha soldiers' remittances), tourism and interest; 2) Merchandise exports are visible exports; 3) Foreign aid includes foreign assistance received in convertible currency only; 4) Miscellaneous includes export bonus as well.

^c Expenditure: 1) Invisible imports also include loan repayments; 2) Miscellaneous includes export bonus as well.

^d Reserves are the convertible foreign exchange holdings of the Rastra Bank, excluding gold bullion and coin, and Indian and other nonconvertible currencies.

^e Denotes less than Rs. 10,000.

Table 46 (Continued)

Fiscal year	Income ^b					Expenditure ^c				
	In- visible exports ¹⁾	Mdse. exports ²⁾	Dipl.For. mission aid ³⁾	Misc. ⁴⁾		In- visible imports ¹⁾	Mdse. imports	Dipl. mission	Misc. ²⁾	Reserves ^d
1962-63	28.12	2.38	1.17	6.69	16.69	0.45	12.76	5.16	10.03	103.12
1963-64	29.18	3.87	1.89	7.48	18.46	0.83	13.59	5.20	5.85	145.14
1964-65	31.62	10.87	2.23	7.39	18.18	1.07	25.53	5.71	7.53	178.21
1965-66	29.82	30.20	1.92	5.41	30.68	1.26	18.56	6.69	15.15	231.31
1966-67 ^f	41.26	57.49	1.45	8.04	14.24	1.88	51.18	8.16	10.40	287.35
1967-68	66.40	95.00	4.40	37.60	19.60	2.70	26.40	11.20	82.30	402.84
1968-69 ^g	72.90	133.80	6.50	1.50	34.10	6.40	17.80	13.70	70.50	na ^h
1969-70 ⁱ	79.00	100.00	7.00	10.00	20.00	3.90	132.20	16.80	82.30	na

^f Nepalese currency was devalued by 24.78 percent in December 1967. After devaluation: US \$1.00 = Rs. 10.10.

^g Revised budget estimates.

^h na - not available at the time of writing.

ⁱ Budget estimates.

Table 47. Production of major crops in Nepal 1961-62 to 1968-69^a (in 1,000 metric tons)

Crops	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
<u>Cereal crops</u>								
Paddy	2102	2108	2109	2201	2207	2007	2217	2321
Corn	843	842	849	854	856	824	875	899
Wheat	111	111	112	123	147	159	190	227
Barley	26	27	27	29	28	28	26	29
Millet and others	62	77	79	63	120 ^b	129	112	111
Total	3144	3165	3176	3270	3358	3138	3420	3587
Potato	275	272	280	285	277	300	315	290
Pulses	66	66	62	64	64	69	68	72

^a HMG/Nepal, 1969 (45, 46).

^b From 1965-66 onward other cereals such as buckwheat were also included, hence the higher figure.

Table 47 (Continued)

Crops	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	1967-68	1968-69
<u>Cash crops</u>								
Sugar cane	139.0	161.0	203.0	126.0	192.0	147.0	167.4	188.0
Jute	34.0	33.6	35.0	39.0	38.7	37.0	39.5	33.0
Tobacco ^c	6.0	4.8	4.8	8.6	7.3	5.2	5.4	6.3
Oilseeds	48.0	70.0	70.0	51.0	51.4	55.6	56.0	57.0
Cash crops total	227.0	269.4	312.8	224.6	289.4	244.8	268.3	284.3

^c In reporting the production of tobacco, for some years production was reported in green or partly dry leaves weight; for other years it was in dry leaves. These are adjusted for "dry" leaf weights as far as information was available. Tobacco production figures presented above do not tally with earlier released figures up to 1965-66.

Table 48. Abstract from the National Food Balance Sheet - Nepal (1968-69)(87)

Items ^a	Caput/day gm.	Calo- ries	Pro- tein gm.	Ca gm.	Fe gm.	Vitamin			
						A IU	B ₁ mg.	B ₂ mg.	C mg.
1 Cereals	501.0	1763	36.2	56.3	4.90	-	0.457	0.173	-
2 Potato and starchy foods	67.7	54	0.9	5.8	0.40	-	0.461	0.175	7.60
3 Butter fat and oils	9.0	69	-	-	-	68.0	-	-	-
4 Pulses	12.2	42	2.9	17.7	0.95	36.6	0.068	0.021	0.61
5 Meat, poultry and fish	20.0	24	2.6	1.2	0.30	-	0.009	0.018	-

- ^a
- 1 Cereals include rice (unpolished), wheat, maize and millets.
 - 2 Starchy foods include crops such as yam and sweet potato.
 - 3 Pulses include blackgram (nearly 60.0 percent of the total pulses), greengram, lentils, pigeonpeas, horsegram, and beans.
 - 4 Butter fat includes butter and ghee.
 - 5 Fish estimates are included in meat and poultry.

Table 48 (Continued)

Items ^a	Caput/day gm.	Calo- ries	Pro- tein gm.	Ca gm.	Fe gm.	Vitamin			
						A IU	B ₁ mg.	B ₂ mg.	C mg.
6 Milk and milk products	40.0	29	1.8	49.0	0.06	40.3	0.012	0.037	0.31
7 Eggs	2.5	4	0.3	1.2	0.05	20.0	0.002	0.006	-
8 Sugar	8.0	24	-	1.4	0.08	-	-	-	-
9 Vegetables	30.0	7	-	47.0	0.75	1400.0	0.020	0.050	24.90
10 Fruits	25.6	15	0.2		0.10	29.0	0.020	0.020	5.10

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6 Milk products include buttermilk and cheese.

7 Eggs include poultry and duck eggs.
Egg conversion: one dozen eggs = 0.5 Kg.

8 Gur and raw liquid sugar also given in terms of fine sugar.

9 Vegetables include green and yellow.

10. Fruits include mainly tropical and citrus.

Data for change in stock were not available and are assumed nil.

Export and import figures for 1968-69 were not ready, export-import figures of 1965-66 are projected through 1968-69.