STATISTICAL YEARBOOK OF BHUTAN 1990

CENTRAL STATISTICAL OFFICE
PLANNING COMMISSION

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GENERAL INFORMATION

EXPLANATION OF SYMBOLS

n.a	not available
..	not applicable
-	nil or rounded to zero
*	sampling error too high for accurate estimation
( )	brackets signify negative numbers

METRIC EQUIVALENTS

1 kilometre	=	0.62 miles
1 hectare	=	2.47 acres
1 square kilometre	=	0.386 square miles
1 litre	=	0.220 imperial gallons
1 kilogram	=	2.20 pounds
1 metric tonne	=	0.984 imperial tons

EXPLANATORY NOTES

1. In some cases, minor discrepancies may occur between sums of component items and totals because of rounding.

2. Dzongkhags given in some tables differ from those given in Annex I. This is because of recent changes in the Dzongkhags following the creation of Punakha and Chhukha Dzongkhags and the abolition of Gasa Dzongkhag.

PREFACE

This publication is the ninth in the series of annual statistical publications issued by the Central Statistical Office (CSO).

The purpose of the publication is to provide a summary of the more important statistics in Bhutan. Statistics have been presented under a number of subject headings corresponding to the major areas of statistical interest. For each subject, a short introductory text has been given providing a brief description of the statistics, how they were obtained and any existing shortcomings. Some of the more interesting features of the statistics have also been highlighted.

Much of the existing statistics in Bhutan are not yet considered to be fully reliable. In preparing the publication, attempts have been made to assess the quality of each data source and where appropriate, tables have been footnoted to highlight any shortcomings in the data. In cases where it is considered the publication might mislead, data have been omitted altogether leaving some apparent gaps in the statistical presentation.

Every effort has been made to ensure that the statistics given in the publication meet with acceptable statistical standards. However, it has been necessary to place reliance on existing data collections and it was not always possible to undertake as detailed an assessment of data sources as would have been preferred. This was due to the wide range of data sources used and because detailed background information on many data collections was not always available. Consequently, some shortcomings in the data presented are inevitable, though it is considered that these have been kept to a minimum. Throughout the compilation of the publication, the CSO has maintained close contact with all sectors.

The Central Statistical Office has embarked on a program to upgrade the statistical service in Bhutan. Over the next few years, a number of new statistical collections will be introduced to fill existing statistical gaps. At the same time, existing statistical systems will be reviewed and improvements made as necessary. As a result, the range and quality of statistics available in Bhutan should improve over the next few years, and this will be reflected in further upgradings of this publication in the future.

C. Dorji
Minister,
Planning Commission
Royal Government of Bhutan
Tashichhodzong
July 1991.

INTRODUCTION

GENERAL DESCRIPTION OF BHUTAN

Position and area - Bhutan comprises a land area of 46,500 square kilometers. The land lies between latitudes 26 45'N and 28 10'N and between longitudes 88 45'E and 92 10'E. The country is relatively compact with a maximum latitudinal distance of 170 kilometers 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 basically 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 journey south to join the Brahmaputra in India.

Almost all the valleys have a swiftly flowing rivers or streams which merge ultimately into four major river systems as they flow south - the Ammochu, the Wongchu, the Sankosh and the Manas. The flows of 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 district 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 south west 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.

GOVERNMENT

The Monarchy - On December 17 1907, Ugyen Wangchuck was crowned the first hereditary monarch of Bhutan by the civil and monastic representatives.

It was as a result of the influence of the strength and far-sightedness of 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 Ugyen Wangchuck was succeeded by his son 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. Hence, the National Assembly consisting of representatives of the people, the monastic order and civil administration was re-established in 1953.

In 1984, life expectancy was estimated at 45.8 years for males and 49.1 years for females. The expected number of live births for each woman during her lifetime was estimated at 5.9. There were an estimated 142 deaths of children in their first year per thousand live births.

TABLE 1.1 : POPULATION ESTIMATES BY AGE AND SEX, 1990

Age Group	Males	Females	Persons
0-4	115,901	115,216	231,117
5-9	95,543	95,870	191,413
10-14	71,570	71,083	142,653
15-19	75,104	72,872	147,976
20-24	68,616	66,148	134,764
25-29	58,931	56,713	115,644
30-34	50,137	49,198	99,335
35-39	42,751	41,211	83,962
40-44	36,104	34,361	70,465
45-49	30,409	28,354	58,763
50-54	26,504	24,900	51,404
55-59	22,136	20,979	43,115
60-64	17,255	16,371	33,626
65-69	12,440	12,119	24,559
70-74	8,026	8,053	16,079
75 and over	8,406	8,572	16,978
ALL AGES	739,833	722,020	1,461,853

Source:Ministry of Home Affairs-1980 Population Census projected forward using demographic methods.

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 National Assembly - The National Assembly has 150 members of which 100 members represent the people. These are elected for a three year term by consensus in each of the Dzongkhags. Ten monastic representatives are elected by the regional monk bodies while forty 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 10 members. There are two members elected by the National Assembly and two members appointed by the King. The Chairman is nominated by the King from among the members.

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 Je Khempo 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 gelongs.

Local Government - Local administration has been strengthened to meet the requirements of decentralised administration and development. There are 4 Zones and 18 Dzongkhags or Districts each under the charge of a Zonal Administrator and Dzongda responsible for civil administration and development activities. Basically. a Zone comprised of three to four Dzongkhags based upon their homogenity and topographical structure. Each Dzongda is assisted by a Dzongda Wongmo or a Dzongrab who are responsible for planning and development and civil administration. The larger Dzongkhags are sub-divided into sub-divisions (Dungkhags) headed by a Dungpa. Groups of villages have a headman - the Gup (in the north) or Mandal (in the south). In each Dzongkhag, the Dzongda is assisted in his development functions by the Dzongkhag Yargye Thschokchung (or District Development Committee) which consists of people's representatives and officials.

The Judiciary - Bhutan's legal code is based on that laid down by Ngawang Namgyal, the first Shabdung who arrived in Bhutan in 1616. Traditional Buddhist precepts are significantly maintained in the legal processes.

TABLE 2.3 : PATIENTS TREATED BY BASIC HEALTH UNITS BY DISEASE, SEX AND AGE, 1989

('000)

Disease	Age 0-14			Age 15 and over			All Persons	Percentage
	Males	Females	Persons	Males	Females	Persons		
Diarrhoea/Dysentery	20.6	19.2	39.8	14.2	11.3	25.5	65.3	15.3
Respiratory tract infection	17.3	17.9	35.2	24.3	23.1	47.4	82.6	19.3
Worms	11.6	11.8	23.4	10.3	9.9	20.2	43.6	10.2
Skin infection	13.5	12.6	26.1	12.8	9.5	22.3	48.4	11.3
Malaria/P.U.O	8.8	8.8	17.6	12.3	10.7	23.0	40.6	9.5
Conjunctivitis	5.8	6.2	12.0	6.9	6.7	13.6	25.6	6.0
Otitis media	3.6	3.5	7.1	1.2	1.0	2.2	9.3	2.2
Nutritional deficiency	4.6	5.3	9.9	6.7	9.3	16.0	25.9	6.1
Peptic ulcer syndrome	0.9	1.2	2.1	8.5	8.3	16.8	18.9	4.4
Disease of teeth and gum	0.8	1.1	1.9	3.1	2.9	6.0	7.9	1.8
Urinary tract infection and nephritis	0.6	0.8	1.4	2.3	2.5	4.8	6.2	1.4
Injuries	3.6	2.8	6.4	7.1	3.4	10.5	16.9	4.0
Sexually transmitted diseases		-	-	0.7	0.4	1.1	1.1	0.3
Other childhood diseases	1.1	1.0	2.1	0.3	0.2	0.5	2.6	0.6
Diseases of female genital tract	-	0.1	-	-	1.2	-	1.3	0.3
Complication of pregnancy and child birth peuperum	-	-	-	-	1.1	-	1.1	0.3
Others	3.7	4.2	7.9	11.8	10.6	22.4	30.3	7.1
All DISEASES	96.5	96.5	193.0	122.5	112.1	234.6	427.6	100.0

Source : Department of Health.

The High Court consists of six judges. Four of the judges are appointed by the King and two public representatives elected by the National Assembly subject to ratification by the King. There are courts in each Dzongkhag headed by a Thrimpon and assisted by Ramjams but minor disputes are settled by village gups.

1. POPULATION

INTRODUCTION

The main source of statistics on population is the Population Census. Population Censuses are undertaken in most countries on a five or ten yearly basis and aim to provide a full count of the population according to a range of characteristics such as demography, health, education and other social aspects. Censuses are useful not only because they provide a range of current population data but also for use as a benchmark for making population estimates in non-Census years and for population projections. Population Censuses were undertaken in Bhutan in 1969 and 1980.

The second major element of population statistics relates to the demographic characteristics of the population. The most common source of information on demography is the vitals registration system (which usually covers the registration of births and deaths and sometimes marriages and divorces). In Bhutan, the vitals registration system does not currently provide full coverage of births and deaths, and it has been necessary to undertake a special sample survey (in 1984) to obtain the important demographic information.

Statistics presented in this Chapter include estimates of current and future population together with data from the 1984 Demographic Sample Survey. The interpretation of the major demographic indicators is as follows:

Crude birth rate: number of live births in a year per thousand population.
General fertility rate: number of live births in a year per thousand women aged 15 to 49.
Total fertility rate: average number of children born by women during their lifetime.
Gross reproduction rate: average number of daughters born by women during their lifetime.
Net reproduction rate: reproduction rate adjusted for mortality of women.
Crude death rate: number of deaths in a year per thousand population.
Infant mortality rate: number of deaths during first year of life per thousand live births.
Rate of natural increase: the difference between the crude birth rate and the crude death rate.

MAIN FEATURES

In 1990, the total population of Bhutan was estimated to be 1,461,853 of which 739,833 were males and 772,020 were females.

The birth rate in Bhutan was estimated in 1984 at 39.1 births per thousand population. The death rate at the same time was estimated at 19.3 deaths per thousand population. This represents an annual population growth rate of approximately 2 per cent. If this rate of population increase is sustained, the population of Bhutan will double in the next 35 years.

TABLE 1.2 : POPULATION ESTIMATES BY DZONGKHAG, 1980 TO 1990

Dzongkhag	1980	1985	1986	1987	1988	1989	1990
Thimphu	64,300	71,674	73,674	75,554	77,336	79,039	80,684
Zone I							
Chukhha	97,200	108,347	111,370	114,212	116,905	119,480	121,967
Ha	17,100	19,061	19,593	20,093	20,567	21,020	21,457
Paro	39,800	44,364	45,602	46,766	47,869	48,923	49,941
Samchi	138,400	154,272	158,577	162,623	166,458	170,124	173,666
Total Zone I	292,500	326,044	335,142	343,694	351,799	359,547	367,031
Zone II							
Chirang	104,500	116,484	119,734	122,790	125,685	128,453	131,128
Daga	27,700	30,877	31,738	32,548	33,316	34,049	34,758
Punakha	34,500	38,457	39,530	40,538	41,494	42,408	43,291
Wangdiphodrang	47,700	53,170	54,654	56,049	57,370	58,634	59,854
Total Zone II	214,400	238,988	245,656	251,925	257,865	263,544	269,031
Zone III							
Bumthang	23,600	26,307	27,041	27,731	28,384	29,010	29,614
Sarbhang	112,800	125,736	129,244	132,543	135,668	138,656	141,543
Shemgang	43,300	48,266	49,612	50,879	52,078	53,225	54,333
Tongsa	28,600	31,880	32,769	33,606	34,398	35,156	35,888
Total Zone III	208,300	232,189	238,666	244,759	250,528	256,047	261,378
Zone IV							
Lhuntshi	36,900	41,132	42,279	43,358	44,381	45,358	46,302
Mongar	71,300	79,477	81,694	83,779	85,755	87,643	89,468
Pemagatsel	35,100	39,125	40,217	41,243	42,216	43,146	44,044
Samdrupjongkhar	72,200	80,480	82,726	84,837	86,837	88,750	90,597
Tashigang	170,000	189,496	194,783	199,754	204,464	208,967	213,318
Total Zone IV	385,500	429,710	441,699	452,971	463,653	473,864	483,729
BHUTAN	1,165,000	1,298,605	1,334,837	1,368,903	1,401,181	1,432,041	1,461,853

Source : Population projections based on 1980 Census data.

TABLE 1.3 : POPULATION PROJECTIONS, 1991-2006, WITH DIFFERENT FERTILITY AND MORTALITY PARAMETERS

	Projections (a)								
	A	B	C	D	E	F	G	H	I
	POPULATION ('000)								
1991	1,477	1,481	1,484	1,473	1,476	1,479	1,467	1,470	1,473
1996	1,661	1,676	1,689	1,642	1,657	1,670	1,619	1,663	1,645
2001	1,862	1,898	1,928	1,818	1,853	1,882	1,762	1,796	1,823
2006	2,090	2,159	2,216	2,006	2,072	2,125	1,900	1,963	2,012
	DEMOGRAPHIC ASSUMPTIONS								
Total fertility rate	5.8	5.8	5.8	5.0	5.0	5.0	4.0	4.0	4.0
Crude birth rate,2006	41.0	40.4	39.9	36.9	36.3	35.9	31.2	30.8	30.4
Crude death rate,2006	17.6	14.1	11.3	17.2	13.8	11.2	16.7	13.4	10.9
Life expectancy ,2006									
Males	45.8	51.8	56.5	45.8	51.8	56.5	45.8	51.8	56.5
Females	48.7	55.0	60.0	48.7	55.0	60.0	48.7	55.0	60.0
Average annual population growth 1986 to 2006 (%)	2.4	2.5	2.7	2.1	2.3	2.4	1.9	2.0	2.2

(a) Projections based on nine different fertility and mortality assumptions (Projections A to I).

Source : 1980 Population Census projected forward using demographic methods based on nine different fertility and mortality assumptions (Projections A to I).

TABLE 1.4 : SUMMARY OF POPULATION INDICATORS, 1980 AND 1990

Population Indicators	1980	1990
Sex Ratio (Males/Females)	104.3	102.5
Age Composition (%)		
0-14	38.5	38.7
15-64	57.2	57.4
65 and over	4.3	3.9
Total	100.0	100.0
Dependency Ratio (a)		
Child dependency	67.3	67.4
Old age dependency	7.5	6.8
Total dependency	74.8	74.2
Index of aging (b)	11.2	10.1

(a) Dependency ratio measures the number of dependents as a percentage of the population aged 15 to 64. Child dependency refers to children aged 0-14, while old age dependency refers to persons aged 65 and over. (b)Index of aging refers to the number of persons aged 65 and over as a percentage of the number of persons aged 0 to 14.

Source :Derived measures based on population estimates in Table 1.1

TABLE 1.5 : PERCENTAGE OF POPULATION BY MARITAL STATUS AND AGE, 1984.

Age Group	Never Married		Married		Divorced/Separated		Widowed		Total	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
0-14	99.9	99.8	-	-	-	-	-	-	100.0	100.0
15-19	92.1	73.4	7.7	25.5	-	-	-	-	100.0	100.0
20-24	54.5	30.1	43.8	64.8	1.5	4.4	-	-	100.0	100.0
25-29	26.8	12.4	70.0	80.5	2.4	5.7	-	1.4	100.0	100.0
30-34	13.1	8.4	82.8	81.3	1.9	7.3	2.3	3.1	100.0	100.0
35-39	10.0	5.5	85.8	84.9	1.8	5.7	2.5	3.9	100.0	100.0
40-44	7.6	6.3	87.9	81.4	1.7	5.3	2.8	7.0	100.0	100.0
45-49	6.9	6.9	86.8	78.7	1.4	5.4	5.0	9.1	100.0	100.0
50 and over	6.5	4.2	75.4	58.8	2.3	4.8	15.7	32.2	100.0	100.0
ALL AGES	57.8	52.0	38.0	39.0	1.0	2.8	3.2	6.2	100.0	100.0

Note : Estimates less than 1 percent have been given as a "-".

Source : 1984 Demographic Sample Survey.

TABLE 1.6 : SUMMARY OF DEMOGRAPHIC INDICATORS, 1984

Measures of Fertility and Mortality

FERTILITY	
Crude birth rate	39.1
General fertility rate	169.6
Total fertility rate	5.9
Gross reproduction rate	2.9
Net reproduction rate	1.9
Rate of natural increase (%)	2.0
MORTALITY	
Crude death rate	19.3
Infant mortality rate	142.0
Life expectancy at birth	
Males	45.8
Females	49.1

Note : For explanation of demographic indicators see Introduction to this Chapter.

Source : Analysis of 1984 Demographic Sample Survey.

2. HEALTH

INTRODUCTION

General health conditions in Bhutan are affected by low nutrition intake, poor sanitation, and a high prevalence of parasitic infections and contagious diseases. Efforts to establish modern medical facilities in Bhutan were begun in 1962. Institutional health facilities, until quite recently were concentrated in the urban centres, but today the emphasis has shifted to the rural areas where the majority of the population live. Basic health units (BHU's) usually serving remote districts, staffed by well-trained para-medical personnel are equipped to treat minor ailments and advise on preventive measures to avoid the spread of communicable diseases. These BHU's are supported by dispensaries.

There are also a number of special health programs in Bhutan administered by the Department of Health. These cover immunization, maternal and child health services, malaria eradication, leprosy and family planning.

The main indicators of the health status of the population are morbidity and mortality. Morbidity refers to the types of illnesses people suffer from, while mortality relates to death rates and causes of death. Morbidity and mortality data are usually obtained from administrative sources. Morbidity data can often be obtained from patient records of health units, while information on mortality rates and causes of death is usually obtained from vitals registration systems (ie the system of civil registration of births and deaths).

In Bhutan, some morbidity statistics are available based on patients treated by hospitals, basic health units and dispensaries. Little information on mortality is available. While a registration system is in place for the reporting of births and deaths, it is recognized that there is some undercoverage and problems with the identification of cause of death. Overall levels of mortality have been estimated from the Demographic Sample Surveys, but cause of death data have not yet become available. Efforts are under way to improve the vitals registration system.

MAIN FEATURES

In 1989, there were 26 hospitals, 69 basic health units and 46 dispensaries scattered across Bhutan. A total of 157 doctors and 671 paramedical workers service the health needs of the population. This represents one doctor for every 9,100 population. There were 944 hospital beds available in 1989, representing one bed per 1,500 population.

Information on diseases of patients treated in basic health units and dispensaries, as summarized in Tables 2.3 and 2.4 provides a guide to the health problems of the people. The major diseases are respiratory problems (19.3 per cent of patients treated in 1989) and diarrhoea/dysentery (15.3 per cent). Worms, skin infection and malaria were also widespread.

The immunization program has been given special priority in the administration of health services. In 1989, over 26,000

children were vaccinated for BCG, 21,000 against measles, abou
21,000 against diphtheria and 22,000 against poliomyelitis. Th
numbers were substantially higher than the previous year.

Maternal and child health services are an important part o
the health services. In 1989, total attendance at materna
health clinics was over 69,000 and child health services was ove
187,000.

Malaria is still an endemic disease in Southern Bhutan with
over 176,000 people living in malaria areas. Blood examinations
carried out as part of the malaria eradication program produced
over 19,000 positive readings during 1989. Leprosy is also a
problem in some areas and at the end of 1989, leprosy hospitals
had 353 patients including 57 new cases detected during the
year.

TABLE 2.1 : SUMMARY OF HEALTH FACILITIES AND PERSONNEL, 1985 TO 1989

	1985	1986	1987	1988	1989
Hospitals	27	27	27	28	26
Basic Health Units	65	67	68	69	69
Dispensaries	44	46	46	46	46
Indigenous Hospitals	1	1	1	1	1
Indigenous dispensaries	4	4	5	6	6
Hospital beds	857	915	922	932	944
Doctors (a)	113	134	138	142	157
Paramedical Workers	n.a.	541	611	678	671
Population per doctor	11,300	9,800	9,740	9,700	9,100
Population per paramedical	n.a.	2,400	2,200	2,000	2,100
Population per bed	1,500	1,400	1,460	1,500	1,500
Population covered by Health care (%)	n.a	n.a	n.a	65	65

(a) Includes doctors in adminstrative services.

Source : Department of Health.

TABLE 2.2 : HEALTH PERSONNEL BY CATEGORY, 1986 TO 1989

Category	1986	1987	1988	1989
Doctors	134	138	138	157
Health Assistants	85	91	100	119
Basic health workers	85	91	97	91
Sister and nurses	252	279	303	317
Other technicians	119	150	178	144
Indigenous physicians	11	11	10	12
Indigenous compounders	-	9	9	10
ALL HEALTH PERSONNEL	686	769	835	850

Source : Department of Health.

TABLE 2.3 : PATIENTS TREATED BY BASIC HEALTH UNITS BY DISEASE, SEX AND AGE, 1989

('000)

Disease	Age 0-14			Age 15 and over			All Persons	Percentage
	Males	Females	Persons	Males	Females	Persons		
Diarrhoea/Dysentery	20.6	19.2	39.8	14.2	11.3	25.5	65.3	15.3
Respiratory tract infection	17.3	17.9	35.2	24.3	23.1	47.4	82.6	19.3
Worms	11.6	11.8	23.4	10.3	9.9	20.2	43.6	10.2
Skin infection	13.5	12.6	26.1	12.8	9.5	22.3	48.4	11.3
Malaria/P.U.O	8.8	8.8	17.6	12.3	10.7	23.0	40.6	9.5
Conjunctivitis	5.8	6.2	12.0	6.9	6.7	13.6	25.6	6.0
Otitis media	3.6	3.5	7.1	1.2	1.0	2.2	9.3	2.2
Nutritional deficiency	4.6	5.3	9.9	6.7	9.3	16.0	25.9	6.1
Peptic ulcer syndrome	0.9	1.2	2.1	8.5	8.3	16.8	18.9	4.4
Disease of teeth and gum	0.8	1.1	1.9	3.1	2.9	6.0	7.9	1.8
Urinary tract infection and nephritis	0.6	0.8	1.4	2.3	2.5	4.8	6.2	1.4
Injuries	3.6	2.8	6.4	7.1	3.4	10.5	16.9	4.0
Sexually transmitted diseases		-	-	0.7	0.4	1.1	1.1	0.3
Other childhood diseases	1.1	1.0	2.1	0.3	0.2	0.5	2.6	0.6
Diseases of female genital tract	-	0.1	-	-	1.2	-	1.3	0.3
Complication of pregnancy and child birth peuperum	-	-	-	-	1.1	-	1.1	0.3
Others	3.7	4.2	7.9	11.8	10.6	22.4	30.3	7.1
All DISEASES	96.5	96.5	193.0	122.5	112.1	234.6	427.6	100.0

Source : Department of Health.

TABLE 2.4: PATIENTS TREATED IN BASIC HEALTH UNITS BY DISEASE, 1985 TO 1989

('000)

Disease	Persons					Percentage				
	1985	1986	1987	1988	1989	1985	1986	1987	1988	19
Diarrhoea/Dysentery	52.7	61.9	65.7	64.3	65.3	18.2	17.5	15.6	15.0	15
Respiratory tract infection	48.1	58.6	70.4	78.0	82.6	16.6	16.5	16.7	18.2	19
Worms	33.7	41.4	46.4	55.0	43.6	11.6	11.7	11.0	12.8	10
Skin infection	34.1	39.8	53.9	50.9	48.4	11.8	11.2	12.8	11.9	11
Malaria/P.U.O	30.2	30.0	33.4	35.7	40.6	10.4	8.5	7.9	8.3	9
Conjunctivitis	12.5	17.2	17.5	25.4	25.6	4.3	4.8	4.2	5.9	6.
Otitis media	7.8	7.3	10.8	9.3	9.3	2.7	2.1	2.6	2.2	2.
Nutritional deficiency	20.8	24.0	32.7	27.0	25.9	7.2	6.8	7.8	6.3	6.
Peptic ulcer syndrome	10.9	14.4	14.9	14.9	18.9	3.7	4.1	3.6	3.5	4.
Disease of teeth and gum	5.3	6.9	8.7	8.1	7.9	1.8	2.0	2.1	1.9	1.
Urinary tract infection and nephritis	5.1	6.3	4.7	6.5	6.2	1.7	1.8	1.1	1.5	1.
Injuries	2.7	19.3	19.9	17.6	16.9	0.9	5.4	4.7	4.1	4.
Sexually transmitted diseases	2.1	2.7	1.7	1.3	1.1	0.7	0.8	0.4	0.3	0.
Other childhood diseases	1.3	3.8	3.5	2.4	2.6	0.4	1.1	0.8	0.6	0.
Disease of female genital trac	1.0	1.2	1.5	1.4	1.3	0.3	0.3	0.4	0.3	0.
Complication of pregnancy and childbirth peuperum	n.a	0.6	0.7	0.8	1.1	n.a	0.2	0.2	0.2	0.
Others	21.5	19.0	34.1	30.0	30.3	7.4	5.4	8.1	7.0	7.
ALL DISEASES	289.6	354.3	420.6	428.5	427.6	100.0	100.0	100.0	100.0	100.0

Source : Department of Health.

TABLE 2.4: PATIENTS TREATED IN BASIC HEALTH UNITS BY DISEASE, 1985 TO 1989

('000)

Disease	Persons					Percentage				
	1985	1986	1987	1988	1989	1985	1986	1987	1988	19
Diarrhoea/Dysentery	52.7	61.9	65.7	64.3	65.3	18.2	17.5	15.6	15.0	15
Respiratory tract infection	48.1	58.6	70.4	78.0	82.6	16.6	16.5	16.7	18.2	19
Worms	33.7	41.4	46.4	55.0	43.6	11.6	11.7	11.0	12.8	10
Skin infection	34.1	39.8	53.9	50.9	48.4	11.8	11.2	12.8	11.9	11
Malaria/P.U.O	30.2	30.0	33.4	35.7	40.6	10.4	8.5	7.9	8.3	9
Conjunctivitis	12.5	17.2	17.5	25.4	25.6	4.3	4.8	4.2	5.9	6.
Otitis media	7.8	7.3	10.8	9.3	9.3	2.7	2.1	2.6	2.2	2.
Nutritional deficiency	20.8	24.0	32.7	27.0	25.9	7.2	6.8	7.8	6.3	6.
Peptic ulcer syndrome	10.9	14.4	14.9	14.9	18.9	3.7	4.1	3.6	3.5	4.
Disease of teeth and gum	5.3	6.9	8.7	8.1	7.9	1.8	2.0	2.1	1.9	1.
Urinary tract infection and nephritis	5.1	6.3	4.7	6.5	6.2	1.7	1.8	1.1	1.5	1.
Injuries	2.7	19.3	19.9	17.6	16.9	0.9	5.4	4.7	4.1	4.
Sexually transmitted diseases	2.1	2.7	1.7	1.3	1.1	0.7	0.8	0.4	0.3	0.
Other childhood diseases	1.3	3.8	3.5	2.4	2.6	0.4	1.1	0.8	0.6	0.
Disease of female genital trac	1.0	1.2	1.5	1.4	1.3	0.3	0.3	0.4	0.3	0.
Complication of pregnancy and childbirth peuperum	n.a	0.6	0.7	0.8	1.1	n.a	0.2	0.2	0.2	0.
Others	21.5	19.0	34.1	30.0	30.3	7.4	5.4	8.1	7.0	7.
ALL DISEASES	289.6	354.3	420.6	428.5	427.6	100.0	100.0	100.0	100.0	100.0

Source : Department of Health.

TABLE 2.5 : PATIENTS TREATED IN EACH HOSPITAL, 1985 TO 1989(a)

('000)

Hospital	1985	1986	1987	1988	1989
Government Hospitals					
Bumthang	19.1	9.6	10.4	8.1	6.4
Chirang	11.8	29.4	24.9	23.5	23.8
Geylegphug(b)	50.4	70.4	66.4	67.7	60.0
Pemagatsel	9.9	8.9	8.7	8.4	6.1
Paro	16.7	17.2	19.4	17.4	28.9
Phuntsholing	21.4	18.5	24.4	22.5	16.4
Samdrupjongkhar	12.8	15.1	16.0	16.5	n.a
Samchi	6.0	27.5	24.8	25.9	21.3
Sarbhang	6.1	21.7	21.8	22.9	-
Sibsu	4.1	15.8	12.3	11.2	8.9
Thimphu	98.4	122.4	125.1	98.6	n.a
Tashigang	7.9	27.9	19.3	19.5	17.2
Tshimalakha	-	6.9	6.6	11.2	24.7
Tongsa	2.1	2.5	4.8	4.9	5.9
Leprosy Mission Hospitals					
Gidakom	1.9	7.2	9.1	9.2	4.8
Lhuntshi	3.6	3.7	4.7	5.7	5.5
Mongar	10.9	13.4	11.1	12.9	10.0
Riserboo	2.9	12.0	5.0	7.0	n.a
Yebilepcha(Shemgang)	4.2	4.5	3.8	5.0	4.1
Army Hospitals					
Lungtenphug	29.4	27.9	n.a	51.7	n.a
Wangdiphodrang	18.9	13.2	17.4	16.8	31.0
Yonphula	n.a	n.a	n.a	n.a	n.a
Project Hospitals					
Gomtu	8.8	35.6	33.6	36.6	18.0
Indigenous Hospital	26.9	25.1	22.8	19.0	18.0
ALL HOSPITALS (c)	374.2	536.2	492.4	522.1	311.0

(a) Comparisons over time may be affected by different coverage in each year. (b) Figure includes both Geylephug and Sarbhang hospitals.(c) Total patient numbers exclude hospitals for which data were not available.

Source : Department of Health.

TABLE 2.6: IMMUNIZATION ACTIVITIES, 1981 TO 1989

('000 children)

Immunization	1981	1982	1983	1984	1985	1986	1987	1988	1989
BCG	26.9	17.0	20.5	20.3	17.4	28.5	28.2	24.8	26.9
DPT1	9.4	7.7	11.8	13.2	14.1	21.6	25.5	21.8	23.7
DPT3	5.4	4.2	7.4	7.5	10.1	14.8	21.4	17.9	21.8
OPV1	11.7	7.6	10.9	13.2	13.3	20.9	25.4	21.5	24.1
OPV3	4.6	4.2	6.1	7.2	10.2	14.2	21.3	17.5	22.2
Measles	9.0	8.7	9.4	12.7	12.5	17.1	21.5	16.9	21.3
TT1	-	-	-	2.3	5.3	4.9	8.4	8.9	11.5
TT2	-	-	-	1.0	1.5	2.4	4.9	5.2	7.5

Source : Department of Health.

TABLE 2.7: MATERNAL AND CHILD HEALTH SERVICES, 1981 TO 1989

	1981	1982	1983	1984	1985	1986	1987	1988	1989
MATERNAL HEALTH SERVICES									
Attendance (a)									
Antenatal	3,807	4,360	5,106	7,841	13,548	18,532	26,662	29,425	33,324
Postnatal	4,806	4,903	9,834	13,141	18,080	22,803	37,476	34,277	36,406
Total attendance	8,613	9,263	14,940	20,982	31,628	41,335	64,138	63,702	69,730
Deliveries attended									
Home (b)	683	721	658	822	497	800	2,170	1,838	2,258
Hospital/Basic Units	213	310	489	1,460	1,817	3,007	2,491	3,086	3,588
Total deliveries	896	1,031	1,147	2,282	2,314	3,807	4,661	4,924	5,846
CHILD HEALTH SERVICES									
Attendance									
First visit	4,608	6,321	8,524	11,967	17,734	23,996	33,240	26,090	35,784
Repeat visit	36,688	36,543	36,084	65,526	93,275	90,754	163,161	136,450	151,526
Total attendance	41,296	42,864	44,608	77,493	111,009	114,750	196,401	162,540	187,310
Malnourished children (c)									
All malnourished	11,344	11,020	10,610	12,934	12,456	9,030	15,502	8,334	10,807
Third degree	1,092	1,087	1,116	1,114	1,250	953	2,020	876	1,145

(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 attendence by health staff and are not included in the delivery figures. (c) Children attending health units are classified according to three degree of malnourishment. Third degree malnourishment refers to the most severe cases.

Source : Department of Health.

TABLE 2.8 : FAMILY PLANNING ACCEPTORS BY TYPE OF METHOD, 1982 TO 1989

Method of family planning	1982	1983	1984	1985	1986	1987	1988	1989
Vasectomy	210	851	637	447	414	552	897	1,961
Minilap	12	490	430	371	428	470	379	506
Intra uterine device(IUD)	180	387	337	584	896	665	619	757
Pills	1,242	1,599	1,440	4,314	6,355	6,036	5,663	7,168
Condoms	168	197	390	1,159	2,846	1,099	897	1,476
Injection DMPA	-	-	84	-	81	78	48	125
ALL METHODS	1,812	3,524	3,318	6,875	11,020	8,900	8,503	11,993

Source: Department of Health.

TABLE 2.9: LEPROSY CONTROL PROGRAMME, 1985 TO 1989

	1985	1986	1987	1988(c)	1989
Patients at beginning of the year	2,478	2,233	1,674	1,018	601
New cases detected	113	71	88	69	57
Relapse cases	5	9	6	11	3
Deaths	47	33	33	20	12
Released from control(a)	215	546	534	447	282
Lost to control(b)	101	60	18	30	14
Patients at the end of the year	2,233	1,674	1,183	601	353

(a) Patients successfully treated. (b) Patients unsuccessfully treated. (c) Some non-nationals patient left the course at the beginning of 1988.

Source : Department of Health.

TABLE 2.10: MALARIA ERADICATION PROGRAMME, 1985 TO 1989

('000)

	1985	1986	1987	1988	1989
Population in malaria areas	148.0	158.0	161.0	173.0	176.9
Blood film examined	69.4	82.4	69.0	51.2	71.7
Blood slide positive	16.0	16.5	13.1	11.3	19.2

Source : Department of Health.

3. EDUCATION

INTRODUCTION

The development of a comprehensive education system in Bhutan was initiated in 1961. Prior to that time there were virtually no modern education facilities inside Bhutan, apart from the traditional education given in the monasteries.

Today there is an extensive network of schools and other educational institutions spread throughout the country. Many schools contain boarding facilities for students living in areas far from the nearest school. While the medium of instruction in schools is English, Bhutan's national language Dzongkha, is taught as a compulsory subject from primary to college level. School curricula also include religious instruction, training in traditional arts and crafts and agriculture.

The Department of Education maintains an extensive range of data on students, schools, and teaching personnel. Some summary data are presented in this Chapter.

MAIN FEATURES

In 1990, there were altogether 233 schools scattered through out the country of which 46 were extended classrooms, 156 primary schools, 21 junior high schools and 10 were high schools. Besides these, there is a college and several other technical and vocational institutions, in addition to monastic schools and Sanskrit Patshalas.

In 1990 the total number of students enrolled in schools in Bhutan was 68,000. Of these, 52,000 were enrolled in primary schools, 11,500 in junior high schools and 4,500 in high schools. There were 26,300 females enrolled in schools (or about 39 per cent of total enrollment).

Student numbers in schools have increased over the past few years from 36,700 in 1981 to 68,000 in 1990.

There were altogether 2,419 school teachers in 1990, of which 1,757 were in primary schools, 423 in junior high schools and 239 in high schools.

TABLE 3.1 : SUMMARY OF SCHOOLS BY DZONGKHAG, 1990

Dzongkhag	No. of schools	No. of teachers	No. of students		
			Males	Females	Persons
Thimphu	17	297	4,227	3,777	8,004
Zone I					
Chhukha	14	177	2,638	1,828	4,466
Ha	6	70	827	615	1,442
Paro	11	124	1,965	1,327	3,292
Samchi	23	292	4,830	3,109	7,939
Total Zone I	54	663	10,260	6,879	17,139
Zone II					
Chirang	17	171	3,650	2,558	6,208
Daga	11	96	2,275	1,071	3,346
Punakha	7	76	1,017	693	1,710
Wangdiphodrang	9	79	1,018	729	1,747
Total Zone II	44	422	7,960	5,051	13,011
Zone III					
Bumthang	4	46	736	545	1,281
Geylegphug	20	281	5,555	3,521	9,076
Shemgang	16	90	1,627	684	2,311
Tongsa	5	44	623	501	1,124
Total Zone III	45	461	8,541	5,251	13,792
Zone IV					
Lhuntshi	5	47	670	293	963
Mongar	13	96	1,625	748	2,373
Pemagatsel	6	63	1,060	424	1,484
Samdrupjongkhar	14	143	3,282	1,673	4,955
Tashigang	35	227	4,128	2,164	6,292
Total Zone IV	73	576	10,765	5,302	16,067
BHUTAN	233	2,419	41,753	26,260	68,013

Source: Department of Education.

TABLE 3.2 : NUMBER OF SCHOOLS BY DZONGKHAG AND TYPE OF SCHOOL, 1990

Dzongkhag	Extended Classrooms	Primary Schools	Junior high Schools	High schools	All Schools
Thimphu	1	12	2	2	17
Zone I					
Chhukha	-	12	1	1	14
Ha	-	5	1	-	6
Paro	1	8	1	1	11
Samchi	-	19	3	1	23
Total Zone I	1	44	6	3	54
Zone II					
Chirang	2	13	2	-	17
Daga	3	6	2	-	11
Punakha	1	5	-	1	7
Wangdiphodrang	1	7	1	-	9
Total Zone II	7	31	5	1	44
Zone III					
Bumthang	-	3	1	-	4
Sarbhang	1	16	2	1	20
Shemgang	7	8	-	1	16
Tongsa	1	3	1	-	5
Total Zone III	9	30	4	2	45
Zone IV					
Lhuntshi	-	4	1	-	5
Mongar	5	7	-	1	13
Pemagatsel	2	3	1	-	6
Samdrupjongkhar	2	12	-	-	14
Tashigang	19	13	2	1	35
Total Zone IV	28	39	4	2	73
BHUTAN	46	156	21	10	233

Source : Department of Education.

TABLE 3.3: NUMBER OF STUDENTS BY DZONGKHAG AND TYPE OF SCHOOL, 1990

Dzongkhag	Primary Schools	Junior High Schools	High Schools	All schools		
				Males	Females	Persons
Thimphu	5,726	1,448	774	4,227	3,777	8,004
Zone I						
Chhukha	3,698	221	547	2,638	1,828	4,466
Ha	1,026	416	-	827	615	1,442
Paro	2,414	533	288	1,965	1,327	3,292
Samchi	5,888	1,664	387	4,830	3,109	7,939
Total Zone I	13,026	2,834	1,222	10,260	6,879	17,139
Zone II						
Chirang	4,778	1,216	-	3,650	2,558	6,208
Daga	1,883	1,063	-	2,275	1,071	3,346
Punakha	1,110	-	428	1,017	693	1,710
Wangdiphodrang	1,238	414	-	1,018	729	1,747
Total Zone II	9,009	2,693	428	7,960	5,051	13,011
Zone III						
Bumthang	551	730	-	736	545	1,281
Geylegphug	6,634	1,244	1,068	5,555	3,521	9,076
Shemgang	1,480	-	361	1,627	684	2,311
Tongsa	527	569	-	623	501	1,124
Total Zone III	9,192	2,543	1,429	8,541	5,251	13,792
Zone IV						
Lhuntshi	657	306	-	670	293	963
Mongar	1,668	-	314	1,625	748	2,373
Pemagatsel	660	595	-	1,060	424	1,484
Samdrupjongkhar	4,664	-	-	3,282	1,673	4,955
Tashigang	3,449	1,098	300	4,128	2,164	6,292
Total Zone IV	11,098	1,999	614	10,765	5,302	16,067
BHUTAN	48,051	11,517	4,467	41,753	26,260	68,013

Source: Department of Education.

TABLE 3.4: NUMBER OF STUDENTS BY TYPE OF SCHOOL AND GRADE, 1990

Grade	Primary Schools			Junior High Schools			High Schools			All Schools		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
PP	7,942	5,338	13,280	929	711	1,640	129	106	235	9,000	6,155	15,155
I	7,025	4,446	11,471	865	614	1,479	102	99	201	7,992	5,159	13,151
II	5,962	3,673	9,635	874	666	1,540	124	86	210	6,960	4,425	11,385
III	4,339	2,664	7,003	827	666	1,493	110	78	188	5,276	3,408	8,684
IV	3,181	1,877	5,058	899	669	1,568	129	133	262	4,209	2,679	6,888
V	2,028	1,162	3,190	631	471	1,102	123	112	235	2,782	1,745	4,527
VI	1,565	827	2,392	655	465	1,120	185	156	341	2,405	1,448	3,853
VII	..	..	..	658	236	894	511	254	765	1,169	490	1,659
VIII	..	..	..	486	195	681	526	246	772	1,012	441	1,453
IX	..	..	..	..	..	..	520	178	698	520	178	698
X	..	..	..	..	..	..	428	132	560	428	132	560
Total	32,042	19,987	52,029	6,824	4,693	11,517	2,887	1,580	4,467	41,753	26,260	68,013

Source: Department of Education.

TABLE 3.5: NUMBER OF STUDENTS BY GRADE, 1981 TO 1990

Grade	1981	1982	1983	1984	1985	1986	1987	1988	1989
Primary grades									
Pre-primary	16,428	17,366	19,217	20,085	20,375	18,431	15,579	14,323	16,042
I	6,191	6,446	7,018	7,705	8,359	9,814	13,094	13,313	13,756
II	4,384	4,995	5,307	5,668	6,064	6,760	7,365	9,423	10,798
III	3,395	3,805	4,331	4,682	4,986	5,361	5,867	6,490	7,754
IV	2,332	2,745	3,147	3,426	3,690	3,957	4,257	5,048	5,815
V	1,751	2,047	2,352	2,709	2,967	3,029	3,158	3,728	4,046
VI	-	-	-	-	-	2,133	2,628	3,015	3,364
Total Primary	34,481	37,404	41,372	44,275	46,441	49,485	51,948	55,340	61,575
Junior High grades									
VI	732	950	1,059	1,249	1,149	-	-	-	-
VII	693	700	869	995	1,129	1,132	1,107	1,277	1,552
VIII	431	609	700	809	906	1,071	1,000	1,142	1,241
Total Junior High	1,856	2,259	2,628	3,053	3,184	2,203	2,107	2,419	2,793
High School grades									
IX	194	239	263	336	391	408	528	558	642
X	174	162	218	219	295	356	344	479	523
Total High School	368	401	481	555	686	764	872	1,037	1,165
Total students	36,705	40,064	44,481	47,883	50,311	52,452	54,927	58,796	65,533

Source: Department of Education.

TABLE 3.6 : NUMBER OF INSTITUTIONS, TEACHERS AND STUDENTS BY TYPE OF SCHOOL, 1990

	Primary School	Junior High School	High School	Total
No. of Schools	156	21	10	187
No. of Teachers	1,757	423	239	2,419
Students				
Males	32,042	6,824	2,887	41,753
Females	19,987	4,693	1,580	26,260
Persons	52,029	11,517	4,467	68,013
Student / Teacher ratio	30	27	19	28

Source : Department of Education.

TABLE 3.7: SUMMARY OF TEACHERS BY DZONGKHAG AND TYPE OF SCHOOL, 1990

Dzongkhag	Primary schools	Junior High Schools	High Schools	All Schools
Thimphu	194	56	47	297
Zone I				
Chhukha	136	12	29	177
Ha	49	21	-	70
Paro	87	21	16	124
Samchi	214	58	20	292
Total Zone I	486	112	65	663
Zone II				
Chirang	131	40	-	171
Daga	58	38	-	96
Punakha	55	-	21	76
Wangdiphodrang	59	20	-	79
Total Zone II	303	98	21	422
Zone III				
Bumthang	27	19	-	46
Geylegphug	202	37	42	281
Shemgang	70	-	20	90
Tongsa	25	19	-	44
Total Zone III	324	75	62	461
Zone IV				
Lhuntshi	31	16	-	47
Mongar	72	-	24	96
Pemagatsel	43	20	-	63
Samdrupjongkhar	143	-	-	143
Tashigang	161	46	20	227
Total Zone IV	450	82	44	576
BHUTAN	1,757	423	239	2,419

Source: Department of Education.

TABLE 3.8 : CATEGORY OF TEACHERS BY QUALIFICATION AND NATIONALITY, 1990

Qualification	National	Non-national	Persons
Trained			
Post Graduate	7	89	96
Graduate	31	196	227
H.Secondry	38	31	69
Matriculate	657	24	681
Others	407	16	423
Total Trained	1140	356	1496
Untrained			
Post Graduate	-	97	97
Graduate	40	420	460
H.Secondry	14	114	128
Matriculate	51	62	113
Others	118	7	125
Total Untrained	223	700	923
TOTAL Teachers	1,363	1,056	2,419

Source : Department of Education.

TABLE 3.9 : SUMMARY OF SCHOOLS AND INSTITUTES BY ENROLMENT, 1990

Schools/institutes	Students			Teachers
	Males	Females	Total	
Primary Schools	32,042	19,987	52,029	1,757
Junior High Schools	6,824	4,693	11,517	423
High Schools	2,887	1,580	4,467	239
Sherubtshe College	300	45	345	32
National Institute of Education	105	69	174	25
Teachers' Training Centre	40	19	59	16
Royal Bhutan Polytechnic	139	8	147	32
Royal Technical Institute	253	39	292	35
National Trade Training Institute	63	-	63	16
Simtokha Rigney School	595	81	676	26
Zangley Muenselling School for the Blind	20	7	27	8
Sanskrit Pathsala	367	191	558	16

Source : Department of Education.

4. HUMAN RESOURCES

INTRODUCTION

The economy of Bhutan is characterized by the predominance of people engaged in self-employment, particularly those working their own land. There is also a good deal of small cottage industry often undertaken in the home. The number of persons working for wages is relatively small.

Statistics on human resources are designed to measure the involvement of people in economic activity. Economic activity refers to the production of economic goods and services and includes persons who are self-employed (e.g. farmers operating their own land) as well as persons who work for wages (ie. employees).

Broadly, a statistical system for human resources (or labour) should cover topics such as size and characteristics of the labour force, employment, wage rates and conditions of work. Labour statistics may be obtained from three main sources:

a) Household Surveys, whereby information is obtained from the individual about his or her employment, earnings and other aspects of their working activities.

b) Employer Surveys, whereby information on number of persons employed and wage levels is obtained from employers.

c) Administrative sources, whereby various aspects of labour statistics are obtained from administrative sources (e.g. civil service employee data obtained from civil service records).

In Bhutan, there are currently few statistics available on human resources and labour. The only data available are some broad level data on economic activity which was obtained from two household surveys, and some data on civil service employment were obtained from administrative records.

MAIN FEATURES

In 1984, over 93 per cent of the population aged 15 to 64 were engaged in some economic activity, including 90 per cent of the males and over 96 per cent of the females. For males, 78 per cent were engaged in agriculture and 12 per cent in other activities, while for females over 95 per cent were engaged in agriculture and only one per cent in other activities.

As of July 1990, total civil service employment amounted to 12,100. Of these, 1,191 (or 10 per cent) were females. There has been a substantial reduction in the number of civil service employees since January 1987 as a result of the government's policy for a small, compact, efficient government.

In Thimphu town in 1990, there were 5,270 employed persons of which 54 per cent were government employees. The labour force participation rate was 63 per cent.

TABLE 4.1: PERCENTAGE OF POPULATION ACCORDING TO ECONOMIC ACTIVITY BY AGE AND SEX, 1984

Age group	Agriculture	Government service	Business	Others	No Occupation	
			MALES			
Less than 15	7.0	-	-	1.0	92.0	
15 - 19	54.7	2.0	*	3.5	39.7	
20 - 24	70.9	11.1	1.5	4.0	12.5	
25 - 29	76.7	13.8	2.0	4.4	3.1	
30 - 34	82.0	11.1	1.7	4.3	0.8	
35 - 39	84.4	7.7	2.4	4.7	*	
40 - 44	87.7	5.9	2.3	3.6	*	
45 - 54	90.5	3.3	1.6	3.6	1.0	
55 - 64	88.1	1.0	0.9	4.0	6.0	
65 and over	71.1	1.5	*	0.9	26.0	
ALL AGES	52.5	3.9	0.9	2.8	39.9	
Age 15 - 64	78.4	6.5	1.4	4.0	9.6	
			FEMALES			
Less than 15	9.2	-	-	0.2	90.7	
15 - 19	87.8	*	*	0.4	11.0	
20 - 24	95.7	1.0	1.1	*	2.1	
25 - 29	98.0	*	*	*	0.7	
30 - 34	98.4	*	*	*	*	
35 - 39	99.1	*	*	*	*	
40 - 44	99.2	*	*	*	-	
45 - 54	98.4	*	*	*	1.2	
55 - 64	91.1	*	*	*	8.5	
65 and over	73.2	*	*	-	26.1	
ALL AGES	61.5	0.3	0.3	0.2	37.8	
Age 15-64	95.4	0.4	0.5	0.2	3.6	
			PERSONS			
Less than 15	8.2	-	-	0.6	91.3	
15 - 19	72.4	1.2	*	1.9	24.4	
20 - 24	83.9	5.8	1.3	2.0	7.0	
25 - 29	88.0	6.8	1.1	2.2	1.8	
30 - 34	90.8	5.4	1.1	2.1	0.6	
35 - 39	91.7	3.9	1.4	2.5	0.5	
40 - 44	93.5	3.0	1.4	1.9	*	
45 - 54	94.4	1.7	1.0	1.9	1.1	
55 - 64	89.6	0.6	0.6	2.0	7.2	
65 and over	72.1	1.0	*	0.5	26.0	
ALL AGES	57.2	2.0	0.6	1.4	38.8	
Age 15-64	87.2	3.4	0.9	2.0	6.5	

Source : Demographic Sample Survey 1984.

TABLE 4.2 : TYPE OF EMPLOYMENT IN CIVIL SERVICE BY MINISTRY AND DEPARTMENT, JULY 1990

Ministry/Department	Employment		
	Male	Female	Total
Ministry of Home Affairs			
Home Affairs	73	3	76
Survey and Land Records	207	13	220
Registration Division	96	16	112
Dzongkhags	480	38	518
Zonal Administrations	97	9	106
Total Ministry of Home Affairs	953	79	1,032
Ministry of Finance			
Secretariat	89	9	98
National Budget and Accounts	65	9	74
Revenue and Customs	267	89	356
Total Ministry of Finance	421	107	528
Ministry of Communications			
HRH Secretariat Office	13	3	16
Department of Posts and Telecommunication	522	29	551
Department of Information	152	23	175
Department of Civil Aviation and Transport	14	-	14
Department of Roads	773	28	801
Telephone	152	23	175
Total Ministry of Communication	1,626	106	1,732
Ministry of Social Services			
Secretariat	34	1	35
Health Services	947	201	1,148
Education	2,279	406	2,685
Department of Works and Housing	552	25	577
Total Ministry of Social Services	3,812	633	4,445
Ministry of Agriculture			
Secretariat	22	7	29
Animal Husbandry	596	13	609
Forestry	1,083	36	1,119
Food Corporation of Bhutan	230	16	246
Agriculture	796	45	841
Total Ministry of Agriculture	2,727	117	2,844
Ministry of Foreign Affairs	117	20	137

Table 4.2 continued on next page

TABLE 4.2(CONT.) : TYPE OF EMPLOYMENT IN CIVIL SERVICE BY MINISTRY AND DEPARTMEI
JULY 1990

Ministry/Department	Employment		
	Male	Female	Total
Ministry of Trade and Industries			
Secretariat	26	5	31
Trade and Industries	59	8	67
Geology and Mines	82	4	86
Power	520	34	554
State Trading Corporation of Bhutan	104	3	107
Total Ministry of Trade and Industries	791	54	845
Special Commission			
Secretariat	4	5	9
National Library	37	5	42
National Museum	10	2	12
Antiques Preservation	12	-	12
Total Special Commission	63	12	75
Other Non-Ministerial Organisations			
His Majesty's Secretariat	60	-	60
Planning Commission	50	14	64
Royal Civil Service Commission	28	7	35
Royal Audit Authority	68	15	83
Royal Advisory Council	11	-	11
National Assembly	9	2	11
National Women's Association of Bhutan	9	5	14
Judiciary	105	9	114
Bhutan Olympic Committee	17	5	22
Dzongkhag Development Commission	15	6	21
Royal Institute of Management	27	4	31
Total Other Non-Ministerial Organisations	399	63	462
TOTAL CIVIL SERVICE EMPLOYMENT	10,909	1,191	12,100

Source : Royal Civil Service Commission.

TABLE 4.3: POPULATION AGED 15 YEARS AND OVER BY SEX AND PRINCIPAL ECONOMIC ACTIVITY, THIMPHU TOWN, 1990

Principal Economic Activity	MALES		FEMALES		PERSONS	
	No.	%	No.	%	No.	%
Employed						
Agriculture.....	*	*	*	*	*	*
Private business.....	920	28	440	22	1,360	26
Self-employed.....	620	19	400	20	1,030	20
Paid or unpaid employee.....	330	10	*	*	370	7
Government employee.....	2,200	67	660	33	2,860	54
Cottage industries.....	*	*	840	42	840	16
Total employed.....	3,260	100	2,010	100	5,270	100
Total not employed.....	660	..	2,380	..	3,040	..
Total persons 15 years and over.....	3,920	..	4,400	..	8,320	..
Labour force participation rate (%)..	..	83	..	46	..	63

Source : Household Income and Expenditure Survey conducted by Central Statistical Office.

5. LAND USE AND AGRICULTURE

INTRODUCTION

Bhutan is predominantly an agricultural country wi
agriculture being the main subsistence occupation of the majori
of Bhutanese people. For this reason, programs to increase a
improve both the quantity and quality of agricultural produc
and for the country to achieve self-sufficiency in food grai
and to have a marketable surpluses for sale, are of paramou
importance in government planning.

Animal husbandry also plays an integral part in the farmi
system in Bhutan. Farmers keep cattle for draught and milki
purposes, in addition to a few chickens and some pigs f
slaughter. At higher altitudes, herds of yak and sheep are ke
on pasture.

Efforts are under way to improve the statistical system f
agriculture. During 1988 and 1989, the CSO in conjunction wi
with the Department of Agriculture undertook a detailed samp
survey to collect information on crop areas and livesto
inventories in all Dzongkhags. Some data from this surv
(together with data from a pilot Agriculture Census undertaken
Wangdiphodrang in 1987) are presented in this chapter. Data fr
other sources are also presented.

MAIN FEATURES

Bhutan covers a surface area of about 46,500 squar
kilometres. About 71 per cent of the country's total surfac
area consists of forest, 9 per cent is potentially able to
used for cultivation and the rest is wilderness.

During the year 1989/90, irrigation schemes were extended t
cover newly constructed areas of 724 hectares and renovated area
of 2,162 hectares.

According to recent Agronomic Surveys undertaken by th
CSO, there are an estimated 64,770 agricultural holders i
Bhutan. The majority of the holders have less than 5 hectare
of land, an estimated 27 per cent of holders have less than on
hectare, while a further 30 per cent have between one and tw
hectares. Only 10 per cent have five hectares or more.

The main cereal crops grown are paddy, maize, wheat
mustard, barley, buckwheat and millet. The CSO Agronomic Surve
reveals that in 1988 and 1989, the area under paddy, wheat, maiz
and mustard was 26,000, 6,400, 41,900 and 4,100 hectares res
pectively. Similarly, the production of paddy ,wheat, maize an
mustard were estimated to be 43,100, 4,100, 31,100, and 1,30
tonnes respectively. Other cash crops include potatoes, apples
chilies, ginger, oranges and cardamom.

The most important livestock in Bhutan are cattle, yaks,
sheep, poultry and pigs. In 1989, there were about 303,500
cattle, 37,000 yaks, 47,800 sheep, 210,700 poultry and 63,200
pigs.

TABLE 5.1 : AREA ACCORDING TO LAND-USE AND VEGETATION TYPES, 1983(a)

Land-use and vegetation types	Area (`000 hectares)	Percentage
NON-FORESTED		
Non-agricultural		
Perpetual snow/glaciers	400.6	10.0
Barren exposed and rocky areas (above 3500 m)	345.6	8.6
Barren land, grassland and scrubs (below 3500 m)	30.7	0.7
Water spreads	52.3	1.3
Total non-agricultural	829.2	20.6
Agricultural		
Valley cultivation (slope less than 30 percent)	64.9	1.6
Terraced cultivation(slope more than 30 percent)	175.9	4.4
Old shifting cultivation (tsheri)	115.0	2.8
Total agricultural(b)	355.9	8.8
Total non-forested	1,185.1	29.4
FORESTED		
Tree cover		
Fir	295.6	7.3
Mixed conifer	485.4	12.1
Blue pine	75.5	1.9
Chir pine	129.2	3.2
Hardwood mixed with conifers	219.3	5.5
Upland hardwood (temperate)	872.6	21.7
Lowland hardwood (tropical and sub-tropical)	351.4	8.7
Degraded forest	141.6	3.5
Plantations	2.7	0.1
Total tree cover	2,573.4	64.0
Other		
Alpine pasture/meadows	74.8	1.9
Alpine scrub (rhododendron,juniper scrubs)	191.8	4.7
Total other	266.6	6.6
Total forested	2,839.9	70.6
TOTAL SURVEYED AREA	4,025.0	100.0
AREA NOT YET SURVEYED	625.0	..
TOTAL AREA	4,650.0	..

(a) Estimates based on remote sensing. (b) Includes urban centres and other areas which could be potentially be used for agricultural purposes.

Source: Land use survey carried out by Department of Forestry,1983.

TABLE 5.2: AREA ACCORDING TO DIFFERENT LAND USE BY DZONGKHAG, 1983

(`000 hectares)

Dzongkhag	Non-forested			Forested			Total Area Surveyed	Total Area	Percentag Foreste
	Non-Agri-cultural	Agri-cultural	Total	Tree cover	Other	Total			
Ha	26.2	6.4	32.6	117.8	22.6	140.4	173.0	..	81.2
Paro	26.5	14.6	41.1	152.6	19.3	171.9	213.0	..	80.7
Samchi	8.4	48.4	56.8	133.6	4.6	138.2	195.0	..	70.9
Thimphu	31.0	13.9	44.9	215.8	15.3	231.2	276.0	..	83.7
Chirang	3.2	24.0	27.2	61.8	-	61.8	89.0	..	69.5
Daga	2.9	10.5	13.4	77.8	1.8	79.6	93.0	..	85.6
Gasa	313.3	2.3	315.6	103.6	82.8	186.4	502.0	..	37.1
Wangdiphodrang	118.0	19.6	137.6	257.2	30.2	287.4	425.0	..	67.6
Bumthang	135.4	7.0	142.4	123.7	33.9	157.6	300.0	..	52.5
Geylegphug	5.1	24.2	29.3	159.7	-	159.7	189.0	..	84.5
Shemgang	6.2	18.6	24.8	211.9	5.3	217.2	242.0	..	89.8
Tongsa	13.2	14.7	28.0	132.7	14.3	147.0	175.0	..	84.0
Lhuntshi	82.2	18.3	100.5	169.9	19.6	189.5	290.0	..	65.3
Mongar	6.0	20.5	26.5	165.5	-	165.5	192.0	..	86.2
Pemagatsel	0.2	15.2	15.4	33.6	-	33.6	49.0	..	68.5
Samdrupjongkhar	3.5	46.2	49.7	165.3	-	165.3	215.0	..	76.9
Tashigang	48.0	51.3	99.3	290.6	17.1	307.7	407.0	..	75.6
BHUTAN	829.2	355.9	1,185.1	2,573.4	266.6	2,839.9	4,025.0	4,650.0	70.6

Note : Estimates based on remote sensing. See footnote (b) on Table 5.1.

Source: Land use survey carried out by Department of Forestry, 1983.

TABLE 5.3: AREA AND ALTITUDE BY DZONGKHAG, 1990

Dzongkhag	Area (Sq. kilometres) (a)	Altitude (Metres) (b)
Thimphu	2,046	2,320
Zone I		
Chhukha	2,041	2,220
Ha	2,041	2,712
Paro	1,949	2,280
Samchi	1,775	390
Zone II		
Chirang	1,142	1,620
Daga	1,249	1,520
Punakha	5,664	1,220
Wangdiphodrang	5,060	1,260
Zone III		
Bumthang	3,173	2,690
Sarbhang	2,262	210
Shemgang	2,728	1,916
Tongsa	2,100	2,180
Zone IV		
Lhuntshi	3,350	1,460
Mongar	2,087	1,620
Pemagatshel	597	1,200
Samdrupjongkhar	2,464	160
Tashigang	4,772	1,040
BHUTAN	46,500	..

(a) Based on 1:250000 satellite map of Bhutan. (b) From Dzongkhag headquarters.

Source: Survey of Bhutan

TABLE 5.4 : AVERAGE MONTHLY TEMPERATURE FOR VARIOUS STATIONS IN BHUTAN, 1990

(Degrees Celsius)

Dzongkhag	Station	Temperature	Month											
			Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Thimphu	Gidakom	Maximum	n.a	14.5	17.3	19.8	23.4	26.3	25.1	25.2	24.8	n.a	22.0	17.3
		Minimum	n.a	2.0	2.3	6.7	11.6	15.7	16.8	15.8	15.4	n.a	2.5	0.0
	Lingshi	Maximum	8.1	1.5	12.9	7.6	10.6	14.1	13.7	n.a	n.a	n.a	n.a	n.a
		Minimum	-6.5	-8.7	-7.3	-3.8	3.3	6.0	7.5	n.a	n.a	n.a	n.a	n.a
	Simtokha	Maximum	19.1	16.4	n.a	20.5	26.0	28.2	27.6	31.5	31.5	25.6	23.8	n.a
		Minimum	5.0	4.4	n.a	8.7	13.0	17.3	18.4	n.a	20.2	14.1	0.8	n.a
	Taba	Maximum	n.a	n.a	n.a	n.a	21.1	25.4	n.a	22.9	22.6	n.a	n.a	n.a
		Minimum	n.a	n.a	n.a	n.a	9.3	13.6	n.a	12.0	10.9	n.a	n.a	n.a
	Thimphu Agr. Office	Maximum	15.0	12.5	15.8	18.9	23.1	27.0	26.9	27.2	24.8	22.2	21.1	16.5
		Minimum	0.4	1.0	1.1	6.0	10.6	15.0	16.0	15.2	14.2	8.4	0.0	-0.5
	Yusipang	Maximum	15.8	10.2	12.8	17.1	19.2	21.7	21.8	16.6	21.1	16.6	16.5	11.8
		Minimum	2.7	-0.3	0.1	5.4	9.3	13.0	14.0	6.8	12.3	6.8	1.0	-0.8
Chhukha	Chhukha	Maximum	16.9	15.2	16.9	19.9	25.9	n.a	24.3	24.5	24.3	21.8	n.a	18.1
		Minimum	6.6	6.1	7.6	11.6	15.8	18.7	17.1	16.4	16.0	13.1	n.a	7.1
	Gedu	Maximum	10.6	9.2	11.2	14.9	17.9	19.2	18.6	19.4	20.3	15.5	15.7	11.0
		Minimum	6.6	5.6	6.9	10.3	13.9	15.9	16.9	16.8	16.2	12.9	11.1	7.6
	Pana	Maximum	22.5	22.2	24.3	n.a	n.a	28.2	n.a	27.9	n.a	n.a	18.6	n.a
		Minimum	12.7	16.7	17.3	n.a	n.a	23.2	n.a	23.9	n.a	n.a	10.5	n.a
	Tala	Maximum	13.1	12.5	14.0	17.9	22.1	21.9	20.6	21.2	21.6	18.8	n.a	14.4
		Minimum	5.7	5.6	7.4	5.2	13.5	17.0	17.4	17.3	17.0	13.2	n.a	7.0
Ha	Namjeyling	Maximum	n.a	7.6	7.9	12.6	17.5	20.3	n.a	19.7	n.a	15.0	n.a	n.a
		Minimum	n.a	-0.9	-0.6	3.5	8.0	13.0	n.a	12.8	n.a	4.0	n.a	n.a
	Sambey Dzong	Mazimum	11.0	12.9	17.6	16.5	21.4	24.0	23.2	n.a	19.5	20.3	19.5	14.6
		Minimum	1.3	1.1	0.8	5.2	11.2	14.6	15.3	n.a	14.9	7.9	4.5	1.8
Paro	Bitekha	Maximum	13.9	11.4	12.1	13.8	17.7	20.7	20.6	20.5	19.8	16.0	11.7	11.7
		Minimum	2.8	0.4	1.4	5.2	10.0	13.4	14.5	13.3	12.4	6.6	3.3	2.1

NOTE : Temperature data for some stations may not be very accurate.

Table continued on next page

TABLE 5.4 (CONT.): AVERAGE MONTHLY TEMPERATURE FOR VARIOUS STATIONS IN BHUTAN, 1990.

(Degrees Celsius)

Dzongkhag	Station	Temperature	Month											
			Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
	Bondey	Maximum	n.a	14.8	17.6	20.6	23.1	25.7	24.4	24.6	24.7	21.0	21.0	16.5
		Minimum	n.a	0.2	0.8	4.9	10.9	15.1	15.9	13.9	13.6	7.4	-0.2	-0.4
Samchi	Chengmari	Maximum	22.7	22.9	n.a	n.a	n.a	29.7	26.5	28.4	n.a	n.a	n.a	n.a
		Minimum	15.5	12.8	n.a	n.a	n.a	24.0	22.7	22.9	n.a	n.a	n.a	n.a
	Pugli	Maximum	16.8	n.a	n.a	n.a	n.a	27.7	30.5	31.2	23.6	n.a	n.a	n.a
		Minimum	13.1	n.a	n.a	n.a	n.a	24.1	25.2	24.5	20.1	n.a	n.a	n.a
	Samchi(NIE)	Maximum	22.7	n.a	24.8	25.8	29.3	28.6	27.2	28.3	n.a	27.1	28.5	24.0
		Minimum	15.3	n.a	16.4	18.5	21.2	23.8	24.5	24.8	n.a	20.5	19.4	17.3
	Sibsu	Maximum	22.5	21.1	n.a	n.a	n.a	29.6	n.a	28.9	n.a	28.2	29.6	21.5
		Minimum	14.1	15.5	n.a	n.a	n.a	18.9	n.a	22.5	n.a	21.1	22.7	13.8
	Tendu	Maximum	17.9	16.4	19.2	23.4	24.3	24.7	24.5	26.2	25.3	23.2	23.9	19.5
		Minimum	10.4	10.9	12.0	14.6	17.4	18.9	20.7	20.7	20.0	16.4	13.3	10.2
	Dorokha	Maximum	13.2	15.3	17.7	19.4	23.1	23.5	23.5	24.7	28.1	22.3	21.0	n.a
		Minimum	7.4	9.2	10.6	12.1	15.8	18.8	20.1	20.4	24.1	15.6	11.7	n.a
Chirang	Damphu	Maximum	14.1	13.8	n.a	16.9	18.5	21.3	21.3	n.a	n.a	n.a	n.a	n.a
		Minimum	3.8	5.6	n.a	14.2	16.9	19.4	19.5	n.a	n.a	n.a	n.a	n.a
	Lamidara	Maximum	n.a	n.a	n.a	n.a	n.a	n.a	23.5	24.5	n.a	n.a	n.a	n.a
		Minimum	n.a	n.a	n.a	n.a	n.a	n.a	17.8	18.1	n.a	n.a	n.a	n.a
Daga	Dagadzong	Maximum	13.4	12.6	15.4	18.9	22.5	24.2	22.6	22.5	n.a	20.4	12.1	n.a
		Minimum	7.0	6.8	7.4	10.1	14.4	17.8	16.1	15.7	n.a	11.9	5.4	n.a
	Drujeygang	Maximum	17.3	16.9	18.6	21.2	25.0	25.7	24.5	25.2	n.a	n.a	21.1	18.3
		Minimum	9.7	10.1	12.0	14.7	18.3	19.6	19.5	19.3	n.a	n.a	11.0	8.2
	Tashithang	Maximum	17.4	15.6	17.9	20.1	22.9	24.4	23.9	24.3	n.a	21.2	21.2	17.5
		Minimum	6.7	7.4	8.5	12.3	15.5	18.7	20.8	18.0	n.a	13.4	10.1	7.5

NOTE : Temperature data for some stations may not be very accurate.

Table continued on next page

TABLE 5.4 (CONT.): AVERAGE MONTHLY TEMPERATURE FOR VARIOUS STATIONS IN BHUTAN, 1990.

(Degrees Celsius)

Dzongkhag	Stations	Temperature / Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	De
Punakha	Gasakhatey	Maximum	n.a	13.8	12.1	16.5	20.2	18.2	20.3	20.3	n.a	n.a	25.0	25
		Minimum	n.a	2.8	3.9	5.8	9.2	10.9	12.8	11.7	n.a	n.a	4.2	4
	Shelgana	Maximum	16.4	18.2	20.3	24.2	n.a	n.a	n.a	n.a	24.5	25.8	23.1	23
		Minimum	3.3	4.6	6.3	10.9	n.a	n.a	n.a	n.a	15.7	16.7	9.2	9
	Punakha Dzong	Maximum	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	28.3	25.5	n.a	24
		Minimum	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	20.7	16.2	n.a	7
Wangdi-phodrang	Daga Uma	Maximum	15.3	16.8	n.a	20.4	n.a	27.9	29.9	n.a	n.a	n.a	n.a	18
		Minimum	5.3	6.5	6.4	9.3	n.a	18.5	19.2	n.a	n.a	n.a	n.a	6
	Gaselo	Maximum	14.3	15.1	17.4	19.4	22.8	25.0	25.6	25.4	25.1	22.9	n.a	15
		Minimum	5.5	7.4	7.7	9.9	12.8	15.4	16.4	16.1	15.1	12.0	n.a	5
	Nobding	Maximum	9.6	9.3	13.1	16.5	19.4	21.7	20.0	19.4	18.2	15.5	15.0	10
		Minimum	-2.8	0.9	2.5	6.0	10.3	13.7	12.9	12.9	11.7	6.6	3.4	1
	Phubjikha	Maximum	8.8	7.4	10.4	13.3	16.4	18.5	19.3	17.8	18.6	15.4	13.0	13
		Minimum	-3.6	-3.7	1.2	4.1	7.3	11.2	11.7	10.8	10.5	4.8	-2.5	-3
	Samtengang	Maximum	15.7	14.8	15.1	16.8	24.3	26.9	25.6	26.7	26.7	23.4	22.0	16
		Minimum	5.7	4.7	6.6	11.2	14.3	18.0	16.7	16.5	16.3	11.4	6.3	5
	Wangdi(CARD)	Maximum	18.7	17.2	21.1	24.7	27.5	28.6	27.8	28.5	27.2	24.6	23.6	21
		Minimum	8.0	8.9	9.7	15.0	17.8	20.5	20.6	20.5	19.9	14.5	7.6	5
Sarbhang	Bhur	Maximum	22.4	21.7	24.8	24.9	29.5	30.4	29.3	30.6	28.9	28.2	28.9	24
		Minimum	12.9	12.9	15.9	18.0	21.7	24.1	23.5	23.5	22.6	18.0	15.5	12
	Kalikhola	Maximum	n.a	n.a	26.6	28.5	32.1	30.5	32.4	32.5	n.a	n.a	n.a	n.
		Minimum	14.4	15.4	17.0	20.3	21.4	24.6	25.4	25.6	n.a	n.a	n.a	n.
	Maugoan	Maximum	14.0	13.6	15.2	17.6	21.7	22.2	23.1	23.0	22.6	18.9	19.8	17.
		Minimum	9.9	10.5	10.8	13.5	17.6	19.4	19.3	19.3	19.3	14.9	13.9	13.
	Sarbhang	Maximum	n.a	n.a	25.5	25.4	30.5	29.0	n.a	30.4	n.a	26.7	28.2	n.
		Minimum	n.a	n.a	16.7	18.5	23.6	24.4	n.a	23.1	n.a	18.3	16.4	n.
	Surey	Maximum	15.1	14.2	16.9	20.7	23.9	24.0	23.7	24.5	23.5	22.7	22.4	n.
		Minimum	11.8	10.8	12.0	17.2	21.1	21.5	21.1	21.4	21.4	18.3	16.9	n.
	Thoembatar	Maximum	n.a	n.a	21.7	26.7	30.3	30.0	n.a	n.a	n.a	n.a	n.a	n.
		Minimum	n.a	n.a	15.9	15.3	21.7	24.2	n.a	n.a	n.a	n.a	n.a	n.

NOTE : Temperature data for for some stations may not be very accurate.

Table continued on next page

TABLE 5.4 (CONT.): AVERAGE MONTHLY TEMPERATURE FOR VARIOUS STATIONS IN BHUTAN, 1990.

(Degrees Celsius)

Dzongkhag	Station	Temperature	Month										
			Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Shemgang	Buli	Maximum	15.1	12.8	16.4	18.3	22.1	23.7	23.6	24.1	23.4	20.6	20.6	n.a
		Minimum	6.1	5.8	7.3	10.8	14.9	18.2	17.8	17.5	16.3	11.6	6.8	n.a
	Panbang	Maximum	25.0	23.6	25.2	26.7	30.6	30.5	n.a	31.5	30.5	29.4	30.1	n.a
		Minimum	12.0	12.9	14.9	18.4	22.0	24.6	n.a	24.8	23.8	20.2	14.2	n.a
	Shemgang(W/T)	Maximum	11.7	10.2	13.0	16.6	20.7	22.5	22.4	22.8	22.8	22.7	13.0	16.0
		Minimum	5.0	4.4	5.6	9.3	12.7	15.9	15.9	15.7	14.7	10.3	6.6	4.7
	Yebilapcha	Maximum	23.2	22.4	n.a	29.0	n.a	35.3	n.a	n.a	n.a	32.3	31.0	24.2
		Minimum	9.8	9.0	10.3	14.9	17.5	20.1	n.a	20.5	n.a	15.5	10.7	9.7
Tongsa	Kuengarabten	Maximum	17.8	16.4	18.6	20.8	23.9	25.1	24.2	25.3	24.2	22.0	22.5	n.a
		Minimum	7.0	6.5	7.6	11.6	15.4	17.9	18.3	18.1	17.1	12.5	9.4	n.a
	Langthel	Maximum	20.6	15.1	20.0	25.2	28.2	28.7	29.1	29.9	29.3	25.3	24.7	25.6
		Minimum	8.6	7.4	9.8	14.2	16.5	19.9	18.8	23.0	22.3	19.9	13.2	12.3
	Tongsa	Maximum	12.2	11.6	14.5	16.9	19.5	21.4	21.1	20.9	20.3	n.a	n.a	12.9
		Minimum	3.0	1.0	2.1	5.8	10.3	14.0	14.1	14.1	13.2	n.a	n.a	2.3
Bumthang	Chamkhar	Maximum	13.3	12.5	14.9	16.7	20.6	22.9	22.7	23.0	n.a	18.0	18.2	14.2
		Minimum	1.5	1.9	2.5	2.5	10.0	14.2	14.4	13.8	n.a	8.6	0.6	n.a
	Chhumey	Maximum	n.a	n.a	n.a	n.a	19.3	21.3	20.5	20.7	n.a	16.9	16.8	n.a
		Minimum	n.a	n.a	n.a	n.a	6.6	10.5	11.8	10.6	n.a	4.2	-3.8	n.a
	Ura	Maximum	n.a	n.a	n.a	10.9	15.1	19.1	18.1	18.1	n.a	12.9	12.2	8.4
		Minimum	n.a	n.a	n.a	-0.4	4.4	7.2	8.2	7.5	n.a	-1.1	-3.8	-5.7
Tashigang	Kanglung	Maximum	12.9	11.5	14.7	17.3	21.8	23.2	22.4	23.3	n.a	18.8	18.3	14.0
		Minimum	3.6	2.6	5.7	7.7	13.9	17.4	17.7	17.1	n.a	12.1	7.9	5.8
	Khaling	Maximum	n.a	11.6	13.4	19.3	20.5	22.1	18.7	22.9	n.a	n.a	18.3	13.3
		Minimum	n.a	4.0	5.7	9.8	12.3	15.4	14.0	15.6	n.a	n.a	6.9	4.8
	Radhi	Maximum	19.9	19.1	n.a	21.3	n.a	n.a	24.3	n.a	24.8	n.a	n.a	n.a
		Minimum	8.1	6.9	n.a	10.8	n.a	n.a	17.4	n.a	18.2	n.a	n.a	n.a
	Rangtyangwong	Maximum	n.a	n.a	20.2	18.2	23.1	27.7	24.4	n.a	n.a	25.8	12.3	17.4
		Minimum	n.a	n.a	6.8	9.3	14.5	17.1	18.1	n.a	n.a	12.0	4.4	5.5
	Thrimshing	Maximum	16.2	n.a	20.4	23.7	25.5	27.1	27.2	27.7	27.9	n.a	n.a	18.9
		Minimum	3.7	n.a	6.7	10.2	15.0	18.6	17.5	17.0	17.1	n.a	n.a	n.a
	Tashiyangsthi	Maximum	16.8	15.4	18.4	21.2	25.4	26.6	25.8	26.1	25.6	22.4	20.0	15.6
		Minimum	7.3	7.4	9.8	12.9	14.9	19.9	20.0	19.4	18.7	13.5	5.4	4.7
	Wamrong	Maximum	11.5	9.1	11.9	14.1	18.2	20.1	20.3	21.2	21.1	18.0	18.6	14.5
		Minimum	3.5	3.0	4.8	7.9	11.7	14.5	15.1	15.4	14.3	10.8	8.4	5.1
	Yallang	Maximum	n.a	n.a	n.a	13.4	17.1	20.7	20.2	20.4	n.a	17.0	11.6	n.a
		Minimum	5.6	n.a	n.a	9.9	13.8	17.0	18.6	16.9	n.a	12.4	8.8	n.a

NOTE: Temperature data for some stations may not be very accurate.

Table 5.4 continued on next page

TABLE 5.4 (CONT.): AVERAGE MONTHLY TEMPERATURE FOR VARIOUS STATIONS IN BHUTAN, 1990.

(Degrees Celsius)

Dzongkhag	Station	Temperature	Month										
			Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
Mongar	Kengkhar	Maximum	n.a	n.a	n.a	n.a	n.a	n.a	28.2	n.a	n.a	n.a	n.a
		Minimum	n.a	n.a	n.a	n.a	n.a	n.a	19.5	n.a	n.a	n.a	n.a
	Lingmethang	Maximum	22.6	23.6	25.7	26.5	31.2	31.8	32.2	32.9	31.6	28.9	28.6
		Minimum	12.4	12.9	13.4	15.9	19.1	22.3	22.7	22.3	21.9	16.5	11.1
	Chakaling	Maximum	17.5	16.2	19.6	20.3	25.2	27.0	26.7	27.4	n.a	23.4	23.6
		Minimum	7.5	7.4	8.5	11.7	15.7	18.7	21.0	20.2	n.a	13.6	10.7
	Yadi	Maximum	16.4	15.3	17.2	18.5	24.2	25.2	24.9	25.7	24.7	21.5	20.9
		Minimum	9.3	8.4	9.1	11.4	14.5	18.0	18.6	17.8	17.2	12.3	7.4
	Chaskar	Maximum	n.a	n.a	n.a	n.a	23.3	27.7	n.a	n.a	n.a	21.9	n.a
		Minimum	n.a	n.a	n.a	n.a	14.3	18.9	n.a	n.a	n.a	10.6	n.a
Lhuntshi	Dungkhar	Maximum	14.8	16.3	17.2	19.6	21.6	25.2	23.6	24.1	22.9	20.6	19.3
		Minimum	3.7	3.2	8.8	10.0	11.9	15.1	16.6	16.1	15.3	12.2	6.1
	Tangmachu	Maximum	15.9	13.4	17.7	20.1	n.a	n.a	n.a	25.6	n.a	20.6	n.a
		Minimum	7.1	6.6	8.0	11.6	n.a	n.a	n.a	18.8	n.a	12.4	n.a
Pemagatsel	Dungmain	Maximum	n.a	16.6	17.3	19.7	23.3	24.7	24.1	24.5	24.5	20.1	18.1
		Minimum	n.a	10.4	12.9	13.2	17.9	18.9	17.4	17.6	16.7	12.3	8.2
	Yurung	Maximum	12.3	11.3	n.a	17.3	21.0	n.a	22.2	n.a	n.a	19.3	17.7
		Minimum	6.1	6.0	7.1	9.8	13.9	n.a	17.1	n.a	n.a	11.3	7.8
Samdrup-jongkhar	Arong	Maximum	14.6	14.8	17.5	20.6	24.1	25.7	25.2	25.2	24.0	19.6	19.8
		Minimum	9.1	9.0	10.9	14.0	18.4	20.1	18.5	18.4	17.4	13.5	11.5
	Bakuli	Maximum	n.a	n.a	n.a	27.1	32.6	33.4	30.2	30.6	29.6	n.a	n.a
		Minimum	n.a	n.a	n.a	19.9	23.3	24.9	24.7	24.1	23.7	n.a	n.a
	Daifam	Maximum	24.5	23.4	24.8	26.6	30.5	30.5	31.3	31.6	30.5	28.4	30.1
		Minimum	14.8	14.8	16.7	18.2	21.9	24.3	24.5	24.6	23.6	20.7	18.3
	Dechenling	Maximum	18.1	n.a	19.4	18.1	23.4	22.7	24.4	24.8	23.6	22.6	22.5
		Minimum	4.0	n.a	11.1	14.0	18.4	18.2	18.1	18.8	18.9	18.5	14.7
	Nanglam	Maximum	21.4	19.2	22.1	23.3	26.6	n.a	n.a	30.4	n.a	25.2	n.a
		Minimum	11.9	n.a	15.1	18.7	23.4	n.a	n.a	25.5	n.a	20.9	n.a
	Shingkhar-louri	Maximum	17.6	n.a	18.8	22.2	24.7	26.4	26.0	26.9	25.7	22.6	22.7
		Minimum	7.3	n.a	8.7	14.8	16.9	20.2	19.6	19.6	18.6	15.1	8.8

NOTE: Temperature data for some stations may not be very accurate.

Source : Department of Agricilture.

TABLE 5.5 : AVERAGE MONTHLY RAINFALL DATA FOR VARIOUS STATIONS IN BHUTAN, 1990

Rainfall in millimeter

Dzongkhag	Station	Month												
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Total Rainfall
Thimphu	Gidakom	n.a	11.4	35.0	63.6	35.9	58.1	131.9	104.5	45.6	n.a	-	-	486.0
	Lingshi	-	n.a	n.a	0.3	49.7	74.0	37.8	n.a	n.a	n.a	n.a	n.a	161.8
	Simtokha	-	9.3	n.a	55.4	29.6	114.4	174.4	83.7	53.1	36.7	-	-	556.6
	Taba	n.a	n.a	n.a	n.a	65.7	133.5	n.a	84.6	126.0	n.a	n.a	n.a	409.8
	Thimphu Agri. Office	-	13.5	27.5	62.2	20.4	148.8	228.7	141.5	120.2	50.9	-	0.0	813.7
	Yusipang	-	17.6	39.2	72.2	5.2	159.0	152.0	91.9	148.5	64.8	-	0.0	750.4
Chhukha	Chhukha	1.4	84.8	95.1	211.8	136.3	282.0	238.4	235.0	222.7	54.6	0.6	-	1,562.7
	Gedu	11.0	511.6	274.8	745.4	474.2	988.2	598.4	638.2	359.6	172.4	0.8	-	4,774.6
	Pana	3.0	103.6	130.2	-	430.0	115.0	n.a	868.6	n.a	n.a	n.a	n.a	1,650.4
	Tala	9.0	230.2	226.0	502.2	249.3	942.2	530.6	460.2	250.0	106.0	-	-	3,505.7
Ha	Namjeyling	n.a	-	73.0	64.5	50.2	121.3	n.a	144.4	n.a	68.2	n.a	n.a	521.6
	Sambaydzong	16.0	9.4	27.0	79.8	97.0	277.4	442.0	n.a	399.9	23.8	-	7.0	1,379.3
Paro	Bitekha	3.0	5.0	73.0	57.0	11.0	22.0	26.5	24.0	24.5	18.5	-	-	264.5
	Bondey	-	15.2	27.0	63.6	49.2	55.2	116.8	137.4	67.0	45.8	-	-	577.2
Samchi	Chengmari	10.0	29.0	n.a	n.a	n.a	825.0	1,072.0	721.4	n.a	n.a	n.a	n.a	2,657.4
	Pugli	7.0	n.a	n.a	-	n.a	887.0	1,027.0	424.0	400.4	88.0	n.a	n.a	2,833.4
	Samchi (NIE)	1.5	n.a	100.5	429.5	481.1	1,064.2	887.7	443.8	n.a	99.6	-	-	3,507.9
	Sibsu	5.8	80.9	n.a	276.1	471.6	1,001.9	n.a	1,019.4	n.a	130.5	-	-	2,986.2
	Tendu	5.0	36.1	83.3	119.6	129.8	641.5	1,014.5	780.5	544.6	131.6	-	-	3,486.5
	Dorokha	-	111.5	281.5	633.5	225.1	688.6	752.9	475.5	903.0	142.4	-	n.a	4,214.0
Chirang	Damphu	3.0	41.0	n.a	183.3	121.4	449.1	704.1	n.a	n.a	n.a	n.a	n.a	1,501.9
	Lamidara	-	n.a	n.a	n.a	n.a	n.a	779.4	244.9	n.a	n.a	n.a	n.a	1,024.3
Daga	Dagadzong	-	35.2	12.3	110.0	96.7	190.3	339.2	314.9	n.a	7.0	-	n.a	1,105.6
	Drujeygang	-	52.7	33.4	128.6	87.0	462.5	576.9	216.6	n.a	n.a	-	-	1,557.7
	Tashithang	-	46.6	8.0	108.2	83.8	393.0	395.4	307.0	n.a	171.2	-	-	1,513.2
Punakha	Gasakhatey	-	96.8	61.3	78.3	80.2	73.8	485.4	178.9	n.a	n.a	-	-	1,054.7
	Shelgana	65.6	63.7	8.0	191.0	321.4	417.6	495.1	n.a	644.3	152.5	-	-	2,359.2
Wangdipho-drang	Daga Uma	9.0	28.2	3.2	65.2	62.3	146.2	405.3	n.a	n.a	n.a	n.a	n.a	719.4
	Gaselo	0.7	37.0	16.0	36.0	35.5	55.5	82.0	58.5	49.0	38.0	n.a	n.a	408.2
	Nobding	-	16.3	38.4	123.0	151.0	260.2	453.6	278.1	275.2	70.4	6.8	-	1,673.0
	Phubjikha	-	24.4	28.0	59.0	90.4	105.6	417.5	267.2	159.6	51.8	-	n.a	1,203.5
	Samtengang	-	19.8	10.2	75.0	129.4	239.4	252.4	105.6	95.4	22.2	-	-	949.4
	Wangdi (CARD)	-	23.1	20.1	56.7	34.1	124.2	207.7	106.2	138.1	66.0	-	14.5	790.7

NOTE : Rainfall data for some stations may not be very accurate.

Table continued on next page

TABLE 5.5 (CONT.): AVERAGE MONTHLY RAINFALL DATA FOR VARIOUS STATIONS IN BHUTAN, 1990

Rainfall in millimeters

Dzongkhag	Station	Month											
		Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
Sarbhang	Bhur	13.2	146.6	66.6	316.7	820.8	1,149.9	1,068.3	1,019.7	1,155.6	260.0	-	1.0
	Kalikhola	2.2	130.0	143.4	398.8	539.1	1,383.8	1,377.4	851.9	n.a	n.a	n.a	n.a
	Maugoan	15.4	96.8	87.0	140.8	212.5	710.4	506.1	400.1	311.5	246.0	-	34.0
	Sarbhang	n.a	n.a	26.0	370.1	366.8	1,407.4	n.a	840.3	n.a	307.1	-	n.a
	Surey	35.6	200.0	278.0	257.8	459.1	1,028.9	794.5	608.4	640.0	211.0	-	n.a
Shemgang	Buli	21.0	609.4	92.5	168.4	166.7	327.5	432.3	288.1	238.8	143.2	-	n.a
	Panbang	7.0	163.6	84.5	395.2	401.0	1,190.2	n.a	839.2	1,147.0	229.1	-	n.a
	Shemgang(W/T)	-	53.1	56.0	107.8	80.8	293.6	486.4	200.0	255.2	119.6	-	-
	Yebilapcha	1.5	25.9	60.8	75.7	81.4	292.1	434.4	249.5	n.a	187.5	-	3.8
Tongsa	Kuengarabten	0.4	28.2	38.5	64.8	108.7	256.5	373.2	256.1	249.6	198.6	-	n.a
	Langthel	0.1	37.0	28.6	71.3	69.5	161.2	342.0	200.8	270.5	130.9	-	-
	Tongsa	2.0	41.4	42.4	86.0	331.0	153.4	274.4	194.2	203.8	103.2	23.8	4.4
Bumthang	Chamkhar	-	12.4	29.6	71.1	71.1	72.8	231.0	132.8	n.a	88.0	-	-
	Chhumey	-	-	n.a	n.a	65.4	140.4	299.2	134.8	n.a	293.0	-	n.a
	Ura	-	-	4.4	49.4	50.2	65.2	226.6	113.3	n.a	96.3	1.2	-
Tashigang	Kanglung	1.3	62.9	46.7	125.0	61.0	209.6	226.7	131.2	n.a	168.1	-	-
	Khaling	n.a	82.0	83.4	266.5	132.0	379.7	324.5	208.8	n.a	242.4	-	-
	Radhi	5.0	24.8	n.a	111.3	87.2	247.1	332.2	n.a	173.3	n.a	n.a	n.a
	Rangtyangwoong	n.a	n.a	21.7	195.1	87.7	119.8	102.5	n.a	n.a	-	-	-
	Thrimshing	34.7	n.a	85.3	235.1	105.6	306.0	335.0	14.0	34.9	n.a	n.a	9.8
	Tashiyangsthi	5.6	19.4	-	122.6	110.2	185.3	212.2	189.4	175.6	141.2	-	-
	Wamrong	28.1	87.6	88.6	237.6	254.0	565.8	385.4	251.6	286.2	232.4	-	15.1
	Yallang	-	68.0	71.0	192.2	88.0	81.0	248.2	153.2	n.a	126.0	4.6	n.a
Mongar	Kengkhar	n.a	n.a	n.a	78.0	202.0	164.6	271.8	n.a	n.a	n.a	n.a	n.a
	Lingmethang	16.4	26.8	43.0	137.2	61.0	199.6	171.0	149.0	190.6	133.4	-	5.0
	Chakaling	6.8	22.2	65.4	137.0	60.0	144.1	193.6	177.4	n.a	157.9	-	-
	Yadi	2.2	41.8	41.4	128.8	88.0	145.8	145.7	131.8	176.2	164.1	-	-
	Chaskar	n.a	n.a	n.a	n.a	76.3	186.0	n.a	n.a	n.a	157.9	n.a	n.a
Lhuntshi	Dungkhar	-	26.0	76.7	113.7	100.5	189.8	275.4	273.8	278.0	143.0	-	8.0
	Tangmachu	5.6	12.8	18.0	68.2	n.a	n.a	n.a	117.2	n.a	92.6	n.a	n.a
Pemagatsel	Dungmain	19.5	62.5	81.8	404.3	217.2	1,109.9	297.3	404.4	407.4	448.5	-	2.4
	Yurung	22.4	73.4	68.2	198.0	167.4	549.1	297.3	n.a	n.a	211.2	-	-
Samdrup-jongkhar	Arong	17.0	111.5	98.0	315.0	421.0	1,015.0	1,143.0	545.0	695.0	312.0	-	-
	Bakuli	n.a	n.a	n.a	265.5	358.6	865.6	363.6	262.9	344.4	n.a	n.a	n.a
	Daifam	39.5	65.9	73.5	294.2	374.0	541.8	368.1	335.4	338.5	340.4	-	-
	Dechenling	18.0	99.0	92.4	198.7	229.1	949.0	523.0	501.0	366.0	181.8	-	n.a
	Nanglam	17.6	154.6	118.2	377.0	494.2	1,273.8	n.a	1,030.0	n.a	296.0	n.a	n.a
	Shingkhar-louri	2.0	n.a	33.2	114.9	75.1	183.6	207.8	115.0	95.2	161.8	-	0.8

NOTE : Rainfall data for some stations may not be very accurate

Source : Department of Agriculture.

TABLE 5.6: IRRIGATION SCHEMES COMPLETED DURING 1989/90 BY DZONGKHAG

	New construction			Renovation		
	No. of schemes	Length of channel (Km)	Command area (hectares)	No. of schemes	Length of channel (Km)	Command area (hectares)
Thimphu	-	-	-	3	6.5	323.9
Chhukha	1	2.9	164.0	1	3.5	121.5
Ha	2	2.9	143.7	1	1.0	11.9
Paro	1	4.3	56.7	4	12.7	113.1
Samchi	-	-	-	4	9.4	310.3
Chirang	-	-	-	2	3.3	72.9
Daga	-	-	-	2	2.9	59.7
Punakha	-	-	-	2	4.1	85.4
Wangdiphodrang	2	15.5	291.5	4	13.4	233.7
Bumthang	-	-	-	-	-	-
Sarbhang	-	-	-	3	6.0	91.9
Shemgang	-	-	-	1	1.8	7.3
Tongsa	-	-	-	2	5.6	32.4
Lhuntshi	-	-	-	1	2.7	121.5
Mongar	-	-	-	-	-	-
Pemagatsel	-	-	-	1	2.0	34.4
Samdrupjongkhar	1	1.4	68.0	2	6.9	487.9
Tashigang	-	-	-	1	1.2	54.3
BHUTAN	7	27.0	723.9	34	83.0	2,162.1

Source : Department of Agriculture.

TABLE 5.7: LAND UNDER AGRICULTURAL USE BY ZONE AND DZONGKHAG,1988/89(a)

('000 hectares)

Dzongkhag	Wet Land	Dry Land	Tsheri Pangshing	Kitchen Garden	Orchard & Plantation	Others (b)	Tota Are
Thimphu	0.8	0.5	0.1	-	-	6.9	
ZONE I							
Chhukha	1.1	3.1	4.4	-	0.7	8.2	1
Ha	0.1	0.8	0.3	-	0.3	8.2	
Paro	1.5	1.6	0.2	0.1	0.2	3.4	
Samchi	4.8	7.9	4.3	0.2	3.7	2.3	2
Total Zone I	7.5	13.4	9.2	0.3	4.9	22.1	5
ZONE II							
Chirang	3.2	7.2	0.6	0.3	2.2	0.4	1
Daga	0.8	2.6	0.8	-	0.2	2.7	
Punakha	1.6	0.4	-	-	-	8.3	1
Wangdiphodrang	1.3	0.9	0.3	0.1	-	na	
Total Zone II	6.9	11.1	1.7	0.4	2.4	11.4	3
ZONE III							
Bumthang	*	1.1	1.9	-	-	14.1	1
Geylegphug	4.8	7.5	0.9	0.2	1.8	0.3	1
Shemgang	0.7	1.6	3.3	-	0.3	5.6	1
Tongsa	0.7	0.8	0.8	-	0.2	4.0	
Total Zone III	6.2	11.0	6.9	0.2	2.3	24.0	5
ZONE IV							
Lhuntshi	0.8	1.6	1.6	-	-	1.0	
Mongar	0.4	2.9	1.9	-	-	1.7	
Pemagatsel	-	1.6	1.7	-	-	0.3	
Samdrupjongkhar(c)	1.9	4.2	3.6	-	0.1	0.4	1
Tashigang	2.3	8.6	6.1	-	0.2	64.2	8
Total Zone IV	5.4	18.9	14.9	0.0	0.3	67.6	10
BHUTAN	26.8	54.9	32.8	0.9	9.9	132.0	25

(a) Thimphu, Zone I and Zone II estimates are based on 1988 survey. Zone III and Zone IV based on 1 survey. Wangdiphodrang based on 1987 survey. (b) Includes area for Tsamdok and Sokshing. (c) Exclu areas of an estimated 920 agricultural holders in Samdrupjongkhar which were excluded from the surv

Source : Agronomic Survey undertaken by Central Statistical Office.

TABLE 5.8 : HOLDERS BY SIZE OF HOLDING AND DZONGKHAG, 1988/89(a)

Dzongkhag	Size of land holding(hectares)							Land Holders	All Holders
	0.01-0.49	0.50-0.99	1.00-1.49	1.50-1.99	2.00-2.99	3.00-4.99	5 & over		
Thimphu	490	540	320	160	150	110	*	1,800	1,830
ZONE I									
Chhukha	170	230	580	350	550	600	790	3,270	3,290
Ha	120	190	170	*	110	*	220	920	930
Paro	170	400	440	360	440	360	130	2,280	2,320
Samchi	390	860	1,020	920	1,790	1,590	1,060	7,640	7,640
Total Zone I	850	1,680	2,210	1,630	2,890	2,550	2,200	14,110	14,180
ZONE II									
Chirang	140	750	1,040	750	1,420	1,180	440	5,710	5,710
Daga	*	240	240	220	360	480	190	1,790	1,790
Punakha	250	420	480	280	230	*	120	1,850	1,860
Wangdiphodrang	600	780	540	270	210	*	*	2,470	2,590
Total Zone II	990	2,190	2,300	1,520	2,220	1,660	750	11,820	11,950
ZONE III									
Bumthang	110	160	150	*	180	180	260	1,130	1,170
Geylegphug	200	400	710	900	1,610	1,010	730	5,570	5,580
Shemgang	*	*	180	270	400	480	400	1,830	1,830
Tongsa	150	240	300	120	160	170	150	1,290	1,320
Total Zone III	460	800	1,340	1,290	2,350	1,840	1,540	9,820	9,900
ZONE IV									
Lhuntshi	410	570	410	250	300	340	200	2,480	2,480
Mongar	570	1,220	1,020	660	450	270	100	4,300	4,300
Pemagatsel	230	750	680	420	260	110	*	2,490	2,500
Samdrupjongkhar	170	590	550	610	1,010	820	350	4,100	4,110
Tashigang	1,730	3,190	2,440	1,450	1,790	990	970	12,560	12,600
Total Zone IV	3,110	6,320	5,100	3,390	3,810	2,530	1,660	25,930	25,990
BHUTAN	5,900	11,530	11,270	7,990	11,420	8,690	6,150	63,480	63,850

(a) See footnote (a) on Table 5.6. (b) For Samdrupjongkhar, size data were not available for an estimated 920 holders. These have been excluded from the table.

Source : Agronomic Survey undertaken by Central Statistical Office.

TABLE 5.9 : HOLDERS, AREA, PRODUCTION AND YIELD OF MAJOR CROPS BY DZONGKHAG, 1988/89(a)

Dzongkhag	Paddy				Wheat				Maize				Mustard			
	Holders	Area (ha.)	Production (tonnes)	Yield/ha. (Kg.)	Holders	Area (ha.)	Production (tonnes)	Yield/ha. (Kg.)	Holders	Area (ha.)	Production (tonnes)	Yield/ha. (Kg.)	Holders	Area (ha.)	Production (tonnes)	Yield/ha. (Kg.)
Thimphu	1,240	760	1,850	2,420	1,220	400	260	660	240	30	10	500	530	70	20	330
Chhukha	1,820	920	950	1,030	1,100	310	220	700	2,570	1,830	680	370	1,650	300	80	270
Ha	150	90	80	880	820	460	230	510	140	70	40	540	*	*	*	*
Paro	1,790	1,460	2,400	1,640	2,110	1,250	650	520	*	*	*	*	640	120	50	390
Samchi	5,850	4,400	5,740	1,310	1,290	250	130	500	7,320	7,540	2,490	330	1,670	230	80	340
TOTAL ZONE 1	9,610	6,870	9,170	1,330	5,320	2,270	1,230	540	10,110	9,450	3,210	340	4,050	660	210	320
Chirang	4,110	3,050	4,510	1,480	1,880	340	170	490	5,550	6,380	2,910	460	3,380	610	170	270
Daga	1,280	790	1,070	1,360	200	80	40	500	1,500	2,360	890	380	1,180	320	100	310
Punakha	1,680	1,600	4,290	2,670	1,540	420	230	560	340	80	60	770	1,050	160	50	310
Wangdiphodrang	1,740	1,250	na	na	1,980	790	na	na	380	60	na	na	1,030	110	na	na
TOTAL ZONE 2	8,810	6,690	13,210	1,970	5,600	1,630	880	540	7,770	8,880	3,910	440	6,640	1,200	350	300
Bumthang	*	*	*	*	760	260	150	570	130	10	20	1,160	*	*	*	*
Geylegphug	4,520	4,690	7,120	1,520	1,010	390	400	1,030	5,150	6,990	2,650	380	1,630	560	160	280
Shemgang	1,540	770	900	1,170	590	200	150	780	1,800	1,060	1,250	1,180	430	170	50	290
Tongsa	1,160	600	820	1,370	850	270	180	640	970	380	270	720	290	40	10	390
TOTAL ZONE 3	7,260	6,080	8,860	1,460	3,220	1,120	880	790	8,050	8,450	4,190	500	2,430	790	230	290
Lhuntshi	2,010	800	1,640	2,050	580	150	170	1,090	2,290	1,140	2,480	2,170	380	70	30	440
Mongar	2,200	470	470	980	610	130	60	470	4,260	2,570	4,530	1,760	450	80	30	400
Pemagatsel	870	120	110	960	960	160	100	630	2,390	860	920	1,060	330	30	20	600
Samdrupjongkhar	2,660	2,030	2,910	1,430	460	60	30	490	4,900	4,700	2,650	560	2,190	690	180	260
Tashigang	8,420	2,210	4,930	2,230	2,890	490	460	940	11,460	5,810	9,230	1,590	3,780	500	280	550
TOTAL ZONE 4	16,150	5,630	10,050	1,780	5,500	1,000	820	820	25,300	15,080	19,810	1,310	7,120	1,360	530	390
TOTAL BHUTAN	43,070	26,030	43,140	1,660	20,860	6,420	4,080	640	51,470	41,890	31,130	740	20,770	4,080	1,340	330

(a) See footnote (a) on Table 5.6.

Table 5.10 : ANNUAL CROPS, NUMBER OF HOLDERS HARVESTING EACH CROP AND AREA HARVESTED, BHUTAN, 1988-89

Crop	Number of Holders	Per cent holders	Crop area (hectares)
Cereals			
Rice	43,070	66.5	26,030
Maize	51,470	79.5	41,890
Wheat	20,860	32.2	6,420
Buckwheat	27,170	41.9	7,190
Barley	12,150	18.8	2,580
Millet	27,210	42.0	7,570
Other Cereals	6,620	10.2	1,370
All Cereals	62,490	96.5	93,060
Legumes			
Soya Beans	11,060	17.1	1,960
Other Bean	6,690	10.3	690
Pulses	6,200	9.6	1,220
All Legumes	17,810	27.5	3,870
Oil seeds	21,110	32.6	4,120
Roots and tubers			
Potatoes	16,310	25.2	2,460
Ginger	3,550	5.5	360
Radishes	4,700	7.3	240
Turnips	1,950	3.0	150
Tapioca	2,980	4.6	390
All roots and tubers	22,070	34.1	3,720
Vegetables	8,610	13.3	630
Other crops			
Jute	1,200	1.9	90
All other crops	1,730	2.7	130
ALL ANNUAL CROPS	..	..	105,540
HOLDERS WITH ANNUAL CROPS	62,920	97.1	..
ALL HOLDERS	64,770	100.0	..

Source : Agronomic Survey conducted by Central Statistical Office.

TABLE 5.11 : PERENIAL CROPS BY ZONE, 1988/89

(`000 trees)

Crop	Thimphu	Zone I	Zone II	Zone III	Zone IV	Total
Temperate fruits						
Apples	49.7	93.6	13.4	47.0	31.8	235.5
Apricots	0.8	1.5	4.9	0.7	3.2	11.1
Peaches	2.0	7.6	29.3	5.9	32.4	77.2
Pears	1.1	2.8	13.0	3.5	7.8	28.2
Plums	0.5	0.8	3.4	0.8	5.6	11.1
Walnut	*	*	*	1.9	17.4	19.3
Mangosteen	*	*	*	*	2.4	2.4
All temperate fruits(a)	55.3	109.2	65.2	59.9	104.0	393.6
Sub-tropical fruits						
Oranges	4.6	1,148.3	504.8	762.1	175.4	2,595.2
Lemons	0.3	74.5	9.1	23.5	3.1	110.5
Bananas	1.1	86.7	182.8	286.6	258.2	815.4
Guavas	0.7	9.3	25.2	10.4	15.6	61.2
Mangoes	*	3.3	2.3	9.9	3.2	18.7
Jackfruit	*	3.1	3.0	4.0	2.2	12.3
Litchi	*	*	*	3.8	0.7	4.5
Papaya	*	*	*	3.1	2.1	5.2
Persimmons	*	*	*	*	1.9	1.9
All sub-tropical fruits(a)	6.9	1,328.5	729.2	1,112.9	466.8	3,644.3
Other tree crops						
Cardamom(b)	*	5,610.4	5,318.3	4,054.5	20.5	15,003.7
Areconut	*	262.9	*	347.3	34.6	644.8
Tea	*	8.0	2.8	5.3	0.5	16.6
All other trees(a)	*	5,883.7	5,400.7	4,407.1	60.1	15,751.6

Source: Agronomic Survey undertaken by Central Statistical Office.

TABLE 5.12: HOLDERS ACCORDING TO SIZE OF LIVESTOCK HOLDING, 1988/89

Number of livestock	Cattle	Yaks	Buffaloes	Pigs	Goats	Sheep	Horses	Donkeys/ mules	Chickens
				('000 holders)					
No livestock	9.2	62.5	62.7	29.6	47.7	57.7	46.9	60.7	12.7
1 - 2	8.2	*	0.6	24.9	7.5	2.4	14.3	3.0	14.6
3 - 4	10.9	0.2	0.3	7.0	5.7	1.2	2.0	0.1	13.2
5 - 9	23.1	0.1	0.3	2.2	2.6	1.3	0.6	*	13.7
10 - 14	8.1	*	*	0.2	0.2	0.4	*	*	5.1
15 - 19	2.4	0.2	*	*	*	*	*	*	2.1
20 - 29	1.5	0.1	*	*	*	0.2	*	*	1.6
30 & over	0.5	0.5	*	*	*	0.1	*	*	0.8
TOTAL	63.9	63.9	63.9	63.9	63.9	63.9	63.9	63.9	63.9
				(Percentage of all holders)					
No livestock	14.4	97.8	98.1	46.3	74.6	90.3	73.4	95.0	19.9
1 - 2	12.8	*	0.9	39.0	11.7	3.8	22.4	4.7	22.8
3 - 4	17.1	0.3	0.5	11.0	8.9	1.9	3.1	0.2	20.7
5 - 9	36.2	0.2	0.5	3.4	4.1	2.0	0.9	*	21.4
10 - 14	12.7	*	*	0.3	0.3	0.6	*	*	8.0
15 - 19	3.8	0.3	*	*	*	*	*	*	3.3
20 - 29	2.3	0.2	*	*	*	0.3	*	*	2.5
30 & over	0.8	0.8	*	*	*	0.2	*	*	1.3
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Agronomic Survey undertaken by Central Statistical Office.

TABLE 5.13 : LIVESTOCK NUMBERS BY DZONGKHAG, 1989

('000)

Dzongkhag	Cattle	Yaks	Mithuns cross	Buffaloes	Sheep	Goats	Pigs	Horses (a)	Poul
Thimphu	5.8	8.5	0.5	-	1.6	-	2.3	1.0	2
ZONE I									
Chhukha	24.3	-	1.3	0.3	0.8	2.9	3.6	0.6	11
Ha	9.6	5.6	-	-	0.2	-	2.4	1.5	2
Paro	14.8	4.0	-	-	0.3	0.1	5.8	1.2	4
Samchi	34.9	-	-	1.2	4.2	10.9	2.6	-	36
Total Zone I	83.6	9.6	1.3	1.5	5.5	13.9	14.4	3.3	54
ZONE II									
Chirang	19.3	-	-	0.8	2.7	8.3	1.7	0.5	23
Daga	22.3	-	0.6	0.9	2.4	4.8	3.0	0.8	14
Punakha	9.4	1.9	1.7	-	0.1	0.2	3.9	1.3	6
Wangdiphodrang	17.3	3.4	2.6	-	10.6	-	5.8	2.4	0
Total Zone II	68.3	5.3	4.9	1.7	15.8	13.3	14.4	5.0	44
ZONE III									
Bumthang	3.6	6.8	1.8	-	7.4	-	0.2	1.6	
Sarbhang	41.7	-	0.3	1.5	4.2	2.0	4.3	0.6	43
Shemgang	12.6	-	-	-	-	0.6	2.5	0.9	
Tongsa	9.8	-	3.0	-	4.2	-	0.7	0.5	
Total Zone III	67.7	6.8	5.1	1.5	15.8	2.6	7.7	3.6	58
ZONE IV									
Lhuntshi	1.7	0.3	5.8	-	0.4	0.1	2.9	1.3	
Mongar	17.1	-	11.5	-	0.2	0.1	5.5	2.1	1
Pemagatsel	5.0	-	2.9	-	-	0.1	2.3	1.2	
Samdrupjongkhar	19.9	0.1	5.4	-	0.5	2.4	5.2	2.2	1
Tashigang	34.4	6.5	9.0	-	8.0	-	8.5	6.4	
Total Zone IV	78.1	6.9	34.6	-	9.1	2.7	24.4	13.2	5
BHUTAN	303.5	37.1	46.4	4.7	47.8	32.5	63.2	26.1	21

(a) Includes mules and donkeys.

Source : Animal Husbandry Department.

TABLE 5.14 : LIVESTOCK NUMBERS, 1981 TO 1989

('000)

Livestock	1981	1982	1983	1984	1985	1986	1987	1988	1989
Cattle(a)	275.2	291.7	309.4	327.7	347.4	340.3	357.0	357.4	303.5
Yaks	28.9	29.6	30.1	30.7	31.3	35.7	30.1	35.6	37.1
Mithun cross	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	46.4
Buffaloes	n.a	n.a	n.a	n.a	n.a	n.a	5.2	4.3	4.7
Sheep(b)	27.0	31.8	37.5	44.3	52.3	43.8	36.4	46.6	47.8
Goats	n.a	n.a	n.a	n.a	n.a	n.a	40.9	36.7	32.5
Pigs	55.5	56.6	57.7	58.9	60.1	88.6	70.3	65.7	63.2
Horses	n.a	n.a	n.a	n.a	n.a	23.6	26.0	25.7	26.1
Poultry	152.5	158.8	165.5	172.3	179.5	211.3	218.0	237.2	210.7

(a) Upto 1988, mithun spices was included in cattle. (b) For 1981 t0 1986 figure includes both sheep and goats.

Source : Animal Husbandry Department.

TABLE 5.15 : FOOD CORPORATION OF BHUTAN, IMPORTS AND DISTRIBUTION, 1981/82 TO 1989/90

(tonnes)

Commodity	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90
				IMPORTS					
Rice	2,345	5,843	6,033	5,388	7,211	11,282	16,750	11,600	9,900
Wheat	873	2,725	2,123	2,599	2,450	3,350	5,767	4,990	2,834
Sugar	1,276	1,381	1,800	1,824	2,749	3,574	4,039	3,616	3,040
Salt	3,475	2,755	2,326	3,598	5,689	3,516	5,035	6,495	4,619
Oil	-	-	240	306	557	874	1,280	400	340
				SALES					
Rice	2,127	5,561	4,537	4,863	6,956	11,761	16,700	11,197	8,895
Wheat	661	2,701	2,230	2,280	2,534	3,346	5,595	4,544	2,964
Sugar	1,085	1,289	1,575	1,996	2,579	3,731	4,078	3,490	3,039
Salt	429	278	179	617	3,603	3,513	5,050	4,050	4,887
Oil	-	-	214	213	472	516	1,082	435	416

Source: Food Corporation of Bhutan.

TABLE 5.16 :AGRICULTURAL PRODUCE HANDLED BY FOOD CORPORATION OF BHUTAN, 1982/83 TO 1989/90

Commodity	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88 (a)	1988/89	1989/90
				Quantity (tonnes)				
Potatoes	3,795.8	6,178.9	7,571.9	8,987.8	8,021.0	10,060.3	14,275.7	13,881.0
Apples	452.5	671.9	889.6	648.0	1,295.0	965.6	431.8	325.3
Oranges	549.4	588.6	690.0	769.5	946.3	2,455.6	2,373.8	2,138.2
				Value (Nu.millions)				
Potatoes	5.2	10.5	11.5	15.0	19.2	21.2	31.2	29.5
Apples	1.4	2.4	3.5	2.8	4.4	4.8	2.0	1.8
Oranges	1.6	1.3	1.8	2.2	2.9	7.1	7.6	6.1

(a) 1987/88 refers to the 15 month period April 1987 to June 1988 while 1988/89 and 1989/90 refer to the twelve period July to June. The remaining years refer to the twelve month period April to March.

Source: Food Corporation of Bhutan.

TABLE 5.17: PRODUCTION OF LOGWOOD, 1982/83 TO 1988/89(a)

('000 cubic metres)

	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88 (b)	1988/89
Commercial Logging- Bhutan Logging Corporation	34.0	59.7	100.8	59.1	118.1	76.9	83.4
Logging for house construction and public works	55.8	31.8	54.3	77.7	31.0	6.8	6.0
TOTAL	89.8	91.5	155.1	136.8	149.1	83.7	89.4

(a) Years refer to 1 April to 31 March while 1987/88 refer to fifteen months period April to June and 1988/89 refer to twelve month period July to June. Figures exclude collection of firewood by individuals. (b) The volume of production has declined mainly because of road blocked, heavy monsoon and shortage of labourers.

Source: Department of Forestry.

6. INDUSTRIES

INTRODUCTION

The subject 'industries' covers the whole range of industrial activity carried out by businesses in all fields including mining, manufacturing, wholesale and retail trade, and other service industries. In Bhutan, the industrial sector has until recently, played a relatively small role in the economy of the Kingdom.

The mining industry in Bhutan is as yet relatively undeveloped. The Kingdom has significant deposits of a number of mineral resources, including limestone, coal, graphite, gypsum, slate and dolomite. Most mining activity is limited to relatively small operations, mainly involved in the mining of limestone, coal, slate and dolomite.

The manufacturing industry is dominated by a small number of major operators such as the Penden Cement Plant and the Gedu Wood Manufacturing Corporation. The first chemical plant - Bhutan Carbide and Chemicals Ltd. - was inaugurated during 1988. In addition, there are a number of smaller manufacturing plants concentrated in the food processing and wood products sectors. Cottage industries also play a prominent role. With its good timber resources and favourable agricultural conditions, there is ample scope for expansion of the manufacturing sector especially in these areas.

As the industrial sector grows in Bhutan, statistics on industry will become increasingly important. The CSO will be giving special attention to the development of statistical systems to meet the important needs for industrial statistics in the future.

MAIN FEATURES

There were 349 manufacturing and mining firms licensed in 1986, of which 14 were public-owned and 335 were in private ownership. A total of 249 firms were in the food industry, the majority of which were very small operations. The other important industry was wood and paper products with 55 licensed firms, over half of which employed more than 10 persons.

In the manufacturing sector as a whole, 285 firms employed less than 10 employees, 21 had employment within the range 10-19, 16 employed between 20-49 employees, while 18 had more than 50 employees.

TABLE 6.1: NUMBER OF LICENSED MANUFACTURING FIRMS BY INDUSTRY AND EMPLOYMENT, 1986

Industry	Employment size					
	Less than 10	10-19	20-49	50-99	100 and over	Total
Food processing/milling	237	4	2	3	3	249
Textiles and Clothing	3	1	-	1	-	5
Wood and 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 6.2 : 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
Textiles and Clothing	-	5	5
Wood and 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

Source: Department of Trade and Industries.

TABLE 6.3: MINING AND INDUSTRY BY SECTOR, SIZE AND TYPE, NOVEMBER 1990

Dzongkhag	Sector			Size				Type							Total
	Private	Public	Joint	Small	Medium	Large	Cottage	Agro-based	Forest based	Mineral based	Contract	Service	Transport	Others	
Thimphu	196	6	5	140	5	3	59	6	29	5	135	20	3	9	207
Chhukha	97	2	3	62	11	7	22	11	27	5	21	17	5	16	102
Ha	21	-	-	15	-	-	6	-	7	-	10	-	4	-	21
Paro	45	1	-	33	1	-	12	4	13	1	23	3	1	1	46
Samchi	22	2	3	15	3	3	6	6	2	11	5	1	-	2	27
Zone I Total	185	5	6	125	15	10	46	21	49	17	59	21	10	19	196
Chirang	12	-	-	7	-	-	5	2	2	-	6	2	-	-	12
Daga	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Punakha	11	-	-	8	-	-	3	2	1	-	8	-	-	-	11
Wangdiphodrang	10	-	-	8	-	-	2	-	1	-	5	2	-	2	10
Zone II Total	33	-	-	23	-	-	10	4	4	-	19	4	-	2	33
Bumthang	17	2	-	18	-	-	1	2	9	-	7	1	-	-	19
Sarbhang	44	3	-	22	1	1	23	13	9	4	8	8	-	5	47
Shemgang	9	-	-	5	-	-	4	2	3	-	4	-	-	-	9
Tongsa	5	-	-	1	1	-	3	2	3	-	-	-	-	-	5
Zone III Total	75	5	-	46	2	1	31	19	24	4	19	9	-	5	80
Lhuntshi	7	-	-	7	-	-	-	-	-	-	7	-	-	-	7
Mongar	27	-	-	25	-	-	2	1	3	-	21	1	-	1	27
Pemagatshel	5	-	-	3	-	-	2	-	1	-	3	1	-	-	5
Samdrupjongkhar	56	3	1	14	1	5	40	11	13	7	18	8	2	1	60
Tashigang	20	1	-	10	-	-	11	2	8	-	8	2	-	1	21
Zone IV Total	115	4	1	59	1	5	55	14	25	7	57	12	2	3	120
Dzongkhag not identified	106	-	-	106	-	-	-	-	-	-	106	-	-	-	106
TOTAL	710	20	12	499	23	19	201	64	131	33	395	66	15	38	742

Source : Trade and Industry.

7. TRANSPORT AND COMMUNICATION

INTRODUCTION

Traditionally the principal means of transport in Bhutan h been foot paths and mule tracks and these will continue to pl an important role into the future. The development of the mot road network was initiated in 1961 with the commencement of wo on the construction of the first road from Phuntsholing to Pa and Thimphu. The importance of road transport has grown with t expansion of the road network, and there are now extensive b services between most centres in the Kingdom. Civil aviati arrived in Bhutan with the establishment of Druk Air Corporati and its commencement of operations in 1983 on the Paro - Calcut sector. Services were extended to cover the Paro - Dhaka sect in 1986; Paro - Delhi in 1988; and Paro - Bangkok and Paro Kathmandu in 1989.

Postal and other communication facilities were limited pri to 1962. Since that time an extensive postal service has be developed so that the majority of the population now h reasonable access to mail services. Telephone services have al been considerably expanded and telex exchanges installed Thimphu and Phuntsholing. An extensive civil wireless syst also exists servicing many remote centres.

MAIN FEATURES

By June 1990, there were 2,336 kilometers of motorable roa in Bhutan, of which 1,453 kilometers were black topped. As September 1989, there were a total of 7,664 registered vehicl in Bhutan.

Bus transport combines both public and private enterpris Government buses carried 1.2 million passengers in 1988/89 total of 12,732 passengers were carried by Druk Air dur 1989/90, an increase of nearly 16 per cent compared with 1986/

Post offices in Bhutan handled a total of 3.0 million it of mail during 1989 of which 2.2 million were domestic 0.8 million were overseas.

TABLE 7.1 : ROAD NETWORK IN BHUTAN BY TYPE, JUNE 1990

Type of road	Distance (km) National Highways	District Roads	Feeder Roads	All Roads
Black topped	1,399	256	146	1,801
Non-black topped	54	240	241	535
TOTAL	1,453	496	387	2,336

Source: Department of Roads.

TABLE 7.2: ROAD NETWORK IN BHUTAN BY DZONGKHAG, JUNE 1990

Dzongkhag	Distance (km) National Highway	District Road	Feeder Road	All Roads
Thimphu	102	-	19	121
Chhukha	132	46	17	195
Ha	15	11	16	42
Paro	104	51	17	172
Samchi	-	84	13	97
Chirang	67	-	24	91
Daga	22	87	-	109
Punakha	-	20	42	62
Wangdiphodrang	101	14	49	164
Bumthang	122	-	24	146
Geylegphug	106	-	41	147
Shemgang	142	-	-	142
Tongsa	163	-	-	163
Lhuntshi	-	47	10	57
Mongar	177	20	24	221
Pemagatsel	-	23	15	38
Samdrupjongkhar	59	48	5	112
Tashigang	141	45	71	257
BHUTAN	1,453	496	387	2336

Source : Department of Roads.

TABLE 7.3: NUMBER OF REGISTERED VEHICLES BY TYPE , 1980 TO 1989

Year	Cars	Jeeps	Trucks	Buses	Bull dozer	Power tiller	Taxis	Motorcycle & scooters	Diplo-matic	Total
1980	76	118	156	9	-	-	23	299	19	700
1981	167	185	333	14	-	-	39	455	19	1,212
1982	319	276	431	23	6	-	55	707	23	1,840
1983	402	377	498	27	8	-	60	946	27	2,345
1984	620	469	673	37	9	-	78	1,200	36	3,122
1985	782	627	826	57	9	-	117	1,513	49	3,980
1986	934	810	955	78	10	-	153	1,883	58	4,881
1987	1,027	951	1,075	99	10	-	213	2,281	65	5,721
1988	1,235	1,105	1,249	118	12	80	250	2,882	71	7,002
1989(a)	1,287	1,151	1,345	140	19	129	291	3,222	80	7,664

(a) Figure includes upto September 1989.

Source: Department of Revenue and Customs.

TABLE 7.4 : NUMBER OF NEW MOTOR VEHICLE DRIVING LICENCES ISSUED (a)BY TYPE OF VEHICLE, 1982 TO 1987

Type of vehicle	1982	1983	1984	1985	1986	1987
Scooter/Bike	61	82	141	105	179	324
Light Vehicle	205	177	307	322	531	507
Medium	30	32	24	30	18	39
Heavy	161	126	88	87	131	187
Other(b)	20	18	29	32	44	34
ALL VEHICLES	477	435	589	576	903	1,091

(a) The figures refer to new licences issued during the year (not including renewals). The figures do not refer to the total number of licensed drivers.
(b) Includes road rollers, tractors and bulldozers.

Source: Royal Bhutan Police.

TABLE 7.5 : BHUTAN GOVERNMENT TRANSPORT SERVICE, PASSENGERS CARRIED, 1982/83 TO 1988/89

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
1988/89	1,230

Source: Bhutan Government Transport Service.

TABLE 7.6: NUMBER OF MOTOR VEHICLE ACCIDENTS BY TRAFFIC DIVISION, 1984 TO 1987

Traffic Division	1984	1985	1986	1987
Thimphu	36	69	118	146
Chimakothi	41	45	27	24
Phuntsholing	30	35	37	18
Samchi	-	5	2	5
Geylegphug	8	10	12	11
Chirang	3	1	1	8
Tongsa	6	5	6	6
Samdrupjongkhar	7	12	13	13
Tashigang	1	4	11	11
Mongar	3	1	3	4
TOTAL	135	187	230	246

Source : Royal Bhutan Police.

TABLE 7.7 : CIVIL AVIATION - DRUK AIR FLIGHT SERVICES, 1985/86 TO 1989/90

Sector	1985/86	1986/87	1987/88	1988/89	1989/90
Passenger carried					
Calcutta/Paro/Calcutta	6,269	7,891	8,661	5,648	2,999
Paro/Dhaka/Paro	-	292	1,663	849	591
Paro/Delhi/Paro	-	-	-	2,949	5,171
Paro/Bangkok/Paro	-	-	-	614	2,411
Paro/Kathmandu/Paro	-	-	-	495	1,560
All sectors	6,269	8,183	10,324	10,555	12,732
Number of flights(a)	546	687	395	387	311
Revenue(Nu. in millions)	10.6	9.8	14.6	42.9	n.a

(a) Inclusive of all sectors.

Source : Druk Air Corporation.

TABLE 7.8 : TELEPHONE CONNECTION CAPACITY (a) BY EXCHANGE, 1989

Exchange	Connection Capacity
Thimphu	1,000
Phuntsholing	400
Wangdiphodrang	50
Paro	100
Ha	50
Punakha	35
Chimakothi	50
Tongsa	35
Geylegphug	100
Sarbhang	50
Samdrupjongkhar	100
Tashigang	35
Samchi	100
ALL EXCHANGES	2,105

(a)While figures refer to connection capacity, they should reasonably reflect the number of telephone sets in use.

Source: Department of Telecommunication.

TABLE 7.9 : NUMBER OF TRUNK LINES, 1989

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

(a) Microwave/UHF.

Source: Department of Telecommunication.

TABLE 7.10 : NUMBER OF TELEPHONE TRUNK CALLS BY TYPE, 1987 TO 1989

('000)

Type of call	1987	1988	1989
Domestic calls	84.9	85.7	145.7
International calls			
India	15.1	18.2	96.8
Other	3.1	3.8	50.5
Total	18.2	22.0	147.3
ALL CALLS	103.2	107.7	293.0

(a) Estimated number of calls.

Source : Department of Telecommunication.

TABLE 8.1 : ELECTRICITY GENERATING STATIONS AND THEIR CAPACITY, 1988/89

Generating Stations	Machine Sizes (MW)	Installed Capacity (MW)
Hydro Stations		
Chhukha Hydel Project	4 x 84	336.000
Thimphu	4 x 0.090	0.360
Gidakom	5 x 0.250	1.250
Wangdiphodrang	3 x 0.100	0.300
Tashigang	3 x 0.250	0.750
Mongar	3 x 0.130	0.390
Khaling	3 x 0.200	0.600
Gyetsha	3 x 0.500	1.500
TOTAL HYDRO CAPACITY		341.150
Micro hydels		
Nagu		0.010
Lhuntshi		0.020
Thinleygang		0.030
Rukubji		0.040
Tangsibi		0.030
Tongsa		0.050
Bubja		0.030
Tamshing		0.030
Ura		0.050
Yadi		0.030
Kenkhar		0.020
Surey		0.070
TOTAL MICRO HYDEL		0.410
Diesel Generation Stations		
Phuntsholing	2 x 0.128	0.256
	2 x 0.248	0.496
Samchi	1 x 0.135	0.135
Paro	1 x 0.400	0.400
	1 x 0.088	0.088
Thimphu	1 x 0.500	0.500
	2 x 0.225	0.450
	2 x 0.150	0.300
	2 x 1.000	2.000
Damphu	1 x 0.048	0.048
Tongsa	1 x 0.056	0.056
Shemgang	1 x 0.080	0.080
Daga	1 x 0.040	0.040
TOTAL DIESEL CAPACITY		4.849
TOTAL CAPACITY		346.409

Source : Department of Power.

TABLE 8.2 : ELECTRICITY SUPPLY, 1983/84 TO 1988/89

	1983/84	1984/85	1985/86	1986/87	1987/88 (a)	1988/89
Installed capacity (MW)						
Hydro (b)	3.5	3.5	3.5	171.5	258.0	341.6
Diesel	4.4	4.4	5.4	5.4	4.8	4.8
Total	7.9	7.9	8.9	176.9	262.8	346.4
Electricity generation (MU)						
Hydro-Chhukha	-	-	-	339.4	1,470.5	1,541.1
Hydro-Other	7.9	7.3	6.9	5.5	5.4	2.7
Diesel	2.3	3.2	3.7	1.5	0.3	0.2
Total	10.2	10.5	10.6	346.4	1,476.2	1,544.0
Exports (MU)	-	-	-	319.3	1,386.7	1,396.0
Imports (MU)	4.9	5.2	8.1	3.5	3.7	3.5
Net energy requirement (MU)	14.8	15.4	18.5	24.3	71.0	143.0
Net sales (MU)	10.8	12.2	14.6	17.2	60.9	123.3
Energy losses (MU)	4.1	3.2	3.9	7.0	9.9	19.7
Percentage losses (%)	27.4	20.6	21.1	29.0	13.9	13.8
Peak system demand (MW)	5.3	6.5	8.2	9.1	16.5	24.0

(a) Refers to fifteen months period 1 April 1987 to 30 June 1988. (b) Includes Chhukha Hydel Project.

Source: Department of Power.

TABLE 8.3 : MAJOR TRANSMISSION LINES FOR EVACUATING CHHUKHA POWER 1988/89

(Length in Kms)

	220 KV	66 KV
Chhukha - Birpara	76 (d/c)	-
Chhukha - Singhigoan	35 (s/c)	-
Chhukha - Phuntsholing	-	35.0
Chhukha - Confluence	-	39.0
Phuntsholing - Gomtu	-	27.0
Phuntsholing - Singhigoan	-	8.4
Confluence - Ha	-	34.0
Confluence - Simtokha		20.0
Simtokha - Wangdiphodrang	-	27.0

Source: Department of Power.

TABLE 8.4: ELECTRICITY CONSUMPTION, 1983/84 TO 1988/89

	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
Towns electrified (No.)	19	19	19	19	19	20
Villages electrified (No.)	113	114	118	127	141	171
Consumers (No.)	9,262	9,751	10,583	11,361	12,640	14,092
Sales of energy (Million Nu.)	n.a	n.a	n.a	13.9	22.3	34.5
Per capita consumption (units)	-	30	33	46	51	90

Source: Department of Power.

TABLE 8.5: SALES OF ENERGY FROM CHHUKHA HYDROPOWER, 1986 TO 1989

(Nu. in millions)

Year and month	1986			1987			1988			1989	
	Export	Internal	Total	Export	Internal	Total	Export	Internal	Total	Export	Internal
January	-	-	-	18.1	0.2	18.3	18.9	0.5	19.4	14.6	1.3
February	-	-	-	13.9	0.2	14.1	15.1	0.4	15.5	12.3	1.1
March	-	-	-	12.2	0.2	12.4	15.7	0.5	16.2	17.8	1.3
April	-	-	-	15.6	0.3	15.9	18.2	0.4	18.6	25.2	0.9
May	-	-	-	20.6	0.3	20.9	33.7	0.4	34.1	24.3	1.1
June	-	-	-	20.3	0.4	20.7	41.3	0.8	42.1	30.1	1.1
July	-	-	-	25.5	0.4	25.9	49.5	1.0	50.5	32.4	0.9
August	-	-	-	31.5	0.3	31.8	37.2	0.9	38.1	29.8	1.2
September	5.1	0.1	5.2	28.4	0.3	28.7	43.7	0.9	44.6	26.9	1.1
October	4.9	0.1	5.0	32.0	0.4	32.4	28.3	1.1	29.4	28.5	1.2
November	13.2	0.2	13.3	31.1	0.4	31.5	19.4	1.0	20.4	19.9	1.2
December	18.8	0.2	19.0	26.6	0.5	27.1	16.3	1.2	17.5	18.4	1.3
Total	42.0	0.6	42.5	275.9	3.8	279.7	337.3	9.1	346.4	280.2	13.7

Source: Department of Power.

TABLE 8.6 : CONSUMPTION OF ELECTRICITY BY TYPE OF CONSUMER, 1988/89

Type of Consumer	Energy sold (MU)	Percentage
Domestic	9.6	7.8
Commercial & Govt. Offices	8.2	6.7
Industries	102.3	83.0
Bulk supply	3.0	2.3
Public lighting	0.2	0.2
Total	123.3	100.0

Source : Department of Power.

9. TOURISM

INTRODUCTION

The tourism industry has been an important source of hard currency to Bhutan since the country was first opened to tourists in 1974. The potential as far as foreign exchange earnings are concerned is very high, though a strategy of regulating the number of tourists coming into Bhutan has been followed by the Government.

The main statistics of interest in the field of tourism relate to the characteristics of visitors and the details of existing tourist facilities. Interest centres on visitor arrivals, where they come from, when they come and the purpose of their visit. Earnings of foreign exchange from overseas visitors is another important aspect.

MAIN FEATURES

The total number of tourist arrivals in 1989 was 1,480, which is about 33 per cent less than the previous year. The highest number of tourists recorded was 2,524 in the year 1987. The largest numbers of tourists came from Europe, United States, and Japan. The majority of tourists (83 per cent) came on a tour, while, 17 per cent came for trekking and mountaineering. The arrivals in the months of March, September and October accounted for well over half of all arrivals.

TABLE 9.1 : TOURIST ARRIVALS BY COUNTRY OF RESIDENCE, 1989

Country	Number of tourists
United States of America	479
West Germany	285
Japan	317
United Kingdom	167
France	54
Switzerland	13
Belgium	18
Austria	40
Canada	6
Holland	6
Sweden	16
Thailand	14
Others	65
TOTAL	1,480

Source : Bhutan Tourism Corporation.

TABLE 9.2 : TOURIST ARRIVALS BY COUNTRY OF RESIDENCE AND TOURISM REVENUES, 1984 to 1989

Country	1984	1985	1986	1987	1988	1989
Europe						
West Germany	351	397	360	381	475	285
France	113	83	119	125	97	54
Italy(a)	75	61	99	105	-	10
Other Europe	329	287	162	540	496	272
Total Europe	868	828	740	1,151	1,068	621
United States of America	514	550	776	715	598	479
Japan	396	411	448	379	354	317
Australia(a)	66	46	60	40	-	4
Other	56	61	381	239	179	59
TOTAL TOURISTS (Nos.)	1,900	1,896	2,405	2,524	2,199	1,480
TOURISM REVENUE (Nu. million)	26.0	29.8	36.4	40.0	27.0	25.1

(a) Included in other categories in 1989.

Source : Bhutan Tourism Corporation.

TABLE 9.3: TOURIST ARRIVALS BY PURPOSE, 1985 TO 1989

Purpose	1985	1986	1987	1988	1989
Tour	1,493	1,894	2,082	1,616	1,227
Trekking & mountaineering	403	511	442	583	253
TOTAL	1,896	2,405	2,524	2,199	1,480

Source : Bhutan Tourism Corporation.

TABLE 9.4: TOURIST ARRIVALS BY MONTH, 1984 TO 1989

Months	1984	1985	1986	1987	1988	1989
January	35	40	43	59	26	25
February	76	39	45	63	43	41
March	91	237	409	122	390	256
April	406	214	172	466	230	120
May	114	130	134	145	140	91
June	52	22	49	16	31	38
July	62	94	92	91	62	34
August	208	182	306	235	147	133
September	204	237	338	253	298	164
October	459	453	573	709	670	377
November	134	160	112	268	118	179
December	59	88	132	97	44	44
TOTAL	1,900	1,896	2,405	2,524	2,199	1,480

Source : Bhutan Tourism Corporation.

10. BALANCE OF PAYMENTS

INTRODUCTION

Bhutan's economy is closely linked with India, though efforts towards diversification of products and markets are actively pursued.

While economic links with other countries are limited, significant amounts of aid have been received in recent years and this has enabled substantial increases in imports from third countries. Exports to third countries continue to be very low and reliance is placed on inflows of aid for the financing of imports.

Balance of payments statistics are designed to show the difference between the total payments made to foreign countries and the total receipts from foreign countries. Payments and receipts include imports and exports of merchandise; services and transfers (such as freight and insurance charges); expenditure by travelers; and capital movements (such as loans and investments). The balance between imports and exports is measured by the trade balance. A more comprehensive picture of the balance of payments situation is obtained by including services and transfers to provide a measure of the current account balance.

The balance of payments statements also show how any negative current account balance is financed - in the case of Bhutan this is achieved through foreign aid. Any surplus of foreign aid over and above current account deficits means an increase in the foreign currency reserves of the country.

Balance of payments statistics in Bhutan are compiled by the Royal Monetary Authority based on information from its own accounts and those of the Bank of Bhutan, together with information on imports and exports. Efforts are under way to improve the data in a number of areas.

MAIN FEATURES

During the period from 1982/83 to 1986/87, the trade balance deficit rose from Nu. 487.1 million to Nu. 778.1 million. In 1987/88, the deficit declined to Nu. 412.3 million with the result of the growth in exports of electricity from the Chhukha project to India. Imports grew sharply over the period 1982/83 to 1987/88 from Nu. 646.5 million to Nu. 1,124.2 million. Imports from countries other than India accounted for a significant part of this growth, rising from Nu. 100.0 million in 1982/83 to Nu. 224.5 million in 1987/88.

Foreign aid payments increased from Nu. 788.7 million in 1982/83 to Nu. 1,046.6 million in 1987/88. Aid from India accounted for Nu. 652.7 million of the 1987/88 figure. Total aid inflow has generally been larger than current account deficits and therefore Bhutan's total international reserves have been increasing over time. In 1988/89 , Indian rupee reserves amounted to Rupees 776.9 million (an increase of Rupees 87.9 million over the previous year), while convertible currency reserves amounted to $US 50.1 million (an increase of $US 9.9 million over the previous year).

In 1988, the chief exports to India were cement (Nu. 110 million), electricity (Nu. 337.3 million) and a range of timb and food products (especially cardamom, fruit products, potato and oranges). At the same time, an estimated Nu. 68.6 million rice was imported from India, together with Nu. 49.1 million diesel oil and a variety of transport and machinery equipme (tyres and tubes, truck chassis, machinery parts).

The value of the Ngultrum is pegged to the Indian rupee a one - to - one parity. In relation to the US dollar, there h been a continuous depreciation of the Ngultrum over the past f years, declining from a calendar year average of Nu. 8.66 to t dollar in 1981 to Nu. 17.32 to the dollar in May 1990.

TABLE 10.1: BALANCE OF PAYMENTS ESTIMATES, 1982/83 TO 1988/89

(Nu. in millions)

Item	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88 (a)	1988/89 (b)
Exports,fob(c)	159.4	160.7	206.4	272.0	427.1	711.9	1,072.6
India	157.0	157.2	200.0	270.0	424.4	702.4	999.2
Other	2.4	3.5	6.4	2.0	2.7	9.5	73.5
Imports,cif(c)	(646.5)	(730.0)	(825.2)	(1,041.6)	(1,205.4)	(1,124.2)	(1,817.0)
India	(546.5)	(600.6)	(725.0)	(800.0)	(911.1)	(899.7)	(1,163.4)
Other	(100.0)	(129.4)	(100.2)	(241.6)	(294.3)	(224.5)	(653.6)
Trade balance	(487.1)	(569.3)	(618.9)	(769.6)	(778.3)	(412.3)	(744.3)
India	(389.5)	(443.4)	(525.0)	(530.0)	(486.7)	(197.3)	(164.3)
Other	(97.6)	(125.9)	(93.9)	(239.6)	(291.6)	(215.0)	(580.1)
Services and transfer receipts	131.3	196.3	243.1	281.8	314.7	288.3	412.2
India	89.8	146.8	172.4	205.7	215.7	182.9	277.4
Other	41.5	49.5	70.7	76.1	99.0	105.4	134.8
Services and transfer payments	(389.9)	(555.7)	(511.4)	(601.6)	(616.0)	(511.3)	(635.2)
India	(346.9)	(450.0)	(422.7)	(399.7)	(421.8)	(326.2)	(426.5)
Other	(52.0)	(105.7)	(88.7)	(201.8)	(194.2)	(185.1)	(208.7)
Current account balance	(754.7)	(928.7)	(887.2)	(1,089.4)	(1,079.6)	(635.3)	(967.4)
India	(646.6)	(746.7)	(775.3)	(724.1)	(692.8)	(340.6)	313.4
Other	(108.1)	(182.1)	(111.9)	(365.3)	(386.8)	(294.7)	(654.0)
Foreign aid	788.7	1,085.0	989.0	1,224.3	1,268.8	1,046.6	1,086.3
India	679.5	856.0	819.4	760.8	824.1	652.7	808.5
Other	109.2	229.0	169.6	463.5	444.7	393.9	277.8
Other loans	-	-	-	6.3	(6.3)	(64.0)	278.3
India	-	-	-	-	-	-	-
Other	-	-	-	6.3	(6.3)	(64.0)	278.3
Errors and omissions	25.9	(77.0)	31.9	(74.6)	(2.5)	58.4	(48.9)
India	18.0	(57.3)	24.7	(46.9)	(55.4)	(70.0)	(407.1)
Other	7.9	(19.7)	7.2	(27.7)	57.9	128.5	358.3
Overall balance	59.9	79.3	133.7	66.6	185.3	405.7	348.3
India	50.9	52.1	68.8	(10.2)	75.8	242.0	87.9
Other	9.0	27.2	64.9	76.9	109.4	163.7	260.4

(a) Refers to 1 April 1987 to 30 June 1988, while previous years refer to 1 April to 31 March. Figures are revised from 1988 issue of Yearbook.(b) Refers to 1 July to 30 June. 1988/89 figures are preliminary. (c) Exports and imports given in Table 10.1 for 1986/87 differ from those given for 1986 in later tables because of adjustments for fiscal year and unrecorded exports and imports.

Source: Royal Monetary Authority of Bhutan.

TABLE 10.2: EXPORTS TO INDIA BY MAJOR COMMODITY, 1981 TO 1988.

(Nu. in millions)

Commodity	1981	1982	1983	1984	1985	1986	1987	1988
Cement	35.7	34.3	35.2	41.8	55.0	79.6	103.2	110.5
Timber	16.0	10.1	8.2	14.0	46.8	53.3	121.2	91.4
Cardamom	10.8	9.6	8.0	15.6	38.0	38.5	21.9	28.1
Ginger	-	-	-	-	-	1.8	2.0	3.2
Fruit products	4.5	8.8	11.0	20.6	21.2	21.5	22.3	29.0
Potatoes	15.6	8.5	5.1	11.9	16.1	23.6	23.2	31.3
Oranges	17.2	21.6	3.6	14.4	13.3	17.6	19.7	24.0
Rosin	7.2	7.8	8.1	11.3	10.7	18.6	6.0	0.6
Alcoholic beverages	1.0	0.6	4.4	6.6	7.8	9.6	17.5	24.5
Soft drinks	-	-	-	-	-	5.1	4.2	6.3
Sawlog & veneerlogs	0.3	1.0	3.0	5.9	6.9	0.6	0.9	104.7
Apples	0.1	2.9	0.5	3.5	6.1	5.1	8.9	16.8
Menthol	4.9	1.5	0.3	1.7	3.2	1.4	1.9	-
Block boards	-	-	0.1	6.3	14.8	21.2	29.3	31.0
Electricity	-	-	-	-	-	42.0	275.9	337.3
Dolomite	-	-	-	-	-	11.3	13.2	14.1
TOTAL EXPORTS(a)	166.2	157.0	157.2	200.0	270.0	380.1	702.4	989.8

(a) Total includes other commodities not listed.

Source: Central Statistical Office and Department of Trade and Industries.

TABLE 10.3: IMPORTS FROM INDIA BY MAJOR COMMODITY, 1981 TO 1988

(Nu. in millions)

Commodity	1981	1982	1983	1984	1985	1986	1987	1988
Diesel oil	28.0	36.4	40.4	53.4	53.4	54.8	45.1	49.1
Petrol	11.7	12.7	13.4	14.3	16.2	20.9	20.3	23.3
Kerosine	n.a	n.a	n.a	n.a	n.a	9.0	8.7	9.5
Rice	15.6	14.8	17.2	21.4	33.5	48.1	52.3	68.6
Wheat	n.a	n.a	n.a	n.a	n.a	7.8	7.7	21.4
Milk powder	n.a	n.a	n.a	n.a	n.a	8.2	8.2	12.5
Sugar	n.a	n.a	n.a	n.a	n.a	28.3	17.8	26.4
Tyres and tubes	4.8	11.4	1.0	15.5	33.5	29.3	28.3	32.6
Electricity	4.8	10.1	15.8	19.9	23.4	34.7	14.2	1.5
Electrical equipment	n.a	n.a	n.a	n.a	n.a	25.2	61.5	116.1
Truck chassis	19.9	6.8	4.4	32.8	41.4	15.2	23.4	n.a
Motor vehicle parts	n.a	n.a	n.a	n.a	n.a	33.6	114.5	54.5
Iron rods	28.8	12.9	5.9	10.7	21.7	25.7	43.3	27.5
Structures and parts	44.3	8.7	3.3	7.8	8.7	2.7	8.7	n.a
Machinery parts	14.6	2.1	6.2	24.7	49.6	33.4	21.2	n.a
Hardware	2.0	3.1	1.3	23.2	21.1	13.9	2.5	n.a
Passenger cars	2.0	4.6	2.5	4.9	4.1	4.6	6.6	8.3
Bitumen	11.3	2.0	5.2	3.3	13.3	8.3	2.5	n.a
Fabrics	12.0	8.1	1.3	5.2	17.0	18.5	12.1	13.4
TOTAL IMPORTS(a)	520.6	546.5	600.6	725.0	800.0	861.1	899.7	1,108.9

(a) Total includes other commodities not listed.

Source: Central Statistical Office and Department of Trade and Industries.

TABLE 10.4 : VALUE OF EXPORTS AND IMPORTS, 1981 TO 1988.

(Nu. in millions)

	1981	1982	1983	1984	1985	1986	1987	
Exports								
India	166.2	157.0	157.2	200.0	270.0	380.1	702.4	
Other	5.5	2.4	3.5	6.4	2.0	7.3	12.6	
All countries	171.7	159.4	160.7	206.4	272.0	387.4	715.0	1
Imports								
India	520.6	546.5	600.6	725.0	800.0	814.0	899.7	1
Other	65.3	100.0	129.4	100.2	126.9	354.0	224.5	
All countries	585.9	646.5	730.0	825.2	926.9	1,168.0	1,124.2	1,

Source : Central Statistical Office and Department of Trade and Industries.

TABLE 10.5 : VALUE OF EXPORTS AND IMPORTS WITH INDIA BY COMMODITY DIVISION (a), 1988.

('000 Nu.)

Commodity Division	Description	Exports	Imports
	0. FOOD AND LIVE ANIMALS CHIEFLY FOR FOOD		
00	Live animals chiefly for food	223.7	4,515.6
01	Meat and meat preparations	3.0	1,111.9
02	Dairy products and eggs	1.1	30,331.7
03	Fish, crustaceans and fish preparations	2.1	3,866.7
04	Cereals and cereal preparations	14,433.0	112,458.6
05	Vegetables and fruit	104,131.6	12,572.1
06	Sugar, sugar preparations and honey	1,258.0	32,847.6
07	Coffee, tea, spices etc	32,494.4	6,250.7
08	Feeding stuff for animals	1,590.5	1,776.1
09	Miscellaneous edible products and preparations	39.6	379.3
	TOTAL FOOD AND LIVE ANIMALS	154,177.0	206,110.2
	1. BEVERAGES AND TOBACCO		
11	Beverages	24,521.7	54,603.3
12	Tobacco and tobacco manufactures	-	1,938.5
	TOTAL BEVERAGES AND TOBACCO	24,521.7	56,541.8
	2. CRUDE MATERIALS, INEDIBLE, EXCEPT FUELS		
21	Hides and skins	384.0	-
22	Oil seeds	1,645.7	396.6
23	Crude rubber	23.2	377.7
24	Wood	201,084.1	8,286.7
25	Pulp and waste paper	-	-
26	Textile fibres and their wastes (not manufactured into yarn or fabric)	39.2	1,152.3
27	Crude fertilizers and crude minerals (excluding coal, petroleum and precious stones)	20,293.5	7,108.0
28	Metalliferous ores and metal scrap	4,571.3	377.9
29	Other crude animal and vegetable materials	1,541.8	747.5
	TOTAL CRUDE MATERIALS (EXC. FUELS)	229,582.8	18,446.7
	3. MINERAL FUELS,LUBRICANTS AND RELATED MATERIALS		
32	Coal, coke etc	1,012.7	11,170.4
33	Petroleum,petrolem prods. and related materials	4.0	128,501.6
34	Gas, natural and manufactured	-	1,915.2
35	Electric current	337,260.0	1,548.9
	TOTAL MINERAL FUELS AND RELATED MATERIALS	338,276.7	143,136.1
	4. ANIMALS AND VEGETABLE OILS, FATS AND WAXES		
41	Animal oils and fats	-	3.1
42	Fixed vegetable oils and fats	-	31,530.8
43	Animal and vegetable oils and fats, processed	-	-
	TOTAL ANIMAL, VEGETABLE OILS, FATS	-	31,533.9

(Table continued next page)

TABLE 10.5(CONT.) : VALUE OF EXPORTS AND IMPORTS WITH INDIA BY COMMODITY DIVISION (a), 1988

('000 Nu.)

Commodity Division	Description	Exports	Imports
	5. CHEMICALS AND RELATED PRODUCTS		
51	Organic chemicals	1,444.0	2,522.
52	Inorganic chemicals	67,486.4	6,753.
53	Dyeing, tanning and colouring materials	-	7,644.
54	Medicinal and pharmaceutical products	1.0	15,466.
55	Essential oils and perfume materials; toilet, polishing and cleansing preparations	71.7	16,990.
56	Fertilizers, manufactured	-	6,622.
57	Explosives	-	2,013.
58	Artificial resins and plastic materials	7,348.1	1,406.
59	Other chemical materials and products	3,000.2	3,709.
	TOTAL CHEMICALS AND RELATED PRODUCTS	79,351.4	63,128.
	6. MANUFACTURED GOODS CLASSIFIED BY MATERIAL		
61	Leather, leather manufactures	-	-
62	Rubber manufactures	25.7	38,283.
63	Wood manufactures (excluding furniture)	48,781.5	8,693.
64	Paper, paperboard, and articles of paper	475.1	18,859.
65	Textile yarn, fabrics, made-up articles, and related products	415.8	33,215.
66	Non-metallic mineral manufactures	112,852.8	25,024.
67	Iron and steel	330.9	74,002.
68	Non-ferrous metals	-	930.
69	Other manufactures of metal	114.2	45,790.
	TOTAL BASIC MANUFACTURES	162,996.0	244,799.
	7. MACHINERY AND TRANSPORT EQUIPMENT		
71	Power generating machinery and equipment	-	3,093.
72	Machinery specialized for particular industries	-	32,709.
73	Metalworking machinery	-	13,478.
74	General industrial machinery and equipment, and machine parts	0.7	12,959.
75	Office machines/automatic data processing equip.	-	2,316.
76	Telecommunications and sound recording and reproducing apparatus and equipment	-	5,822.
77	Electrical machinery/apparatus/appliances & parts	106.7	144,188.
78	Road vehicles	50.0	76,936.
79	Other transport equipment	-	-
	TOTAL MACHINERY & TRANSPORT EQUIPMENT	157.4	291,505.

(Table continued next page)

TABLE 10.5(CONT.) : VALUE OF EXPORTS AND IMPORTS WITH INDIA BY COMMODITY DIVISION (a), 1988

('000 Nu.)

Commodity Division	Description	Exports	Imports
	8. MISCELLANEOUS MANUFACTURED ARTICLES		
81	Sanitary, plumbing, heating and lighting fixtures and fittings	0.1	2,136.8
82	Furniture	10.3	7,209.8
83	Travel goods, handbags and similar containers	-	2,371.8
84	Articles of apparel and clothing accessories	-	7,199.9
85	Footwear	-	9,668.2
87	Professional/scientific/ controlling instruments and apparatus	-	6,372.7
88	Photo. apparatus, equipment and supplies and optical goods; watches and clocks	-	5,206.1
89	Other miscellaneous manufactured articles	564.1	13,531.2
	TOTAL MISCELLANEOUS MANUFACTURED ARTICLES	574.5	53,696.5
	Not classified	130.0	-
	TOTAL TRADE	989,767.5	1,108,899.4

(a) Commodity division refers to the first two digits of the Standard International Trade Classification (SITC).

Source: Central Statistical Office and Department of Trade and Industries.

TABLE 10.6: GROSS INTERNATIONAL RESERVES, 1981/82 TO 1990(a)

Item	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	May
			RUPEE REERVES (million rupees)						
Rupee reserves	209.5	260.4	312.5	381.3	371.1	446.9	689.0	776.9	
Royal Monetary Authority	-	-	6.2	12.0	8.1	10.7	12.3	81.1	
Bank of Bhutan	209.5	260.4	306.3	369.3	362.9	436.2	676.6	695.8	
			CONVERTIBLE CURRENCY RESERVES (million US dollars)						
Convertible currency reserves	8.0	8.5	10.4	14.2	20.6	28.1	40.2	50.1	
Royal Monetary Authority (a)	-	-	4.4	7.9	19.8	26.9	37.9	47.6	
Royal Government (b)	3.3	2.8	-	-	-	-	-	-	
Bank of Bhutan	4.1	4.5	4.7	6.3	0.8	1.1	2.3	2.5	
Royal Insurance Corporation of Bhutan(d)	0.6	1.2	1.3	-	-	-	-	-	
			TOTAL RESERVES (million US dollars)						
Total reserves	30.5	34.6	39.6	44.9	50.8	62.6	89.1	97.1	

(a) The large change in 1985/86 is mainly a result of the takeover of the Bank of Bhutan's convertible f exchange by the Royal Monetary Authority of Bhutan. (b) Including reserves tranche position in the Interna Monetary Fund from 1981/82.

TABLE 10.7: EXCHANGE RATES, NGULTRUM/$ US, 1981 TO MAY 1990

(period average)

	1981	1982	1983	1984	1985	1986	1987	1988	1989	Ma
January	7.94	9.12	9.79	10.72	12.62	12.28	13.04	13.06	15.11	
February	8.18	9.19	9.90	10.76	12.94	12.37	13.07	13.07	15.25	
March	8.21	9.28	9.97	10.75	12.96	12.29	12.94	13.00	15.48	
April	8.25	9.36	9.98	10.83	12.49	12.40	12.81	13.20	15.73	
May	8.39	9.28	9.99	11.03	12.55	12.48	12.69	13.31	16.12	
June	8.59	9.43	10.05	11.05	12.46	12.61	12.84	13.77	16.46	
July	8.87	9.54	10.09	11.34	12.03	12.51	13.03	14.09	16.44	
August	8.99	9.55	10.17	11.57	11.94	12.58	13.10	14.25	16.61	
September	9.09	9.62	10.19	11.82	12.18	12.69	13.02	14.49	16.76	
October	9.16	9.67	10.22	12.08	12.03	12.85	13.06	14.74	16.86	
November	9.11	9.76	10.35	12.08	12.09	13.09	13.00	14.98	16.94	
December	9.12	9.68	10.48	12.31	12.16	13.17	12.95	15.05	16.94	
Calendar year average	8.66	9.46	10.10	11.36	12.37	12.61	12.96	13.92	16.23	
Fiscal year average	7.89	8.93	9.63	10.31	11.89	12.24	12.79	12.97	15.15	
	(1980/81)	(1981/82)	(1982/83)	(1983/84)	(1984/85)	(1985/86)	(1986/87)	(1987/88)	(1988/89)	

Source: Royal Monetary Authority of Bhutan.

11. MONEY, BANKING AND FINANCE

INTRODUCTION

Until recent times, most economic transactions in Bhutan were carried out on the basis of barter arrangements. The widespread use of money commenced during the 1960's with the expansion of trade with India and the inflow of development assistance. The Indian rupee was most commonly used until 1974 when the government first issued Ngultrum notes, Bhutan's official currency. The monetary sector has grown since then with increasing economic development, improvement in transport and communication facilities and greater urbanization, though the barter economy continues to be important.

The monetary sector in Bhutan comprises the Royal Monetary Authority, Bhutan's Central Banking organisation; and the Bank of Bhutan, the country's only commercial bank. The non-bank financial institutions are the Royal Insurance Corporation of Bhutan and the Unit Trust of Bhutan. In addition, a new non-bank financial institution, the Bhutan Development Finance Corporation was established during 1988 to provide long term loans for development purposes.

A statistical system for the money, banking and finance sector has been developed by the Royal Monetary Authority. The main element of the system is the monetary survey, which is a consolidation of the accounts of the Royal Monetary Authority and the Bank of Bhutan showing the financial relationships between the two institutions and other sectors of the economy. Items covered include foreign assets and domestic credit, together with information on the money supply. In addition, financial statements are also available for the two non-bank financial institutions.

MAIN FEATURES

During 1989, there was an increase in the broad money supply (M2) of Nu. 252.9 million or 35 per cent from the previous year. This was largely accounted for by an increase in net foreign assets of Nu. 61.8 million.

From December 1983 to December 1989, there was an increase in net foreign assets of the Royal Monetary Authority and the Bank of Bhutan of Nu. 1,100.5 million. Domestic credit decreased by Nu. 107.0 million over the same period, mainly as a consequence of large increases in deposits of government with the Bank of Bhutan.

Investment in the two non-bank financial institutions has grown rapidly over the past few years. Between December 1983 and December 1989, total investment in the Royal Insurance Corporation of Bhutan increased from Nu. 137.5 million to Nu. 607.7 million while investment in the Unit Trust of Bhutan increased from Nu. 25.2 million to Nu. 297.0 million.

Loan amounts outstanding by the financial sector (inclu both banking and non-banking institutions) totalled Nu. million at the end of 1988. The use of those advances changed over time with the building and construction industry 1988 receiving 40 per cent of all advances compared with 27 per cent in 1983. Agriculture received 4 per cent of adv

in 1988, industry received 20 per cent and trade and com received 13 per cent.

Interest rates on deposits with the Bank of Bhutan from 5 per cent to 11 per cent. The Bank's interest rate advances vary from 10 per cent to 15 per cent.

TABLE 11.1: MONETARY SURVEY (a) - ROYAL MONETARY AUTHORITY AND BANK OF BHUTAN, 1983 TO 1989

(Nu. in millions)

Item	End of year						
	1983	1984	1985	1986	1987	1988	1
Foreign assets (net)	345.7	490.2	595.4	700.1	1,077.0	1,384.4	1,44
Rupee	260.5	317.6	359.0	380.0	579.0	658.4	57
Other	85.2	172.6	236.5	320.1	498.0	726.0	87
Domestic credit	110.4	45.1	101.7	53.9	-208.9	-250.5	
Claims on Government (net)	10.0	-54.0	19.7	-33.1	-304.7	-398.8	-21
Claims on Government corporations	57.3	41.3	26.6	19.7	13.5	32.4	2
Claims on private sector	43.1	57.8	55.4	67.3	82.3	115.9	19
Total liquidity-Broad money (M2)	324.6	367.0	464.0	498.8	552.5	723.7	97
Money supply-Narrow money (M1)	177.2	209.8	261.7	277.1	316.8	412.0	54
Currency outside banks	22.1	46.2	70.4	90.7	103.5	149.1	18
Demand deposits	155.1	163.6	191.3	186.3	213.3	263.0	35
Quasi-money	147.4	157.2	202.3	221.8	235.7	311.6	43
Other items (net)	131.5	168.3	233.1	255.2	315.6	410.0	47

(a) Revised data, excluding rupees in circulation.

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

TABLE 11.2 : ROYAL INSURANCE CORPORATION OF BHUTAN- FINANCIAL STATISTICS, 1983 TO 1989

(Nu. in millions)

End of Year	ASSETS								
			Investments(a)						
	Total assets	Reserves	Total Invest-ments	Claims on Govt. Enterp-rises	Claims on Private Sector	Claims on Deposit Money Banks	Claims on Non-mon. Financ. Instits.	Real Estate
1983	140.1	2.6	137.5	25.1	41.3	52.4	6.1	12.6
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
1988	467.8	6.1	461.7	28.6	319.2	83.6	7.0	23.4
1989	610.5	2.8	607.7	23.3	392.3	151.7	8.8	31.6

End of Year	LIABILITIES						
	Total	Insu-rance Reserve Funds	Life Fund	GEPF Fund(b)	UTB Fund(c)	Capital Accounts	Other Items (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
1988	467.8	10.1	12.2	254.2	209.9	12.0	-30.5
1989	610.5	15.9	15.1	312.8	247.6	12.0	7.1

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

Source : Royal Insurance Corporation of Bhutan.

TABLE 14.3: GROSS DOMESTIC PRODUCT BY KIND OF ACTIVITY: PROJECTIONS FOR THE SIXTH PLAN

(Nu. in millions)

Activity	1986	1987	1988	1989	1990	1991
Agriculture, Livestock, Forestry and Fishing	1,399	1,482	1,570	1,664	1,764	1,870
Agriculture proper	644	676	710	745	782	822
Livestock production	322	338	355	373	392	412
Forestry and logging	433	468	505	545	589	636
Fishing	-	-	-	-	-	-
Mining and quarrying	37	41	45	50	55	60
Manufacturing	137	149	162	177	193	210
Electricity and gas	97	368	435	435	435	435
Construction	268	285	303	323	344	366
Wholesale and retail trade, hotels and restaurants	234	246	258	271	284	298
Transport, storage and communications	114	123	133	144	155	167
Finance, insurance and real estate and business services	171	183	196	210	225	241
Community, social and personal services(Government adminstration and defence)	351	372	394	417	442	468
Less:Imputed bank service charges	-49	-52	-55	-58	-62	-66
TOTAL GROSS DOMESTIC PRODUCT	2,759	3,197	3,441	3,633	3,835	4,049

Source : Estimates compiled by Central Statistical Office.

TABLE 14.4 : GROSS DOMESTIC PRODUCT AND EXPENDITURE IN CURRENT PRICES, 1980 TO 1989

(Nu.in millions)

	1980	1981	1982	1983	1984	1985	1986	1987(a)	1988
OUTGOINGS									
Compensation of employees and operating surplus	1,033.8	1,206.2	1,411.7	1,651.0	1,941.1	2,212.0	2,567.0	3,200.2	3,488.6
Consumption of fixed capital formation	61.2	73.8	86.3	103.0	118.9	137.6	191.6	330.6	362.3
Indirect taxes less subsidies	17.9	21.2	23.6	34.8	45.6	41.8	43.0	76.7	82.8
Gross domestic product at market prices	1,112.9	1,301.2	1,521.6	1,788.8	2,105.6	2,391.4	2801.6	3,607.5	3,933.7
INCOMINGS									
Government final consumption expenditure	275.9	287.3	326.7	442.9	513.2	560.9	576.3	633.6	641.1
Private final consumption expenditure	748.6	922.2	1,053.8	1,195.1	1,435.8	1,506.3	1,837.5	2320.8	2,788.5
Increase in stocks	14.7	74.7	59.8	21.3	10.4	81.6	32.0	-161.5	10.4
Gross fixed capital formation	330.4	425.8	555.7	690.7	754.9	1,002.9	1,103.1	1,249.7	1,508.0
Exports of goods and services	145.4	207.4	213.2	227.8	290.2	367.5	550.5	767.5	1,415.9
less imports of goods and services	-402.1	-616.2	-687.6	-789.0	-898.9	-1,127.8	-1,297.8	-1,202.6	-2429.9
Expenditure on the gross domestic product	1,112.9	1,301.2	1,521.6	1,788.8	2,105.6	2,391.4	2,801.6	3,607.5	3,933.7

(a) A sharp rise in consumption of fixed capital in 1987 is due to coming into operation of Chhukha Hydel Project. Project.

Source : Estimates compiled by Central Statistical Office.

TABLE 14.5 :NATIONAL DISPOSABLE INCOME AND ITS APPROPRIATION AT CURRENT PRICES, 1980 TO 1989

(Nu.in millions)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
					OUTGOINGS					
Government final consumption expenditure	275.9	287.3	326.7	442.9	513.2	560.9	576.3	633.6	641.1	879.0
Private final consumption expenditure	748.6	922.2	1,053.8	1,195.1	1,435.8	1,506.3	1,837.5	2,320.8	2,788.5	2,545.0
Net saving	-166.3	-209.7	-209.0	-319.7	-240.8	-142.5	-136.1	122.3	188.9	641.2
Appropriation of disposable income	858.2	999.8	1,171.5	1,318.3	1,708.2	1,924.7	2,277.7	3,076.7	3,618.2	4,065.2
					INCOMINGS					
Compensation of employees and operating surplus	1,033.8	1,206.2	1,411.7	1,651.0	1,941.1	2,212.0	2,567.0	3,200.5	3,488.6	882.1
Compensation of employees from rest of the world net(a)	-217.0	-294.6	-357.8	-496.7	-437.7	-515.4	-523.6	-432.9	-237.1	-303.8
Property and entrepreneurial income from rest of the world (net)	17.0	24.9	36.2	40.6	49.9	65.7	56.6	83.4	124.2	146.9
Indirect taxes less subsidies	17.9	21.2	23.6	34.8	45.6	41.8	43.0	76.7	82.8	73.7
Current transfers from rest of the world net (b)	6.5	42.1	57.8	88.6	109.3	120.6	134.7	149.3	159.7	266.3
Disposable income	858.2	999.8	1,171.5	1,318.3	1,708.2	1,924.7	2,277.7	3,076.7	3,618.2	4,065.2

(a) Represents compensation of employees brought from India and other countries to work on Chhukha and other foreign aided projects. (b) Represents private transfers and include Helvetas, Leprosy Fund, Norwegian Mission, Misereor, Save the children and others.

Source : Estimates compiled by Central Statistical Office.

TABLE 14.6 : CAPITAL FINANCE IN CURRENT PRICES, 1980 TO 1989

(Nu. in millions)

	1980	1981	1982	1983	1984	1985	1986	1987	1988
OUTGOINGS									
Increase in stock	14.7	74.7	59.8	21.3	10.4	81.6	32.0	-161.5	10.4
Gross fixed capital formation	330.9	425.8	555.7	690.7	754.9	1,002.9	1,103.1	1,249.7	1,508.0
Purchase of intangible assets(n.e.c)	-	-	-	-	-	-	-	-	-
Net lending to the rest of the world	36.2	13.8	42.6	-41.2	-215.1	-183.4	-97.3	105.7	-57.2
Gross accumulation	381.8	514.3	658.1	670.8	550.2	901.1	1,037.8	1,193.9	1,461.2
Net acquisition of financial assets	36.2	16.5	51.0	156.3	101.8	141.2	182.8	347.3	397.1
INCOMINGS									
Net saving	-166.3	-209.7	-209.0	-319.7	-240.8	-142.5	-136.1	122.3	183.6
Consumption of fixed capital	61.2	73.8	86.3	103.0	118.9	137.6	191.6	330.6	367.3
Capital transfer from rest of the world net (a)	486.9	650.2	780.8	887.5	672.1	906.0	982.3	741.0	910.3
Finance of gross accumulation	381.8	514.3	658.1	670.8	550.2	901.1	1,037.8	1,193.9	1,461.2
Net lending to the rest of the world	36.2	13.8	42.6	-41.2	-215.1	-183.4	-97.3	105.7	-57.2
Net incurrence of liabilities (b)	-	2.7	8.4	197.5	316.9	324.6	280.1	241.6	454.3
Net incurrence of liabilities plus net lending to the rest of the world	36.2	16.5	51.0	156.3	101.8	141.2	182.8	347.3	397.1

(a) Receipt of developmental grants net. (b) Borrowing from the rest of the world.

Source : Estimates compiled by Central Statistical Office.

TABLE 14.7 : ALL ACCOUNTS- EXTERNAL TRANSACTIONS, 1980 TO 1989

(Nu. in millions)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
OUTGOINGS										
Exports of goods and services	145.4	207.4	213.2	227.8	290.2	367.5	550.5	767.5	1,200.8	1,644.1
Compensation of employees from the rest of the world	-	-	-	-	-	-	-	-	-	-
Property and entrepreneurial income from the rest of the world	17.0	24.9	36.2	40.6	49.9	65.6	56.6	83.4	124.2	146.9
Other current transfers from the rest of the world	6.5	42.1	57.8	88.6	109.3	120.6	134.7	149.3	159.7	266.3
Current receipts	168.9	274.4	307.2	357.0	449.4	553.7	741.8	1,000.2	1,484.7	2,057.3
INCOMINGS										
Imports of goods and services	402.1	616.2	687.6	789.0	898.9	1,127.7	1,297.8	1,202.6	1,983.6	2,332.8
Compensation of employees to the rest of the world	217.0	294.6	357.8	495.8	436.3	511.6	517.9	425.2	445.1	303.8
Property and entrepreneurial income to the rest of the world	-	-	-	0.8	1.4	3.8	5.7	7.7	23.4	37.2
Other current transfers to the rest of the world	-	-	-	-	-	-	-	-	-	-
Surplus of the nation on current transactions	-450.2	-636.4	-738.2	-928.7	-887.2	-1,089.3	-1,079.6	-635.3	-967.4	-616.1
Disposal of current receipts	168.9	274.4	307.2	357.0	449.4	553.8	741.8	1,000.2	1,484.7	2,057.3

Source : Estimates compiled by Central Statistical Office.

TABLE 14.8 : GROSS DOMESTIC PRODUCT, ITS VARIANTS AND RELATED AGGREGATES AT CURRENT PRICES, 1980 TO 1989

(Nu. in millions)

	1980	1981	1982	1983	1984	1985	1986	1987	19
Major economic flows									
Net domestic product at factor cost	1,033.8	1,206.3	1,411.8	1,650.5	1,941.0	2,212.0	2,567.0	3,200.2	3,4
Consumption of fixed capital	61.0	73.8	86.3	103.0	118.9	137.6	191.6	330.6	3
Gross domestic product at factor cost	1,095.0	1,280.1	1,498.1	1,753.5	2,059.9	2,349.6	2,758.6	3,531.0	3,8
Indirect taxes less of subsidies	17.9	21.2	23.6	34.8	45.6	41.8	43.0	76.7	
Gross domestic product at market prices	1,112.9	1,301.3	1,521.7	1,788.8	2,105.5	2,391.4	2,801.6	3,607.5	3,9
Net export of goods and services	(256.7)	(408.8)	(474.4)	(561.2)	(608.7)	(760.3)	(747.3)	(435.1)	(78
Domestic supply of goods & services	1,369.6	1,710.0	1,996.0	2,349.5	2,714.2	3,151.7	3,548.9	4,042.6	4,7
Gross domestic capital formation	345.1	500.5	615.5	712.0	765.3	1,084.5	1,135.1	1,088.2	1,5
Final consumption expenditure	1,024.5	1,209.6	1,380.6	1,637.5	1,948.9	2,067.2	2,413.8	2,954.4	3,4
Government	275.9	287.3	326.7	442.9	513.2	560.9	576.3	633.6	6
Households	748.6	922.3	1,053.9	1,194.6	1,435.7	1,506.3	1,837.5	2,320.8	2,7
Net capital inflow	450.2	636.4	738.2	928.7	887.2	1,089.4	1,079.6	635.3	8
Gross domestic saving	(105.1)	(135.9)	(122.7)	(216.7)	(121.9)	(4.9)	55.5	452.9	5
Government	(174.2)	(167.6)	(189.1)	(246.9)	(237.1)	(303.4)	(236.2)	208.1	1
Non-govt. sector	69.1	31.7	66.4	30.2	115.2	298.5	291.7	244.8	3
Rates of growth of									
Gross domestic capital formation	31.0	38.5	40.5	39.8	36.3	45.3	40.5	30.2	4
Gross domestic saving	(9.4)	(10.4)	(8.1)	(12.1)	(5.8)	(0.2)	2.0	12.6	2
At 1980 prices									
Gross domestic product at factor cost	1,095.0	1,204.8	1,269.2	1,370.2	1,465.7	1,519.8	1,674.5	1,973.1	1,9
Gross domestic capital formation	345.1	452.7	516.1	549.2	503.6	677.8	573.5	562.6	7

Source : Estimates compiled by Central Statistical Offic

15. PRICES

INTRODUCTION

The only price statistics currently compiled in Bhutan relate to the Consumer Price Indexes, often referred to as the CPI. The CPI has been produced by the CSO twice a year since December 1979. In addition, a food price index for Thimphu has been produced each quarter since September 1987.

The purpose of the CPI is to provide a general indicator of the rate of price change for consumer goods and services. The CPI is important in monitoring overall price development and assessing changes in the living standards of the population.

The CPI is formed by measuring the change in the cost of purchasing a `basket' of consumer goods and services, where items in the `basket' are weighted according to their relative importance in the total spending of consumers. The `basket' includes food items (e.g. rice, other cereals, vegetables, oils and fats, and spices) together with non-food items such as clothing, fuel, furniture and other personal items. Items such as cereals are weighted more heavily than say furniture, because they represent a larger proportion of consumer expenditure. A price change in cereals will therefore have a greater effect on the CPI than a price change for furniture.

The CPI is presented as index numbers, where the indexes are measured relative to the base of June 1979 = 100.0. Price change is estimated by measuring change in the index numbers.

MAIN FEATURES

In June 1990, the rate of inflation in Bhutan as measured by the change in the Consumer Price Index over the previous twelve months was estimated to be 10.9 per cent. This means that prices for consumer items in Bhutan as a whole rose by an average of 10.9 per cent over this twelve month period. This compares with a rate of 9.1 per cent recorded in the twelve months to June 1989.

Prices for food rose by an average of 8.2 per cent in the twelve months to June 1990, while prices for non-food items rose by 16.6 per cent over the same period.

TABLE 15.1 : CONSUMER PRICE INDEXES- FOOD AND NON-FOOD COMPONENTS, BHUTAN, JUNE 1982 TO JUNE 1990
DECEMBER 1979 =100

Item	Weight(%)	1982		1983		1984		1985		1986		1987		1988		1989		1990	Av. growth (%)	
		Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Jun (80-90)	Dec (79-89)
INDEX																				
Food	72.3	129.1	122.8	139.4	149.6	148.0	156.9	155.6	160.8	165.0	169.2	171.7	183.8	191.7	201.9	208.4	218.3	225.6		
Non-food	27.7	130.4	125.6	176.7	147.2	187.3	171.4	171.1	178.1	204.2	215.2	217.5	229.3	235.5	250.6	258.4	273.4	301.5		
Total	100.0	129.5	123.5	149.7	148.9	158.8	160.9	159.9	165.6	175.9	182.0	184.4	196.4	203.8	215.3	222.3	233.6	246.6		
PERCENTAGE CHANGE ON THE PREVIOUS YEAR																				
Food	72.3	15.3	6.1	7.9	21.9	6.1	4.9	5.2	2.5	6.1	5.3	4.0	8.6	11.7	9.8	8.7	8.1	8.2	8.4	8.1
Non-food	27.7	9.6	6.7	35.5	17.2	6.0	16.5	-8.6	3.9	19.3	20.8	6.5	6.5	8.3	9.3	9.7	9.1	16.6	10.6	10.6
Total	100.0	13.7	6.2	15.6	20.6	6.1	8.0	0.7	2.9	10.0	9.9	4.8	7.9	10.6	9.6	9.1	8.5	10.9	9.1	9.9
PERCENTAGE CHANGE ON THE PREVIOUS PERIOD																			79-90	
Food	72.3	11.6	-4.9	13.6	7.3	-1.1	6.0	-0.8	3.3	2.6	2.5	1.4	7.0	4.3	5.3	3.3	4.7	3.3	3.9	
Non-food	27.7	10.8	-3.7	40.7	-16.7	27.2	-8.5	-0.2	4.1	14.7	5.4	1.1	5.4	2.7	6.4	3.1	5.8	10.3	5.4	
Total	100.0	11.4	-4.6	21.2	-0.5	6.7	1.3	-0.6	3.5	6.2	3.5	1.3	6.5	3.8	5.6	3.2	5.1	5.6	4.4	

Source : Collection undertaken by Central Statistical Office.

TABLE 15.2 : CONSUMER PRICE INDEXES- MAJOR COMPONENTS, BHUTAN, JUNE 1982 TO JUNE 1990

Percentage change on the previous period

Item	Weight(%)	1982		1983		1984		1985		1986		1987		1988		1989		1990	Average growth rate(%) (79-90)
		Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	Dec	Jun	
Cereals	37.77	21.2	-1.6	17.1	10.1	-7.5	8.4	-7.5	4.2	2.9	0.1	0.9	2.9	4.6	3.5	3.7	6.2	4.4	3.5
Pulses	0.67	8.6	-8.8	-4.0	5.6	9.6	-0.7	14.2	2.8	4.0	1.0	2.8	5.0	6.4	13.4	7.6	4.2	1.7	4.8
Vegetables	2.43	30.1	-9.0	11.6	-2.2	16.8	8.8	3.1	8.5	0.8	5.7	-0.1	10.0	-3.5	33.9	2.1	-2.6	-12.4	4.2
Fruits	0.04	-3.5	1.3	29.1	-23.4	33.1	-17.5	22.8	35.1	25.3	-37.2	20.5	11.8	10.3	-8.1	8.8	-8.2	8.6	5.0
Edible oil & fats	2.87	0.8	-6.9	12.7	0.9	-0.4	5.8	-5.2	0.8	8.4	3.4	9.5	29.1	-3.4	-2.2	-3.5	3.2	17.7	4.4
Spices	5.10	6.9	-10.7	11.5	1.7	13.9	-4.0	18.6	3.9	0.6	15.2	0.2	18.2	4.9	10.3	-5.5	7.0	-1.5	4.8
Milk & its products	7.07	-13.5	-3.9	32.8	4.2	4.1	-0.4	8.3	-1.1	0.7	6.5	0.5	7.4	12.9	9.0	2.1	3.2	3.9	4.9
Other food & intoxicants	16.36	6.5	-9.7	-0.3	6.1	6.7	6.7	5.6	2.8	3.1	1.8	2.3	7.7	2.3	1.9	7.8	3.5	3.3	4.0
Fuel & lightning	3.65	-10.7	2.1	-9.3	18.8	-6.2	19.3	-7.5	8.3	11.3	6.2	-0.9	7.0	1.1	9.4	0.5	2.5	29.7	3.7
Clothing & footwear	21.20	14.8	-5.7	55.1	-21.8	34.5	-12.8	0.8	3.1	17.3	5.0	1.2	4.9	2.8	6.2	2.7	6.6	8.4	5.6
Stationery goods etc.	0.62	19.9	-0.4	-7.1	8.3	5.3	7.3	4.5	3.5	3.4	1.5	0.2	18.1	3.6	3.6	4.2	2.3	6.3	4.7
Misc. goods & services	1.57	8.1	7.3	-5.0	2.7	6.0	9.0	-2.4	8.1	0.0	9.0	2.1	6.6	2.6	6.7	9.6	-0.4	4.0	6.1
Furniture & Utensils	0.65	-4.3	-2.5	16.2	3.6	6.6	8.2	-0.9	9.3	-2.8	7.2	3.2	3.2	4.3	2.7	7.7	13.3	27.0	6.6
Total	100.00	11.4	-4.6	21.2	-0.5	6.7	1.3	-0.6	3.5	6.2	3.5	1.3	6.5	3.8	5.6	3.2	5.1	5.6	4.4

Source : Collection undertaken by Central Statistical Office.

TABLE 15.3: THIMPHU FOOD PRICE INDEX, SEPTEMBER QUARTER 1987 TO SEPTEMBER QUARTER 1990

December 1979 = 100

Period	Cereals and Pulses	Vegetables and Fruit	Other Food	Total Food
		Indexes		
Annual				
1988	165.2	221.5	216.3	187.5
1989	178.4	282.4	237.2	205.4
Quarterly				
September 1987	152.1	214.9	197.3	172.2
December 1987	157.7	234.2	214.2	182.8
March 1988	156.7	196.1	207.8	178.4
June 1988	163.5	236.7	210.6	184.8
September 1988	170.5	192.7	220.1	190.9
December 1988	170.2	260.6	226.8	195.9
March 1989	172.8	261.8	228.3	198.0
June 1989	178.0	290.0	235.1	204.6
September 1989	180.3	292.8	239.3	207.7
December 1989	182.5	284.9	245.9	211.3
March 1990	189.8	267.7	254.6	218.2
June 1990	198.4	286.6	275.8	232.2
September 1990	201.7	263.2	261.7	227.6
		Percentage changes		
Quarterly change (%)				
September 1987	..	..	..	..
December 1987	3.7	9.0	8.6	6.2
March 1988	-0.6	-16.3	-3.0	-2.4
June 1988	4.3	20.7	1.3	3.6
September 1988	4.3	-18.6	4.5	3.3
December 1988	-0.2	35.2	3.0	2.6
March 1989	1.5	0.5	0.7	1.1
June 1989	3.0	10.8	3.0	3.3
September 1989	1.3	1.0	1.8	1.5
December 1989	1.2	-2.7	2.8	1.7
March 1990	4.0	-6.0	3.5	3.3
June 1990	4.5	7.1	8.3	6.4
September 1990	1.7	-8.2	-5.1	-2.0

Source: Collection undertaken by Central Statistical Office.

ANNEX 1

ADMINISTRATIVE UNITS

1. Thimphu Dzongkhag

Gewog :	1. Babesa	2. Chang	3. Dagala
	4. Geyni	5. Kawang	6. Mewang
	7. Teobesa		

(a) Lingshi Dungkhag

Gewog :	1. Lingshi	2. Naro	3. Soy

2. Chhukha Dzongkhag

Gewog :	1. Bongo	2. Chapchha	3. Dungna
	4. Getana	5. Geyli	6. Jagchhu
	7. Metab		

(a) Phuntsholing Dungkhag

Gewog :	1. Balujora	2. Gengudala	3. Logchina
	4. Phuntsholing		

3. Ha Dzongkhag

Gewog :	1. Bee	2. Isu	3. Katsho
	4. Samar	5. Sangbay	

4. Paro Dzongkhag

Gewog :	1. Dogar	2. Dopshari	3. Doteng
	4. Humrel	5. Lamgong	6. Lungni
	7. Naja	8. Shaba	9. Tsento
	10. Wangchang		

5. Samchi Dzongkhag

Gewog :	1. Pagli	2. Samchi	3. Tading

(a) Chengmari Dungkhag

Gewog :	1. Chargharey	2. Chengmari	3. Gumauney
	4. Nainital		

(b) Dorokha Dungkhag

Gewog :	1. Denchhukha	2. Dorokha	3. Dungteo
	4. Mayona		

(c) Sibsu Dungkhag

Gewog :	1. Bangra	2. Biru	3. Lahirini
	4. Sibsu	5. Tendu	

6. Chirang Dzongkhag

Gewog :	1. Chirang Dangra	2. Dunglagang	3. Goseling
	4. Kikhorthang	5. Patali	6.Phungtench
	7. Samjong	8. Tshokana	

(a) Lamidangra Dungkhag

Gewog :	1. Beteni	2. Chaunauti	3. Gairi Goa
	4. Lamidangra		

7. Daga Dzongkhag

Gewog :	1. Drujegang	2. Kalizingkha	3. Khibesa
	4. Lajab	5. Tsangkha	6. Tsezang

(a) Dagapela Dungkhag

Gewog :	1. Dorona	2. Emiray	3. Goshi
	4. Suntalay	5. Tashiding	

8. Punakha Dzongkhag

Gewog :	1. Chhubu	2. Geonshari	3. Guma
	4. Jimi	5. Kabisa	6. Lingbukha
	7. Shengana	8. Talo	9. Teowang
	10. Zoma		

(a) Gasa Dungkhag

Gewog :	1. Khamed	2. Khateo	3. Laya
	4. Lunana		

ADMINISTRATIVE UNITS (continued)

9. Wangdiphodrang Dzongkhag
Gewog : 1. Athang 2. Daga 3. Dangchhu
4. Ganteo 5. Gase Tsogog 6. Gase Tso
7. Jena 8. Kashi 9. Nahi
10. Nisho 11. Phangyul 12. Phobji
13. Rubisa 14. Sephu 15. Thetso

10. Bumthang Dzongkhag
Gewog : 1. Chhokhor 2. Chhumi 3. Tang
4. Ura

11. Sarbhang Dzongkhag
(a) Geykephug Dungkhag
Gewog : 1. Bhur 2. Danabari 3. Geylegphug
4. Lalai 5. Sershong 6. Surey
7. Taklai
(b) Kalikhola Dungkhag
Gewog : 1. Deorali 2. Kalikhola 3. Nichula
(c) Sarbhang Dzongkhag
Gewog : 1. Doban 2. Hilay 3. Leopani
4. Sarbhangtar 5. Singye

12. Shemgang Dzongkhag
Gewog : 1. Bardo 2. Nangkor 3. Shingki
4. Tong
(a) Panbang Dungkhag
Gewog : 1. Drokar 2. Ngala 3. Phangk

13. Tongsa Dzongkhag
Gewog : 1. Dragteng 2. Korphu 3. Namthe
4. Nubi 5. Tangsibi

14. Lhuntshi Dzongkhag
Gewog : 1. Gangzur 2. Jaray 3. Khoma
4. Kurteo 5. Menbi 6. Menji
7. Metsho 8. Tsenkhar

15. Mongar Dzongkhag
Gewog : 1. Chaskhar 2. Dametsi 3. Gongo
4. Kengkhar 5. Mongar 6. Ngatsh
7. Saleng 8. Selambi 9. Tangr
10. Tsakaling 11. Tsamang

16. Pemagatsel Dzongkhag
Gewog : 1.Chongshi Borang 2. Dungmed 3. Khand
4. Khar 5. Shumar 6. Yurun
7. Zobel

17. Samdrupjongkhar Dzongkhag
Gewog : 1. Orong 2. Gomdar
(a) Dechhenling Dungkhag
Gewog : 1. Dechhenling 2. Norbugang
(b) Bangtar Dungkhag
Gewog : 1. Bakuli 2. Dalim 3. Mart
4. Samrang
(c) Daifam Dungkhag
Gewog : 1. Hastinapur 2. Louri 3. Sert

ADMINISTRATIVE UNITS (continued)

18. Tashigang Dzongkhag

Gewog :	1. Bartsham	2. Bidung	3. Kanglung
	4. Phongme	5. Radhi	6. Samkhar
	7. Shongphu	8. Uzarong	9. Yangner

(a) Sakteng Dungkhag

Gewog :	1. Sakten

(b) Tashi Yangtse Dungkhag

Gewog :	1. Jangphu Khamdang	2. Tomiyangtsa	
	3. Toetsho	4. Yallang	5. Yangtshi

(c) Thrimshing Dungkhag

Gewog :	1. Kangpara	2. Thrimshing

(d) Wamrong Dungkhag

Gewog :	1. Khaling	2. Lumang	3. Nanong

TOTAL NUMBER OF GEWOGS - 191