

Preface

Since the inception of First Five Year Plan in 1961 by Late King Jigme Dorji Wangchuck (reign 1952-72), Five Year Plans have been the main instrument, regulating the pattern of investment across regions and sectors. The agrarian community that existed 28 years ago was largely self-subsistence oriented, rural and insular. The country faced several typical constraints of an under developed country. Skilled manpower was scarce as also was domestic financial resources. There were absolutely no manufacturing, road, electricity and banking. An insignificant number of hospitals and schools; high incidence of diseases and low expectancy of life were some of the social and economic features of that time.

Over the last 28 years, we have been able to establish most of the basic infrastructural facilities. A glance at the key statistics on the back page would confirm the long way we have come, though it may also indicate, paradoxically, how far we still are from our long term goals.

In all the outlays of the previous plans, Public Works (roads construction and related activities) was accorded very high priority, since means of transportation was prerequisite for further progress. It continues to impose heavy burden on public expenditure. Our development strategy also laid heavy emphasis on education, agriculture and health to enhance human skills and living standard in rural Bhutan. Having given serious priorities to the creation of basic infrastructure, a major focus of the objectives since the Fourth plan have been the mobilization of internal resources by investments in such revenue generating sectors as power, industry, forestry and agriculture.

Against the backdrop of such impressive performances under earlier plans, the Sixth Plan was formulated. This document presents a comprehensive account of the Sixth Plan, with an improved set of statistics. A number of officers in Planning Commission were asked to contribute chapters on various sectors in collaboration with related departments. Because of this, there will inevitably be some differences in the style of presentation.

Chapter 2 contains an appraisal of the economic trends during the Fifth Plan with reference to selected indicators. This is followed, in Chapter 3, by a review of performance vis-a-vis the objectives of Fifth Plan. Chapter 4 gives a discussion of the principal objectives of the Sixth Plan. Chapter 5 to 23 are devoted to exposition of sectoral programmes of the Sixth Plan.

The objectives of the Sixth Plan stress government's special concern for the rural populace. Programmes such as rural housing, resettlement, generation of farm incomes and a widespread distribution of public services and utilities looms large in the Sixth Plan objectives. Scarcity of skilled manpower and investible domestic surplus resource have been fundamental and lingering constraints faced by the economy. Human resource development and domestic resource mobilization are, yet again, given very high priority in the Sixth Plan. Without alerted actions against these constraints, self-sustained growth, i.e. growth which precludes the need for foreign aid, would remain a distant goal.

- An important objective underpinning our development approach have always been the preservation of our culture and values. Programmes for social and economic change must not ever precipitate any decline in our hallowed tradition and institutions. We have witnessed, over the past three decades, the coming of modern conveniences in our society; and we are justly proud of advances that improve the general standard of living. But I am convinced that such achievements would be hollow if the development process leads to any loss of our culture identity and value system. Nor would the pursuit of such successes be worthwhile if their long run effects are adverse to our national self-determination and sovereignty of the Kingdom.

As we enter the closing decade of the 20th century, the economy is poised for a decade of brisk

expansion. The economy is endowed with sufficient natural resources. The total estimated hydro-electric potential of the country is 20,000 MW. So far, only 1.71 per cent has been harnessed. Hydro-electricity from Chukha has been providing the main drive to economic growth in the last few years. The findings of mineral prospecting are also very encouraging. We have protected our environment through stringent rules and have an eco-system which is the envy of any developing country. We have managed to control the growth of bureaucracy. Manpower base is expanding every year and more and more trained people are getting into the productive workforce of the country. Planning and administration have been decentralized to the dzongkhags and decision-making has become more participatory.

Though this document is intended to be the main reference for executing the national plan, it is possible for further changes to take place. Unintended repercussions and unforeseen snags are likely to force upon us minor deviations from the plan and make modifications necessary. To adjust to the changing circumstances, the plan may be formally revised at such regular intervals as mid-term review (due in September 1989) and annual budgetting. However, the informations in this document are correct at the time the document goes to the press.

I am personally grateful to my colleagues in the government and officers in Planning Commission for their enthusiastic support in bringing out this - our latest publication. It has been brought out to meet **the practical** needs of administrators, policy-makers, consultants, donor countries, international agencies and others who wish to keep abreast of the development activities in Bhutan. I hope that it is a helpful blue-print according to which **the complicated** process of development is given direction and unity. Above all, it is my deepest wish that its contents, when translated into actions, will meet the aspirations and future needs of Bhutan.

Deputy Minister
Planning Commission, Thimphu J
July 1, 1989 C. D(

GLOSSARY OF TERMS

Driglam Cheosum	LDriglam (from Driglam Namsha) is the doctrine that an individual's conduct should conform to established etiquette and norms. Cheosum is the Tri Ralna of Buddhism: the Buddha, the Sangha and the Dharma.
Druk Gyalpo	King of Bhutan.
Drungpa	Official with authority over a group of villages; junior to dzongda.
Dubdras	Centres for meditation.
Dzongda	Principal civil authority of a district.
Dzongkhag	An administrative unit. The country is partitioned into 18 dzongkhags.
Dzongrab	Official immediately subordinate to dzongda.
Dzongkhag Yargye Tshogchung	District Development Committee.
Gelong	A monk.
Gewog	An area within the administrative scope of a gup. A gewog consists of a few villages.
Gup	Village headman.
Kidu Soilra	In the context of its usage in this document, Kidu Soilra refers to either grant of land title by His Majesty's writ or financial grant for villagers for residential construction. In general, Kidu Soilra can be any form of grant in aid.
Je Khembo	Chief Abbot of Bhutan
Lopens	Generally teachers; but in the hierarchy of central Monastic Body, it refers to four Lopens who are fully ordained and highest ranking monks immediately subordinate to the Je Khembo.
Shredras/Rigney	Centres for higher studies in traditional School learning.
Thram	A certificate issued by the Land Record Office to the proprietor of a registered land as proof of his ownership of it.
Tsheri	Bush-fallow and forest-fallow land.
Thrimpon	Chief Law Officer in a district.
Tshogdu	National Assembly.

Woola	Community labour contribution or labour tax.
Gungda Woola Chunikang Shabtog Woola	Forms of labour taxes assessed by different criteria and requisitioned for community projects.
Zowos	Carpenlers par excellence.

Chapter 1

OVERVIEW OF THE COUNTRY

Position and Area

Bhutan comprises a land area of 46,500 square kilometres. The land lies between latitudes 26° 45'N and 28° 10'N and between longitudes 88° 45'E and 92° 10'E. The country has a maximum latitudinal distance of 170 kilometres and the maximum longitudinal distance of 300 kilometres.

Bhutan is landlocked. It is bordered by India in the south, and by the Tibetan Autonomous Region of China in the north and north-west.

Bhutan's borders are largely natural ones. The border with Tibet is traditional following the watershed of the Chumbi Valley in the north west and the crest of the Himalayas in the north. The southern border with India was established by treaty with the British in the nineteenth century and in general, follows the line made by the Himalayan foothills with the plains.

Landforms

Bhutan is almost entirely mountainous with flat land limited to the broader river valleys. The land rises from approximately 300 metres above sea level in the south to the towering Himalayan mountains in the north of over 7,000 metres high. The densely populated central valleys are separated from the south by a 2,000 metre high chain of mountains.

Bhutan has three major landform features: the southern foothills, the inner Himalayas and the higher Himalayas. The southern foothills rise from the plains to heights of about 1,500 metres extending to the north by about 20 kilometres. Southern Bhutan consists of a heavy network of steep hills covered with large tracts of dense forest and jungles.

Central Bhutan consisting of the inner Himalayas rises gradually to about 3,000 metres. This region contains the broader river valleys- Paro, Thimphu, Punakha, Wangdiphodrang, Bumthang and Tashigang which comprise the economic and cultural heartland of the country. An infinite variety of plants, flowers and trees including apples, peaches and plums grow in the fertile valleys. Rice is the principal crop and large tracts of forest including birch, pine, chestnut and oak cover Central Bhutan.

The northern region comprises the main Himalayan range of high snow-capped mountains which separate Bhutan from Tibet. The Kula Gangri and the Gangkar Punsum (both over 7,500 metres) and the Jomolhari (7316 metres) are the highest peaks in the Bhutan Himalaya. The slopes of the mountains are covered with birch, magnolia and rhododendron while for many months of the year the summits are decked with snow. Population in this zone is sparse.

Rivers

All but two of Bhutan's rivers rise in the higher Himalayas and flow south to join the Brahmaputra in India. Almost all the valleys have a swiftly flowing river or stream which merge ultimately into four major river systems as they flow south - the Ammochu, the Wongchu, the Sankosh and the Manas. The rivers are fed by the perennial snows or the

summer monsoons and are highest in the monsoon months (June to September) and lowest in winter (December to March).

Climate

The country can be divided into three distinct climatic zones corresponding broadly to the three main geographical divisions. The southern belt has a hot humid climate with temperatures remaining fairly even throughout the year between 15°C and 30°C with rainfall ranging between 2,500 mm to 5,000 mm in some areas.

The central inner Himalayas has a cool temperate climate with annual rainfall averaging about 1,000 mm with the western region receiving comparatively higher rainfall. The higher and more northern region has a severe alpine climate with annual rainfall around 400 mm. Much of the rainfall is concentrated in the summer months with the southwest monsoon accounting for 60-90 per cent of the total rainfall.

There is substantial variation within these broad ranges and the climate and rainfall characteristics change dramatically from one valley to an adjacent one with consequent sharp changes in the composition of agricultural production.

Widespread flood rainfall may occur during the summer monsoons and the waters of the valley rivers may swell dramatically, spreading across the plains and flooding fields, bridges and houses.

The Monarchy

On December 17, 1907, Druk Gyalpo Ugyen Wangchuck was crowned the first hereditary monarch of Bhutan by the civilian and monastic representatives.

It was as a result of the influence of the strength and far-sightedness of Druk Gyalpo Ugyen Wangchuck that for the first time Bhutan was united under a central authority which provided the country with stability and the opportunity for development. In 1926 Druk Gyalpo Ugyen Wangchuck was succeeded by his son King Jigme Wangchuck, who ruled until his death in 1952.

The third Druk Gyalpo, Jigme Dorji Wangchuck began a campaign of modernisation and expansion of Bhutan's Government and society based on the accomplishments of his two predecessors in uniting the country under a strong central authority.

The present Druk Gyalpo, His Majesty King Jigme Singye Wangchuck acceded to the throne in 1972 on the demise of his father.

His Majesty the King is the Head of State and also the Head of Government. He is assisted by the Cabinet which consists of His Majesty's Representatives in various Ministries, Ministers and some senior civil servants.

The Tshogdu (National Assembly)

The National Assembly has 150 members of which 105 members represent the people. They are elected for a three year term by consensus in each of the dzongkhags. Twelve monastic representatives are elected by the regional monk bodies while 33 representatives of the

Government are nominated by the King. They include members of the Council of Ministers and the Royal Advisory Council, secretaries of various government departments and several dzongkhag officers.

The National Assembly meets twice a year. The Assembly enacts legislation and advises the government on all matters of national importance. Decisions are passed by a simple majority. A secret ballot is taken on all matters of national importance. Any Bhutanese over 25 years of age can be a candidate for membership.

The Royal Advisory Council

The Royal Advisory Council was formally established in 1965 to advise the King and government ministers and to supervise the implementation of programs and policies laid down by the National Assembly. It consists of 9 members: six representing the people, two representing the clergy and one nominee of the King.

The Monk Body

The Monk Body which currently has a strength of about 5,000 is financed by an annual subsidy from the Government and is the sole arbiter on religious matters. The Jhe Khcmho equal in status to the King, is the head of the Body chosen from among high ranking gelongs (monks). He is assisted by four high ranking "Lopens" of the Central Monk Body which consists of 1,000 gelong. The Lopens are equal in rank to the Ministers.

The Judiciary

Bhutan's legal code is based on that laid down by Ngawang Namgye, the first Shabdrung who arrived here in 1616. Traditional Buddhist precepts are significant in the law.

There are courts in each dzongkhag headed by a thrimpon and assisted by Ramjams but minor disputes are settled by village gups.

Disputes which fail to be resolved by village gups go to dzongkhag court. A dzongkhag court have both original and appellate jurisdictions. The next higher court is the High Court in Thimphu. The final appeal is made to the King, who then delegates the Royal Advisory Council to investigate and ensure that the courts have dispensed justice in keeping with the law of the country.

Central Government

Bhutan has been administered by centrally based functional departments and ministries. The organisation of central government comprises of seven ministries, their related departments and 3 commissions and several autonomous bodies. The ministries are Ministry of Foreign Affairs, Ministry of Communications, Ministry of Trade and Industry, Ministry of Finance, Ministry of Social Services, Ministry of Agriculture and Ministry of Home Affairs. Of the three commissions - Royal Civil Service Commission, Planning Commission and Special Commission for Cultural and Religious Affairs - the Planning Commission is headed by a Deputy Minister as its full time head. His Majesty the King is the Chairman of the Planning Commission.

The Royal Civil Service Commission, established in 1982, is responsible for formulating and ensuring implementation of personnel policies in order to promote efficiency, loyalty and integrity among civil servants and to maintain a high level of morale. It is also responsible for appointments, transfers, promotions and discipline of all civil servants. The strength of civil service was about 13,363 in 1987.

Zonal Administration

The 18 dzongkhags are grouped into 4 zones on the basis of common natural features and geographical proximity. The Zonal Administrations were initiated to develop, among other things, the inter linkages and potentials of the zone as a whole by introducing regional planning. The Zonal Administration will have various functional bodies, e.g. Planning and Coordination Division, Agriculture and Industries Division, Revenue and Customs and Excise Division.

Dzongkha Administration

Local administration has been strengthened to meet the requirements of decentralised administration and development. There are 18 dzongkhags or districts each under the charge of a dzongda responsible for civil administration and development activities.

Each dzongdais assisted by a dzongrab. The larger dzongkhags are sub-divided into subdivisions (dungkhags) headed by a drungpa. Groups of villages have a headman - the gup (in the north) or mandal (in the south). In each dzongkhag, the dzongdais assisted in his development functions by the Dzongkhag Yargye Tshogchung (or District Development Committee) which consists of people's representatives and officials.

Chapter 2

RECENT ECONOMIC DEVELOPMENTS (with special reference to the Fifth Plan)

Plan Outlays

Plan outlays have been growing at an impressive rate. Table 2.1 and Table 2.2 refers to the outlays in absolute and percentage terms respectively from First Plan to Sixth Plan. From a modest Nu. 107.2 million in the First Plan, the Plan outlay increased to Nu. 6511 (includes Chukha) million in the Fifth Plan. Fifth Plan outlay was about 4.25 times the outlay of the Fourth Plan. The revised outlay for the Sixth Plan is Nu. 95236 million, which is about 1.47 times the Fifth Plan outlay. In real terms, an average allowance of 10 per cent must be made for inflation. Therefore, the Sixth Plan outlay of Nu. 9559.23 million, while representing a substantial nominal increase over the Fifth Plan, is very reasonable and necessary to maintain the current rate of economic development in Bhutan.

TABLE 2.1 Outlays of Development Plans, First Plan to Sixth Plan

(Nu. in millions)

Sector	First Plan (actual)	Second Plan (actual)	Third Plan (actual)	Fourth Plan (actual)	Fifth Plan (actual)	Sixth Plan (revised)
Agriculture	1.9	21.6	58.3	259.0	331.5	880.4
Food Corporation of Bhutan	--	--	--	--	99.5	106.5
Animal Husbandry	1.5	5.8	24.2	61.5	105.6	331.0
Forestry	3.2	6.9	28.4	110.3	200.2	418.2
Power	1.5	9.1	30.1	50.5	345.4	1,247.9
Trade & Industries	1.1*	1.0*	25.2*	175.0*	303.5*	1,276.1
Geological survey	--	--	--	--	--	35.3
Public Works Dept.	62.9	70.5	84.6	128.3	719.2	887.2
Road Transport/ Aviation	7.5	12.0	9.5	--	60.4**	48.8
Post, Telcraph and Wireless	0.5	5.9	11.4	16.9	62.1	68.1
Telecommunications	--	--	14.8	37.3	33.9	133.8
Tourism	--	--	14.1	12.5	--	--
Druk Air	--	--	--	--	--	391.0
Education	9.4	35.7	90.1	134.6	410.0	778.8
Health	3.1	16.7	38.1	54.6	205.6	339.1
Information & Broadcasting	0.1	1.4	4.0	11.0	98.3	95.9
Urban Development	--	--	--	--	194.4	248.7
General						
Government***	--	--	--	--	1007.4	1,973
Dzongkhags ***	--	--	--	--	534.0	238.5
Others	14.4	15.6	42.5	54.7	--	--
Total Outlays	107.2	202.2	475.2	1,106.2	4711.2	9559.2

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**TABLE 2.2 Percentage Composition of Outlays
First Plan to Sixth Plan**

(Percent)

	First Plan	Second Plan	Third Plan	Fourth Plan	Fifth Plan(a)	Sixth Plan
Agriculture	1.8	10.7	12.3	23.4	7.0	9.2
Food Corpora- tion of Bhutan	--	--	--	--	2.1	1.1
Animal Husban- dry	1.4	2.9	5.1	5.6	2.2	3.5
Forestry	3.0	3.4	6.0	10.0	4.3	4.4
Power	1.4	4.5	6.3	4.6	7.3	13.1
Trade & Indus- tries	1.0*	0.5*	5.3*	15.8*	6.5*	13.3
Geological Survey	--	--	--	--	--	0.4
Public Works Department	58.7	34.9	17.8	11.6	15.3	9.3
Road Transport/ Aviation	7.0	5.9	2.0		1.3**	0.5
Post & Telegraph	0.5	2.9	2.4	1.5	1.3	0.7
Telecommunication	--	--	3.1	3.4	0.7	1.4
Tourism	--	--	3.0	1.1	--	--
Druk Air	--	--	--	--	--	4.1
Education	8.8	17.7	18.9	12.2	8.7	8.1
Health	2.9	8.3	8.0	4.9	4.4	4.2
Information & Broadcasting	0.1	0.7	0.8	1.0	2.1	1.0
Urban Develop- ment	--	--	--	--	4.1	2.6
General Govern- ment***	--	--	--	--	21.4	20.6
Dzongkhags***	--	--	--	--	11.3	2.5
Others	13.4	7.7	8.9	4.9	--	--
Total Outlays	100.0	100.0	100.0	100.0	100.0	100.0

Sixth Plan revised outlays represent the following significant features. The percentage shares of Agriculture, Animal Husbandry, Health, Education and Forestry have remained almost the same as in the Fifth Plan.

Power and Trade & Industries have recorded significant increases in their shares in the Sixth Plan as compared to the Fifth Plan; power having increased from 7.3% to 13.1% and Trade and Industry from 6.5% to 13.3%.

Two sectors, namely, Public Works Department and Dzongkhags have got substantially

smaller shares. The shares of Public Works declined from 15.3% to 9.3% and the shares of Dzongkhags declined from 11.3% to 2.5%. There is also a slight reduction on the shares of General Government, reflecting an attempt to economise the maintenance expenditure and reduce the civil service growth.

It is thus evident that the Sixth Plan has accorded almost the same priority as the Fifth Plan to Agriculture, Animal Husbandry, Forestry, Health and Education. But Power and Trade & Industry have been given relatively higher priority in the Sixth Plan.

Gross Domestic Product (GDP) and Per Capita GDP

The available estimates of GDP at constant 1980 prices indicate that over the Fifth Plan period (1980 to 1986) GDP increased from Nu. 1204.8 million to Nu. 1674.5 million recording a compound annual growth rate of 6.8%.

Per capita GDP in current prices increased from Nu. 1093 in 1981 to Nu. 2123 in 1986 or \$ 168 when Nu 12.61 = \$ 1. At current prices,

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GNP was estimated at Nu. 2387 million in 1986. Table 2.5 reports the GDP by kind of activity and Table 2.6 gives the rates of growth by kind of activity.

In terms of structural change the percentage shares of forestry, logging, manufacturing and transport sectors remained at the same levels between 1980 and 1986.

The percentage shares of power and manufacturing rose substantially, whilst, the shares of agriculture, livestock and construction decreased.

TABLE 2.3 Summary of Budgetary Operations, 1981/82 to 1986/87 (a)

Item	1981/82 revised	1982/83 actual	1983/84 actual	1984/85 actual	1985/86 actual	1986/87

Revenue						
Tax revenue	65.1	75.7	113.7	133.7	135.9	173.8
Non-tax						
revenue	23.7	52.2	63.2	116.2	97.3	139.3
Other	30.8	9.8	19.1	26.3	24.3	27.0
Total revenue	119.6	137.7	196.0	276.2	257.5	340.1
Grants						
India	195.3	259.7	256.2	355.6	334.1	486.7
Other	104.9	100.6	222.1	156.5	367.6	295.6
Total grants	300.2	360.3	478.3	512.1	701.7	782.3
Total revenue						
and grants	419.8	498.0	674.3	788.3	959.2	1,122.4
Expenditure						
Current	169.7	213.1	223.2	304.0	441.5	510.5

Development	267.1	274.7	476.0	454.4	776.2	798.1
Total						
expenditure	436.8	487.8	699.2	758.4	1,217.7	1,308.6

Overall surplus/						
deficit	(17.0)	10.2	(24.9)	29.9	(258.5)	(186.2)

(a) Years refer to period 1 April to 31 March. Source: Ministry of Finance.

Budgetary Operations

Total government revenue increased from Nu. 119.6 million in 1981/82 to Nu. 340.1 million in 1986/87. Non-tax revenues includes operating surpluses of departmental enterprises, net profits transferred from non-financial and public enterprises, royalties and dividends, administrative fees, etc. It increased over this period from Nu. 23.7 million in 1981/82 to Nu. 139.3 million in 1986/87. Tax revenue increased from Nu.65.1 million in 1981/82 to Nu.173.8 million in 1986/87.

Total government expenditure increased more sharply over this period - from Nu.436.8 million in 1981/82 to Nu. 1308.6 in 1986/87. While current expenditure increased from Nu. 169.7 million in 1981/82 to Nu. 510.5 in 1986/87, development expenditure increased, from Nu. 267.1 million to Nu.798.1 million over the same period.

The expenditures exceeded the revenues by a large margin but the deficit was reduced by external aid. The year 1987/88 recorded a sharp increase in government revenues. The tax revenues increased from Nu. 173.8 million in 1986/ 87 to Nu. 232.3 million in 1987/88 and the non tax revenue from Nu. 139.3 million to Nu.491.6 million. Total revenues increased from Nu. 340.1 million in 1986/87 to Nu.753.1 million in 1987/88. While the current revenue (Nu. 727.5 million) exceeded the current expenditure (Nu. 897.6 million), the total expenditure (Nu.2369.1 million) still far exceeded the total revenue (Nu. 753.1).

The most important factor which contributed to the buoyancy in government revenues in 1987-88 was the commissioning of the Chukha Hydel Project. As against the total electricity generation of 390986 kilowatt hours in 1986/ 87, the total generation by Chukha done in 1987/ 88 was 1046941 kilowatt hours, about 95% of which was exported to India. In 1987, total Chukha revenues amounted to Nu. 279.7 million, of which Nu. 275.9 million were export earnings, and Nu. 3.8 million were accounted for by domestic consumption, the corresponding figures for the previous year being Nu. 42.5 million, Nu.42.0 million and Nu.0.6 million, respectively. Chukha electricity has now the largest share in Bhutan's total exports, and would be a major factor is not only reducing the trade deficit with India, but also in substantially augmenting government revenue.

Foreign Trade and Balance of Payments

The following significant facts emerge from an analysis of the available data relating to foreign trade relations in the period 1982/83 to 1987/88. (See Table 2.4)

Bhutan's total imports increased from Nu. 64(.50) million in 1982/83 to Nu. 143(.00) in 1987/88. Total exports increased from Nu. 153.37 million to Nu.789 million over the same

period. In spite of a much higher growth rate of exports, the total deficit in the trade account increased from Nu.487.13 million to Nu.641.00 million over this period. The deficit in the current account also increased from Nu. 754.72 million to Nu. 927.32 over the same period.

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Over the period 1982/83 to 1987/88 exports to India increased faster than the imports from India. Whereas exports increased from Nu. 157.00 million in 1982/83 to Nu.780.00 million in 1987/88, imports recorded a relatively smaller growth from Nu. 546.49 million to Nu. 1030.00 million. The deficit on trade account, therefore, declined from Nu. 389.49 million to Nu. 250.00 million. The deficit on current account also declined from Nu. 646.60 million to Nu. 357.19 million.

The deficits on current account have, however, been more than offset by foreign aid in each of the years between 1982/83 to 1987/88 resulting in surplus in the over-all balance of payments. Total foreign aid (most of which is from India) increased from Nu. 788.67 million in 1982/83 to Nu. 1282.07 in 1987/88, thereby increasing the surplus in the over-all balance of payments from Nu.59.88 million in 1982-83 to Nu. 348.48 million in 1987/88.

Secular growth in foreign aid over these years has also resulted in continuous growth of international reserves. The rupee reserves increased from Nu. 260.40 million in 1982/83 to Nu. 706.70 million in September 1988. The convertible currency reserves increased to US\$ 38.5 million over the same period;

The facts mentioned above highlight the need for a vigorous export drive to boost exports, and also for measures designed to reduce imports to the extent possible.

Money Supply and Prices

An analysis of the available data regarding growth in money supply and changes in the consumer price index relating to recent years brings out the following significant facts. (See also Table 6.1)

'Narrow Money' (currency outside banks plus demand deposits) increased from Nu.177.2 million in 1983 to Nu.356.9 million in 1988 (upto September'88), thus recording an average annual growth rate of about 16% over this period. 'Quasi Money' (time deposits plus foreign

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currency deposits) increased from Nu. 147.4 to Nu. 283.3 over the same period, registering an average annual growth rate of 14%. 'Broad Money' (M1 + Quasi Money) increased from Nu. 324.6 million in 1983 to Nu. 640.2 million in 1988 (upto September'88) thus recording a slightly higher average annual growth rate of 14.5% over this period.

Consumer Price Index (1979 =100) increased from 116.3 in 1981 to 215.3 in 1988. The average annual growth rates of CPI over the periods 1981 to 1988, 1981 to 1986 (Fifth Plan period) and 1987- 1988 (the first two years of the Sixth Plan) have been 9.2%, 9.4% and 9.6%, respectively.

While the CPI of Non-Food items recorded a higher average annual growth rate during the

periods 1981 to 1988 and 1981 to 1986 (11.4% and 12.8% as against 8.3% and 7.9% in the case of food items, respectively), in the first two years of the Sixth Plan (1987-1988) the situation has changed with food items recording a slightly higher (9.8%) than the Non-Food items (9.3%).

The average annual growth rate of CPI during the period 1981 to 1987 has been almost in line with the annual average growth rate in the neighbouring countries. While CPI in Bhutan increased at the average annual growth rate of 9.1% during this period, the corresponding figures for India, Nepal and Bangladesh were 8.5%, 10.4% and 10.3%, respectively.

TABLE 2.4 Balance of Payments Estimates, 1982/83 to 1987/88 (a)

(Nu. in millions)

Item	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88(b)

Exports,						
fob	159.4	160.7	206.4	272.0	427.1	789.0
India	157.0	157.2	200.0	270.09	424.4	780.0
Other	2.4	3.5	6.4	2.0	2.7	9.0
Imports,						
cif	(646.5)	(730.0)	(825.2)	(1,041.6)	(1,205.4)	(1,430)
India	(546.5)	(600.0)	(725.0)	(800.0)	(911.1)	(1,030.0)
Other	(100.0)	(129.4)	(100.2)	(241.6)	(294.3)	(400.0)
Trade						
balance	(487.1)	(569.3)	(618.9)	(769.6)	(778.3)	(641.0)
India	(389.5)	(443.4)	(525.0)	(530.0)	(486.7)	(250.0)
Other	(97.6)	(125.9)	(93.9)	(239.6)	(291.6)	(391.0)
Services &						
Transfer						
receipts	131.3	156.4	204.3	234.9	271.9	313.0
India	89.8	106.2	133.1	158.5	173.4	200.8
Other	41.5	50.2	71.2	76.4	98.6	112.2
Services &						
transfer						
payments	(389.9)	(555.7)	(511.4)	(599.6)	(568.9)	(601.3)
India	(346.9)	(450.0)	(422.7)	(397.8)	(374.7)	(308.0)
Other	(52.0)	(105.7)	(88.7)	(201.8)	(194.2)	(293.3)
Current accounts						
balance	(754.7)	(968.6)	(926.0)	(1,134.3)	(1,075.3)	(929.3)
India	(646.6)	(787.2)	(814.6)	(769.3)	(688.1)	(357.2)
Other	(108.1)	(181.4)	(111.4)	(365.0)	(387.2)	(572.1)
Foreign aid	788.7	1,085.0	989.0	1,224.3	1,231.1	1,282.1
India	679.5	856.0	819.4	760.8	786.5	579.8
Other	109.2	229.0	169.6	463.5	444.7	702.3
Other loans	--	--	--	6.3	(6.3)	(63.1)
India	--	--	--	--	--	--
Other	--	--	--	6.3	(63.1)	--
Errors &						
ommissions	25.9	(37.2)	70.4	(29.7)	35.7	58.8

India	18.0	(16.7)	64.0	(1.7)	(22.6)	(5.0)
Other	7.9	(20.5)	6.7	(28.0)	58.3	63.8
Overall						
balance	59.9	79.3	133.7	66.6	185.3	348.5
India	50.9	52.1	68.8	(10.2)	75.8	217.6
Other	9.0	27.2	64.9	76.9	109.4	130.8

(a) Years refer to 1 April to 31 March periods. Figures are revised from 1987 issue of statistics. (b) 1987/88 figures are preliminary. Source: Royal Monetary Authority of Bhutan.

11. Recent Economic Developments

TABLE 2.5 Gross Domestic Product by Kind of Activity

(in 1980 prices)

1980	1981	1982	1983	1984	1985	1986	1987	compound rate of growth 1980-87 1981-86	
-----1. Agriculture, forestry & fishing									
612.4	636.1	692.2	742.2	806.5	833.9	881.0	925.8	5.9	6.7
1.1 agriculture									
309.9	312.5	331.0	368.9	388.3	411.6	436.3	458.1	5.7	6.9
1.2 livestock production									
139.2	144.5	149.7	155.4	161.3	168.6	177.4	184.5	4.1	4.2
1.3 forestry and logging									
172.3	179.1	211.5	117.9	156.9	153.7	167.3	123.2	7.4	8.3
1.4 fishing									
--	--	--	--	--	--	--	--	--	--
2. Mining & quarrying									
6.8	8.9	12.1	8.9	15.8	12.6	22.7	21.6	18.0	20.0
3. Manufacturing									
35.8	59.1	59.6	62.9	67.2	75.4	71.0	105.0	16.6	3.7
4. Electricity & Gas									
2.5	2.7	3.1	6.0	5.2	6.0	60.4	229.0	90.7	86.2
5. Constructions									
88.5	131.0	157.7	185.2	173.5	169.0	141.8	152.3	8.1	1.6
6. Wholesale & retail trade, restaurants & hotels									
121.5	140.3	132.0	122.0	123.4	132.4	143.4	142.4	2.3	0.4

7. Transport, storage & communications	47.9	54.9	57.4	64.8	66.4	79.4	83.9	91.3	9.7	8.1
8. Financing, insurance, real estate & business services	70.2	80.3	77.0	91.1	109.4	110.1	126.2	135.7	9.9	9.5
9. Community, social and personal services (Govt. Admn & defence)	120.4	121.5	102.1	113.1	130.3	126.0	168.6	200.0	7.5	6.8
less:imputed Bank services charges	-20.0	-30.0	-24.0	-26.0	-32.0	-25.0	-24.0	-30.0	--	--
Gross domestic product	1095.0	1204.8	1269.2	1370.2	1465.7	1519.8	1674.5	1973.1	8.7	6.8
Rate of growth over preceeding year(%)	--	10.0	5.3	8.0	7.0	3.7	10.2	17.8	--	--

Source: Central Statistical Office

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TABLE 2.6: Rates of Growth by Kind of Activily

	Compound rates of growth % in constant (in current prices)		Compounds rates of (1980) prices		growth %
	1980-87 1980-86	Fifth Plan 1980-86	1980-87 1980-86	Fifth Plan 1980-86	
1. Agriculture, Lives- stock, Forestry & Fishing	14.7	14.5	5.9	6.0	
1.1 agriculture proper	12.7	13.0	5.7	5.9	
1.2 livestock	15.1	15.0	4.1	4.1	
1.3 forestry	17.6	16.6	7.4	7.6	
1.4 fishing	--	--	--	--	
2. Mining & Quarrying	27.4	32.9	18.0	21.8	
3. Manufacturing	28.3	25.1	16.6	12.1	
4. Electricity & Gas	104.7	84.0	90.7	70.0	

5. Construction	21.7	20.2	8.1	8.2
6. Wholesale & retail trade, restaurants & hotels	10.7	11.6	2.3	2.8
7. Transport, storage & communication	14.8	15.6	9.7	9.8
8. Financing, Insurance real estate & busi- ness services	17.0	16.0	9.9	10.3
9. Community, social & personal services (Govt. Admn & Defence)	19.4	19.5	7.5	5.8
Less :Import Bank service charges	--	--	--	--
<hr/>				
Gross Domestic Product	18.2	16.6	8.7	7.3
<hr/>				

Source: Central Statistical Office

Chapter 3

REVIEW OF FIFTH PLAN OBJECTIVES

The objectives of the Fifth Plan were to achieve a greater overall economic self-reliance, in particular, to fully meet the recurrent costs of the development process and to directly involve the people in the planning and execution of development programmes.

In light of these objectives, His Majesty the King enunciated five major strategies that have been incorporated in the formulation and implementation of the Fifth Plan. The first three of the strategies enumerated below are related to decentralization either of planning or administration. The last two are about fiscal policy.

- i) Dzongkhag self-reliance
- ii) Decentralization of development administration
- iii) People's Participation
- iv) Mobilization of internal resources
- v) Control of maintenance expenditure

Dzongkhag Self-reliance

As self-reliance at the local and district levels are crucial to attain self-reliance at the national level, dzongkhag self-reliance was adopted as one of the important policy objectives and strategy of the Fifth Plan.

There were numerous problems which needed to be addressed in order to implement this objective. The problems included, among others, low tax base, inadequate technical and managerial personnel, limited infrastructure and transportation difficulties in the dzongkhags. Various measures to overcome these constraints were adopted.

Dzongkhag administration had been considerably strengthened. The technical staff of all operational departments - agriculture, animal husbandry, etc. were placed directly under the dzongda. Accounting staff had also been provided and necessary administrative and financial powers delegated to the dzongkhag level. A dzongdag had been posted for each dzongkhag to function directly under the dzongdag, and made responsible for the entire development effort.

Dzongkhags are now in a much better position to implement the Sixth Plan. A certain degree of capability for planning and implementation exists within the dzongkhags. The discussion of development activities in the Dzongkhag Yargey Tshogchung (DYT) and the production of the Dzongkhag plan documents has also increased the awareness and understanding of the people, at least, at the dzongkhag level.

Decentralisation Or Development Administration

While decentralized administration has been a traditional practice in Bhutan, the devolution of responsibilities of planning and implementation of development programmes to the local administrations is new and was only introduced in the Fifth Plan.

Before the Fifth Plan, the plans and programmes were implemented either directly by the

central government functionaries or through regional officials, who had little systematic interaction with the local people. In contrast, in the Fifth Plan, the implementation of all rural development programmes and other programmes of local character, meant for the benefit of the local people, were entrusted to the dzongkhag or gewog level functionaries. They have been brought under the administrative control of dzongdags.

Fifth Plan documents had been prepared for individual dzongkhags, each plan reflecting the needs and specific priorities of the dzongkhag concerned within the over-all national framework of priorities.

Dzongkhag plan formulation had been left largely to the DYT's; the Central Departments provided technical guidance only. substantial portion of the Fifth Plan outlays (40%) were planned for by the dzongkhags and their populace, and implemented with the voluntary labour

14 Sixth Plan contributions of the local people.

One of the most visible impact of this policy is that from a total staff of only 361 in 18 dzongkhags, prior to the start of the Fifth Plan in 1981, manpower strength has reached 3270 in 18 dzongkhags by the end of the Plan. Dzongkhag administration is now established as an invaluable part of the development process. It is evident that the experience of decentralization programmes will prove invaluable for the implementation of the Sixth Plan.

People's Participation

People's participation in community and public works is not a new practice in Bhutan; it has a long tradition. It was, however, recognized that this practice was being increasingly undermined and it needed to be restored in the interest of both the government and the people.

The forum of DYT for decision making has been successful not only in giving more articulation to rural problems and in bringing their concerns to decision makers, but it has also improved the perception of people toward participation. DYT's functions included:

- i) formulation of the dzongkhag plan within the over-all framework provided by the Government;
- ii) supervising plan implementation; and
- iii) ensuring that the plan prepared was in keeping with the capability of the people to provide voluntary labour, which would form a major input both for execution of plan projects and maintaining them on completion.

The dzongkhag administration collected all requests emanating from the DYT members and others for local developmental works. Each request was examined from the viewpoint of technical feasibility, availability of the required voluntary manual labour, national priorities and sectoral guide-lines and also the technical capability for their implementation at the dzongkhag level. The schemes satisfying these criteria were included in the Dzongkhag plan proposals after obtaining the approval of the DYT. Their ultimate inclusion in the Dzongkhag plan depended on their being found suitable on the basis of the same criteria by the concerned Central Government Departments, and the Ministry of Finance allocating necessary funds for their implementation.

Woola

The implementation of Shabtog Woola was fairly successful; but the implementation of Chunikang faced many difficulties. Chunikang mobilization for development activities were carried out satisfactorily only in few Dzongkhags. In some others, although labour was contributed, the quality of work was not up to the standard. In many Dzongkhags no activities under Chunikang were carried out at all. Many development programmes, particularly in the roads sector, were adversely affected due to problems faced in the mobilization of Woola labour. Nevertheless, Chunikang is likely to remain an important source of participatory labour and renewed emphasis must be placed on it both by the people and the government.

Mobilisation of Internal Resources

The actual revenue receipts for the Fifth Plan (1981-87) was Nu.1327.114 million. The revenue mobilisation has increased from Nu. 119.6 millions in 1981-82 to Nu. 340.1 million in 1986-87. It also includes Nu. 22.706 million as receipts from Chukha Hydel Project in 1986-87. It can be seen that revenue realisation increased every year except in 1985-86 when there was a slight drop to Nu.257.5 (by Nu.18.7 million) as compared to Nu.276.153 million. This decrease was, inter-alia, due to partial remittance of profit by Penden Cement Authority and due to fall in revenue from excise duty on account of short supply of spirit from India.

The main instruments of tax policy through which the objectives of resource mobilisation was sought were direct and indirect taxes. The major sources under the direct taxes were corporate rate tax, business income tax, rental income tax, contractor tax and tax on salary etc. The main contributor amongst indirect taxes are sale tax and excise duty including refund of excise duty from Government of India.

There has been a steep rise in direct taxes from 1982-83 onwards. This increase was attributed to the introduction of corporate tax of 30% on net profit of selected public undertakings, viz., Bank of Bhutan, RICB, Unit Trust of Bhutan, Bhutan Tourism Corporation and its Hotels, Penden Cement Authority etc. in 1982. Besides, the rate of business income tax, was raised from 1% of the annual sales turnover to 2% of the annual sales turnover for all categories of traders.

The indirect taxes have registered only a modest increase during Fifth Plan. Revenue from indirect taxes increased from Nu. 54.0 million during 1981-82 to Nu. 109.3 million during 1986-87. This was due to introduction of the indirect tax. The excise duty was imposed only on domestic distillery products and a few locally manufactured goods such as steel furniture, wooden furniture, jhari (tea balls), cement and forest products. There was no major changes in the area of excise duty during Fifth Plan period.

In order to keep the prices of the goods competitive with Indian prices, the BST rates have been kept lower than the rates of Indian Sales Tax. There is no customs duty on import of the goods imported from third countries are for Government requirements and free of customs duty, the revenue from customs duty has been negligible.

The resource mobilisation under non-tax revenue was Nu. 493.530 million during Fifth Plan period rising from Nu. 23.7 million in 1981/82 to Nu.491.6 in 1987/88. The later includes Nu. 22.706 million from C.H.P. during 1986-87. The increase is attributable to the revenue generation from Penden Cement Authority, Bhutan

Lotteries, Forest Royalties and Dividend from Bank of Bhutan and R.I.C.B.

Control of Maintenance Expenditure

As a result of stringent financial and administrative measures to control civil service growth and consolidation of social services, the recurrent expenditure growth has been kept below 10 percent per annum. Some of the initiatives taken by the Royal Government to control unnecessary expenditure include: reorganization, merger of complementary departments, rationalization of government properties including pool vehicles, privatisation and commercialization of certain government organizations such as Druk Air, BGTS, Press, the Central Workshops and Tourism. Under the various retrenchment and reorganisation exercises the government has been able to reduce about 3427 employees from 1977-78 to date. While this is an encouraging outcome similar efforts must be continued during the Sixth Plan.

Mobilization of internal resources was closely related to the objective of meeting recurrent cost and reducing government expenditure. The maintenance expenditure in the last year of the Fourth Plan 1980/1981 was of Nu. 169.50 million while internal revenue generation in the same year was only of Nu. 101.50 million, leaving a gap of Nu. 7.9 million which was covered from other sources. In comparison in the financial year 1986/87, the annual maintenance expenditure was Nu. 368.039 million, against the annual internal resources of Nu. 340.1 million, leaving a deficit of only Nu. 17.0 million.

Table 3.1 indicates revenue generation as a percentage of expenditure during the Fifth Plan period.

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TABLE 3.1 Revenue Mobilization and Maintenance Expenditure 1981/82 to 1986/87

(In Nu million)

Year	Maintenance	Revenue	Revenue as % of total Maintenance expenditure
1981-82	169.705	119.634	70
1982-83	213.057	137.732	65
1983-84	223.166	195.995	88
1984-85	304.007	276.153	91
1985-86	339.248	257.953	76
1986-87	368.039	335.249	92
Total	1612.222	1322.716	82

Source: Department of Revenue and Customs

Chapter 4

FRAMEWORK FOR SIXTH PLAN

To ensure that all plans and programmes for the socio-economic development of the country are clearly directed towards enhancing the security, sovereignty and well-being of the people of the country, His Majesty the King was pleased to approve the following specific objectives as a basis for the formulation of the Sixth Plan. The text is reproduced in its entirety.

i) "Strengthening of the Development Administration of the Government"

During the last 27 years, due to the heavy emphasis on development activities, sufficient attention and importance was not given to improving the efficiency and capability of the development administration. The call for strengthening the Government is not an indication of weakness as the standard of administration is highly satisfactory despite the late start in development; it is rather a recognition of the fact that in order to accomplish national goals and to implement any policies and objectives in an effective manner, it is essential to reorganise and restructure the Government machinery from time to time.

It is also absolutely essential for the Government to be strong, responsible and capable of meritorious leadership that deserves the confidence and respect of the people. It is necessary for the administration to develop a well defined code of ethics and discipline emanating from the age old values and a strong sense of responsibility for the welfare and the security of the people of the country. In the discharge of its responsibilities, the Government must ensure that there is appropriate decentralization and delineation of responsibilities to officials and organisations to facilitate initiative, productivity and accountability. It must be fully recognized that effective implementation of development plans and the security and sovereignty of the country will depend on a strong, efficient and dynamic Government.

Initial steps towards the implementation of this important objective such as reorganization of bureaucracy, timely auditing of accounts and stringent procedures for employment of civil servants have enhanced the productivity and efficiency of the government administration. Further measures under consideration include increased remunerations and merit based promotions. In general, a vigorous system of 'reward and punishment' is being adopted in pursuance of the objective of building an efficient administration.

ii) Preservation and Promotion of National Identity

For a small country like Bhutan maintaining and strengthening a distinct national identity will always be an important and vital factor for its continued well-being and security. It must be remembered that throughout the centuries Bhutan has remained a sovereign independent country mainly because our past generations greatly cherished the unique national identity which had been forged by the high values of the Bhutanese System and the rich cultural and religious heritage of the nation. Therefore not only must this unique identity be preserved and safeguarded against the negative attitudes and influences that emerge with the growth of the development process but constant efforts must be made to foster an unflinching faith in and love and respect for the nation's traditional values and institutions. Concrete steps must also be taken to promote all those aspects of the nation's traditions, culture and customs that are relevant and practical for strengthening the country's unique national identity. At the same time it must be realised that such measures are not taken because of sentimental values or orthodox views to uphold past practices but that they are crucial steps that must be taken to

consolidate and safeguard the sovereignty and security of the nation.

Actions to further this important national objective were initiated even before the start of the Sixth Plan. Among the measures taken were the re-organisation of the Central Monastic Body, strengthening of the Special Commission for Religious and Cultural Affairs and the production and circulation of information on traditions and culture which must be carried out regularly.

In order to promote the nation's rich cultural heritage, all such institutions of learning in the Kingdom as Sanskrit Partshallas, Shedras, Dubdras, Rigney schools etc. will be further strengthened and the establishment of important new institutions will be given high priority. Other important strategies to translate the objectives into reality include an education system that recognizes and promotes loyalty to the monarchy, a sense of pride and commitment to the nation and a feeling of communal harmony and shared destiny based on the country's rich traditions and customs and the values of the Bhutanese System.

iii) Mobilization of Internal Resources

The fact that the process of development in Bhutan was initiated and to a large extent still sustained by external assistance has been fully recognized by the Government. While this was unavoidable in the past due to changes in the fiscal system and non-monetization of the economy; since the Fifth Plan the Government has been extremely concerned that the country must assume increasing responsibility of the financial requirements of development.

It is the policy of the Royal Government that the country should not only be in a position to meet the maintenance cost of all current development works but that the nation must also become less dependent on external assistance for implementing new development programmes. To achieve this end, the Royal Government declared the mobilization of internal resources as a priority objective in the Fifth Plan. A target for meeting all current expenditures was also set. Although the performance in fulfilling this objective during the Fifth Plan was satisfactory, the continued importance of this vital goal cannot be under-rated as it is an integral part of the country's policy of self reliance. Recognising the great importance of this goal it has again been adopted as one of the main objectives of the Sixth Plan.

In order to fulfil this objective, further strengthening of the tax collection system is required, together with the introduction of new taxes. While taxation must increase, the levels and mechanisms must be simple and conducive to economic growth. The main thrust for increasing internal resources lies in encouraging industrial growth for which an outlay of about 13.3% of the Sixth Plan outlay has been earmarked. Investments in viable industrial ventures in the private, joint and public sectors are extremely important for generating internal resources in view of the government's policy not to increase taxes in the rural sector. In fact the total 1986/87 rural tax of Nu. 3.4 million hardly constituted 0.67% of the annual maintenance cost of that year. On the other hand, the total internal resource mobilisation efforts succeeded in meeting 67% of the total maintenance cost of Nu. 897.6 million for the 1987/88 fiscal year.

During the current plan, the major changes initiated during the Fifth Plan for increased internal resource mobilization such as improvement in the management and collection of revenues (taxes, royalties etc.), reduction and better scrutiny of government expenditure and broadening of the revenue base will be continued.

An important aspect of mobilizing internal resources is the need to increase the ability to earn as much foreign convertible currencies as possible to meet the country's foreign exchange requirements. To achieve this end, several export incentive measures have been framed to encourage the agencies and companies involved in earning convertible currencies. These measures include duty free import facilities for machinery and equipment needed for export industries; rebate on corporate and turnover tax for export sales; export finance facilities at a nominal interest rate of 12 per cent per annum by the Bank of Bhutan; refunding of excise duty and sales tax; price support incentive at a flat rate of 30 per cent; and allowing exporters to retain and use 15 per cent of the foreign exchange earned by them subject to a maximum limit of US \$ 30,000 per annum.

iv) Enhancement of Rural Incomes

While the overall growth and development in the country has been steadily increasing, there has not been an equally satisfactory rise in rural incomes. Given the fact that 80 per cent of the country's population live in rural areas, the present level of incomes of the rural population is a matter of serious concern, as enhancing the per capita income is essential for raising the standard of living. The increase of rural incomes that had been achieved over the past years were offset by inflation and rising prices. Therefore, it has been decided that a determined effort must be made to bring about the enhancement of rural incomes and accordingly this has been adopted as an important objective of the Sixth Plan.

The main source of increasing rural incomes would be through the improvement of agriculture and livestock productivity, diversification and enhancement of cash crop production and through improved marketing of farm products. The importance attached to increasing rural incomes is reflected in the sectoral outlay of Nu. 880.499 million just for agriculture development and Nu. 331.000 million towards the development of livestock. It is expected that these expenditures will lead to the enhancement of rural incomes. This important objective must be seen within the context of the national goal to bring about a fair and equal distribution of economic growth and prosperity among the Bhutanese people.

It is necessary to realize that unless farming becomes a good means of livelihood, there is every possibility that the increasing numbers of school going children and people joining government service or seeking urban employment may result in a situation whereby only the old and infirm may be left to stay in the rural areas. It is also necessary to recognize that with 80 per cent of the country's population presently living in rural areas, agriculture and livestock farming take on great importance both as a source of employment and as a means for meeting the country's basic food requirements. That is why high priority has been given to the development of agriculture and livestock farming not only to increase rural incomes but also to promote the important national goal of self-reliance.

v) Improvement of Rural Housing and Resettlement

a) Rural Housing: During the past decade there has been an enormous increase in the construction of houses both in rural and urban areas. In fact between 1980 and 1986, the Government alone disbursed a sum of Nu. 8.87 million as "kidu soilra" for rural house construction (approximately 5000 houses). The number of houses built without "kidu soilra" has not been included. However, a majority of the houses built were without any improvement in design, structure or quality. They did not include improvements in any of the important aspects such as sanitation and insulation which are vital for comfort and an improved standard of

living. The designs were also not cost effective and durable.

Since a comfortable house is a source of security, happiness and contentment for people particularly in the rural areas, the objective during the Sixth Plan will be to improve the overall standard of rural housing and enhance the quality of village life and living standards. To ensure that substantial improvements are brought about in the standard of rural houses constructed, a system of giving subsidies to those who adopt the improved features and changes is being formulated. Rules and regulations for availing this subsidy will soon be printed and circulated. Rural carpenters and craftsmen (zowos) many of whom have now received training in constructing improved rural houses will also be given incentives for carrying out such works.

An important aspect of this objective is to ensure that there are no wide disparities in the living conditions between urban and rural areas.

b) Resettlement: The Government is considering to resettle rural people who live in scattered, remote and poverty stricken areas where it is not feasible to provide essential services and

introduce development programmes. The past system of granting land to the poor and landless on an adhoc "kidu" basis had many negative impacts. It did not benefit the people concerned as all productive land were already privately registered and the new allotments in most cases were either in remote locations or unproductive lands. As the allotment was done on an adhoc and highly dispersed basis the formulation and provision of development services on a planned and comprehensive basis, was also not possible. Besides failing to achieve the intended objective of improved livelihood and higher incomes for the villagers, the past policy on "kidu" land allotment also aggravated the shortage of rural manpower as more hands were required to cultivate the newly allotted land. Moreover the limited availability of land and the ever increasing number of households due to the fragmentation of the family unit made it impossible to continue allotting "kidu" land on a perpetual basis.

Under the proposed new resettlement policy careful studies will be carried out to select suitable areas in various Dzongkhags for settling landless villagers. Such an approach would enable the government to provide essential services like schools, Basic Health Units, extension roads and power on a more cost effective basis to the new settlements. This, in turn, would enable the poorer and landless people of the country to receive the full benefits of development programmes and services.

Therefore, during the Sixth Plan enhancement of rural incomes and resettlement has been adopted as another important objective. This is a recognition of the highest importance attached to raising the rural living standard and improving the quality of rural life.

vi) Consolidation and Improvement of Development Services

While a significant headway was made in providing social service facilities to the people, not enough impact was achieved in actually improving the quality of life of the people as they were scattered in 192 gewogs. Therefore, substantial work is necessary to strengthen and rationalize rural services so that they can be

effective in improving the standard of living. The tasks include standardization of facilities and ensuring efficient and effective distribution of services particularly in education, health, agriculture and livestock extension, and the grouping of such facilities into Rural Service

Centres (RSC) wherever required and necessary. Such centres which must be carefully selected to ensure maximum coverage and cost effectiveness would not only provide better social services to the people in the areas covered but also act as vehicles for local level economic growth and administration. The RSCs would become units viable for providing physical infrastructure such as roads, water supply and power.

In addition the RSCs would have the potential to serve as markets for farm products by virtue of the number of salaried people that will be concentrated there. Once RSCs are properly established they would become important growth centres which would also provide mobile services to effectively cover even the remotest corners of their areas, and thereby ensure maximum coverage of essential services.

Measures taken to implement this objective so far include an evaluation tour of all the Dzongkhags in 1985, to assess existing services and to identify possible RSC sites. Project reports and master plans for several Rural Service Centres have already been prepared.

vii) Development of Human Resources

In Bhutan virtually all sectors of the economy including the government service and development activities are constrained to some extent by the severe shortage of manpower, particularly of appropriately trained and experienced personnel. The situation is deteriorating with each passing year as the requirement for more specialized manpower is generated by the development process as compared to the number of people available from the educational and vocational institutions and from the population at large. Consequently Bhutan employed over 113,000 expatriate personnel in the beginning of the Sixth Plan as compared to about 10,000 during the Fourth Plan period (1978-81). 80 per cent of the country's development work was therefore dependent on non-nationals.

In the past Plans there have been major efforts on the part of the Government to promote increased literacy, orient the majority of children towards vocational skills, especially farming which absorbs over 80 per cent of the population and to ensure that eligible students received higher education. For this purpose about 192 learning and training institutions exist in the country as of date. In addition the Royal Government also carries out various kinds of in-service and on-the-job training both within and outside the country. These efforts must be continued and a greater emphasis given to the education sector and the development of vocational and higher levels of technical, administrative and managerial skills. This is in line with the Government's objective of developing a smaller and more professional civil service, introducing new and advanced technologies appropriate to the nation's requirements and building a dynamic and self-sufficient economy. Therefore, the Government has decided to adopt human resources development not only to support the development process, but also as an important development objective in itself. Concerted and determined efforts must be made to enhance and develop the human resources available in the country in all fields through education and extensive training so that the needs of manpower for the development of the nation can be fully met.

The fulfilment of this objective is of vital importance if the country is to narrow the gap between the volume of its development programmes and its ability to implement them. It is essential to close this gap to a manageable level by developing the nation's own human resources. Otherwise, the need to protect the country's long term security and well-being would make it necessary to slow down the pace of work and cut back on development programmes.

viii) Promotion of People's Participation

The Fifth Plan was a combined effort of the people and the government. There was close coordination both in decision making through the forum of Dzongkhag Yargye Tshogchung (DYT) and implementation of programmes at the Dzongchag level, though Shabtogwool and, to a lesser extent, Chunikang. While there is reason for satisfaction, it has not been without difficulties both at the government's and people's level. During the implementation of the Fifth Plan, genuine problems of work scheduling and the lack of required skills and equipment at the village level emerged. As it is the Government's intention to continue this important co-operative mechanism whereby the people are fully involved in development works and nation building, this objective has again been given high priority in the Sixth Plan. As it was not a fair or effective system, the Chunikang Woola (1 month for each household) has now been replaced by a new system of "Gungda Woola" (15 days for each household on daily wage).

The most striking feature of the last 27 years of development work is the fact that while the government had shouldered the full burden and responsibility of implementing and providing socio-economic development services, the people in most cases were just passive recipients of such benefits and services. Henceforth, not only should the people take a more active part in decision making and the implementation of development projects, but they should also realise the immense constraints under which the Government has been providing heavily subsidised development services and programmes. The Royal Government now expects the people to come forward and work hand in hand with the government in shouldering the heavy responsibilities of building a prosperous, secure and self-reliant nation.

The objective of people's participation for the Sixth Plan recognizes that money and material are not the only key factors for the successful implementation of development plans. It is equally important that the people have the will to extend their full commitment and co-operation in carrying out the development works undertaken by the government. Indeed, the active participation of the people is vital for the enhancement and achievement of all the nine objectives of the Sixth Plan.

ix) Promotion of National Self-reliance

The objective of self-reliance in the Bhutanese context means ultimately to be able to stand on one's own feet, have the power of decision in our own hands and not be dependent on others. This is one of the most important national objectives of the country. All development programmes and policies are directed towards achieving this objective and preserving the sovereignty and security of the nation by strengthening the country's unique national identity and promoting the high values of the Bhutanese System.

Prior to the initiation of development activities, the country even without external assistance was fully self-reliant. With the introduction of major development programmes in 1961, including large scale development infrastructure works, it became necessary for the Government to rely on external assistance. Every effort must now be made to bring the country to its original self-reliant state as soon as possible. In order to give further impetus to the national goal of self-reliance, this has been again adopted as one of the most important objectives of the Sixth Plan.

The economic and social capacity for enhancing and sustaining production must be es

established firmly. All programmes and plans must be clearly directed towards achieving this objective. There must be proper planning and co-ordination of the various sectors of the economy so that gainful investments and careful management of the country's financial, human and natural resources lead to steady growth and development towards self-reliance.

In fact all social, economic, political, cultural and development objectives and efforts will have no meaning if an acceptable level of national self-reliance is not achieved. The quest for self-reliance be it at the household, village, dzongkhag or national level - is vital for the sovereignty and dignity of the people and the country".

Chapter 5

EXTERNAL ASSISTANCE AND AID MODALITIES

International Assistance

Assistance from Government of India has been traditionally the main source of external assistance. Indian aid has generally doubled in each successive plan period. In the Fourth Plan, Government of India grant for the developmental activities was Nu.695.74 million. In the Fifth Plan, Government of India assistance was Nu. 1888.36 million.

The most important development project financed by Government of India during the Fourth and the Fifth Plans was the Chukha Hydel Project, with a capacity of 336 MW, on 60% and 40% grant and loan basis respectively. Compared to assistance from other international agencies, the untied nature of government of India assistance permits more flexibility in budgeting. The grant from India taken together with the internal resources, forms the main budgetary support of the plan. The total amount of budgetary and project tied assistance from the Government of India for the Sixth Plan is expected to be around Nu. 3499.004 million, an increase of about 85% over the Fifth Plan assistance.

With the increased number of development programmes in each successive plans, to go for more assistance from international agencies other than Government of India was inevitable.

The total assistance received in the Third Plan from the UN system and under the Colombo plan was in the order of US \$ 1.98 million. In the Fourth Plan, with increased number of donor agencies, the contribution increased to US \$ 24.21 million. Starting from a mere 3% contribution to the total plan effort in the Third Plan, international agencies contributed 19% of the total Fourth Plan outlay. Assistance from multi lateral and bilateral donors, other than India, increased during the Fifth Plan. The total share of international assistance to the plan expenditure was around 27%. Loans from international financial institutions such as IFAD, Asian Development Bank, World Bank, Kuwait Fund for Arab Economic Development became an important component of international assistance during the Fifth Plan. This enabled the implementation of some large scale development projects.

The total external indebtedness signed so far amounts roughly to \$ 95.5 million. Out of total Sixth Plan outlay of Nu. 9559.236 million, the internal resource mobilization (including internal borrowing) is expected to meet around 38% of the plan expenditure and the remainder would be met from the external assistance, both grants. The total international assistance, other than from Government of India, is expected to be around Nu.2404.464 million for the Sixth Plan.

Aid Modalities

Till the end of Fourth Plan, assistance received from various donors was in the form of grants obviating the need for repayment. Since substantial portion of assistance during the Sixth Plan is coming in as loans, debt servicing and repayment liabilities are of great concern. Therefore, special attention is to be given to the accumulation of hard currency reserves and to boost export for hard currency earning. It is envisaged that the foreign exchange requirement is likely to remain limited in the near future. Therefore, the government will resort to borrowing only on the most concessional terms, and also seek for grants as much as possible.

The government has been trying to concentrate the efforts of donors in particular sectors where their technologies are preferable and appropriate to Bhutan's development. This should be continued in order to avoid overlapping, inconsistency and improper coordination.

Bhutan has been receiving assistance from the multilateral donors generally, in the form of technical assistance. While technical assistance programmes are important for development, it is necessary to give importance to the capital inputs too.

As the investment expenditure is increasing in each successive Plan, the local cost, particularly the foreign exchange component, is of great concern.

With the increasing number of donors and inflow of considerable external assistance, proper coordination has to be ensured in order to avoid overlapping and duplication. Also the gestation period between the initial request and the final disbursement of the project and programme assistance should be made as short as possible to avoid lengthy procedures of further investigation and approval and delays in implementation.

In order to mobilize the external assistance, the question of predictability of assistance flows is of great importance. There were aid coordination meetings at the beginning of the Plan period where some pledges by donors are made. Government of India gives commitment of assistance at the beginning of each plan and UN system prepares country programmes which have annual indicative planning figures for a period of five years. The same structured aid procedures have not been evolved for bilateral donors. Hence, aid negotiation and reviewing have been less systematic. A clear country programme needs to be drawn for bilateral aid along the methods followed for seeking UN and Indian assistance.

Co-financing too is an important tool for external resource mobilization. Indeed some of the major investment projects are being implemented under this arrangement. It is felt that the sound co-financing arrangement with proper coordination should be continued.

Chapter 6

FINANCIAL INSTITUTIONS

Strategies and Prorammes

Financial sector at present consists of two banks - (Royal Monetary Authority, the country's central bank, the Bank of Bhutan, the only commercial bank) and three nonbanks financial institutions (Royal Insurance Corporation of Bhutan, the Unit Trust of Bhutan and Bhutan Development Finance Corporation).

Royal Monetary Authority

The policy of replacing Rupees by Ngultrums will be followed in a gradual and measured approach. Royal Monetry Authority's attempts to de-link the Ngultrum from the Indian Rupee should be accompanied by measures to preserve total confidence in the Ngultrum. This endeavour has to be strongly backed by efforts to strengthen the country's economy, especially its export capacity to India and third countries.

The country's convertible currency reservesneeds close monitoring so that the magnitude ofdebt selvcing does not get overwhelming. Theovernment must exercise the utmost prudencenin hlcurrirl furtlller external debt.

Provisions have to be made to leave aside a portion of the convertible currency reselves for "necessary" imports and debt repayment. The importance of minimising the imports of non essential luxury consumer goods cannot be over emphasized.

It is also vital to be vigilant to developments in Indian Rupee reserves. Reserves should be sufficient to finance at least six months of im ports from India. The promising stream of Rupee inflow from exports of electncity, ce ment and calcium carbide to India; would ease the servicing of loan. Reserve position from 1981 to 1988 are shown in Table 6.6.

Dungng the Sixth Plan the Royal Monetary Authority will be equipped to act as lender of last resort to the banking system, whenever the need alises. So far, due to the Bank of Bhutan's suficient liquidity, this has not yet been neces saly.

Royal Monetaly Authonty will continue to monitor-the development of monetary aggre gates, prices, balance of payments, and other important economic variables. Monetary trends are shown in Table 6.1. The Authority will make policy recommendations to the Government, whenever it appears necessary.

TABLE 6.1 Monetary Survey (a) Royal Monetary Authority and Bank of Bhutan,
1983 to 1987

Item	End of year				
	1983	1984	1985	1986	1987
Foreign assets(net)	345.7	490.2	595.4	700.1	1,077.0
Rupee	260.5	317.6	359.0	380.0	579.0

Other	85.2	172.6	236.5	320.1	498.0
Domestic credit	110.4	45.1	101.7	53.9	-208.9
Claims of govt. (net)	10.0	-54.0	19.7	-33.1	-304.7
Claims on govt. corporations	57.3	41.3	26.6	19.7	13.5
Claims on private sector	43.1	57.8	55.4	67.3	82.3
Total liquidity-Board money (M2)	324.6	367.0	464.0	498.8	552.5
Money supply-Narrow money (M1)	177.2	209.8	261.7	277.1	316.8
Currency outside banks	22.1	46.2	70.4	90.7	103.5
Demand deposits	155.1	163.6	191.3	186.3	213.3
Quasi-money	147.4	157.2	202.3	221.8	235.7
Other items (net)	131.5	168.3	233.1	255.2	315.6

(a) Revised data, excluding rupees in circulation

Source: Royal Monetary Authority of Bhutan and Bank of Bhutan.

Bank of Bhutan

The number of branches will be further increased and more people have to be familiarised with the banking system by means of active marketing. The bank was constrained to lend for investment finance by lack of bankable projects and a lack of trained entrepreneurs. The Bank's lending practices need to be reconsidered to turn it into a better instrument of development by providing loans to industry and agriculture. The interest rate structure of the bank of Bhutan is given in Table 6.2 and 6.3.

TABLE 6.2 Bank of Bhutan Interest Rates - Deposits 1982 to 1988
(per cent per annum)

Effective dates						
Type of deposit	October 1982	May 1983	May 1985	June 1987	June 1988	January
Savings	5.0	5.0	5.0	5.0	5.0	
Fixed						
3-6 months	5.5	5.5	6.5	6.5	6.5	
6-9 months	6.0	6.0	8.0	8.0	8.0	
9 months - 1 year	7.0	7.0	8.0	8.0	8.0	
1-2 years	8.5	8.5	8.5	9.0	9.0	
2-3 years	9.0	9.0	9.0	10.0	10.0	
3-5 years	9.5	10.0	10.0	11.0	11.0	
5 years and above	10.5	11.0	11.0	11.0	11.0	11.0

Source: Bank of Bhutan

TABLE 6.3 Interest Rates for Commercial Loans(a)
(percent per annum)

Type of loan	Interest rate(%)
--------------	------------------

Commercial		
Export trade	12.0	
General trade	15.0	
Transport		
Busses, lorries & trucks & cars	15.0	
Agriculture (including livestock)		
Up to Nu. 20,000	10.0	
Up to Nu. 100,000	12.0	
Above Nu. 100,000	13.0	
Industrial		
Up to Nu. 1,000,000	10.0	
Up to Nu. 5,000,000	13.0	
Above Nu. 5,000,000	14.0	
Working Capital	15.0	
Tourism	13.0	
Housing (commercial & residential)	14.0	
Miscellaneous (including personal loans)	15.0	

(a) Rates applicable since July 1, 1988. Rates apply to all financial institutions.
Source: Bank of Bhutan.

Savings mobilisation have to be intensified in order to generate additional domestic resources for development. This implies, in particular, that fixed deposits have to be promoted for that purpose. Savings deposits are included in dem. ind deposits, since in Bhutan their characteristics are very similar.

Vigorous promotional campaigns will be launched to encourage banking habits among the rural population. To the extent possible, local people should be involved in these campaigns, to make the campaigns cost effective.

Another possibility would be to introduce a scheme of transferring monthly wages and salaries at employees (government, financial institutions, and corporations) directly to savings accounts of the employees with the Bank of Bhutan. This approach would increase the familiarity of many people with the banking system and, therefore, might result in an increase of fixed deposits. Monetary policy will be designed such that depositors can earn a positive real rate of interest on their deposits with financial institutions.

Competitiveness of the banking system should be increased by creating conditions favourable to new entry. Bank's interest rate should be freed from prevailing restrictions. Ways of liberalising the financial sector are being studied.

Non-Bank Financial Institutions

The country's nonbank financial institutions, the RICB and the UTB, have at present, been heavily geared towards investment in housing and bank deposits. Financial statistics of NBFIs are summarised in Table 6.4 and Table 6.5. It requires diversification to achieve a better coverage of the economy. Since a large part of the institutions' funds are trust funds, preference should also be given to "safer" investments.

Funds could be invested, for example, in Bhutanese government securities, which might have to be created in the future as an additional source of financing government debt.

TABLE 6.4 Royal Insurance Corporation of Bhutan - Financial Statistics, 1983 to 1987

Nu in millions

Assets									

Investments(a)									
Claims Claims									
Claims Claims On On									
End of	Total	Re-	Total	on Govt	on	Deposit	Non-mon		
Year	assets	serves	Invest-	Enter-	Pri-	Money	Finance	Real	sector
		ments	prises	vate	Banks	Instits	Estate		
1983	140.1	2.6	137.5	25.1	41.3	52.4	6.1	12.61	
1984	170.1	7.0	163.1	29.0	61.0	51.2	6.8	15.0	
1985	219.1	3.4	215.7	17.9	102.2	71.8	6.8	17.1	
1986	269.5	2.5	267.1	18.1	150.3	71.0	7.0	20.7	
1987	354.5	0.8	353.8	14.9	233.2	75.2	7.0	23.4	

Liabilities									
Insu									
rance									
Other									
End	Total	Re-	Life	GEPF	UTB	Capital	Items		
of	Year	serve	Fund	Fund(b)	Fund(c)	Accts	(Net)		
1983	140.1	5.8	4.8	102.5	21.3	12.0	-6.2		
1984	170.1	9.8	5.6	119.8	36.8	12.0	-13.9		
1985	219.1	7.6	7.4	149.2	66.0	12.0	-23.1		
1986	269.5	6.9	9.0	171.3	92.1	12.0	-21.8		
1987	354.5	6.9	9.2	210.8	145.4	12.0	-29.7		

(a) Including Unit Trust of Bhutan funds. (b) Government Employees Provident Fund. (c) Unit Trust of Bhutan

Source: Royal Insurance Corporation of Bhutan.

TABLE 6.5 Unit Trust of Bhutan - Financial Statistics, 1980 to 1987
(Nu. in millions)

Assets					Liabilities				
Investments									
Other									
End	Total	Re-	Total	Di-	Total	Depo-	Call	Cap-	Items
of	serves	(a)	rect	sits	loans	ital	(Net)		
Year				Accts					
1980	4.0	0.5	3.5	-	3.5	4.0	1.6	-	2.5 -0.1
1981	10.5	0.1	10.4	-	10.4	10.5	1.6	-	2.6 0.3
1982	16.3	1.2	15.0	-	15.0	16.3	12.8	-	3.1 0.3
1983	25.2	-	25.2	21.3	3.9	25.2	20.1	-	3.8 1.3
1984	40.9	0.1	40.8	36.8	4.0	40.9	33.8	-	4.4 2.7
1985	70.0	0.3	69.7	65.4	4.3	70.0	57.6	-	4.2 8.2
1986	100.3	-	100.3	91.4	8.9	100.3	86.8	-	5.4 8.1
1987	150.2	0.1	150.1	145.4	4.7	150.2	125.3	6.5	5.3 13.1

(a) Royal Insurance Corporation of Bhutan

Source: Unit Trust of Bhutan.

Bhutan Development Finance Corporation

In order to provide investment capital to agriculture, industry and commercial sectors, BDFC was set up.

The BDFC shall have the following main responsibilities:

- i) promotion of entrepreneurial development;
- ii) identification, formulation, and appraisal of projects; iii) provision of term loans for viable projects;
- iv) supervision of the execution of loan projects, provision of timely assistance, and regular repayment after the gestation period; and
- v) mobilisation of domestic and external resources for industrial lending.

TABLE 6.6 Gross International Reserves, 1981/82 to 1987/88 (a)

Item	1981/ 82	1982/ 83	1983/ 84	1984/ 85	1985/ 86	1986/ 87	1987/ 88(a)

Rupee Reserves (million rupees)							
Rupee reserves	209.5	260.4	312.5	381.3	371.1	446.9	637.2
Royal Monetary Authority	-	-	6.2	12.0	8.1	10.7	14.2
Bank of Bhutan	209.5	260.4	306.3	369.3	362.9	436.2	632.0

Convertible Currency Reserves (million US dollars)							
Convertible Currency reserves	8.1	8.5	10.4	14.2	20.6	28.1	38.9
Royal Monetary Authority(c)	-	-	4.4	7.9	19.8	26.9	36.9
Royal Government(b)	3.3	2.8	-	-	-	-	-
Bank of Bhutan	4.1	4.5	4.7	6.3	0.8	1.1	1.9
Royal Insurance Corporation of Bhutan(d)	0.6	1.2	1.3	-	-	-	-

Total Reserves
(million US dollars)

Total 30.5 34.6 39.6 44.9 50.8 62.6 86.2

(a) As of end-March up to 1986/87 figure refers to position at May 1988. (b) Includes reserves tranche position in the International Monetary Fund from 1981/82. (c) The large change in 1985/86 in mainly a result of the takeover of the Bank of Bhutan's convertible foreign exchange by the Royal Monetary Authority of Bhutan. (d) Small reserves from 1984/85

Source: Royal Monetary Authority of Bhutan.

Chapter 7
Education
 Objectives

The Sixth Plan attaches overriding priority to greater enrolment and more equitable coverage of the educational services between dzongkhags, sexes and age groups, particularly at the primary school level. It prescribes a substantial quantitative expansion of primary education as well as the development of secondary and higher education. The National Education Policy adopted in 1985 contains four main goals on which the strategies of the Sixth Plan have been based. These are namely:

Outlay

- i) meeting Bhutan's human resource needs;
- ii) improvement of the relevance of educational content as well as the processes of learning and teaching;
- iii) inculcation of traditional and religious values;
- iv) and the promotion of adult education.

The Sixth Plan programme design remedies previous inadequacies by stating operational targets in quantifiable terms so that management tools of evaluation can be effectively applied for the successful implementation of programme.

TABLE 7.1 Education Sector outlay - Sixth Plan
 (Nu. in Million)

Sl No.	Programmes	Current	Capital	Total
1.	Primary Schools	183.316	47.439	230.755
2.	Junior High Schools	89.100	17.695	106.795
3.	High Schools	53.322	12.145	65.467
4.	College	16.768	5.000	21.768
5.	Teachers Trg. Institute	17.765	9.600	27.365
6.	Technical Institutes	21.920	10.000	31.920
7.	Rigney School	5.723	0.850	6.573
8.	Central Sanskrit Pathsala	0.000	1.000	1.000
9.	Blind School	1.023	2.000	3.023
	Sub - Total	388.937	105.729	494.666
10.	Direction & Support			
a.	Curriculum Development		8.832	8.832
b.	Inspectorate	0.650	0.650	
c.	Board of Exa. & Certificate		1.028	1.028
d.	Social & Cultural Dev.		0.500	0.500
e.	Agricultural Programme		10.850	10.850
f.	School Health Programme		0.712	0.712
g.	Technical Education Dev.		5.000	5.000
h.	Dzongkhag Development			
i.	Printing & Publishing		7.500	7.500
j.	Teachers in-service Trgs.		1.500	1.500
k.	Scholarship	15.000		15.000

l. Establishment of the
 Administrative Centre for

the University			
m. Establishment	128.522	0.000	128.522
n. Extended Classrooms		4.000	4.000
o. World Feeding Programme		100.000	100.000

Sub-Total:	143.522	140.572	284.094

Grand-Total:	532.459	246.301	778.760

Programmes and Targets

The main programmes for the Sixth Plan may be presented broadly under seven heads. These are:

- i) Coverage and outreach
- ii) Relevance of content
- iii) Process (teaching and learning)
- iv) Facilities (buildings, equipment and spatial requirements)
- v) Technical and vocational education
- vi) Special education services for the disabled
- vii) Nonformal education including adult literacy promotion

Coverage and Outreach

Primary Education

There were 148 primary schools with an enrolment of 40,688 at the beginning of the Sixth Plan as shown in Table 7.2. The enrolment size reflects a modest achievement towards the larger goal of Universal Primary Education and eradication of illiteracy. Table 7.3 presents the distribution of students across various schools and institutes. The Sixth Plan programmes seek to increase the primary school enrolment at an annual rate of 6 percent over the five year period, raise the quality of primary education, expand facilities and correct imbalances of and access to educational opportunities between dzongkhags and regions. Towards this end, 10 large primary schools, 2 urban primary schools and 1 industrial-project related primary school

TABLE:7.2 Number of schools and institutions(1987)

Institutes	Number
a) Primary schools	148
b) Junior high schools	21
c) High schools	9
d) Institutes & college	7
e) Sanskrit Pathsala	5

Total	192

are being set up. For optimum use of resource, 49 extended classrooms in selected catchment areas are being established.

Secondary Education (Junior and High schools)

Secondary education will continue to be geared to meet manpower for direct employment,

technical and vocational training.

There are 21 junior high and 9 high schools. They have a total enrolment of 15,553 out of which only 3040 are at the secondary stage (classes VII-X). To enhance the capacity and the effectiveness of the secondary level, all high schools, during the next 5 years, will phase out their primary sections. In addition, two of the junior high schools will be upgraded to high schools and one new junior high school will be established.

Higher Education

Sherubtse College and the National Institute of Education are the only seats of higher education in the country. During the Sixth Plan, concerted effort will be made to expand the facilities within these institutions. The enrolment of both the College and the NIE shall be increased gradually during the course of the Sixth Plan.

Honour courses will be introduced in some subjects in Sherubtse College. The issue of introducing a greater range of disciplines in Sherubtse College is also being studied. Simtokha Rigney School shall start courses in +2 (pre-university).

Relevance of Content

Having been structured on the Indian system, the education system in Bhutan needs to be reformed to relate it to the values, environment and the history of Bhutanese people. Therefore, during the Sixth Plan, the curriculum in all schools will be re-oriented to:

- (a) provide to the students, besides the 3 R(s), a package of knowledge and skills that is linked to their adult lives;
- (b) cultivate ethical values and patriotism amongst students and produce Bhutanese citizens committed to Driglam Choesum and service to the King and country;
- (c) foster amongst our children an understanding and appreciation for the salient features of Bhutanese culture and ethos, and a sense of 'oneness' cutting across linguistic and regional differences; and
- (d) impart to the students a healthy attitude towards agricultural occupation and psychological acceptance of rural lives.

Special emphasis will be given to rewritten textbooks promotion for each subject for primary as well as higher secondary levels. This will be accompanied by the writing and production of teachers' guides for each subject and class.

Process (teaching and learning)

The most critical component of the improvement of the process of teaching-learning in all schools are the teachers. The existing strength of teachers are reported in Table 7.4. Therefore the Sixth Plan lays great stress on developing teaching quality and competence. This shall mainly be achieved through continuous research and development in the theories of learning and teaching methodology and practices. Teaching and learning processes based on the experiences acquired through the New Approach to Primary Education (NPE) pilot project will be disseminated. The service conditions of the teaching force needs to be reviewed to attract better people to the profession.

Mechanisms, such as tests, interviews, promotions and inservices courses as well as screening will be initiated to build up a cadre of efficient and dedicated teaching force.

The output of primary teachers from Paro T.T.C will be increased from 10 in 1987 to 70 by 1992, and at Samchi from 36 in 1987 to 70 in 1992. The outflow of Dzongkhal language teachers from Simtokha Rigney School will be increased from 20 in 1987 to 30 by 1992. Further, a new T.T.C shall be established during this period at Kanglung.

Evaluation system up to class X will be localised to give the system flexibility and diversification of curriculum. The Bhutan Board of Examinations will co-ordinate this task. The Board shall serve as the central authority for certification and standardization of all vocational courses in the country. The Department of Education shall work out an optimum teacher student ratio at various levels of the system. This should result in an efficient deployment of

TABLE 7.3 Total No. of Students by Type of Schools & Institutions -1987

Schools and Institutes	Boys	Girls	Total
a) Primary schools	26539	14149	40688
b) Junior high schools	6884	4392	11276
c) High schools	2760	1517	4277
d) College	369	52	421
e) National Institutes of Edn.	67	56	123
f) Teacher Training Centre	16	8	24
g) Royal Bhutan Polytechnic	172	3	175
h) Royal Technical Institute	313		313
i) Simtokha Rigney School	442		442
j) Blind school	23	7	30
k) Sanskrit Pathsallas	258	89	347
Total	37843	20273	58116

existing teachers in the schools and minimize the requirement of additional teachers.

Facilities (buildings, equipment, etc.)

Particular emphasis will be given to the improvement of physical facilities in the schools in terms of classrooms, staff quarters, furniture, dining rooms, hostels, gardens, water supply, sanitation facilities, electricity where possible, play-fields, sports and office equipment. Adequate teaching and learning resources in terms of library-books, teaching aids and science equipment will be provided.

Norms and standards for all educational facilities will be evolved. A proposed construction cell within the Department of Education will control the design and quality of construction, and monitor all maintenance and repair activities. Parental and community support will be mobilized for construction and maintenance of school buildings on the principle of shared responsibility and collaboration between the parents and the government.

Health and hygiene standards will be devised and implemented through the educational health support programme. The health and development of each individual child shall be promoted and maintained.

The Government will deliberate the implications of gradually replacing the 'wild' curriculum in the schools bearing in mind the possible implications of growing dependence on the national goal of self-reliance.

Technical and Vocational Education

To meet emergent work opportunities for craftsmen and technicians both in public and private sectors, technical education has to be consolidated both in terms of institution building and the curriculum.

A diploma course in Mechanical Engineering and other courses as may be required shall be introduced in the Royal Bhutan Polytechnic. All the obsolete equipment in the institute will be replaced with new ones and the institute's total student-capacity will be expanded.

The Royal Technical Institute (RTI) will compress its total course years of 4 to 3 to enable it to turn out more graduates each year. The course in the RTI will be reviewed and revised in the light of changing demand.

During the Sixth Plan, a trade school will be established to cater to the lower level of skilled personnel in the country thus reducing the dependence on the expatriate workers. This school shall conduct courses in carpentry, masonry and plumbing and shall take trainees who have dropped out from Class VI.

Special Education Services for the Blind

Zangley Muenselling Blind school, which has a current enrolment of 30 students, is the only institute that subserves the special educational needs of the blind. There is need to focus more on the education of the disabled and handicapped and efforts will be made to open suitable facilities.

Nonformal Education & Adult Literacy Promotion

The formal Education system reaches out to only a fraction of the population and does not cater to the majority who wish to have a functional literacy. It is government's policy to provide educational and literary services for the benefit of these diverse groups - particularly to those who have not had access to primary education and to those who have dropped out from schools at very early ages.

TABLE 7.4 Total staff strength of Education Department (1987)

1. No of staff at Headquarters National Non-national Total
and other education offices 110 54 164

No. of teaching staff (in schools and institutions)

Institutes	National	N/National	Total
a) Primary schools	854	544	1398
b) Junior high schools	186	225	411
c) High schools	100	129	229
d) College	5	24	29
e) National Institutes of Education	11	12	23
f) Teacher Training Centre	20	3	23
g) Royal Bhutan Polytechnic	14	14	28
h) Royal Technical Institute	14	10	24
i) Simtokha Rigney School	25	7	32
j) Blind school	9	2	11
k) Sanskrit pathshalas	13	0	13
Total	1251	970	2221

Source: Department of Education

Chapter 8 Human Resource Development

Human Resource Development (HRD) has been one of the major activities of the Royal Government of Bhutan ever since the First Plan began in 1961. Prior to 1961 Bhutan had very insignificant number of technical and professional personnels. About 99% of the civil service was manned by expatriates in the early 1960's. By the beginning of the Sixth Plan only about 20% of the total strength of civil servants was non-national. However the shortage of technically qualified manpower still plagues the socio-economic development programme.

Human Resource Development has been adopted as one of the nine priority objectives of the Sixth Five Year Plan. To realize this objective, the Royal Government has taken an integrated approach to human resources development during the Sixth Plan and consider it the main instrument for enhancing the technical and managing capabilities of the civil service for accelerated implementation of socio-economic development programmes.

Objectives and Programmes

The specific objectives of HRD are enumerated as under:

- i) To provide a pool of trained manpower.
- ii) To develop a system for selection and placement of fellows.
- iii) To strengthen internal capacity of the Royal Civil Service Commission (RCSC) in training policy, career development, performance assessment, development and utilization of skilled manpower resource, periodically update the HRD Master Plan and assist in developing modalities for co-ordination of external assistance in HRD.
- iv) To strengthen and upgrade in-country training capacity and conduct training course in key areas of management.

An HRD Master Plan contains about 5726 individual training and fellowships (excluding general education upto higher secondary school) for the period 1987- 1992 at an estimated cost of US \$ 28 million. Table 8.1 gives a schemewise break-up of personnels to be trained according to HRD Master Plan for the Sixth Plan.

TABLE 8.1 Sectorwise HRD Programme - Sixth Plan

Scheme	Sectorwise slots for training
Public Administration	184
General Development	259
Judiciary	35
Finance	488
Trade & Industry	121
Natural Resources	122
Energy & Technology	84
Agriculture	1226
Animal Husbandry	863
Forestry	485
Transport & Communication	432
Mass Communication	78
Public Works & NUDC	443
Population, Data Processing & Statistics	424
Education & Culture	218
Health	264
Total	5726

Source: Royal Civil Service Commission

Chapter 9 HEALTH

In the Third Plan (1971-1976), the Royal Government instituted the Basic Health Units for delivering the primary health care to remote habitations in the country. Since then, the country has assiduously followed this concept of integrated health care. But a major shift has occurred since 1979 from the purely curative to preventive and promotive aspects of health services, from urban to the rural population and from mass campaigns to a system of integrated health services. Emphasis has been put on eliminating disparities and augmenting health-services for the underprivileged and in the under-served areas of the country.

Bhutan's health infrastructure comprises of a network which starts with Basic Health Units (BHUs), Peripheral Health Post (Dispensaries) and progresses to district, regional and national referral hospitals. Within the framework of this system, the Health Department runs three training institutions: (i) Health School at Thimphu, which provides courses in mid-level manpower training and diploma course in general nursing, (ii) National Institute for Family Health at Gayleghug, which provides reorientation courses to all types of health workers and to other related Departmental staff, & (iii) an Indigenous Training Centre where indigenous physicians and pharmacists are trained.

Objectives and Strategies

The thrust of the health development efforts in the Sixth Plan is to strengthen and expand health infrastructure so that effective coverage can be provided. It is expected that by the end of the Sixth Plan, a country-wide network of effective primary health care infrastructure with adequate referral support will be in operation which will deliver essential health care to the entire population. Table 9.1 gives basic health indicators.

TABLE 9.1 Selected Health Statistics

Health Facilities in 1987	Nos.	
Number of Hospital	27	
Number of Hospital beds	922	
Population per hospital bed	1500	
Hospital bed per 10,000 population	7	
Number of Basic Health Unit	68	
Number of Dispensary	46	
Number of Indigenous Hospital	1	
Number of Indigenous Dispensary	5	
Number of Training Institutes	3	
Number of Malaria Centres	12	
	Year	
Nutrition		
Malnourished children	8	1987
Third degree malnourished children	1	1987
Anaemia amongst AN and PN mothers(%)	0.5	1986
Primary Health Care in 1987		
Population covered by Health care(%)	65	
Population access to safe water(%)	26.0(Rural)	
	50.0(Urban)	
Population served with adequate sanitary facilities	....(Rural)	
	60.0(Urban)	
Women attended by trained personnel		
Pregnancy(%)	7	

Source: Annual Health Bulletin 1987

The following goals have been highlighted for the Sixth Plan:

- i) To increase number of beds from 922 to 1130 and the number of BHUs from 68 to 90.
- ii) To staff and equip fully the sub-divisional, district, regional and national referral hospitals in the country, by improving logistic support, essential drug supply and equipment including cold-chain maintenance for EPI.
- iii) To activate community participation and involvement in health programmes through production and distribution of educational informations, and by training 200 VVHWs each year, i.e. to a total of 1000 during the Sixth Plan.
- iv) To strengthen capabilities for assessing health situation and trends including projections by building up epidemiological and statistical support.
- v) To promote proper nutrition and oral health.
- vi) To evolve approaches aimed at protecting and promoting health of specific population groups at greater risk particularly women of child bearing age, children and elderly.
- vii) To reduce incidences of mental and neurological disorders.
- viii) To ensure regular supply of essential drugs and vaccines.
- ix) To promote indigenous medical practices, in the light of modern science, in order to take maximum advantage of useful and effective practices and discourage harmful ones.
- x) To provide health education about sanitation, safe drinking water and monitor the quality of drinking water.

TABLE 9.2 Health Sector outlays - Sixth Plan (1987 - 1992)
In Nu. (Million)

Programmes	Current	Capital	Total
1. Institutional Health Service (Hospitals)	170.305	21.000	191.305
2. Basic Health Peripheral Rural Health Services	71.281	37.140	108.421
3. Indigenous Medicare Services (Hospital Dispensaries)	8.625	--	8.625
4. Disease Control & Prevention & Promotive Health Care Services			
- Malaria Eradication	16.115	.250	16.365
- Immunization	5.415	.300	5.715
- T.b. & Leprosy Control	5.250	.025	5.275
- Family Health Welfare	7.580	.150	7.730
- Others	.900	--	.900
- Health Education & Information Services	1.025	--	1.025
5. Social Health-Welfare Services			
- (Treat. National Outside Bhutan & Setting up ALC)	10.650	.070	10.720
6. Health Manpower Development	15.170	1.520	16.690
7. Drug Supply Management Services	5.300	.050	5.350
8. General Health Services/ Magnt. & supplement Serv.	18.605	2.410	21.015
Total	336.221	62.915	339.136

Programmes and Targets

Immunization and Family Health Services

Immunization services are being undertaken to achieve universal coverage by the year 1990. Table 9.3 indicates the absolute number of children who have received immunization. Children and women make up to 63% of the total population and form the largest "at risk" group. MCH services are given in Table 9.8. Family health care programmes will aim to reduce morbidity and mortality in children resulting from tuberculosis, diphtheria, pertussis, tetanus, poliomyelitis, and measles from 11 to 1.1 per 1000 live births; to reduce malnutrition in children under 5 by about 50%; and to reduce maternal mortality and morbidity by 50 percent by the end of Plan period.

Table 9.3 Immunization Activities, 1981 To 1987

(Children immunized)

Immunization	1981	1982	1983	1984	1985	1986	1987
BCG	26,923	17,044	20,508	20,321	17,379	28,469	28,158
DPT1	9,380	7,689	11,782	13,188	14,078	21,556	25,456
DTP3	5,378	4,237	7,403	7,462	10,139	14,846	21,358
OPV1	11,666	7,587	10,899	13,226	13,331	20,927	25,355
OPV3	4,644	4,186	6,135	7,223	10,190	14,179	21,281
Measles	8,998	8,728	9,440	12,738	12,487	17,076	21,514
TT1	--	--	--	2,295	5,327	4,912	8,365
TT2	--	--	--	986	1,454	2,395	4,948

Source: Department of Health

Rabies

Under rabies control programme, the department's role is limited to the provision of vaccines and post-exposure treatment. As the vaccines are required to be kept under coldchain the department has decided to merge the vaccination programme with the EPI. There are no vertical rabies control centres or staff. It is integrated into the general health service system.

Acute Respiratory Tract Infections

Acute Respiratory Infections has become the largest cause of morbidity and mortality, especially among children under 5 during the last two years. The statistics for 1985 and 1986 show that the majority of cases treated by the health facilities in the country are due to ARI followed next by diarrhoea and dysentery (Table 9.6 refers). Special nation programme is necessary to control ARI. The programme will be integrated into the work of the health units in the country.

Malaria

Intensive efforts will be made to reduce the annual parasite incidence from 40 to 20 per 1000 and the slide positivity rate from 22 to 11 per 1000 by 1992. Table 9.4 presents the data on malaria eradication programme.

Table 9.4 Malaria Eradication Programme, 1985 To 1987

	1985	1986	1987
Population in malaria area	148,000	158,000	161,000
Blood film examined	62,421	82,446	69,029
Blood slide positive	15,999	16,523	13,134

Source: Department of Health

Leprosy

The programme targets are to reduce the present case load by 50 percent by 1992 to eliminate child case by 1992; to reduce slide positivity rate to 3% of total slide examined; to reduce case detection rate to .25 per 1000 people examined; to reduce leprosy prevalence to less than 1 per 1000 and to reduce deformities in new cases to less than 5 percent.

For Leprosy Control Programme, it is expected that Helvetas will continue to supply Rifampicin annually to the tune of 50,000 Swiss Frs. The Leprosy Mission will support its four centres in the country and the Norwegian Santhal Mission will support its Riserboo Hospital and sub-centres. No additional capital investment is envisaged for the programme. All the inputs for executing field programme will be recurring expenditure.

Table 9.5 Leprosy Control Programme 1985 to 1987

	1985	1986	1987
Patients at beginning of the year	2,478	2,233	1,674
New cases detected	113	7	88
Relapse cases	5	9	6
Deaths	47	33	33
Released from control(a)	215	546	534
Lost to control(b)	101	60	18
Patients at the end of the year	2,233	1,574	1,183

(a) Patients successfully treated.

(b) Patients unsuccessfully treated.

Source: Department of Health

Sexually Transmitted Diseases

The target is to reduce STD in the population by 50 percent by the end of Sixth Plan.

Tuberculosis Control Programme

A National Tuberculosis Control Programme has been initiated in 1974 to control tuberculosis which still poses a serious threat to a sizeable portion of the population. Concerted efforts will be made to control the disease by involving the entire health infrastructure in this programme. There has been a substantial decline in the incidence of tuberculosis in the Kingdom over the last 12 years due mainly to the endeavours made to provide BCG vaccination to all children below the age of five, intensify and treat infectious cases and to provide vigorous health education to raise the level of awareness among those people. Greater efforts are being made to strengthen this programme by providing qualified manpower and equipment.

Parasite Control

The main aims are to reduce the parasite infestation rate through community based parasite control activities; to train all levels of health related personnel in parasite control; parasite examination techniques and other related subjects, such as maternal and child health, nutrition and environmental sanitation and the use of parasite control activity as an entry point for health education, nutrition and family health activities.

Diarrhoeal Diseases

The programme is geared towards reducing the morbidity and mortality caused by diarrhoeal diseases and their associated ill effects, particularly malnutrition in infants and young children by 50 percent; making self-reliant in the prevention and treatment of diseases through health education; and reducing mortality of children under 5 caused by acute diarrhoeal diseases from 40 percent to 20 percent by the provision of ORS and Health Education by the end of Sixth Plan.

Nutrition Programme

A nationwide nutrition survey carried out in 1988 by the nutrition cell of the Ministry of Social Services and the Department of Health Services has revealed that more than half the children surveyed are stunted in their growth and as many as 38.4% are underweight. The survey has also revealed that about 60% of pregnant women and 35% of the school children suffer from anaemia due to lack of iron and vitamin B.

Another common malnutrition problem in Bhutan is the Iodine Deficiency Disorders. This is due to the fact that the sea foods, the main source of iodine, are very difficult to be found in the Himalayas.

The importance given to the nutrition in Bhutan can be highlighted by the fact that a National Nutrition Resolution was passed by the National Assembly of Bhutan, the highest legislative body, during its 67th session. The Royal Government along with International Organizations are making concerted efforts to eradicate malnutrition by setting up iodization plants and MCH clinics with growth monitoring of infants and increasing and improving the agriculture livestock in the country.

Essential Drugs

An adequate supply of safe and effective drugs at reasonable cost to all health facilities will be made available by 1991. Besides other activities, National Drug Formulary will be published.

Primary Eye Care and Prevention of Blindness Programme

The main strategy to prevent and control blindness is to improve accessibility to eye care services and provision of Vitamin A capsules in endemic regions.

Public Health Laboratory

A public health laboratory will be set up in Thimphu during the Sixth Plan period. In later years, this laboratory will be strengthened to examine and advice on environmental pollution. The laboratory will be set up for the following immediate purposes.

- i) Food Analysis: to detect adulteration and food stuffs; to analyse food supplied to Institutions for harmful micro-organisms and examine whether it is fit for human consumption; and tests on quality maintenance of edible oils and foods.
- ii) Drugs Analysis: to analyse the drugs being imported into the country on its quality and potency.
- iii) Water Analysis: to test the quality of water for both dissolved elements and microbiological investigations for its safety.

Cardiovascular Diseases, Mental Health & Cancer Control

During this plan period, surveys will be undertaken to assess the case-loads in the country, to identify the epidemiological parameters and to establish specific measures to combat these conditions and to establish control programmes.

Oral Health

A study on the status of oral health in the country carried out by a WHO STC revealed that though there was no situation requiring immediate and urgent action. However it indicated the possibility of increased dental problems, oral cancers and other related conditions would manifest on a larger scale if a structure activity was not initiated.

For this purpose the Department of Health is to develop a plan of action which stresses the following: increase in the capability of health staff; strengthening four Dental Units in the country; and ensuring the availability of both skills and tools at District Hospitals as also in the Basic Health Units.

Treatment of Nationals Outside Bhutan

The department of health services has referred cases outside the country-mainly to Calcutta, Vellore and Delhi - for specialised diagnoses and treatment not available within the country. The expenditure will be decreased as and when the three referral hospitals are built and fully staffed and equipped. There are also proposals or establishment of Nephrology Unit at Thimphu, and complete ENT Unit by strengthening the ENT units in Thimphu and Gaylegphug, as well as a cardiovascular Unit at Thimphu General Hospital.

TABLE 9.6 Patients Treated in Basic Health Units and Dispensaries by Disease, 1985 To 1987(a)

Disease	Number			Percentage		
	1985	1986	1987	1985	1986	1987
Diarrhoea/ Dysentery	52,668	61,876	65,687	18.2	17.5	15.6
Respiratory tract infection	48,118	58,572	70,427	16.6	16.5	16.7
Worms	33,651	41,415	46,441	11.6	11.7	11.0
Skin infection	34,145	39,834	53,940	11.8	11.2	12.8
Malaria/P.U.O	30,204	30,035	33,425	10.4	8.5	7.9
Conjunctivitis	12,516	17,169	17,544	4.3	4.8	4.2
Otitis media	7,793	7,348	10,760	2.7	2.1	2.6
Nutritional deficiency	20,744	23,962	32,714	7.2	6.8	7.8
Peptic ulcer syndrome	10,852	14,419	14,933	3.7	4.1	3.6
Disease of teeth & gum	5,330	6,944	8,743	1.8	2.0	2.1
Urinary tract infection and nephritis	5,061	6,302	4,679	1.7	1.8	1.1
Injuries	2,699	19,260	19,869	0.9	5.4	4.7
Sexually trans- mitted diseases	2,059	2,665	1,710	0.7	0.8	0.4
Other childhood diseases	1,263	3,791	3,483	0.4	1.1	0.8
Disease of female genital tract	958	1,189	1,499	0.3	0.3	0.4
Complication of pregnancy and childbirth peuperum	n.a	551	702	n.a	0.2	0.2
Others	21,532	18,977	34,082	7.4	5.4	8.1
All Diseases	289,623	354,309	420,638	100.0	100.0	100.0

(a) Data were based on more complete coverage and this may affect comparisons over time

Source: Department of Health.

Table 9.7 Health Personnel by Category and Sex, 1986 and 1987

Category	1986			1987		
	Males	Females	Persons	Males	Females	Persons
Specialist doctors	19	3	22	14	6	21
Doctors	107	5	112	110	7	117
Staff nurses	5	51	56	18	50	68
Junior nurses	-	80	80	1	24	25
Assistant nurses	-	116	116	2	184	186
Laboratory technicians	33	3	36	31	5	36
Physiotheraists	n.a	n.a	n.a	5	-	5

Dental technicians	4	-	4	8	1	9
Dental hygienists	4	-	4	5	-	5
Pharmacy technicians	63	-	63	13	2	15
O.T technicians	4	-	4	4	-	4
X-Ray technicians	8	-	8	12	-	12
Health assistants	84	1	85	90	1	91
Basic Health Workers	85	-	85	91	-	91
Compounders	n.a	n.a	n.a	45	-	45
Health Supervisors	n.a	n.a	n.a	19	-	19
All Health Personnels	416	259	675	469	280	749

Source: Department of Health

TABLE 9.8 Maternal And Child Health Services, 1981 To 1987

	1981	1982	1983	1984	1985	1986	1987

Maternal Health Services							
Attendance(a)							
Antenatal	3,807	4,360	5,106	7,841	13,548	18,532	26,662
Postnatal	4,806	4,903	9,834	13,148	18,080	22,803	37,476
Total attendance	8,613	9,263	14,940	20,982	31,628	41,335	64,138
Deliveries attended							
Home(b)	683	721	658	822	497	800	2,170
Hospital/Basic Health Unit							
Health Unit	213	310	498	1,460	1,817	3,007	2,491
Total deliveries	896	1,031	1,147	2,282	2,314	3,807	4,661
Child Health Services							
Attendance							
First Visit	4,608	6,321	8,524	11,967	17,734	23,996	33,240
Repeat visit							
visit	36,668	36,543	36,084	65,526	93,275	90,754	163,161
Total attendance	41,296	42,864	44,608	77,493	111,009	114,750	196,401
Malnourished children(c)							
All malnourished							
All malnourished	11,344	11,020	10,610	12,934	12,456	9,030	15,502
Third degree							
Third degree	1,092	1,087	1,116	1,114	1,250	953	2,020

(a) Refers to total attendance, not a count of individuals.

(b) Home deliveries are those attended by health staff. Many women attending health units for antenatal care have deliveries at home without attendance by health staff and are not included in the delivery figures.

(c) Children attending health units are classified according to three degrees of malnourishment. Third degree malnourishment refers to the most severe cases.

Source: Departments of Health

Chapter 10 PUBLIC WORKS

Public Works Department in the Sixth Plan would execute programmes similar in all aspects to the Fifth Plan except that the 'building' i.e. hospitals, schools construction will not be part of PWD. Rural Housing, Rural Water Supply Schemes and the construction and main tenance of roads will form major programmes of the department.

Outlay

The Sixth Plan sectoral outlay for the Public Works Department has been kept at Nu.887.16 million which comprises 9.3% of the overall outlay of the Royal Government. The outlay is broken up into current and capital costs which are respectively Nu.119.6 million and Nu.767.6 million for the sector. The schemewise breakup of outlay is given below.

Table 10.1 Public Works Department - Sixth Plan Outlay

-----Programme			Total Recurring	Capital External
-----Aid				
I. Rural Water Supply(RWS)				
1. Rural Water Supply				
Rehabilitation	3.00	- 1.48	1.52	
2. RWS Schemes(600/500 nos.)	51.24	- 21.43	29.81	
3. Human Resources				
Development	4.32	- 0.40	3.92	
II. Rural Housing Improvement Programme	52.50	- 51.42	1.08	
III. Building & Service				
Centre Const. & main-tenance of buildings	1.00	- 1.00	-	
IV. Roads Construction				
of roads	235.06	- 235.06	-	
1. Mtnce & Resurfacing of roads	133.99	- 133.99	-	
2. Purchase of mtnce equipment				
Mechanisation of Road	20.00	- 20.00	-	
3. Purchase of equipment	130.00	- 60.00	70.00	
4. Workshop & Trg. Centre	15.00	- 15.00	-	
5. Kurichu Project Road	64.00	- 64.00	-	
V. Bridges				
1. Suspension Bridges (100 nos/80 nos)	27.98	- 6.20	21.78	
2. Modular Bridges (25 nos/18 nos)	3.00	- 1.90	1.10	
VI. Mule Tracks	2.60	- 2.60	-	
VII. Human Resources Dev.	23.90	- -	23.90	
VIII. Establishment & Over Heads				
1. Central & dzongkhag	88.90	119.57 -	-	
	17.34	- -		
-----	-----	-----	-----	-----
Total	887.160	119.57 614.48	153.11	
-----	-----	-----	-----	-----

Note:

a) Maintenance of roads under Dantak other than Simtokha-Tashigang and Tongsa-Sarbang roads were

included,

b) External assistances have been shown on the basis of tentative funding commitments in the pipe line. For the rest requirement of funds are shown under the Local Heads.

c) The fund required for IFAD roads were not included here but taken in Agriculture Department allocation.

Roads and Bridges

Objectives, Strategies and Programmes

The total length of roads completed by PWD and DANTAK, by 1987, was about 2273 kms as shown in Table 10.2 and 10.3. The country has a motor road density of 0.049 kms, for every square kilometer of territory. In order to increase the capability of the PWD, in constructing road, two measures to be adopted are:

- i) an advanced mechanisation of road construction and
- ii) to engage private road construction companies in road construction programmes. In the Sixth Plan, PWD would be strengthened to have the capacity to carry out 265 kms of formation cutting, 362 kms of base course and 297 kms of bituminous sealing.

A related activity to road construction is the construction of bridges which are usually highway bridges and suspension bridges (pedestrian crossing). Highway bridges construction by PWD has been restricted to only Bailey bridges and reinforced concrete bridges.

Two of the more important tasks are development of maintenance manual and mechanised maintenance system. Mechanisation, so far in PWD, has been limited to formation cutting of roads works. Sub-base, base course cutting and bituminous sealing have not been mechanised except for use of road rollers and trucks. The appropriateness and effectiveness of the equipments, whilst introducing mechanisation to the physical condition in Bhutan would be closely examined.

The scope for development of private contractors have also been kept in view. The private contractors will directly get the works awarded by the Road and Bridges Division and the execution will be done by contractors under the supervision and control of the Division. The private contractors will, however, have to compete with the construction units in terms of management efficiency.

The Road Works will be executed by the Division with the help of seven specialised construction units. Four units would be for formation cutting and two units for base course construction and one unit for surface sealing.

A central workshop which provides repair and maintenance services to construction units would function under a project manager. There is also proposal for setting up a central workshop which would provide repair and maintenance service to construction units. It will function under a project manager. The department would arrange trainings for personnels of the Central Workshop and construction units on payment. The Department will also supply equipments to the Central Workshop on payment.

TABLE 10.2 Road Network in Bhutan by Type, June 1988

	Distance (km)			
Type of road	National Highways	District Roads	Feeder Roads	All Roads
-----	-----	-----	-----	-----

Black topped	1,385	217	123	1,725
Non-black topped	70	248	230	548

Total	1,455	465	353	2,273
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Source: Public Works Department

Table 103 Road Network In Bhutan by Dzongkhag, June 1988

	Distance (km)			
Dzongkhag	National Highways	District Road	Feeder Road	All Roads
Chukha	132	39	17	188
Ha	15	11	16	42
Paro	104	51	16	171
Samchi	-	82	13	95
Thimphu	102	-	19	121
Chirang	64	30	24	118
Daga	22	57	-	79
Punakha	-	12	56	68
Wangdiphodrang	106	-	41	147
Bumthang	122	-	24	146
Geylegphug	106	-	38	144
Shemgang	142	-	-	142
Tongsa	163	-	-	163
Lhuntshi	-	47	10	57
Mongar	177	20	18	215
Pemagatsel	-	23	16	39
Samdrup Jongkhar	59	48	5	112
Tashigang	141	45	41	227
BHUTAN	1,455	465	353	2,273

Source: Department of Public Works

Rural Housing

The main objective of the programme is the improvement of quality of rural housing with a view to thwart rural-urban migration, create conditions that would narrow down the differences in urban and rural living standard, and ameliorate the condition of villagers.

Approaches

This programme during the Sixth Plan will be divided into two phases, viz. (i) construction of 18 prototype houses and (ii) Improved Rural Housing Project. The construction of 18 prototype houses have the following basic objectives:

- Training of local site supervisors, master builders and artisans in planning and construction of improved rural housing.
- Extension of knowledge concerning the improvements in environmental sanitation in rural areas.
- Develop technical information and guideline packages for execution of the main Improved Rural Housing Project.

After completion of the prototype construction the actual improved Rural Housing Project will be executed. It is expected that during the Sixth Plan period about 15000 houses will be provided with improved facilities.

The Improved Rural Housing Project will have the following government provisions:

- a) Government subsidy on the items not available locally.
- b) Training of the rural carpenters and craftsmen and construction of the Rural Housing by certified carpenters and craftsmen.
- c) Technical advices by the properly qualified people.
- d) Upgradation and standardisation on the quality and of materials inputs.
- e) Certification and record keeping of the completed houses by the Dzongkhag.
- f) Educating the people on use, maintenance and the benefit due to the Improved Rural Housing Programme.

Rural Water Supply

Objectives and Programmes

The main objective of the programmes are to improve Public Health in the country by reducing the incidence of water borne diseases through the provision of adequate water and sanitation facilities to all by the year 2000. The immediate concern is to provide 40% of the Rural population with water supply facilities and upgrade/rehabilitate an estimated 307 Rural Water Supply Schemes. Emphasis will be put on community responsibility for operation and maintenance of facilities.

Rural Water Supply Schemes will be executed by PWD with regard to design, materials procurement and supply, monitoring, evaluation and training. Other activities in Rural Water Supply Schemes will be carried out by dzongkhag administration or concerned departments.

Chapter 11

URBAN DEVELOPMENT

Institutionally, physical planning and implementation upto the end of 1983 was administered through the Central Town Planning Committee (CTPC) supported technically by a small Town Planning Department. CTPC was upgraded and renamed on 1st April 1984 as National Urban Development Corporation (NUDC). This agency is fully responsible for the planning and execution of all urban development works and maintenance of basic services in urban centres.

Objectives and Functions

The objectives and functions of the NUDC are:

- i) To prepare urban development plans and enact rules and architectural regulations for building. To provide basic infrastructure in the urban centres e.g. roads, drainage, embankment schemes and water supply systems and solid waste collection and disposal for major urban centres.
- ii) To mobilise resources to fund urban development activities and recurrent maintenance costs by imposition of urban taxes, consumer charges and registration fees.
- iv) To acquire and reserve suitable land for immediate and future under development and optimize the utilization of land.
- v) To promote beautification through parks and planting of trees and shrubs.

Outlay Programmes

In order to achieve the objectives, the following programmes are being adopted:

- i) Provision of drinking water supply schemes in six major urban centres, viz. Thimphu, Paro, Phuntsholing, Gaylegphug, Samdrupjongkhar and Tashigang.
- ii) Provision of sanitation schemes in major urban centres. The remaining town will be provided with public toilets and other sanitary facilities.
- iii) Provision of solid waste collection and disposal facilities.
- iv) Construction of permanent bridges at Thimphu.
- v) Construction of storm water drains.
- vi) Landscaping and beautification of Thimphu and a few other major towns.
- vii) Construction of development for labourers in Thimphu.
- viii) Construction and development of weekly markets in towns.
- ix) Development of sites and services in three major towns.
- x) Construction of electrical crematorium at Thimphu and allied services.
- xi) River embankment schemes and soil conservation works.
- xii) Installation of fire hydrants in the bigger towns where such facilities are not available.
- xiii) Procurement of heavy tools and equipment for maintenance and development works of the urban centres.
- xiv) Acquisition of private land falling within municipal areas for development of towns.

Outlay

TABLE 11.1 NUDC Outlay - Sixth Plan

(In Million Nu.)

Programme	Total	Capital	Current
Establishment	58.670		58.670
Drinking Water Supply Schemes	103.610	103.610	--
Sanitation Schemes	60.000	60.000	--

Solid Waste Collection & Disposal	1.500	1.500	--
Construction of bridge	5.000	5.000	--
Construction of storm water Drains	4.000	4.000	--
Landscaping and Beautification	1.000	1.000	--
Construction of Tenements	1.000	1.000	--
Construction and Deve- lopment of weekly market	1.500	1.500	--
Development of sites and services	1.930	1.930	--
Construction of crematorium	2.000	2.000	--
River Training and Soil Conservation	4.000	4.000	--
Installation of Fire Hydrants	1.000	1.000	--
Heavy tools & equipment	2.000	2.000	--
Construction of Prototype Houses	0.500	0.500	--
Acquisition of land	1.000	1.000	--

Total	248.710	190.040	58.670

CHAPTER 12

AGRICULTURE

Objectives and Strategies

Agricultural development in the Sixth Plan will have the following overall objectives. The first objective is to increase self-sufficiency in staple foods. The second objective is to increase the per capita income of the rural population. The third objective is to increase productivity per unit of farm labour and agricultural land.

Area-based agriculture development and provision of services and incentives to support agricultural development are the major strategies towards achieving these goals.

Outlay

The total outlay for the agriculture (including irrigation) sector in the Sixth Plan is Nu. 880.499 million, of which Nu. 288.132 million, is for current expenditure and Nu. 592.367 million for capital expenditure.

TABLE 12.1 Agricultural Sector Outlay - Sixth Plan
(Nu. in million)

Sl. Programme No.	Current	Capital	Total
1. Area Development Project			
Punakha-Wangdi Valley Project	17.254	39.775	57.029
Chirang Hill Valley Project	15.140	33.860	49.000
Tashigang-Mongar Project	13.491	49.509	63.000
Paro Valley Dev. Project	22.750	47.250	70.000
Gaylephug ADP	4.788	14.072	18.860
Taklai Irrigation Project	3.179	5.510	8.689
Paro Flood Protection Proj.	0.665	0.000	0.665
2. General Agriculture Development Project	47.385	65.908	113.293
3. Research	21.052	19.784	40.836
4. Manpower Dev. & Trg.	13.746	6.254	20.000
5. Farm Mechanization	41.253	91.380	132.633
6. Product & Supply of Improved Seeds & Plants	22.287	115.713	138.000
7. Plant Protection Services	8.495	21.505	30.000
8. Potato Dev. Programme	8.895	18.605	27.500
9. Assessing Land & Water Dev.	5.511	17.035	22.546
10. Post Harvest Support Serv.	1.400	1.278	2.678
11. Crop Forecasting & Agriculture Data Collection	3.723	1.014	4.737

12. National Horticulture Dev. Project	5.800	9.200	15.000
13. Input Procurement and Distribution		5.000	5.000
14. Direction & Planning	31.318	29.715	61.033

Total	288.132	592.367	880.499

Programmes

Area Based Development

Area-based development will be the primary strategy for agricultural development in the Sixth Plan. Intensive and comprehensive agricultural infrastructure development is to be concentrated in a limited number of areas selected for their proven potentials and homogeneity of agro climatic conditions. It should enable development efforts to be well integrated, coordinated and organised in studied response to specific local conditions.

The five major projects for intensive agricultural development are:

- i) Paro Valley Development Project
- ii) Gaylephug Development Project
- iii) Punakha - Wangdi Valley Development Project
- iv) Tashigang-Mongar Area Development Project
- v) Chirang Hill Irrigation Development Project

While each project will pay attention to the specific agro-climatic and socio-economic condition of the area, it is intended to cover in its design following general components:

- i) Extension of more productive cropping systems including promotion of crop varieties, improved cultivation practices and intensive cropping patterns;
- ii) Support for collection, marketing, processing and storage of crop surpluses;
- iii) Mechanization of farming practices to alleviate farm labour constraints and to increase productivity of labour;
- iv) Efficient supply of quality farm inputs;
- v) Effective provision of credit facilities, both short-term and medium-term, at low interest rates;
- vi) Construction/rehabilitation of irrigation infrastructure; vii) Construction of farm/feeder roads; and
- viii) Project monitoring and evaluation.

Similar services will be provided in areas not covered under the area based agriculture development projects. They will have access to general agricultural development services. These services will be provided through a network of extension centres located at the gewog level and within the Development Service Centres contemplated to be developed at important locations during the Sixth Plan.

Manpower Development and Training

The present staff strength which totals 697 will be augmented with additional recruitment, both to gradually repatriate and to meet projected needs. By the end of the Sixth Plan, the total staff strength will be 1,075.

Although employees will be sent outside the country for acquiring higher skills and specialisation during the Sixth Plan, bulk of the manpower requirements of the Department will be trained at National Agricultural Training Institute Wangdiphodrang. At this Institute, diploma and certificate courses in agriculture will be imparted along with a number of service trainings. Development of satellite in service training centres in selected locations like Paro, Bhur, and Kanglung be carried out. At these locations, farmers' training will also be organised.

Research

Bhutan's varied and generally difficult agroecological conditions require that high priority be given to adequate adaptive research.

The Centre for Agriculture Research Development (CARD) at Wangdiphodrang will be opened during the later half of Fifth Plan. A collaborative Project for 'Improving Rice-Based Farming systems' presently being implemented with technical assistance from the International Rice Research Institute (IRRI) is making rapid progress. Besides, implementation of a project to promote appropriate fertilizer use was begun in 1986.

During the Sixth Plan, it is proposed to strengthen CARD's activities at Wangdiphodrang and to develop satellite regional research stations in different parts of the country.

Emphasis will be given to training and recruiting appropriate research staff. While research work on rice and rice-based farming systems is progressing well, little attention has been given to the other major staple crop maize. Preliminary discussions are underway for the implementation of a collaborative programme during the Sixth Plan to improve maize and wheat production with technical assistance from the International Maize and Wheat Research Centre.

The Potato Development Programme will continue to conduct adaptive research work on potatoes in collaboration with the International Potato Centre (CIP) and Helvetas. Adaptive research work on oranges, apples and oil seeds will be launched.

Production and Supply of Improved Seeds and Plants

National Agricultural Seeds and Plants Supply Programme (NASEPP) will be strengthened. Growing of seeds for meeting internal requirement and exports, wherever feasible, will be carried out.

Emphasis will be placed on increasing production of cereal seeds of improved varieties. Production of improved oil seeds and vegetable seeds will be undertaken. The programme will be organised and implemented through the network of regional farms producing foundation seeds, and multiplied through registered seed growers.

Nurseries to produce seedlings of major horticultural crops like apples and oranges will be set up. Tissue culture activities initiated during the Fifth Plan period will be intensified with additional stress on multiplication of the virus-free material under controlled conditions.

Farm Mechanization Support

A major constraint in increasing cropping intensity is the shortage of farm labour and with the migration of the rural population to the urban areas, farm labour constraint is likely to become more acute in the near future. Mechanization of farming practices will be accelerated to alleviate farm labour constraints and to increase productivity of labour.

Strengthening of the mechanization programme will include testing and supply of suitable farm machinery, development of traditional farm implements to increase their efficiency, establishment of regional workshops to provide maintenance and repair facilities, training of mechanics, operators and farmers, and ensuring regular supplies of spares parts.

Irrigation and Land Development Engineering Services

Assistance will continue to be provided to remove infrastructural constraints to farm communities, particularly in areas with substantial potential for higher yield of rice.

In the irrigation sector, there has been persistent problems of maintaining the channels. Joint endeavors of the beneficiaries will be necessary for channel management and the beneficiaries will be made fully responsible for maintenance and timely repairs of the channels. Better water management systems will be developed and promoted to maximise effective use of available irrigation.

Under-utilization of existing irrigation infrastructure is another problem that will be thoroughly investigated. Total area covered by irrigation is shown in Table 12.1 Rehabilitation works and construction of distributaries of existing channels will be given priority in the Sixth Plan. Assistance for construction of new irrigation infrastructure will be provided only after carrying out detailed geo-technical feasibility and economic appraisal studies.

Assessment of Land and Water Resources

There is growing awareness that there is need for a comprehensive survey of prevailing soil conditions. During the Sixth Plan, soil analysis laboratory will be established to carry out a comprehensive ground survey to establish and map the existing soil conditions.

To ensure appropriate land use, an agro ecological survey to identify potential land use is proposed. The need to identify additional areas of suitable arable land is particularly important. Therefore, the agro-ecological survey will be accompanied by an arable land identification survey. Specifically, aerial photography (at 1:20,000) will be required for the agro-ecological zone and arable surveys.

The irrigation projects in many parts of the country usually involves lumpy investments in the construction of long irrigation channels over difficult and unstable terrain. In the foothills and sub-tropical plains in particular, where precipitation during monsoon is very high, channel often collapses and falls into disuse. In order to alleviate this problem, it is hoped that a survey will be conducted during the Sixth Plan to determine the economic viability of tapping ground water as an alternative source of irrigation.

TABLE 12.2 Irrigation Schemes completed by 1987/88

	<u>New construction</u>			<u>Renovation</u>		
	No. of schemes	Length of channel (km)	Command area (hectare)	No. of schemes	Length of channel (km)	Command area (hectare)
Chhukha	1	0.5	42.5	-	-	-
Ha	1	2.1	60.7	1	1.0	11.9
Paro	1	4.3	56.7	2	10.4	170.4
Samchi	2	2.8	143.3	4	9.3	707.9
Thimphu	1	1.0	21.1	1	1.2	12.1
Chirang	1	2.0	60.7	12	21.5	228.4
Daga	1	4.5	141.7	2	5.9	78.7
Punakha	1	8.6	209.3b	3	13.5	175.3
Wangdiphodrang	3	20.6	338.1	1	1.6	143.1
Bumthang	-	-	-	-	-	-
Geylegphug	1	37.7	1,457.5	3	7.3	161.9
Shemgang	1	3.6	72.9	-	-	-
Tongsa	1	7.6	263.2	1	4.1	16.2
Lhuntshi	-	-	-	3	15.9	397.9
Mongar	3	10.0	139.3	1	2.2	47.8
Pemagatsel	1	6.2	41.3	-	-	-
Samdrupjongkhar	6	16.8	728.7	3	3.4	155.9
Tashigang	2	7.1	512.1	3	7.0	253.0
BHUTAN	27	135.4	4,289.1	40	104.3	2,560.6

(a) Refers to the 15 month period 1 April 1987 to 30 June 1988.

Source: Department of Agriculture.

The Royal Government of Bhutan and European Economic Community (EEC) have been making a collaborative effort to develop plant protection services. Under this venture, the establishment of pathology and entomology laboratories, survey of pests and pathogens, and establishment of reference collection, will be continued in the Sixth Plan.

Agriculture Credit

The promotion of improved inputs and technology needs to be backed-up by the provision of adequate credit facilities on concessional terms to farmers. The Rural Credit Programme was implemented until recently by the Royal Monetary Authority (RMA) with assistance from the United National Capital Development fund (UNCDF). This activity was transferred to Bhutan Development Finance Corporation (BDFC) and will be strengthened and continued in the Sixth Plan. The cash credit from the BDFC will be fully tied up with the agricultural inputs supply during the Sixth Plan.

Short term credit at 6% to 8% interest per annum will be provided to farmers for the purchase of seasonal inputs (fertilizer, seeds, etc.) and medium term credit at 10% interest per annum for farm development works, and purchase of agricultural machineries.

A total disbursement of Nu. 25.00 million of short term credit funds and Nu. 30.00 million of medium term credit funds is projected during the Sixth Plan.

Farmers' credit requirements upto Nu. 20,000/- will be met by the Rural Credit Programme, while credit requirements of more than Nu. 10,000/- will be met by individual borrowings from the Bank of Bhutan's agricultural loan scheme (10% interest rate).

Credit will be available for the purchase of threshing, hulling and milling machines. Funds will also be provided through the Department of Agriculture for setting up grain stores and mills at strategic places.

Subsidies

Subsidies will continue to be provided to induce and sustain agricultural development and to equalise input costs throughout the country. The subsidies are presently provided for transportation of all agricultural inputs including farm implements and machinery, upto Dzongkhag headquarters or the nearest road head. Cost subsidies applied to plant protection chemicals, construction of irrigation infrastructure, compost sheds, and land development will also be continued.

Regional Agricultural Development Centres

Planning and implementation of the central programmes will be organised on a regional basis to provide effective support services with the limited available qualified and experienced technical manpower. Three regional agriculture development centres are being contemplated. They are:

- Simtokha - to cover the Western Region
- Bhur - to cover the Central Region
- Kanglung - to cover the Eastern Region

These will be established and strengthened in a phased manner over the Sixth Plan period. Over the Sixth Plan period, each Regional Agriculture Development Centre is planned to be strengthened and staffed with an extensionist, an agronomist, a plant pathologist, and entomologist, an irrigation engineer, a monitoring officer, a store officer and the minimum required technical and administrative support staff.

TABLE 12.3: Crop Area and Production of each crop, 1981 and 1984

Crop Area ('000 hectares)			Crop Production ('000 tonnes)		
Target			Target		
1981	1984	1987	1981	1984	1987
----	----	----	----	----	----

Cereals						
Paddy	28.0	30.6	37.0	57.4	65.0	84.5
Wheat/Barley	12.0	14.4	16.6	13.3	16.0	22.5
Maize	56.8	58.5	52.5	80.7	87.3	85.1
Buck wheat/ millet	15.5	20.6	15.0	12.3	16.8	12.7

Total	112.3	124.1	121.1	163.7	185.1	204.8
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Other Crops

Pulses	4.0	3.0	5.3	2.4	2.6	3.8
Mustard	2.9	5.0	5.5	1.9	3.5	3.9
Potato	3.7	4.2	5.1	24.9	32.6	50.0
Chillies/ Vegetables	3.1	1.7	3.6	12.2	5.3	15.1
Oranges	6.2	7.8	8.0	25.6	38.7	53.1
Apples	1.5	1.6	1.9	3.3	3.5	8.8
Cardamom	5.9	8.8	6.6	2.8	3.0	4.1

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 Note: Figures are based on estimates made by dzongkhag, gewog and village officials. Target 1987 refers to targets for the Fifth Plan.

Source: Survey undertaken by Department of Agriculture in 1981 and 1984.

Chapter 13

SURVEY

Outlay

The total budgetary allocation for the Survey in the Sixth Plan is Nu. 54.282 million of which Nu. 48.943 million is for maintenance and Nu.5.339 million for development.

Programmes

Cadastral Survey

Cadastral surveys were started in Bhutan in 1980. The department will complete surveys in Samchi, Gaylephug, Chhukha, Bumthang, Samdrupjongkhar, Thimphu, Pemagatshel and Tongsa dzongkhags.

In addition, the surveys using photogram metric means will be done in Wangdi Phodrang and Punakha dzongkhags.

Topographical Surveys

Bhutan has approximately 670 km long border with India and 570 km with China. Border with India has been jointly demarcated except a small stretch in the western and eastern sectors. Regarding the Sino-Bhutanese boundary the department will continue to investigate and study the old documents and maps.

Updating of 1:50,000 scale Topographical Maps

The Survey of Bhutan may revise about 15 to 20 sheets of 1:50,000 scale topographical maps to pick up new information

Geodetic Control

High precision network of control is the basic requirement on which subsequent topographical control of lower order is based. A high precision geodetic control for the entire country will be carried out in collaboration with Survey of India in a phased manner.

Photogrammetric Surveys

Photogrammetric plotting of pilot jobs both for cadastral and project surveys will be taken up during the Sixth Plan.

Cartography

A cartographic unit will be established to give a proper shape to the surveyed sections before these are sent for printing. The unit will also carry out fair drawing of 1:2,50,000 and smaller scale maps of Bhutan. In addition, the cadastral maps will be fair drawn.

Reproduction and Printing

Printing press and allied reproduction equipment will be installed. Printing of maps will be done for the first time in Bhutan.

Land Records

Tham preparation of the cadastral surveys will be carried out in Samchi, Gaylephug, Chirang, Chhukha, Bumthang, Samdrupjongkhar and Thimphu dzongkhags. Computerisation of land records will be started on pilot project basis.

Manpower Development

Stress for the development of manpower and resources during the Sixth Plan period to cope up with its increased activity both in cadastral and topographical surveys. With this aim the department has been recruiting 10-12 surveyors each year for in-house training in cadastral survey techniques. Similarly the augmenting of manpower in other fields such as geodesy, photogrammetry, cartography and map reproduction and printing etc. will be achieved by recruiting qualified candidates and training them abroad.

60 Sixth Plan

Land Use Survey and Planning Project

One of the major constraints in developing planned programme is the complete lack of any systematic survey of the land resource base. In the absence of such a resource information base, national planning authorities are unable to characterize the current land use situation, to monitor the dynamics of land use change, or to predict and model the impact of large scale development projects on the resource base. The difficulties created by this situation are cross-sectoral having implications for forestry, agriculture, water management and pasture development to name a few.

In view of this, a Natural Resource Survey Section needs to be set up to carry out systematic land use survey and mapping work for the entire country. The goal is to make the resource survey section service-oriented catering to the needs of various departments which can not develop elaborate survey and mapping capabilities within their organisations. The resource survey will facilitate a coordinated national approach to land resource evaluation and monitoring within the principal resource management departments of the Royal Government - namely, Department of Forestry, Department of Agriculture, Animal Husbandry Department and the Planning Commission.

Chapter 14 LIVESTOCK

Objectives

The following have been chosen as important objectives for the livestock sector for the Sixth Plan:

- i) Genetic improvement of livestock through distribution of exotic breeds and artificial insemination.
- ii) Diffusion of appropriate technology in the field of animal feed and fodder from centrally run development oriented farms and projects.
- iii) Expansion and consolidation of the infrastructure in livestock sector at all levels.
- iv) Provision of animal health facilities for both mobile rangeland and non-migratory livestock.
- v) Income generation for the rural people through livestock rearing.

Outlay

An outlay of Nu.331 million is earmarked for the Animal Husbandry sector during the Sixth Plan. The amount reflects an increase of 213.5% over the Fifth Plan outlay. The recurring cost amounts to Nu. 183.02 million and capital cost amounts to Nu.161.105 million. Out of the total outlay, Nu. 114.775 (34%) million is allocated to the central schemes to be implemented by the central Directorate and Nu. 51.042 (15%) million for the dzongkhag schemes which are to be implemented by dzongkhag administrations.

TABLE 14.1 Livestock Sector Outlay - Sixth Plan
(Nu. in million)

Programmes	Total	Recurring	Capital
1. Highland Livestock Development Project	83.300	26.074	57.226
2. Highland Altitude Area Development Project	39.300	23.306	15.994
3. Integrated Fish Culture Production Development Project	11.482	6.392	5.090
4. Artificial Insemination Programme	7.500	-	7.500
5. Cold Water Fisheries	1.000	-	1.000
6. Cold Chain Development	0.700	-	0.700
7. Rinderpest Eradication Programme	6.288	-	6.288
8. Human Resource Dev. Programme	15.613	-	15.613
9. Existing Central Schemes	114.775	85.704	29.071
10. Dzongkhag General Livestock Devt. Programme	51.042	41.544	9.498
Total	331.000	183.020	147.980

Programmes and Approaches

Highland Livestock Development Project

The project is being implemented in two separate areas in the country. The first area comprises of 14 selected livestock blocks in five districts: Tashigang, Lhuntshi, Mongar, Pe magatshel and Samdrupjongkhar in the Eastern part of the country. The other project area is in Western Bhutan

comprising of 11 selected live stock blocks within the two dzongkhags of Samchi and Chukha.

The main thrusts of the programme are: pasture development and nutrition, breeding and improved husbandry, animal health, milk collection and processing, meat processing and marketing and organization of cooperatives. The livelihood and income of small farmers will be improved while the present process of environmental degradation caused by over-stocking will be reversed.

In the Western part of the country, intensive milkshed area development is pursued with the main objectives of:

- i) increased milk production aimed at the urban markets of Phuntsholing and Thimphu
- ii) establishment of efficient and cost effective milk supply and distribution system and
- iii) utilising WFP supplies to advance dairy development in the area.

High Altitude Area Development Project

The High Altitude Area Development Project covers the north central part of the country. It extends over the whole of Bumthang consisting of 4 gewogs, 2 northern gewogs of Tongsa and 4 gewogs of Wangdiphodrang with a total number approximating 2,552 households. Since the area lies at an altitude of 2000 to 5000 metres above sea level with temperature ranging from 25 degree centigrade to minus 4 degree centigrade, there is limited scope for food crop cultivation other than subsistence crop such as buck wheat, wheat, barley, potato, mustard, radish and turnips. The area is much more suitable for livestock farming.

The present project aims to exploit the live stock potential of the project area so as to increase overall livestock production through the increase in productivity of individual animals and achieve self sufficiency in dairy products. This is to be achieved through the reduction of unproductive stock and increase in number of improved productive breeds through artificial insemination and natural bull services, improvement of pasture and fodder resources, animal health coverage, better livestock management practices and provision of all essential inputs including technical expertise and institutional credit. Attention is being given to prevent seasonal migration of cattle, restoration and maintenance of ecological balance of the project area.

Artificial Insemination Programme

The major thrust on livestock improvement in Bhutan is mainly centered around cattle development to increase milk production. The local Siri breed of cattle is very poor milk producer. The alternative for expeditious development of cattle is to adopt cross breeding with high yield exotic breeds. The Jersey and Brown Swiss breeds have been chosen for the purpose.

The topography and other agro-climatic condition of the country is such that natural service by imported bulls is very limited. Given that progress is very slow and service efficiency low, the adoption of the technique of artificial insemination would offer better results in terms of the inseminations carried out and calves born.

Presently, the main difficulty in carrying out artificial insemination with a significant measure of success is the non-availability of liquid nitrogen which is inescapably needed for the storage and transport of semen containing straws. In order to overcome this difficulty, a liquid nitrogen plant is proposed to be set up at Wangchutaba where a Central Semen Collection Centre will be established for the production of semen in frozen state from high merited breeding bulls

Besides, a desktop computer with printer will be installed for collection and processing of data and to follow up on the work of post insemination, productivity coefficient, danger of serious in-breeding and mating schedules. Further, under the same project, it is planned to carry out 77,300 artificial inseminations in various dzongkhags as shown in Table 14.2.

development oriented schemes designed to supply various kinds of development inputs for the farmers to enable them to carry forward their efforts in adopting improved technology towards achieving economic live stock production.

Centrally Operated Support Programme and Institutions

1. Directorate of Animal Husbandry, Thimphu
2. Animal Husbandry Central Stores, Phuntsholing
3. Royal Veterinary Diagnostic Laboratory, Serbithang
4. Vaccine Production Centre, Serbithang
5. Royal Veterinary Institute, Serbithang
6. Regional Veterinary Laboratory, Deothang
7. Veterinary Hospital, Thimphu
8. National Fodder Seed Production Centre, Bumthang
9. Temperate Fodder Research Centre, Serbithang
10. Sub-Tropical Fodder Research Centre, Samchi
11. National Jersey Breeding Centre, Samchi
12. National Haflinger Horse and Brown Swiss Cross breeding Centre, Bumthang
13. Regional Livestock Breeding Centre, Lingmethang
14. Regional Mithun Breeding Farm, Arong
15. Regional Mithun Breeding Farm, Chukha
16. National Sheep Development Project, Bumthang
17. National Pig Breeding Centre, Paro
18. Central Pig and Poultry Breeding Farm, Sarbhang
19. Regional Poultry Breeding Centre, Paro
20. Pheasant rearing Centre, Taba
21. National Warm Water Fish Culture Centre, Gaylegphug
22. Cold Water Fish Research Centre, Haa
23. National Horse Breeding Programme, Bumthang
24. Inoculant Production Centre, Serbithang
25. Control of Predatory Animals, Thimphu
26. National Rabies Control Programme, Serbithang
27. Feed Mixing Plant, Phuntsholing
28. Milk Processing Plant, Phuntsholing
29. National A.I. Programme, Wangchutaba.

Dzongkhag General Livestock Development Programme

This programme will cover the remaining 156 gewogs of the country which have not been included under intensive livestock development programme. The activities proposed under this programme are listed in Table 14.3. In addition to these activities, assistance for pasture development will be provided to enthusiastic entrepreneurs who will come forward to take up organised dairy farming.

TABLE 14.3 Sixth Plan Targets for Dzongkhag Livestock Development Programme

Item	Unit	Target
1. Artificial Insemination	Nos.	31,200
2. Distribution of Jersey bulls	"	107
3. Distribution of Jersey cross and Brown Swiss cross bulls.	"	103
4. Distribution of Mithun Bulls	"	288
5. Distribution Or Nublangs	"	146

6. Distribution of Haflinger Stallions	"	22
7. Distribution of Haflinger Cross/ Stud Stallions.	"	97
8. Distribution of Donkey Stallions	"	50
9. Distribution of Yak Bulls	"	69
10. Distribution of Rams	"	357
11. Supply of Piglets	"	9,925
12. Supply of Poultry birds	"	57,538
13. Distribution of Buffalo Bulls	"	6
14. Supply of fish fingerlings	"	1,700
15. Sterilization of undesirable male stock	"	95,450
16. Pasture Development	acres	890
17. Propagation of fodder tree seedlings	Nos.	7,49,620
18. Urea Treatment of Straw	house/holds	8,215
19. Fodder Conservation	"	950
20. Vaccination	Nos.	11,02,550
21. Deworming	"	7,63,000
22. Construction/Reconstruction of	"	20

FISHERIES

Integrated Fish Culture Production Development Project

This is a turn-key project on the development of pisciculture in Bhutan by promoting warm water fish production integrated with duckery and piggery. The idea is to integrate either piggery or duckery with fish production as auxiliary occupation. The two will act as complementary agents to the main work i.e. fish farming.

The project will be implemented in selected areas of four southern districts :- Gaylegphug, Samdrup Jongkhar, Chirang and Samchi. 42 hectares in Gaylegphug and 71 hectares in Samdrup Jongkhar will be brought under warm water fish culture. In addition 97 hectares will be developed under the expansion programme in Chirang, 9amchi and few other gewogs of Gaylegphug.

About 500-600 farms are intended to be initiated in pond fish farming. They will benefit financially from the income of such fisheries. The consumers of the country will benefit by raising their nutritional status. The project will take up extension work on improved methods of fish farming to help local private entrepreneurs.

Cold Water Fisheries

All previous efforts have been for developing sport fisheries. However, exploration of foreign exchange earning, cultivating and harvesting inland fish have been under serious consideration for some years. The possibility of commercial trout culture will be fully investigated for its technical and economic viability under local conditions.

A team of specialists will carry out the following feasibility study: provide the information necessary for strategy development, to assess the bio-physical and climatic conditions, to map and collect relevant significant data in form of maps; and to broadly look into cultural and institutional acceptability of the project.

TABLE 14.4 Livestock Numbers by Dzongkhag, 1987

Dzongkhag
Cattle Yaks Buffaloes Sheep Goats Pigs Horse Poultry

	-----	----	-----	-----	-----	-----	-----	-----	-----	Ha
	8.0	4.0	-	0.1	-	1.9	1.1	4.5		
Paro	24.5	2.7	-	0.3	-	11.3	1.5	11.4		
Samchi	42.5	-	1.7	4.5	15.3	2.1	0.2	26.9		
Thimphu	14.8	8.6	-	1.9	0.6	4.5	1.3	7.4		
Chirang	27.1	-	1.4	3.3	9.0	2.7	1.2	23.0		
Daga	11.4	-	0.2	0.6	3.6	2.5	0.6	12.7		
Gasa	1.0	2.8	-	-	-	0.2	0.4	0.6		
Punakha	9.5	-	-	-	-	3.7	0.8	5.4		
Wangdiphodrang	18.2	11.2	-	2.1	-	4.1	2.5	6.1		
Bumthang	9.4	3.6	-	7.1	-	-	1.3	2.7		
Geylegphug	37.4	-	1.8	2.1	2.0	4.6	0.8	45.5		
Shemgang	17.3	-	-	-	0.2	2.9	1.6	5.7		
Tongsa	10.8	-	-	4.0	-	0.8	0.6	3.8		
Lhuntshi	15.8	0.3	-	0.5	-	3.1	1.1	7.7		
Mongar	31.1	-	-	0.1	-	6.6	1.6	15.3		
Pemagatshel	7.1	-	-	-	-	2.1	1.1	4.2		
Samdrupjongkhar	20.0	-	0.1	0.3	2.1	3.5	1.6	15.4		
Tashigang	50.7	6.9	-	9.4	8.1	13.7	6.7	19.7		
	-----	---	-----	-----	-----	-----	-----	-----		
y	357.0	40.1	5.2	36.4	40.9	70.3	26.0	218.0		
	-----	-----	-----	-----	-----	-----	-----	-----		

Source: Department of Animal Husbandry

Chapter 15

FOOD CORPORATION OF BHUTAN

Programmes

Maintenance of Buffer Stock

FCB has to maintain and operate food security stocks. Over the Plan period, WFP assistance will increase the food security stocks whose storage facilities are expected to be constructed with UNCDF assistance. The FCB is expected to play an increasingly important role in the supply and distribution of foodgrains through out the Kingdom. Table 15.1 summarises the extent of food distribution from 1981/82 to 1987/88.

TABLE 15.1 Food Corporation of Bhutan, Imports and Distribution, 1981/82 To 1987/88

Commodity	(tonns)						
	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88
IMPORTS							
Rice	2,345	5,843	6,033	5,388	7,211	11,282	16,750
Wheat	873	2,725	2,123	2,599	2,450	3,350	5,767
Sugar	1,276	1,381	1,800	1,824	2,749	3,574	4,039
Salt	3,475	2,755	2,326	3,598	5,689	3,516	5,035
Oil	-	-	240	306	557	874	1,280
SALES							
Rice	2,127	561	4,537	4,863	6,956	11,761	16,700
Wheat	661	2,701	2,230	2,280	2,534	3,346	5,595
Sugar	1,085	1,289	1,575	1,996	2,579	3,731	4,078
Salt	429	278	179	617	3,603	3,513	5,050
Oil	-	-	214	213	472	516	1,082

Source: Food Corporation of Bhutan

Privatization

The Corporation has already handed over 18 depots to the private persons to undertake the food distribution system. Presently the Corporation has 23 retail cum bulk godowns, which will be gradually handed over to the private parties. The Corporation will restrict gradually to act as the importer, storer and bulk distributor of the various FCB retailers.

Cash Crop Marketing Development

The Corporation will help educate the growers on the need to sort, grade and pack their products properly. This is aimed at establishing a well reputed exporter of quality products to external markets and thereby increase the per capita income of the producers. The commodities handled by FCB over the years are given in Table 5. 14.

The bulk of the cash crop are grown in Western Part of the country. The Corporation has set up a permanent auction yard in Samchi for orange. The operation of the auction yards in this and other centres have proved beneficial to the growers in marketing their products at competitive prices. The corporation will set up similar auction yards at Gavlegphug and Samdrupjongkhar by the end of the Sixth Plan.

At the auction yards the Corporation besides rendering free storage facilities and conducting auctions also provides weighing facilities and collects payments from buyers on behalf of the growers. To further strengthen the cash crop marketing system, the Corporation has created an additional market outlet in Siliguri.

World Food Programme

The FCB will continue to act as the managing agent to WFP operation. Presently WFP commodities are being received for the following projects:

TABLE: 15.2 Agricultural Produce Handled by Food Corporation of Bhutan, 1982/83 To 1987/88

Commodity	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88(a)

	Quantity (tonnes)					
Potatoes	3,795.8	6,178.9	7,571.9	8,987.8	8,021.0	10,060.3
Apples	452.5	671.9	889.6	648.0	1,295.0	965.6
Oranges	549.4	588.6	690.0	769.0	946.3	2,455.6
	Value (Nu. millions)					
Potatoes	5.2	10.5	11.5	15.0	19.2	21.2
Apples	1.4	2.4	3.5	2.8	4.4	4.8
Oranges	1.6	1.3	1.8	2.2	2.9	7.1

(a) 1987/88 refers to the 15 month period April 1987 to June 1988. The remaining years refers to the twelve month period April to March.

Source: Food Corporation of Bhutan

- i) Health Department: All Hospitals and all Basic Health Units
- ii) Education Department: 153 Schools
- iii) P.W.D.: Road/Bridge construction labour force
- iv) Agriculture Department: Settlements in Mongar, Samchi, Chirang and Dagana.
- v) Irrigation Department: Taklai Project.
- vi) Forest Department: Logging and Plantation labour force.

The commodities supplied are rice, soya fortified bulgar wheat, wheat soya blend, wheat, dried skimmed milk, dried fish, edible oil, iodised salt, tea leaves and pulses.

The goods are being delivered at site by FCB to all beneficiaries of the programme. For this purpose there are 18 godowns with storage capacity of 4500 MT. WFP has already financed the construction of

7 out of 10 godowns. These construction programmes have been drawn up taking into account the present and future needs of godowns for storing and distributing WFP commodities.

Distribution of Iodised Salt

Under this programme the Corporation is responsible for ensuring that only iodised salt is consumed in the country. The programme has been drawn up to curb and eradicate iodine deficiency disorders. To achieve the objective of this programme, the Corporation will continue importing the country's total requirement of common salt, iodise it and distribute the iodised salt throughout the country through commission agents and the Corporation's depots.

Operation of Cold Store

FCB will continue the operation of the 100 MT capacity Australian aided cold store at Phuntsholing.

Maximum effort will be made to sell out the space to the users to make the cold store economically viable. FCB has recently conducted an apple storage experiment which has proved successful.

Local Procurement of Foodgrain

The procurement of locally produced cereal will be carried out at a competitive rate worked out by the Agricultural Pricing Policy Committee, which is going to be formed shortly.

The growers will be encouraged to grow more cereals if the price so offered is competitive with the market price. However, the Royal Government will have to bear the losses incurred out of such operation.

Chapter 16 FORESTRY

Objectives

The National Forest Policy directs that while harvesting of mature and over mature trees is necessary, it should not be done at the cost of impairing the protective role of the forests. The policy stipulates that in no case the existing forest cover should fall below 60 percent of the total land area and the prescribed forest cover be maintained by scientific management, protection and afforestation of blank and degraded areas.

Conservation of and augmentation of forest resources form the principal objective of the sector during the Sixth Plan period. A sustain

TABLE 16.1 Forestry data, 1987

able management of existing forest and wildlife resources based on a reliable forestry inventory is an essential requirement for Bhutan. Sixth Plan will adopt scientifically sound forest management and utilization policy to meet the demand for forest products to provide raw materials to forest based industries and to promote export of finished goods in preference to raw material.

Preservation of ecological system, particularly the varied flora and fauna, will be given equal importance. Table 16.1 provides some basic data about the forestry.

TABLE 16.1 Forestry data, 1987

Sl.No.	Item	Units	Qty
1)	Total Forested Area	sq. kms.	28,399
2)	Total Tree Cover	"	25,733.65
3)	Total Growing Stock	million cubic	528.9
4)	Annual Cut From Operable Area	"	15
5)	Per Capita Forest	hectares	2.5
6)	Per Capita Timber Consumption	million cubic	0.047
7)	Per Capita Fuelwood	million cubic	2.2
8)	Surplus Exported Timber	"	50,000
9)	Degraded forest Blank Areas	hectares	1,60,000
10)	Contribution to GDP in current	%	15.2

Source: Department of Forestry

Strategies and Approaches

In keeping with the above policy objectives the following strategies are being adopted:

- i) survey and demarcation of some 6-136 sq. kms. of forest land and preparation of catchment-wise management plan maintaining the present area of forested land;
- ii) avoiding possible forest damage caused by illicit and indiscriminate felling, encroachment and forest fire;
- iii) regulation and containment of tsheri cultivation and limit diversion of forest land to non-forestry purposes;
- iv) forestry education and extension methodology;
- v) strengthening forest research base;
- vi) counter measures to check denudation and erosion in river valley catchment; and
- vii) solicit people's involvement in implementing the programmes.

Oulay

The overall total budget outlay for forestry sector during the Sixth Plan is estimated at Nu. 418.206 million. 66.7 per cent of this overall total outlay is allocated for capital expenditure and 33.3 per cent to meet current expenditure. The government internal resources provide 42.5 per cent of the total budget requirement of the departments.

TABLE 16.2 Forestry Sector Outlay - Sixth Plan

Programme	Total	Capital	Current
A. Regular Programme			
1: Forest Support Services			
a. Forest Demarcation	6.050	6.050	-
b. Management Plan	4.000	4.000	-
c. Forest Research	2.000	2.000	-
d. Wildlife Preservation	4.500	4.500	-
2. Afforestation	16.000	16.000	-
3. Construction of Road	5.000	5.000	-
4. Const. of Building	0.505	0.505	-
5. Vehicle	0.600	0.600	-
6. Establishment	127.061	-	127.061
Sub Total	165.716	38.655	127.061
B. Investment			
1. BHU/85/016	28.102	20.884	7.218
2. HRD	6.532	6.532	-
3. Helvetas (IFDP)	21.200	21.200	-
4. Helvetas (FTI)	62.300	60.800	1.500
5. Forestry I	16.960	15.600	1.360
6. Forestry II	112.710	111.280	1.430
7. BCP/BHU/003/NOR	2.710	2.210	0.500
8. TCP/BHU/6652	1.976	1.781	0.195
Sub Total	252.490	240.287	12.203
Total	418.206	278.942	139.264

Programmes and Targets

Forestry

Achievements by the end of Fifth Plan and targets for Sixth Plan of the selected programmes are given in Table 16.3. The relate to survey and demarcation, forest management coverage, afforestation and seedlings distribution.

TABLE 16.3 Selected physical targets - Forestry Sector

Sl.No.	Programme	Unit	Baseline	Sixth Plan Targets
i)	Survey & demarcation	sq.km	20,100	6136
ii)	Forest management coverage	"	4,934	1000
iii)	Afforestation-planting	hectares	11,200	1500

iv) Afforestation maintenance	"	4400
v) Social-forestry and Seedling distribution	Nos.	1,000,000
vi) Road construction	Km.	25
-----	-----	-----

Forestry Research

There has been no comprehensive forest research carried out so far in this country and the entire forest operations are based on the research findings of other countries. Applied research on practical aspects of forestry will be initiated during the Sixth Plan period through a separate Research Division which has been established. Its functions are concerned with the following:

- i) Identification, demarcation and establishing four research stations;
- ii) Setting up 100 sample plots for field experiments;
- iii) Timber testing of 25 important species;
- iv) Seed stand identification;
- v) Forest protection works; vi) Forestry journal; and
- vii) Misc. Forestry research activities.

Afforestation

Though the country has over 60% of the total area under forest, they are not distributed evenly throughout the country. There are many districts and localities with severe deficiency of forest cover. The situation in such districts and localities could deteriorate if remedial measures are not taken. During the Sixth Plan a reasonable level of plantation programmes will be continued to cover up such areas and to compensate loss in forest areas to other land use.

Forest Demarcation

A prerequisite for management and control for conservation is forest survey and demarcation. Forest demarcation activities will be continued during the Sixth Plan to achieve the objective of demarcating the entire country.

Wildlife Preservation

Wildlife is a rich heritage of this country. The preservation of the genetic diversity of fauna and flora of Bhutan and their habitat will be given priority. The existing twelve protected areas comprising national parks, wildlife reserves, sanctuaries and reserve forest will be maintained.

Social Forestry and Seedling Distribution

An important element in the forest conservation strategy is the people's participation. Under this scheme, people have been exposed and educated as to the role of trees and forest and the need for their conservation. This programme will be continued during the Sixth Plan.

Forest Management & Conservation

The project aims at providing support to forest management and conservation activities, nature conservation, watershed management, social forestry, forest road construction, training and equipments. The project is being implemented in a few demonstration areas of Gida Gome Watershed, Gedu and Phuntsholing; representing typical forest problems. An essential element of this project is to provide an up-to-date aerial photography of the watershed area.

Integrated Forestry Development Programme (IFDP)

The project is being implemented to develop and improve scientific forest utilization on a sustained yield basis through an integrated approach. It is a pilot programme. The Project has selected four catchment areas of approximately 1000 hectares of commercial forest in Domkhar, Hurchi, Phrumtrang and Dhur. The cable crane units are fully integrated with forestry unit to form an important part of the opening up system essential to forest utilization on a sustained yield basis. The road construction units as part of the project component provides assistance in mechanized forest road construction. This project is going to provide useful data and experience on silvicultural and management of coniferous high altitude forest.

The second phase will be taken to support silvicultural research activities and for extending valid experience to other areas in Bhutan.

Forestry Master Plan

The Master Plan for Forestry Development Project would focus on the preparation of a long term (20 years) plan for development of the forest resources covering a wide range of forestry activities. It will also assist in strengthening of in-house expertise in project planning, formulation and preparation, monitoring and evaluation and donor co-ordination functions of the department and enable implementation of the Master Plan for Forestry Development proposal within the framework of annual plans on a continuous basis.

Forestry II

The proposed project covers an area of about 11,000 hectares of bark beetle epidemic infested forest in the region of Paro, Haa and Thimphu dzongkhags in Western Bhutan. Project activities involve plantation establishment and procurement of logging equipments, establishment of forest nurseries and construction of forest road. The project is being implemented by Bhutan Logging Corporation for a period of 5 years. A number of start up activities have been carried out since 1987, funded in part under the ongoing Forestry I project. The project would also utilize expertise services provided under UNDP/FAO project Forest Management and Conservation. This arrangement would ensure coordinated effort made in the forestry sector development without overtaxing the scarce local forestry staff and resources.

Human Resource Development

As one of the largest organizations of the Royal Government, the forest department has had to undertake a substantial training programme. Bulk of its needs are Forest Guards who have been trained in the Taba Forestry School. Lamegumpa Logging Training Center in Bumthang also provides training to forestry personnel in operation and maintenance of the logging equipment.

During the Sixth Plan a full fledged National Resources Training Institute at Wangdiphodrang will be established. This Training Institute is expected to meet most of the training requirement for middle and junior level forestry staffs. However, training requirement in more specialized fields in forest inventory, entomology, afforestation and wildlife management will be provided abroad.

Chapter 17 TRANSPORT

Objectives

The objectives of the Fifth Plan, which are enumerated below, will continue to be relevant:

- i) to augment the rolling stock capacity for both passenger and goods transportation in order to meet the increasing demand arising out of future developmental activities;
- ii) to ensure cost effectiveness of the transportation system; and
- iii) to develop diversified transportation systems.

Outlay and Programmes Road Transport

The major routes of the western and eastern sectors are now run by private operators. One commercial operator will be licensed for each route. The BGTS is required to supervise operation schedules, control fare structures and facilities. Route privatisation has reduced the work load of BGTS. However, the BGTS has lost its most economically viable routes. This has led to a decline in its financial performance. Nevertheless BGTS has maintained the mini bus services between Thimphu/Phuntsholing and has increased the daily frequency from 2 buses to 4 buses. The number of passengers carried by BGTS is given by Table 17.1

TABLE : 17.1 Bhutan Government Transport Services, Passengers carried, 1987/88

Year	Passengers carried (000)
1982/83	1,045
1983/84	1,149
1984/85	1,264
1985/86	1,239
1986/87	1,142
1987/88	1,228

Source: Bhutan Government Transport Service

The BGTS will have to be expanded according to the expansion of the roads networks, though a drastic expansion during the Sixth Plan is unlikely. Basing of commercially viable routes to private operators will continue to be practised with a view to eventually handing over passenger transportation to the private sector.

A total sum of Nu. 5 million will be made available as capital grant to BGTS for the first two years of the Sixth Plan, to enable it to carry out its programme of improving existing BGTS facilities and to provide basic facilities for its operation. The Royal Government will also continue to provide assistance to the commercial units by identifying and negotiating soft-term loans for the BGTS for its fleet renewal programme and providing training for its personnel.

Workshops

The three Government Auto Workshops were based out to private operators during the Fifth Plan. The same arrangement will be continued for the Sixth Plan.

Civil Aviation

A total allocation of Nu. 48.775 million has been made for Civil Aviation development during the Sixth Plan. A major portion of the Passcngers outlay was earmarked for the improvement of carried Paro Airport to accomodate a bigger plane - BAe 146 (80 seater) which arrived at the end of October 1988.

Renovation of Paro Airport

In view of the importance of Paro airstrip as the onlyfunctional Airport in Bhutan and the decision to acquire a bigger plane, it has become necessary to improve Paro Airport. The government of rndia has agreed to take up the project on a turnkey basis. The improvement of Pro airport will basically consist of 2 main activities:

- i) Strengthening and extension of runway for 80 seater aircraft;
- ii) Construction of hanger for Druk Air fleet at Paro; and

Communication and Navigation Aids Installations

Non Directortal Beacn (NDB) a sophisti cated navigational aid, was installed at 2 strate gic places, to provide directorial guidance to air craft ror their safety.

Beides the above activities, training related to civil aviation is to be a high priority for the Department of Civil Aviation during the Sixth Plan.

Druk Air Corporation

The Druk Air has 2 Dornier aircrafts operat ing between Paro/Calcutta and Paro/ Dhaka. In addition, the Druk Air has BAE 146, 80 seater jet flying out to Delhi, Kathmandu and Bangkok. Table 17.2 gives some infonnation on Druk Air operation.

The Sixth Plan budget allocation for the Druk Air Corporation is Nu. 391 million including the cost of the BAE 146 in the order of Nu. 377 million.

TABLE 17.2 CIVIL AVIATION - DRUK AIR FLIGHT SRRVICES, 1983 TO 1987

	1983	1984	1985	1986	1987	
Distance flown ('000 km)	64	125	125	205	n.a.	
Passengers carried	2,854	4,480	5,928	7,776	8,700	
Passenger-kilometers	1,612	2,531	3,349	4,381	n.a.	

Source: Druk Air Corporation

TABLE 17.3 Number of Registered Vehicles by type and Region(a), May 1988

Vehicle type Western Central Southern Eastern Total

	-----	-----	-----	-----	-----	Light					
Heavy	158	64	506	99	827		2,547	407	1,283	330	4,567
Public trucks	97	42	260	40	439						
Taxi	115	19	31	4	169						
Diplomatic	44	-	-	-	44						
Royal	29	-	-	-	29						
All Vehicles	2,990	532	2,080	473	6,075						

(a) Vehicles registered in the southern region are assigned the same number plates as those registered in the western region.

Source: Department of Revenue and Customs.

Chapter 18

TELECOMMUNICATION

The introduction of such electronic system as microwave, ultra high frequency (UHF), satellite, multi-access radio relay system (MARR) during the Sixth Plan will have a revolutionary impact on the telecommunication system in Bhutan. A preliminary draft on Telecommunication Master Plan was prepared in 1985. Considering the rapid pace of innovation in the technology of telecommunication, preliminary draft was reviewed and it was proposed to formulate a new telecommunication plan. To undertake this work, the Royal Government has signed an agreement with the UNDP/ITU to provide a comprehensive study of the national and international telecommunication services.

Outlay

A total outlay of Nu. 133.842 million has been allocated to Telecommunication sector. Out of this amount, Nu. 28.842 is for current expenditure and Nu. 105 million for capital expenditure.

Programmes

During the Sixth Plan, it is planned to inter connect not only the important cities but also to inter-connect the gewogs to the district head quarters. There are mainly two types of work switching works and transmission works. Switching works have already begun.

The completion of switching projects will result in commissioning of 13 electronic exchanges out of which 8 will be replacements for existing electromechanical exchanges and 5 at new places. The 6 Giga Hertz (GHZ) broad band microwave digital link when completed will connect Western, Central, and Eastern regions of the country which will be also capable of T.V. transmission in the long run. The 7GHZ narrow band microwave spur routes between Thimphu - Thadana, Yatula, Tongsa, Kanglung - Tashigang will inter-connect the three zonal centres, (Thimphu, Tongsa, Tashigang) which will enable the switching of calls between the three regions. Takti - Phuntsholing narrow band analogue microwave system will provide arterial route in Western region as a backbone of transmission facilities. It will also enable to commission Subscriber Trunk Dialling (STD) services between Thimphu and Phuntsholing as well as making it possible to have International Subscriber Dialling (ISD) from these towns to India. The completion of various UHF system will connect district headquarters and other important towns in the northern region directly to 6 GHZ East-West microwave link. 7 MARR system will connect gewog centers to their respective district headquarters, which in turn will be connected to the main network. The establishment of the satellite earth station at Thimphu will be linked to INTELSAT and it will facilitate direct international communication.

The programmes will be continued in succeeding Plans until Bhutan has a wide network of telecommunication services.

Manpower Input

The requirement of technical maintenance staff have been estimated at 550. The existing strength is 327; so 223 additional workers in various categories will be required during the Sixth Plan.

To provide training to newly recruited staff and refresher courses for the existing staff, and make them conversant with modern equipments, a provision of Nu. 3 million has been made in the Sixth Plan. However, the installation of internal switching equipment and transmission equipment will be carried out with the help of foreign personnel.

Chapter 19 POSTS, TELEGRAPHS, AND CIVIL WIRELESS

Objectives

The main objectives of the Sixth Plan are i) to develop and expand postal services and create an efficient network of posts and telegraphs services; ii) to improve the quality of existing man power; iv) topopularise andpublicise thecountry's historical, cultural and traditional heri tage by printing stamps on interna tional and local themes; and iv) established a designing and photogra phy cell.

Outlay

The total combined outlay for Post, Tele graph and Civil Wireless is Nu. 68.072 million of which Nu. 65.114 million and Nu. 2.958 are for current and capital expenditures respectively.

Programmes

The construction of Thimphu General Post Office was started in the Fifth Plan and was completed in 1989. The Divisional Telegraphs Of fice has alreadybeen set up in the new General Post Office building.

TABLE 19.1 Number of Trunk Line,

Place	Distance(Kms)
Thimphu-Chimakothi	65
Thimphu-Phuntsholing(a)	130
Thimphu-Wangdiphodrang	45
Thimphu-Punakha	60
Thimphu-Paro	54
Wangdiphodrang-Punakha	15
Paro-Phuntsholing	124
Paro-Ha	18
Samdrupjongkhar-Tashigang	130
Gelegphug-Tongsa	200
Gelegphug-Sarbhang	23
Phuntsholing-Chimakothi	65
Samchi-Banarhat(India)	14

(a) Microwave

Source: Department of Telecommunication

Postal equipments like electrically operated punching machines, weighing machines, photo copying machines, philatelic displaying cabi nets, computers etc. will be purchased. Further more, 11 Land-cruisers will be purchased to motorise the main postal conveyances during the Sixth Plan. The existing tape-model tele printer machines was replaced by page-model machines.

Under wireless, the wooden and bamboo poles used for anenna will be replaced by either iron tubular poles or fabricated tower mast to avoid expenditures incurred every year.

Hydromet

26 units of fire fighting equipments were purchased directly by the Central Water Com mission (CWC) Jalpaiguri Division and sup plied to the Bhutan Hydromet Division for in stallation at 13 hydromet stations. A wireless set of 15 watts will be provided by the CWC Au thority for installation at Thimphu for transmis sion and reception of Hydromet data. There is also a provision of construction of a

new hydromet station at Shingkar Lauri during the fiscal year 1988-89.

TABLE 19.2 Number of Telephone Trunk Calls

Type of calls	By Type (a) (‘000) Number of calls
Domestic calls	84.9
International calls	
India	15.1
Other	3.1
Total	18.2
All calls	103.2

(a) Estimated annual number of calls based on calls sent during December 1986 to March 1987

Source: Department of Telecommunication.

TABLE 19.3 Number of Post Offices and Other Communication Facilities, 1980 and 1987.

	1980	1987
General Post Offices	2	2
Post Offices	52	54
Branch Post Offices	27	29
Telegraph Offices	8	8
Wire Stations (a)	28	37
Hydromet Stations	5	13

(a) Includes two stations installed at New Delhi and Dhaka embassies.

Source: Department of Post, Telegraph and Wireless.

TABLE 19.4 Number and Amounts of Money order by Type, 1980 and 1987

Type	1980	1987
Internal money order		
Number (‘000)	54.0	n.a.
Amount booked (‘000 Nu)	4,735.0	9,476.8
Amount paid (‘000 Nu)	3,933.5	8,497.9
Foreign money order(a)		
Number (‘000)	37.8	n.a.
Amount booked (‘000 Nu)	1,412.7	5,461.2
Amount paid (‘000 Nu)	17.3	169.2

(a) Amount booked refers to money transferred out of Bhutan. Amount paid refers to amount transferred into Bhutan.

Source: Department of Post, Telegraph and Civil Wireless.

TABLE 19.5 Number of Items of Mail Sent by Type of Item and Destination, 1987
(‘000)

Type of Mail Letters

	Ordinary	Registered	Total Aerogramme Printed	Aerogramme	Post-cards	Matter	Parcels	Total
Domestic	2,924	172	3,096	-	40	41	32	3,210
Neighbouring	2,599	140	2,754	-	47	23	4	2,826
Overseas	233	40	264	44	21	14	1	344
Total								
Mail	5,746	366	6,112	44	109	79	37	6,380

Source: Department of Post, Telegraph and Civil Wireless

TABLE 19.6 Number of Telegraphs Sent by Type, 1980 to 1987 ('000)

Type	1980	1981	1982	1983	1984	1985	1986	1987
Domestic	78.8	85.6	85.9	86.4	87.3	88.2	85.4	104.6
Overseas	35.2	42.6	42.2	43.1	44.1	45.3	43.0	56.6
Service messages	13.3	14.4	15.1	15.9	17.2	18.7	15.0	45.9
Transit	39.6	42.1	45.6	50.1	55.2	60.8	63.8	83.3
---All types	166.9	184.6	188.9	195.6	195.6	203.0	207.2	290.3

Source: Department of Post, Telegraph and Civil Wireless.

Chapter 20 Information and Broadcasting

Outlay

Table presents the outlay for Information Broadcasting and DSCD, disaggregated into current and capital expenditures.

	Current	Capital	Total
Information	18.406	3.963	22.369
Broadcasting	8.176	53.435	61.611
DSCD	9.128	2.774	11.902

Programmes

Information

The Information Division has plans to go for a daily Kuensel in English after it obtains adequately trained and experienced personnel in newspaper publication. The division will also subscribe to various agencies for supply of news items which will be printed in the Kuensels publications and hopes to remove the drawback regarding delay in distribution, by using commissioned agents, BGTS and mail van services. Editorial equipment and other facilities to launch a daily newspaper will be upgraded.

An audio-visual (AV) unit which will have one video film crew, a camera system, two sound recording systems and two sets of lighting equipments will be established. The unit will have to cover national media events and produce video programmes of national and international interests.

Broadcasting

The Bhutan Broadcasting Service (BBS) intends to provide a range of programmes which will inform, entertain and educate, catering in a balanced way for the varied interest of different

Chapter 20 INFORMATION AND BROADCASTING

sections of the community. It aims to maintain acceptable standards of objectivity, accuracy, taste and decency and the highest attainable professional performance in both technical and programme output.

It is envisaged that the BBS, with the establishment of the National Broadcasting Station, will be fully equipped with music, drama, talks, play back studios, office buildings and a separate transmission centre. Similarly, the output in broadcasting hours will increase to more than 60 hours weekly by the end of the Sixth Plan. Radio Development Programme has been already initiated with the assistance of DANICOM and UNESCO. The project is aimed at creating professional skills, organisational structure and innovate new programme formats and production and planning routines which can ensure full operation of broadcasting services.

DSCD

The Development Support Communication Division (DSCD) continues to provide its services to the technical departments and other international agencies with greater professional competence and efficiency. The DSCD proposes to undertake such activities as development of suitable development support communication (DSC) capabilities, skills at Dzongkhag level; DSC media materials development technique at Training Centres and Institutions; development of DSC centre; and increase in staff strength and training in the field of audio visual technique, technical maintenance and programming

etc. During 1989-90, the division proposes to conduct DSC training on monitoring and evaluation and feedback system at district level and training on operation and maintenance of DSC equipments, whereby at least one participant from all 18 Dzongkhags will be trained.

Chapter 21
TRADE AND INDUSTRIES
TRADE

An increase in the country's export has emerged as a priority area because of an anticipated growth in production and an absence of internal market. Moreover, imports are on the increase every year which calls for the exports to cover the cost of imports.

Objectives

Deriving from these facts, the objectives of Trade and Commerce is enumerated below:

- i) To develop basic infrastructure required facilitate the growth of trade and commerce.
- ii) To expand Regional Trade particularly with other SAARC member countries.
- iii) To enhance marketing of indigenous products.
- iv) To improve Trade Information System.
- v) To enhance foreign exchange earning to meet national 'hard' currency requirements, necessary for imports and investments.

Programmes

The following major programmes will be undertaken in the Sixth Plan:

- i) Promoting trade with third countries
- ii) Computerization of Trade Information System and trade licencing
- iii) Manpower Development Programme
- iv) Strengthening of Trade Promotion Division and Trade Information Centre
- v) Protection and safety of consumers

Promoting Trade with Third Countries

Bhutan's trade with India is already quite well established. Table 10 provides values of

TABLE 21.1 Trade and Industry Sector Outlay - Sixth Plan

Programme	Total Outlay
Current Expenditure	35.334
Capital Expenditures	
Dungsum Cement Project	848.500
Bhutan Carbide & Chemical Ltd.	160.651
Bhutan Board Product Ltd.	148.788
Gedu Wood Manufacturing Corporation including Logging Roads	15.700
Dev. of Shumar Gypsum Mines	4.000
Dev. of Handicrafts, Handloom at Khaling	7.500
Polythene Factory	1.000
Pottery Workshop	.300
Dev. of existing & New Industrial Estates	34.530
Handloom Dev. Project (Weaving component of IFAD II)	4.500
Purchase of Vehicles	.540
Furniture/Office Equipments	.463
Professional Services	14.000
Agrobased industries	.299

Total	1240.771
-----	-----
Grand Total	1276.105
-----	-----

trade between Bhutan and India. Top priority will be given to develop and diversify trade with other neighbouring countries, Bangladesh and Nepal.

The potential for trade between Bhutan and Bangladesh is very good in view of the geographical proximity, complementarity of the two economies and the friendly relations that exists between the two countries. The basic foundations at the Governmental level have already been laid down in the form of trade and transit agreements with Bangladesh.

In order to achieve the objective of attaining a good trading relation with Bangladesh the following activities will be carried out:

- i) To identify the markets in Bangladesh for Bhutanese products and provide all relevant information to Bhutanese exporters;
- ii) To assist Bhutanese exporters to market their products in Bangladesh; and
- iii) To examine all other possibilities for expansion of trade and commerce between two countries.

Similarly, efforts will be made to establish a good trade relation with Nepal. Though most goods produced and traded between Bhutan and Nepal are similar, the possibility of trading with Nepal in some specific products will be explored.

Furthermore, attempts to explore the possibilities of promoting and developing trade with other SAARC member countries, with a view to diversify and expand Bhutan's trade, will be made.

Computerization for Trade Information System and Trade Licensing

A Trade Information Centre has been established during the Fifth Plan. Its functions involve collecting trade statistics and disseminating general trade information for the information users. In the Sixth Plan the Centre will be strengthened so that it can operate more efficiently and can provide information not only to government agencies but also to private traders and organizations.

Manpower Development Programme

There will be provision for trainings for 18 persons with courses varying in duration from 3 months to 2 years. Some of the trainings will be inservices whilst others will be done abroad.

Strengthening of Trade Promotion Division and Trade Information Centre

In order to promote the country's trading activities with other countries, a Trade Promotion Division and a Trade Information Centre was created in the Fifth Plan. The following will be the main activities of these organizations during the Sixth Plan.

- i) Organizing exhibitions and trade fairs to promote inter-regional trade within Bhutan,
- ii) Participating in international trade fairs,
- iii) Helping exporters and importers in documentation procedures,
- iv) Promoting trade among Dzongkhags through services such as providing trade information on price, quality, consumers, commodities and production centres/region; and

v) Contacting international importers and exporters for exportable surplus and import requirement.

In addition to the above functions, importance will also be given to the following in order to make the support services more effective and catalytic for development of trade.

- i) Preparing and publishing promotional materials like Trade Directories, and brochures for internal and international trade promotion.
- ii) Doing market-research for intra-Bhutan and inter-regional trade.
- iii) Establishment of showrooms for Bhutanese Products within the country.
- iv) Doing marketing research for major exportable commodities,
- v) Identification of products for value addition and export.

Protection and Safety of Consumers

The Government will also undertake certain measures designed to tackle the following problems:

- i) Business mal-practices,
- ii) Sale and use of properly supervised drugs and medicines,
- iii) Unsafe electrical, wiring, appliances and associated products,
- iv) Unhealthy food additives,
- v) Sale of unhygienic and unhealthy food items.

INDUSTRIES

Objectives

The following will be the objectives of Industrial Sector for the Sixth Plan:

- i) To increase the GDP through industrial development.
- ii) To balance trade internally and externally.
- iii) To substitute imports through domestic production.
- iv) To earn hard currency by exporting manufactured and processed goods to the international markets.

Industrial Policy and Strategies

Industrial ownership

It is the avowed policy of the government that the benefits of industrialization should accrue to the largest number of Bhutanese people. This can be attained through wide distribution of trade and industrial ownership. Public issue of shares in industrial and commercial projects will be vigorously encouraged.

Location

Each industry should be set up in a location considered ideal for the purpose. Investment should foster a balanced industrial growth of all the three industrial zones of the Kingdom. This objective must be borne in mind and brought to bear on the industrial licensing policy. Industries based exclusively and solely on fiscal subsidies vis-a-vis India will be discouraged.

Product Standard

Industrial production must cater to the international market in addition to domestic requirements. The quality and price of various industrial products should pass quality test for international markets.

Import Tariffs

Restrictions may be imposed on certain items of imports and exports, if such restrictions are considered necessary to protect nascent industries. This would be used as the last resort. Government permission will be necessary to import raw materials, particularly against payment of "hard" currency.

Competition

Although the private sector will be given full encouragement, the Government will legally restrict monopolies and restrictive trade practices.

Training

The Government shall devise schemes and programmes to encourage management education and training to provide a sound managerial base for bolstering industrial development. Training of persons for manning lower level positions as well as development of skilled labour shall be important responsibilities of the Government.

Privatization

In view of the absence of adequate and qualified entrepreneurs, a few revenue earning industries will be set up in the government sector. These industries may be handed over to the private sector when the Government is confident of the management capability of the private sector.

Technologies for Industries

The technology to be utilised will be pinpointed and carefully selected keeping in mind Bhutan's acute shortage of skilled manpower, and limited foreign exchange reserves. Technologies from countries nearest to Bhutan should be accorded priority.

Foreign Collaboration

Transfer of technology and know-how should be through import of plant, machinery and employment of foreign experts and technicians on a case by case basis. The Government will favour technical collaborations with foreign companies in preference to financial collaborations. Payment of reasonable royalties in case of technology transfers may also be permitted.

Foreign equity participation will be permitted but the Government will review each submission on individual merit and will allow foreign equity participation only in respect of agro based industries and export based industries.

Incentives and Assistance

The government, to enhance industrialisation process in the country, shall give incentives and assistance to entrepreneurs but only after careful and detailed assessment of the industry. The incentives shall comprise of income tax concessions, concessions of customs duty, excise duty concession and sales tax concessions. The assistance will include, assistance in obtaining short medium and long term finances for approved industries, assistance in acquiring technology and raw material, assistance in manpower development and assistance in marketing of processed goods.

Priority Industries

Agro-based Industries

Agro-based Industries shall be in the high priority category. The Government will permit the import of viable technology, technical expertise and plant and equipment for establishing such industries, wherever justified. Other incentives, etc., will also be provided to such industries.

Export-oriented Industries

The Royal Government will view favourably those industries that export their entire production, even if a major portion of their raw materials are imported. Induction of latest technologies, know-how and machineries will be permitted. Such industries will, however, be required to submit comprehensive and time-bound training programmes for utilizing domestic manpower and reducing the import of foreign labour.

Mineral-based Industries

High priority will be accorded to industries based on the utilization of available mineral resources in the country. Importance will be laid on dolomite, followed by limestone, coal and on those resources that can be exported to third countries. Those that have maximum potential to earn "hard" currency will be given preferential treatment and they will receive requisite Government help and assistance.

Major Programmes

With the completion of the Fifth Plan, the climate for industrialization especially in terms of infrastructural

facilities have considerably improved. The government has given industrial sector prominence and a wholly confident attitude towards development of industries in the country within the plan period.

The Government will undertake the following programmes/projects in the Sixth Plan, to attain its objectives:

Dungsum Cement Plant

The plan to establish a cement plant to produce 500 tons/day of cement at Nanglam was conceived during the Fifth Plan. Negotiation with the Government of India and Denmark were carried out to finance the project by a mix of loan and grant. The project was initially expected to be commissioned by 1990. However the project status has to be entirely reviewed on account of severe difficulties in implementing the project.

Calcium Carbide Plant

The Calcium Carbide Project was started during the Fifth Plan and was commissioned in early 1989. The Government will contribute Nu. 160.651 million in the Sixth Plan towards the completion of the project. The plant will use chemical grade limestones at Purbia Khola, Marichang, Kalshor and Hauri Khola.

Bhutan Board Products Ltd.

Bhutan Board Products Ltd was opened as a joint venture at Tala, near Gedu at the beginning of the Sixth Plan. The cost of the project has over shot by about 115% from, Nu 106.97 million to Nu. 230 million recently due to exchange rate fluctuation and upgrading of the plant from 60 cubic production capacity to 80 cubic per day. The Government outlay for the project in the Sixth Plan is Nu. 148.788 million. Critical issues to be solved during the Sixth Plan regarding the project are raw material availability, implementation schedule to be met, infrastructural layout and arranging export markets in India, Nepal and Bangladesh.

Multi-purpose Agro-based Industries

Where almost 90% of the people earn their livelihood through agriculture, importance must be laid on the development of agro-based industries within the country. This will increase value added agriculture produce as well as increase rural earnings. In the face of such advantages, the government will establish a multi-purpose agro-industry at Thimphu.

Shumar Gypsum Mines

The Shumar Gypsum Mines at Khotakpa was inaugurated in April, 1983 and mining activities commenced in early 1984. Due to low market demand for new gypsum, the mining activity was taken over by the Penden Cement Authority, the main consumer in early 1986 from the Shumar Project Management. Recent market development has shown great potential for gypsum and related products. In consequence, the government has given greater importance to the development of the Shumar Gypsum Mines. An allocation of Nu. 4 million has been made for the development of the mines in the Sixth Plan.

Pre-investment studies

The Government will undertake pre-investment studies of various industries in the Sixth Plan as additional projects in pipeline for government as well as private sector industrialist to select industrial ventures.

TABLE 21.2 Number of Licensed manufacturing Firms By Industry And Employment, 1986

Industry	Employment size					Total
	Less than 10	10-19	20-49	50-99	100 & over	
Food processing/milling	237	4	2	3	3	249
Textile & clothing	3	1	-	1	-	5
Wood & paper products	27	14	9	2	3	55
Chemical products	8	1	1	1	1	12
Mineral products	2	1	-	1	2	6
Other	8	-	4	-	1	13
Total manufacturing	285	21	16	8	10	340

Source: Department of Trade and Industries.

TABLE 21.3 Number of Licensed Firms in Manufacturing and Mining Industries by Sector, 1986

Industry	Public	Private	Total
Mining	4	5	9
Manufacturing			
Food processing/milling	4	245	249
Textile & clothing	-	5	5
Wood & paper products	2	53	55
Chemical products	1	11	12
Mineral products	2	4	6
Other	1	12	13
Total manufacturing	10	330	340
Total	14	335	349

Chapter 22

GEOLOGY AND MINES

Objectives

The Department of Geology and Mines, established in 1981 is the sole authority in Bhutan for undertaking all geological and mining activities in the Kingdom such as geological mapping, mineral exploration, engineering geology, mine identification, planning and design.

It will control and regulate all mining activities in the country with particular care to prevent environment damage and mineral losses during extraction. It will evaluate the mineral deposits for profitable mining.

Outlay

To carry out its activities in the Sixth Plan, The department of Geology and Mines has been allocated a budget of Nu. 35.282 million.

Programmes

To achieve the above objectives, the department of Geology and Mines shall undertake the following programmes during the Sixth Plan.

Manpower

The Department of Geology, Mines has already developed a core team of trained personnels. With the anticipated increase in the work load of the Geology and Mines, the trained manpower needs to be further strengthened.

To meet the demand for additional skilled manpower, recruitment and training will be undertaken during the Sixth Plan as one of the major activities of the Department and Mines. Trainings will take the form of on the job training, short term courses and specialization courses.

Laboratories

The need for the organisation to have its own laboratories was greatly felt during the Fifth Plan. However due to financial constraint no laboratories could be established. The establishment of a chemical and beneficiation laboratory, a petrological laboratory, a photogeological laboratory and an engineering geology division will be undertaken during the Sixth Plan.

With the establishment of these specialised laboratories and division, complicated analytical studies can be undertaken in the country.

Library and Geological Museum

The proposed library would stock books and periodicals relating to geology, mines and drilling. The museum would house samples of all types of geological formations, minerals and their grades, fossils, comparative studies of mineral wealth of other countries. The place would be utilized for reference and information on the natural wealth of the country, as well as keeping abreast of the latest technological development.

Others

The Department of Geology and Mines will also conduct the following programmes during the Sixth Plan.

TABLE: 22.1 Selected Targets for Geology and Mines - Sixth Plan

Scheme	Unit	Target
i) Regional reconnaissance & Geological mapping (1:50,000 scale)	sq.km.	1000
ii) Detailed geological mapping	"	10
iii) Topographical surveying (small scale).	"	15
iv) Detailed exploration by drilling, trenching, pitting & exploratory metric mining	tonnes	4000
v) Systematic/detailed sampling	Nos.	6000
vi) Benefication studies	-	1 project
vii) Engineering geological studies of glacial lakes, town settlement, road & dam constructions etc.	-	As and when required
viii) Topographical surveying (small scale)	-	15 sq.km.

Chapter 23 POWER

By June 1988, the department was servicing 15,169 consumers spread over 23 urban areas and 130 villages.

In Table 23.1, electricity supply data is reported. The total installed capacity is 355.005 MW. Between 1987 and 1988, local generation totalled 1470.5 MU while a further 4.3 MU units was imported from the Indian grids. Accounting for 18.7 system losses, the total sales to consumers was 71.4 m. units resulting in per capital consumption of 53 units for the country.

The total number of employees in the department is presently 452 of which 194 are technical, 86 non-technical and 172 are semi-skilled workers.

TABLE: 23.1 Electricity Supply, 15 Months Ending June 1988

	Hydro	Diesel	Total
	-----	-----	-----
Installed capacity(MW)			
Department of Power		5.960	4.849
Chukha Hydel Project		336.000	1.696
Others(a)	-	6.500	6.500
Total installed capacity	341.960	13.045	355.005
Electricity generation(MU)			
Department of Power		5.4	0.3
Chukha Hydel Project		1,470.5	-
Others	-	0.2	0.2
Total electricity generation	1,475.9	0.5	1,476.4
Auxilliary consumption(MU)	...	5.9	5.9
Imports(MU)	...	...	4.3
Exports	...	...	1,386.7
Net energy requirement (MU)	...	...	87.8
Net sale(MU)	...	...	71.4
Energy losses(MU)	...	...	16.5
Percentage Losses(%)	...	...	18.7

(a) Includes self-generating and non-utilities.

Source: Department of Power

Approaches and Strategies

The main emphasis during the Sixth Plan will be on regional balance. One medium hydro station have been proposed at Gyeposhing, Mongar in the east. Four dzongkhag headquarters, where the grid extension are not likely to come in the immediate future, are to be supplied with small mini hydro stations.

A substantial investment will be made during this plan period under the rural electrification scheme. It is proposed to cover at least 10,000 rural households through grid extension, and establishment of micro hydro

schemes, and installation of photo-voltic power. At the same time investments in the urban areas to cater to increase utilization has also been proposed. Furthermore, concerted efforts will be made in the investigations and studies for major hydro-electric schemes in larger river basins.

Outlay

TABLE 23.2 Power Sector Outlay - Sixth Plan

Sl. No.	Schemes	87-88	88-89	89-90	90-91	91-92	Total
1.	Generation	9.000	164.00	247.000	110.000	70.000	600.000
2.	High voltage transmission lines	3.000	0.000	17.000	70.000	49.000	139.000
3.	Subtransmission distribution	69.825	47.207	32.806	27.820	13.844	183.502
4.	Rural electrification	29.373	41.025	32.260	45.394	40.190	188.242
5.	Hydrological investigation	11.450	12.200	13.400	11.400	9.900	58.350
6.	Central establishment	23.259	17.024	14.975	11.499	12.049	78.806
Total		137.907	281.46	357.44	276.113	194.983	1247.9

Programmes

Power Generation

Attention will be focussed primarily in the eastern region where considerable amount of industrial and mining activities are projected in the next few years. A medium hydro project with an installed capacity of 45 MW has been proposed at Gyeposhing near Mongar on the Kurichu. This project whose implementation schedule has been closely matched with the Dungsam Cement Plant will also meet the power demands of the gypsum mines and coal washery. In addition the completion of the associated transmission lines will obviate the need for power import from the Indian grid in the entire eastern region except for the small demand at Daifam. Instead the project is expected to generate substantial revenue through export of energy to India via Nanglam.

In addition to the above three major generation schemes four mini hydro schemes 1 MW each have been proposed at Radi, Damphu, Shemgang and Dagana.

These schemes will provide supply of power to the dzongkhag headquarters where grid extension is presently viable. The Radi scheme will augment the Tashigang network where the load is expected to increase, in view of the extension of distribution networks being planned.

Provided there are donor agencies the installation of micro hydro units will continue during the Sixth Plan. These shall continue to serve mostly rural needs and will operate in remote and isolated regions.

While providing additional generating facilities it is also considered essential to ensure that existing stations operate at maximum efficiency. Proposals have therefore been made for the complete refurbishing and recommissioning of the existing power stations. Once recommissioned, routine preventive maintenance shall ensure that they never reach their present condition.

If all the proposals are put into effect the total hydro generation will rise from the present 3.45 MW to a total of 99.35 MW, excluding Chukha Hydel Project, at the end of the plan.

Transmission Lines and Substations

The national grid that will be established in future will follow the main national East-West Highway connecting the various generating stations. The difficult terrain including the southern belt compels this choice of route. Each regional grid must be designed to take this eventuality into account. It will be necessary to construct each grid going north to south with at least one portion available next to the lateral highway. In the case of the western region each criteria have already been met with the main line running from Thimphu to Phuntsholing.

During the plan period, the main trunk line of eastern regional grid is to be completed. High voltage substations along the route of this grid have been proposed to meet the energy requirements in various places.

The eastern grid, will comprise a 132KV line 60km long between the project at Kurichu and the main load Centre at Nanglam. With a stepdown substation at the later place a 66KV line will connect Deothang via Pemagatshel. The completion schedule of the main line has been selected to coincide with the commissioning of the generating plant at Kurichu. The 132KV line which will be utilized to export surplus power from Kurichu.

TABLE: 23.3 Electricity Transmission and Distribution -June 1988

Transmission line (km)	
220KV	75.0
66KV	216.9
33KV	5.0
11KV	460.1
6.6KV	21.2
Low tension lines	408.3
Main substations (No)	17
Aggregate capacity of transformers(KVA)	18,835.0
Distribution substations(No)	160

Source: Department of Power

Subtransmission and Distribution

All activities below 33,000 volts excluding those new schemes that are oriented towards the rural areas, are part of this programme. This scheme, therefore, encompasses all existing consumer centres and all dzongkhag headquarters.

The electrification works undertaken in the past were generally carried out in a haphazard way in the absence of town and city maps. The redemarcation of areas and construction of new roads has resulted in continuous need for shifting and re-alignment of power lines, upgradation of substations, erection of new lines and substations etc. In view of such problems and the efforts of the National Urban Development Corporation (NUDC) to create a final city plan and also in anticipation of substantial increase in power demands at Thimphu and Paro on receipt of Chukha power it was proposed to undertake a major modification of these system.

Based in the report consultants the scheme is presently being executed and will continue until end of the plan period. Further inputs are likely beyond this period. A similar scheme for the Phuntsholing system will be undertaken.

Rural Electrification

The achievement in the sphere of rural electrification has been so far disappointing. Only a total of 130 villages have so far been electrified. It has led to the need for increased subsidy on maintenance. There is provision in the Sixth Plan to support this programme in view of the reiterations of the government's commitment to make rural life more congenial and attractive.

Within the plan period, it is proposed to connect 9375 consumers to the existing and new grids by the extension of 949km of 11KV lines and 984 km of low voltage distribution lines. The balance 625 connections are proposed to be provided by the micro hydro projects under the generation scheme. The total financial implication for the five years for line expansion is NU. 200.625 million. The figure per household thus works out to a very high Nu. 21,362. However, it may be noted that the same lines and substations will cater to additional consumers since only half the prospective consumers have been taken into account in the initial years.

In order to minimize the possibility of these new consumers adding to the operation and maintenance costs without contributing correspondingly to the revenue,, attempts will be made to encourage the use of energy for productive purposes. Tariff incentives for daytime use and financial, help for capital investents are likely approaches that would increase revenue potential from the rural sectors.

Hydrological Investigation

During the Sixth Plan all the routine activities related by hydrological data collection will be consolidated and intensified. While this seme have been operated since the inception of the department, the outputs have been most disap pointing. Lack of suitable manpower, and direction are more to blame than financial constraints. Although there still exists a shortage of appropriately qualified personnel it is possible to obtain more relevant and useful data. Steps have already been taken for re-sitting the recording stations which with additional and improved instrumentation will provide useful data.

Systematic studies of four important basins viz. Wangchu, Phochu Mochu, Dangmechu and Mangdechu will be undertaken during this plan period. Since hydrological studies have long time horizons these studies shall form the start ing points for long term observations. Basic data for long range planning of these basins will however be provided by the survey and investi gation group within the Sixth Plan.

In addition to all the above activities the regular collection and compilation of hydro logical data will be continued. It shall be a quali tatively and quantitatively improved with the establishment of additional manned and un manned recording stations, upgradatation of skills of field personnel, and frequent checks of gaug ingsites.

Central Establishments

Due to the increase in the volume and areas of operational activities the expansion of the oper ating infrastructure is inevitable. The present shonage of essential facilities such as office space, furniture, equipment and transportation in both the maintenance and development sec tors will be mitigated.

In view of the above, buildings covering a total floor area of 5000 sq m have been proposed. This includes both residential and non residential buildings spread over seventeen dzongkhags. The estimated cost on this account is Nu. 48.3 million.

In the transportation sector there is an acute shortage of vehicles which hinders efficient service. The total number of new vehicles that need to be purchased therefore works out to be 28.

The total investment in the central establishments including purchase of vehicles and con struction of buildings represents only 3.91% of the total outlay while the establishment portion only consitutes 1.49%.

Operation and Maintenance

This scheme involves activities related to the maintenance of distribution systems, generation, purchase and distribution of electricity and collection of revenue.

Policy directives now clearly state that the role of energy, at least, in the context of internal consumption shall be in the form of a catalyst stimulating economic growth. Electricity is seen, at the present time, not as a revenue earner but as an essential commodity that will improve the living conditions of the common man af fordable by him so that he can consider further usage to enable economic growth. Concern has been shown at

the alarming rate of deforestation and repeated emphasis has been laid on the need for a tariffing policy that will encourage change over from fuelwood to electricity for cooking and home heating.