



Bhutan

Dilemma of Change in a Himalayan Kingdom

B.C. Upreti



Study of Bhutan is fascinating in many respects. Its complex ecology has provided it a distinct identity not only geographically but also socially and culturally. For a long time this small Himalayan state was ruled under a dual authority system of Dev Raja and Dharma Raja. Today, Bhutan is among those few countries of the world which have a monarchic system. Being a backward and underdeveloped country Bhutan is faced with immense challenges of socio-economic transformation.

Bhutan's quest for modernization and political liberalization has further aggravated popular needs and aspirations. The country is today passing through a transitional phase. To what extent Bhutanese ruling elite will succeed in preserving its cultural uniqueness in the context of ongoing process of political liberalization is a significant issue.

The multi-structured society of Bhutan has fallen into a vortex of ethnic conflict with the explosion of the problem of Nepali immigrants.

These are serious issues which the Bhutanese society and polity is concerned with today.

This study is an attempt to probe into the above-mentioned issues and thereby understand the dynamics of a transitional society.

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Himalayan Kingdom)

Editor
B.C. Upreti



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Preface

Bhutan, a small Himalayan Kingdom, has many unique features. It is among the few surviving monarchic systems of the world. The difficult hilly terrains, isolated valleys and snow-clad mountains gave way to the growth of a distinct society and culture in that country. The Bhutanese rulers tried to keep the country isolated so that its socio-cultural fabric is not disturbed due to the external influences.

After 1950, like many other developing countries, the Bhutanese rulers also realized the need to open the country to the forces of modernization and development. Despite Bhutan's inherent limitations owing to resource scarcity, it initiated a process of infra-structural development. However, in the context of its traditional feudal socio-political order, the Bhutanese ruling elite found it expedient to follow a policy of controlled modernization. It was not possible to ignore the feudal elite and a balance between the two was essential.

Bhutan has tried to define the developmental goals in its own unique terms. Instead of Gross National Product it has laid down the principle of Gross National Happiness. The attempts made by the Bhutanese monarchy towards political liberalization are significant. In fact, the political order of the kingdom is at crossroads. The Bhutanese rulers have perhaps realized that it is difficult to ignore the emerging demands for a longer time period.

Bhutan's peaceful social set up has entered into a difficult phase with the explosion of ethnic conflict. It is a new challenge to the country with wider domestic and external consequences. How to resolve this problem is a serious issue.

Bhutan is sandwiched between two Asian giants: India and China. How to preserve its identity and integrity is a major challenge to its foreign policy.

All these issues and problems need a deeper study in order to understand the dynamics of this Himalayan Kingdom which is undergoing a rapid transformation today.

The present study is an outcome of the contributions made by eminent scholars in the field of Bhutanese studies in particular and South Asian Studies in general.

I consider it my sincere duty to express my deepest sense of gratitude to all the contributors. It is but for their cooperation that this study would not have been possible.

I also take this opportunity to convey my thanks to my friends, colleagues and family members who have always encouraged and supported me in realizing my academic pursuits.

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While the ideas expressed are those of individual contributors, I alone am responsible for any shortcomings and lapses in editorial work.

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B.C. Upreti

Introduction

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Bhutan, a small Kingdom in the snow clad mountains of the Himalayas, is among the few surviving monarchic systems of the world. Small though it is, the kingdom of Bhutan has maintained a specific identity in many respects. The Bhutanese monarchy is not very old yet even during this short period of time it has experienced a number of changes. In fact, the Bhutanese monarchy has exhibited dynamism and change. Today, when the world is fastly moving ahead with the goals of democracy and good governance on the one hand and globalisation, liberlisation and privatisation on the other hand, it is not possible for Bhutan to keep itself aloof of these changes. Bhutan's major task seems to be today, as to how to keep up with these changes by preserving its traditional identity and images. In fact, Bhutan is passing through a conflict between tradition and modernity. The Bhutanese rulers have realized the need to open the country to the forces of modernization and change. At the same time they have also desired to maintain their culture and distinct socio-religious identity.

The nomenclature Bhutan understandably has several meanings. One meaning of Bhutan is the last part of the land i.e., highland or hilly terrains. It is also know as the land of Bhot or Bhotias. Bhutan is also called the land of Loh-Mon. it is also known as Druklu which means the land of thunder dragon.

In terms of size Bhutan is one of the smallest countries of the world. Its total land area is 18,000 sq mile. Bhutan is a land locked country. From three sides – south, west and east – Bhutan forms border with India. In the north Bhutan has border with China. Bhutan does not have border disputes with either of the neighbouring countries. Because of having border with China and also because of Bhutan's small size and economic and military incapacibilities, it has a strategic importance for India. The strategic Chumbi valley of China is very near to the Bhutanese border where

China has established its military base. Bhutan – India border known as Duars is unnatural and accessible.

Bhutan is divided into four zones and 20 districts known as Dzongkha. Most of the area of the country is hilly and mountainous. Only a small strip towards the Indian border is plain. It is fertile and suitable for agro-industries, horticulture and other modernized economic activities. The plains area known as southern Bhutan is inhabited by the migrant Nepalese. Hence it has a distinct socio-cultural identity as well.

Bhutan is a resource scarce country. However, it is rich in water resources and with the construction of Chukha hydel project with the Indian assistance its river waters have proved to be the highest revenue earning resource.

Bhutan's population (2000) is 2.1 million which is the lowest in whole of South Asia. Its annual population growth rate (1995-2000) is 3.1 per cent which is quite high and only next to the Maldives. Life expectancy at birth is 62 years which is higher in comparison to Bangladesh and Nepal.

The adult literacy rate of Bhutan is 42 per cent. Bhutan's per capita GNP (US dollar 1999) is 510 which is higher to India, Pakistan, Bangladesh and Nepal. Bhutan's real per capita GDP (US Dollar 1999) is 1341. Bhutan's human development index is 0.477. Bhutan's 35 per cent population is without excess to health services, 42 per cent population is without excess to safe water and 30 per cent population is without excess to sanitation. 94 per cent population of the country is engaged in agricultural activities. Only 0.5 per cent population is engaged in industries and 5.5 per cent in services. The adult literacy rate is 42 per cent and the women literacy is lesser than that.

Bhutan is a multi-ethnic, multi-cultural, multi-lingual and multi-religious country. The major ethnic groups are Sharchops which includes the ruling Drukpas, Naglongs who are of Tibetan origin and Lhotshampas who are the people of Nepali origin. These apart, there are some smaller ethnic groups such as Brukpas, Khens, Lepchas, Toktop, etc.

The three main ethnic groups not only represent different geographic regions, but they also have different religion, culture

and language. The people of Tibeto-Mongloid origin are Buddhists and speak languages of Tibetan origin. It may be pointed out here that in Bhutan Mahayan sect is practiced which came over there from Tibet. It is highly influenced by Tibetan Tantrism and the Lamaist traditions. Mahayan Buddhism is followed by Naglongs. The Sharchops follow a different sect of Buddhism known as Ningamppa Buddhism. The Lhotshampas are Hindus by and large.

Different languages and dialects are spoken in different regions of Bhutan. In western Bhutan Dzonkha, in eastern Bhutan Dongla, in middle Bhutan Khong and in Southern Bhutan Nepali is spoken. Dzonkha is the national language of Bhutan, which is primarily the language of the ruling group of Bhutan.

Bhutan as a unified country came into existence in sixteenth century. Nagwang Namgyal (1594-1651) laid the foundation of a united Bhutan. He got the title of Shobdrung. Bhutan became a theocratic state and the authority was divided between Deb Raja and Dharma Raja. The British colonial power did not take much interest in Bhutan. Neither they took any step to merge Bhutan into the British empire. Their only interest was to obtain a route for trading with Tibet. In the treaty of 1774 the Britishers got the right to travel through Bhutan. In the treaty of Sin Chu-la (1885) the Britishers got the right of an arbitrator. In the treaty of Punakha (1890) the Britishers got their interest protected in Bhutan.

In 1907 monarchy was established in Bhutan and Ugyen Wangchuck became the hereditary monarch. Bhutan did not come directly under the British rule but it remained a protectorate enjoying internal freedom. Its position was kept ambiguous deliberately.

After 1950 when Jigme Wangchuck took over the powers, Bhutan stepped on the path of modernization and development. The traditional and feudalistic society of Bhutan began to step on the path of structural transformations. In the subsequent years the Bhutanese ruling elite has also tried to initiate a process of political liberalization. Certain important steps have been taken towards democratisation and decentralization of powers. However, Bhutan has yet to experience a systemic transformation. The Bhutanese rulers have tried to evolve a system of its own. In a way this appears

to be an attempt to legitimize the traditional political order in the changing context.

Bhutan's basic dilemma today appears to be to modernize and develop the country but at the same time to preserve its traditional and cultural uniqueness. Therefore, it has tried to define development in its own terms as Gross National Happiness. The main concern of Bhutan's ruling elite is to preserve its cultural uniqueness. The Bhutanese ruling elite is closely identified with the distinct culture of Bhutan which indeed is the Drukpa culture. The ruling elite realizes that the traditional political order can be secured so long its cultural identity is secured. Therefore, not only that Bhutan has tried to preserve its cultural identity but has strongly reacted against any cultural invasion from outside. The problem of Nepali immigrants is also rooted in this fear of the ruling elite. The cultural code which in fact gave rise to ethnic conflict in Bhutan was an attempt on the part of the Bhutanese rulers to preserve its cultural identity.

Bhutan's problem today is that it wants socio-economic modernization but also cultural isolation in order to protect its cultural identity. As a result contradictions have come up in the Bhutanese society. These contradictions have generated needs and pressures on the political system for a change. To what extent Bhutanese ruling elite can withstand these pressures and to what extent it is possible to sustain Bhutan's unique cultural identity is a moot question.

II

There are altogether eight articles included in this volume. The opening article by **Vinod Bhardwaj** and **Hansa Lunayach** provides a detailed profile of Bhutan's geography and ecology. It gives an understanding of Bhutan's geography and demography and agriculture. This study by two young geographers also touches upon the emerging environmental hazards. It has rightly been pointed out that Bhutan needs a long term planning for population control and for the development of agricultural, horticulture and animal husbandry as these are the main stay of Bhutanese economy.

Shekh Rahim Mondal in his paper on People of Bhutan provides a detailed analysis of the ethnic groups of Bhutan and

their social and cultural patterns. Like other South Asian States, Bhutan has a multi-ethnic and multi-religious society. Its socio-cultural and linguistic patterns have been largely influenced by the neighbouring countries particularly the religio-cultural and linguistic influences from the north have been quite dominant.

Four major ethnic groups of Bhutan viz. Ngalops, Scharchops, Khangs and Lhotshampas not only represent distinct geographic regions but also different culture. The Lhotshampas are the Nepali migrants in southern Bhutan which have brought a different culture and language in the country. They are not well absorbed in the Bhutnese society and have become a cause of concern for the Bhutanese today.

The author believes that how to keep the socio-cultural fabric of the country intact is a major task for the Bhutanese ruling elite today. Bhutan has followed a policy of relative modernization and have followed other policies to preserve its age old culture. Bhutan's attempt to define goals of development in terms of Gross National Happiness is also based on its quest for cultural and social harmony.

A.C. Sinha in his article on dynamics of the Bhutanese policy and emergent foreign relations discusses the dynamics of Bhutanese polity. He believes that the transformation of Bhutan from a theocracy to a principality and from principality to a nation state in recent years has been a significant course. The Bhutanese monarchy, the British officials and the Indian functionaries from diverse fields have been instrumental in this process of transformation.

This transformation necessitated restructuring of Bhutanese society and polity. However, the Bhutanese ruling elite recognized the need for a balance between traditional and modernizing forces.

Prof. Sinha believes that the Bhutanese ruling elite has been quite pragmatic in choosing their external allies. It is for this reason that they have been able to seek external support and substances when ever they needed it. This has indeed been an important source of sustenance to the Bhutanese monarchy.

B.C. Upreti has focused on the role of monarchy in the socio-economic and political modernization of Bhutan. The institution

of monarchy has been the primary vehicle of modernization and development in the post 1950 period. The monarchy realized that in the context of the change taking place in and around the region it was imperative to introduce the socio-economic and political changes within the country. However, the monarchy was also aware of the fact that the Bhutanese was a highly traditional and feudal society. However, it followed a cautious path and allowed modernization to a limited extent.

The present king of Bhutan has been instrumental in initiating a process of political and administrative decentralization. However, the Bhutanese monarchy seems defining development in its own terms and evolve its own unique democratic pattern of governance.

It can be said that the very survival and sustenance of the institution of monarchy has necessitated socio-economic and political reforms.

Mathew Joseph has focused on the problems of national identity formation in Bhutan. In multi-ethnic societies a conflict between different ethnic identities is a serious challenge to the process of national identity formation and nation building. In plural societies the process of national building is bound to involve conflicts and violence. The state as an institution plays an important role in the process of nation building. It is the state therefore, to which the various competing ethnic identities come into conflict. Mathew rightly believes that the problem can be resolved through the distribution of political power among various groups and classes on the basis of equality and democracy.

Bhutan's major problem has been the conflict between the Nepalese immigrants of Southern Bhutan and the Ngalong dominated Bhutanese state; which by and large originated due to quest for cultural preservation by the Bhutanese ruling elite which has been viewed as a basis of Bhutanese national identity and the Nepalese immigrants as a source of threats to their identity.

It has rightly been pointed out that Bhutan's ethnic crisis is a by product of the socio-economic and political development within the country as well as outside in the region.

The ethnic conflict in Bhutan can be understood in terms of a conflict between the core and the periphery. The resolution of this crisis would depend as to what extent the Bhutanese ruling elite

would be prepared to absorb the peripheral and marginalized groups in the politico-cultural core.

South Asia is a refugee infested region. There are different streams of refugees originating from the region as well as outside the region. The refugees from Bhutan has added yet another dimension to this problem. The Nepalese immigrants in Bhutan once encouraged to migrate to that country, are today compelled to acquire the status of refugees. **Rajesh Kharat** has discussed the status, problems and prospects of the Bhutanese refugees.

The problem of Bhutanese refugees is rooted in the cultural assertion of the ruling elite of that country in order to maintain its own distinct identity and integrity.

Despite the fact that a number of international agencies are concerned to the refugees from Bhutan living in Nepal, they are stateless people with an uncertain future. Kharat points out that the complex nature of the problem can be understood by the fact that the even if these refugees are repatriated to Bhutan they are not going to receive any warm welcome by the people of that country. There is a need that the human rights organization come forward with a consensus in order to take up concrete measures in order to solve the problem.

Amita Agarwal in her article on foreign policy of Bhutan has pointed out that for a small state like Bhutan situated between two giant powers of Asia: India and China, preservation of its national identity and independence and promotion of national development are primary goals of foreign policy. This has indeed been the major task of Bhutanese foreign policy makers after 1950 when the regional political environment changed drastically.

Bhutan has maintained a closer understanding with India but never came in conflict with China. Bhutan has also made its place in the comity of nations. It has also succeeded in enhancing its options of aid and trade.

Shashi Upadhyay has discussed Bhutan's role in SAARC. The South Asian Association for Regional Cooperation has emerged as a regional forum where it is possible for the smaller states of the region to discuss serious regional issues and problems. It is also a forum where these countries can assert upon their independent

identity. It is with this intention that a small country like Bhutan has taken interest in SAARC and has participated in its deliberations since its very inception.

Shashi Upadhyay states that despite its own developmental problems and limitations, SAARC has provided a regional exposure to Bhutan. SAARC also lays opportunities for its economic diversification and strengthening relations with the countries of the region other than India. Because of its low level of development and rather meager prospects of trade Bhutan has little to offer to the member countries yet as its active member its role in SAARC is significant.

Ecological Profile of Bhutan

Vinod Bhardwaj
Hansa Lunayach

Bhutan presents a striking example of how the geographical setting of a country influences social, economic and political life of the people. Bhutan is a landlocked country and topographically it may be viewed as a country of mountains and ridges of varying heights, varied climatic conditions, dense vegetation, soil conditions, mineral resources, agricultural practices and population distribution and their interrelationship with each other. In this paper it is proposed to examine the ecological set-up of Bhutan which is described as "the worlds last Shangrila".

Thimpu is the capital city of Bhutan. The whole country is divided into 18 Dzongkhag (districts), viz, Bhumthang, Chhukha, Chirang, Daga, Geylegphug, Haa, Lhuntshi, Mongar, Paro, Pemagatsel, Punakha, Samchi, Samdruk Jongkhar, Shemgang, Tashigang, Thimpu, Tongsa and Wangdi Phodrang.¹

Geographical Setting:

Bhutan is best oriented by locating it with relation to the Great Chain of Himalayas which arcs through the Northern frontier of India. The country lies between $26^{\circ} 45' N - 28^{\circ} 10' N$ latitudes and $88^{\circ} 45' - 92^{\circ} 10' E$ longitudes. It occupied a total land area of 46,500 sq km. The maximum east-west extension of the country is 300 km and the north-south extension is 150-170 km.² It is bordered by India's state of Sikkim to the west, West Bengal to the south-west, Assam to the south and southeast, and Arunachal Pradesh to the east and by the Tibetan autonomus region of China in the north and north-west.

Physographically the country may be divided into four major physical divisions from north to south.

(I) Great Himalayas

The entire northern part of Bhutan lies within the great Himalayas, and the snow capped ranges attaining a height of more than 24,000 feet at some places. Some of the highest peaks in this region are more than 7300 mts. above sea-level. Khomo Lhari Peak is 7320 m high at the west end and Kula-komni is 554 mts high in the east. There are many valleys in this region some of which are 3700 m - 5400 m high above sea-level and run down from the great northern glacier. The Alpine pastures of this region are used for grazing in the summer months only, the hardy Bhutan cattle are taken up to 14,000 feet and the yaks to even high elevation. The high alpine pastures from a comparatively broad base, from which snow capped mountains rise steeply.

North of the Great Himalayas are several 'marginal' mountains of the Tibetan Plateau. These marginal mountains are lower in elevation than the Great Himalayas and their summits attain a height of 19,000 - 20,000 feet at the most. They form the principal water land between the rivers draining southward and those flowing to the north. Further, these mountains separate the complicated structure of the Himalayas from the flat or undulating tableland of Tibet.

Dry climate dominates the landscape north of the Great Himalayas and as a consequence there are no large valley glaciers in the Tibetan marginal mountains.

(II) Inner Himalayas

The Inner Himalayas lies to the south of the Great Himalayas. These ranges run from north-west to south-east in the western part and from north-east to south-west in the eastern part of the country. The Inner Himalayas form watershed between the principle rivers of Bhutan. Of these, the Black Mountain Range which forms the watershed between the Sankosh and the Manas rivers, lies in the center of Bhutan and thus, divides Bhutan into two parts both administratively and ethnographically.

The mountain provide climate control that has a marked influence on temperature and precipitation. They act as barriers and interrupt the moisture of the monsoon winds which

results in heavy rain fall in the wind ward slopes while descending air bring drier conditions on the downward side. Differences in elevation and the degree of exposure to monsoon winds encourage a variety of vegetation ranging from dense forests on the rain swept windward slopes to alpine vegetation of the highest peaks.

Central Bhutan lies in the Inner Himalayas and is comprised of several fertile valleys located at elevations varying from 5000 - 9000 feet, which, with their dividing ranges, extends southwards for 40 miles. These valleys are relatively broad, flat with moderate rainfall and are fairly well populated and cultivated. Among them the best known valley³ are - The Paro (2350 meter), The Thimpu (2545 meter). The Bhumtang (2700 meter) and The Haa (2575 meter). Two major population centers in the country viz Toshigang (757 m) and Mongar (1329 m) lie in this region in the eastern part of the country.

The Inner Himalayan valleys have been formed by the erosive work of the rivers. The valley bottom and the slopping hillsides on either sides of the streams render suitable for agricultural purposes by being cut into terraces. In Punakaha valley, which is least elevated among the Inner Himalayan valleys of Bhutan a striking contrast is afforded by the site of the sub tropical fruit trees as Mangos and Banana in the valley bottom and the perennial snow of the arctic winter towering above them on the hoarny mass of the Great Himalayas to the north.

(III) The Southern Foot Hills

The average height of the outer most ranges of the southern foot hills varies between 600 - 1500 meters above sea level. Some of the major rivers pass through these ranges. Since the rivers are in young stage therefore their weathering action is dominant in this region.

Most of these hills are covered with dense deciduous forest and alluvial lowland river valleys.

(IV) The Duars Plains

The Duars are an extension of the Ganga-Bhramaputra plains of India. The Duars of the Assam and Bengal plain reach

northward into the borders of Bhutan. The mountains rise sharply and abruptly from the narrow Duars and are cut into deep gorges by rivers liable to sudden floods. The rainfall is excessive here and hill-sides are densely clothed with vegetation-forest as well as undergrowth.

Bhutan Duars may be roughly divided into the northern and southern Duars. The Southern Duar is covered mostly with heavy savanna grass and bamboo jungles. In certain areas the savanna grass lands have been cleared for rice. The southern Duars present a rugged, irregular and slopy surface marked by spurs which project into the plains from more lofty mountains in the north. This region has dry porous soil. It has dense vegetation which swarms with elephants, deer, tigers, rhinoceros, leopards and other wild animals.

Drainage System

The entire mountain territory of Bhutan is dissected by numerous rivers and their tributaries. Almost all large rivers of Bhutan (except the Manas and the Kuru) flow from the 'southern face of the Great Himalayas through the narrow defiles at the foot of the mountains, emerge into duars, eventually to drain into the Brahmaputra.

The Mochu (of Punakha), flowing from the snow capped mountains pass through GasaDzong and the Phochu in the Punakha valley to form the Sankosh river.⁴ The river Thimpu of Wongchu flow passed Thimpu the capital of Bhutan and run southward to the entire extent of country under the name of Raidak to Phutsholing on the Indian borders in the Buxa Duar.

Climate

Bhutan's climate is as varied as its altitude and like most of the Asia, is affected by monsoons. Western Bhutan is particularly affected by monsoons that bring between 60 and 90 percent of the region's rainfall. The climate is humid and sub-tropical in the southern plains and foothills, temperate in the Inner Himalayan valleys of the southern and the central region and cold in the north, with year round snow in the main Himalayan summits.

Temperatures vary according to elevation. Temperature in Thimpu, located at 2,200 mt. above sea-level in west central Bhutan, range from 15° C—26° C (luring the monsoon season of June through September but drop to about 4° C to 16° C in January). Most of the central portion of the country experiences a cool, temperate climate year round. In the south, a hot, humid climate helps to maintain a fairly even temperature between 15° C to 30° C. year round although temperatures sometimes reach 40° C in the valleys during summers.

Bhutan is divided into five micro climatic zones which are given below.

Climate Zones	Altitude in Meters	Temperature in °C	Rainfall in CMs	Dzongkhas
Cool Temperature	2500-3500	9.9	650-850	Bhumtang
Warm Temperature	1800-2500	12.5	650-850	Ha, Paro, Thimpu
Dry Subtropical	1200-1800	17.2	850-1200	Punakha, Shar, Mangde, Jashigang, Lhuntso, Mongar Jashigang, Lhuntso, Mongar
Humid Subtropical	600-1200	19.2	1200-1500	Samehi, Part of Jashigang, Shemgang, Chirang, Pema Gatshel, Gaylegphug, Chukha
West Sub-tropical	150-600	23.6	2500-5500	Samchi, Samdrup Jongkna, Gayugphug

Annual precipitation ranges widely in various parts of the country. In the severe climate of the north, there is only about 40mm of annual precipitation primarily snow. In the temperate central regions, a yearly average of around 1000mm is more common, and 1800mm per year has been registered. In some locations in humid-subtropical south, ensuring thick tropical forest, or Savanna. Thimpu experiences dry winter months (December to February) and almost no precipitation until march, when rainfall averages 20mm a month and increases steadily thereafter to a high of 220mm in august to a total annual rainfall of nearly 650mm.

Flora and Fauna

The forests of Bhutan abound in many varieties among them are beech, ash, birch, maple, cypress and yew. Firs and Pines cover the mountain heights and below these still at an elevation of 8000 or 9000 feet is a zone of vegetation, consisting principally of oaks and rhododendrons. The cinnamon trees are also found.

The lower ranges of the hills abounded in animal life. Elephants are numerous, Tigers are found only near river Tista and in the dense reed jungle and the forests of the Duars. Leopards abound in the haa valley, Deers everywhere, some of them of a very large species. The Musk Deer is found in the snows, and the Barking Deer on every hill side. Wild hogs are found even at great elevations. Large Squirrels are common. Bears and Rhinoceros are also found. Pheasants, jungle fowls, Pigeons and other small birds are in abundant.

The Golden Langur, Red Pandas, Himalayan Martin, Hornbills, Timid blue Sheep are also found in Bhutan. These faunas are rare and exotic.⁵

Population Distribution and its Relation to Topography and Climate

The total population of Bhutan in 1995 was reported to be 5,82,000 which is estimated 2,005,222 in the year 2000. Other estimate range as low as 8,00,000 (July 2000 est).

About 15 per cent of the population of Bhutan live in urban areas and the rest in rural areas.

Other aspects of population according to 2000 estimates are as follows⁶

A. Age Structure

0-14 years - 40%, (Males - 417627 & females - 387927)

15-64years - 56%, (Males - 576533 & females - 544076)

65 years & above - 4%, (Males - 40081 & females 38978)

B. Population Growth Rate - 2.19%

Birth Rate - 36.22 births/1000 population

Death Rate - 14.32 deaths/1000 population

Net Migration Rate - 0 migrants/1000 population

C. Sex Ratio

At birth - 1.05 male(s) / females

Under 15 years - 1.08 male(s) / females

15-64 years - 1.06 male(s) / females

65 years and above - 1.03 male(s) / females

total population - 1.07 male(s) / females

Infant Mortality rate - 110.99 deaths/1000 live births

D. Life Expectancy at Birth

Total population - 52.4 years

Males - 52.79 years

Females - 51.99 years

E. Fertility Rate

5.13 children born/woman

Nationality

Noun: Bhutanese (singular and plural)

F. Ethnic Groups

Bhote 50%, ethnic Nepalese 35%)

Indigenous or migrant tribes 15%)

G. Religions

Lamaistic Buddhist 75%, Indian and Nepalese

Influenced Hinduism 25%

H. Languages

Dzongkha (official). Bhotes speak various Tibetan dialects.
Nepalese speak various Nepalese dialects.

I. Literacy

Total population : 42.20/o

Male : 56.2%

Female : 28.1% (1995 estimate)

The population distribution of Bhutan is uneven. There are vast stretches of land which are still uninhabited whereas some smaller areas are over populated.

Un Inhabited Areas : The parts of the Greater Himalayas and the mountain ranges of the Inner Himalayas are totally uninhabited. Because most of the part of the land surface is rocky with steep slopes. The altitude is mostly 4000 mts. above sea level. It is extremely cold at these heights and the average temperature is below 10°C. Precipitation is in the form of snow. Fog is common feature of weather. The soil is also poor in humus and nutrients food and fodder crops can not grow well in poor cold soil. Due to this ecological factor population is absent.

Sparsely Populated Areas

These areas are found in the slopes in the central valley and in southern foothills. The Lakhaps people who are able to live at altitudes between 3000m 3500m live in these areas, grow buck wheat and barley. These crops can be cultivated in cold places where there is sparse rainfall. Yaks and Sheeps give additional income as these animals can survive in cold conditions.

Moderately Populated Areas

These includes the fertile farmlands of the flat valleys in the Inner Himalayas and the narrow strips of plains in the foothills. Here soil is fertile, climatic conditions are tolerable and water is available for irrigation.

Densely Populated Areas

These are mostly the urban settlements. In these centres people live close to one another and there are lots of houses, buildings and roads. Very few open fields can be seen. The largest towns are Thimpu and Phutsholing. The densely populated areas are main market centres and small in size and are scattered.

The increase of population in Bhutan has caused many problems. Firstly, the pressure on agricultural land has increased and this has caused food shortage.

Secondly, due to increase in population forests (some areas) have been cleaned to make room for agriculture and settlements. This has caused problem of deforestation and erosion.

Thirdly, increasing population has created more demand for mineral resources which are already in shortage.

If the present growth rate of 2 per cent continues than the population of Bhutan will double in just 30 years and in that stage the problem may become more intense. Thus, population planning should be done efficiently.

Land Use

According to a survey done in 1994 the land of Bhutan has been classified as forests, scrub forests, agricultural land, pastures, rock, snow and glaciers and others. The survey report shows that about 64.4 per cent of the total area is covered by forests; 8.1 per cent by scrub forests, 7.9 per cent by agriculture land, 3.9 per cent by pastures, 12.5 per cent by rocks snow and glaciers; and 3.3 per cent by others. And according to the survey report 29,045 sq. km, i.e. 62.5 per cent land is forests; 3,088 sq. km, i.e. 6.6 per cent) is agricultural; 1,564 sq. km i.e. 3.4 per cent is pasture land; 12,803 sq. km, i.e. 27.5 per cent is other.

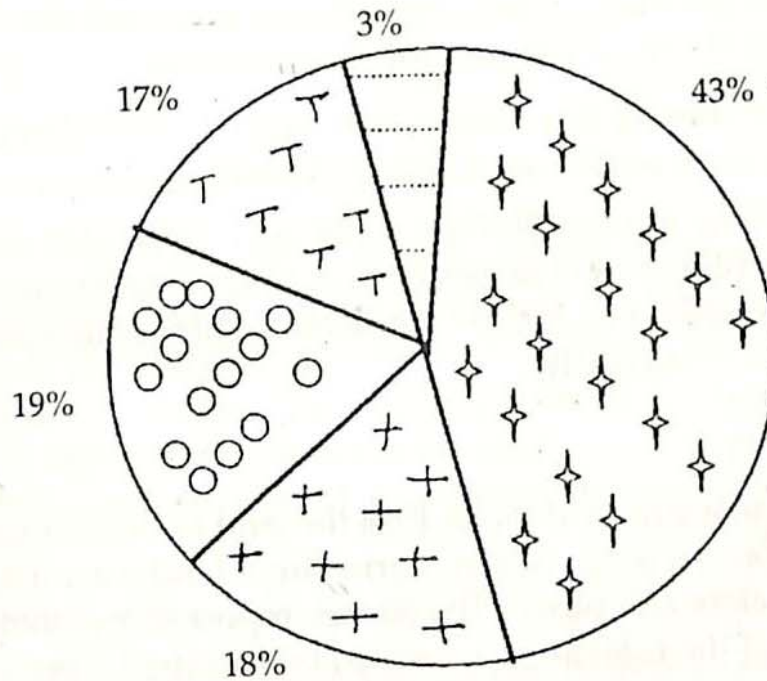
Agriculture

In Bhutan agricultural activities are carried out at subsistence level. The farm products are mostly consumed by the family.

Farmers of Bhutan cultivate a large variety of crops, although all of these crops are not found everywhere. In the warmer areas farmers cultivate a greater variety of crops. As we approach the colder regions the cultivation of crops becomes limited to a few varieties of short growing season and low fertility of the soil.

Crops cultivated by farmers may be sold for cash but we cannot call it a cash crop, because the purpose of farming is not to sell the products in the market. The farmers sell the small surplus in order to buy other necessary things with the money received from sales. But when crops like Apple, Orange, Ginger, Potatoes and vegetables are grown in large quantities, they are taken for sale as cash crops. Others such as different varieties of grains and vegetables cultivated mainly for food are the food crops.

Land use by crops in Bhutan



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Cereals	Legumes	Oil seeds	Roots & Tuber	Vegetable

In general, a farmer tries to cultivate a variety of crops in his farm so that he can be assured of food supply if some crops fail. For example in some areas of Bhutan when rice crop fails, the farmer uses wheat, millets, or buckwheat. This way the farming family does not suffer from food shortage.

In higher altitudes farmers grow wheat and barley in one season and buck wheat in another season. Some times buckwheat is cultivated in shifts between different plots called Pangzhing so that, when one plot is used in one year other plots are left fallow or free in order to regain fertility.

In the lower valley of the western region, rice fields are used for wheat, maize and mustard in the winters, while in the central region, buckwheat and wheat is cultivated. In the Khyeng areas of Shemgang and the southern foothills farmers grow soya beans. In the drier farmlands of eastern Bhutan maize is the main crop. In some parts of the region such as, dungsum, pena Galsthel, double cropping of maize is possible in a year.

During the late spring season when the maize plants are tall, millet is transplanted between maize plants. When the maize has

been harvested in early summer the millet is ready to be harvested in autumn. After the harvest field is ploughed ready to sow maize again in late winter. This system of growing two varieties of crops on the same plot and at same time is called mixed cropping.

Climate and altitude influence the agriculture of Bhutan very much. Crops require a certain range of temperature in order to grow well. Some crops can grow in very cold and dry areas. Buckwheat and winter wheat which grow in high altitude are good examples. Others, such as Rice need higher temperature and large amount of water. Rice does not grow well if the temperature is less than 18°C & more than 30°C. It requires 600-2000 mm of rainfall where rainfall is low, good irrigation is necessary. wheat, on the other hand, needs very cold conditions and requires only 300 to 400 mm of rainfall in a year and no additional irrigation. As the winter season in Bhutan is usually dry, some kind of irrigation is necessary. Wheat, however, does not require the flooding, that rice does.

The crops grown in colder region are barley, buckwheat and potato. In those regions animal and plant matter decay very slowly so that the soil does not regain its fertility quickly. As a result many crops can not be grown. That is why, as we move higher up the mountains, cultivation becomes less important. The inhabitants of Laya, Lingzhi, Lunana, Duar, Memak and Sakteng give more importance to sheep and yak seaming.

As we descend to lower parts of the valleys or down to the foothills, the temperature increases organic matter decays at a faster rate. Here we see a bigger variety of crops and the fields can be used throughout the year if the soil is properly fertilized and irrigated.

The length of growing season is also important for the crops. In winter areas such as Punakha valley the growing season is long enough to grow two crops of rice in a year. Whereas, it is not possible in Thimpu and Paro valleys because the warmer season is shorter there.

At different altitudes people grow vegetables in the kitchen garden next to their farms house. In the most suitable areas there are also fruit trees such as – oranges, apples, pears, peaches, plums, walnuts, citrus and banana around farm house and in orchades.

The surface relief of Bhutan is so complicated that it is difficult to say that one type of climate prevails over a large area. Because in some places where the mountain slopes face away from the direct sunlight, the climatic conditions will be much colder than the areas facing the sun. Some times where the altitudes drop suddenly the temperature on the top of the ridges is much lower than in the valley below. A good example is between Tharreunseng La and Limuthang in Mongar where the difference in altitude is about 4960 meters within a short distance. This effects how agriculture is practiced even in the same valley.

Livestock

The domestic animals of Bhutan include cattle, yaks, sheeps and goats. Which are often called ruminants. The non-ruminants are poultry, pigs and horses. Cattle are the most common live stock found in all regions of the country, whether in the southern foothills or in the northern valleys.

The yak is a high altitude animal and can survive only in areas 3500 meters above sea-level. They are raised in an extensive system because large areas are required for grazing. For example, a single yak needs about 25 acres of pastime land in higher altitudes. The area require will be reduced in the lower altitudes where the regeneration of grass is better. Those members of the family who hend the yaks mone from place to place with the animals. For most B job families yak is main source of income. The animal provide them with fiber, meat, butter, cheese and hides. Most of these products are sold. Yak is also an important means of transport for the B jobs and Lakhabs. A yak cannot be taken to very low altitudes as it can not stand the heat and it is also allergic to low altitude water.

Sheeps are not found everywhere. They are kept by the B jobs and Lakhabs who live in high altitude areas. They raise sheep in large flocks and the heardnes or shepherds more from one place to another in the higher altitude in summer and down to lower altitude areas in the winters. Raising sheep also involves extensive pastures. Many families in the central valleys of Mangde and Bhumtang and in the eastern valleys of Lhuntse, Mongar and Tashigang also own sheep. Their flocks graze on the high mountain

pastures. These flocks are brought down to lower valleys during the winters. When summers come the flocks move back to the mountains. In the southern foothills certain group of people such as the Gurungs and the Mangars raise sheep. They also move from pasture to pasture.

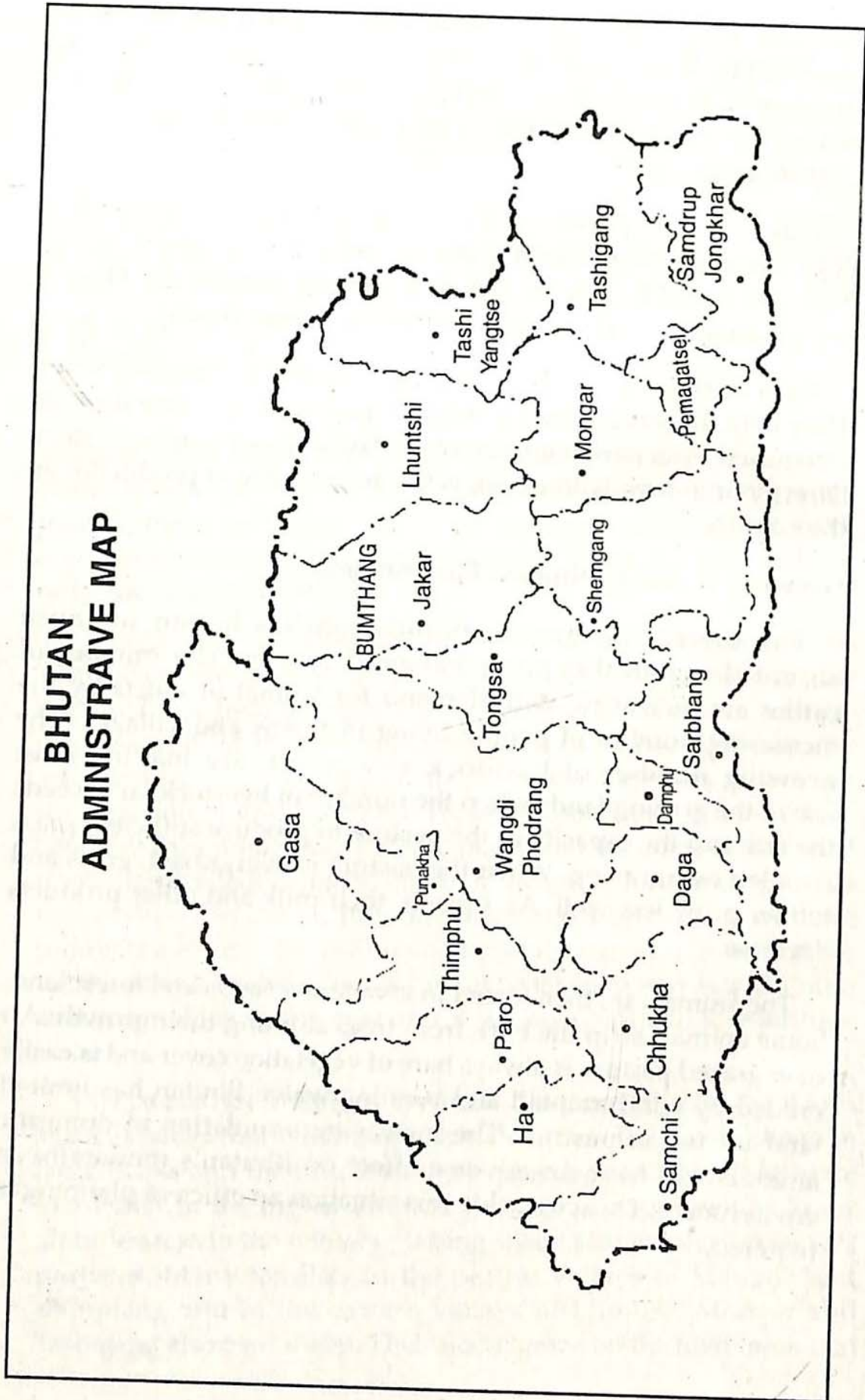
Pigs are raised purely for meat. Poultry is raised for supply of eggs. Goats are rarely found in the northern and the central valleys. They are raised by the farmers in the southern foothills. Houses are common throughout the country for transportation.

Each of these domestic animals is valuable in different ways. They help to increase the income of farmers. That is why they are recognized as an important part of Bhutanese mixed farming system. Directly or indirectly livestock is the main source of production in the country.

Growing Threat to Bhutans Environment

The increasing human population has begun to cause an imbalance in this finely balanced system. The number of cattles are increasing with demand for animal products by the increasing number of people living in towns and villages. The growing number of livestock as a result, are making over use of the grazing lands when the number of livestock far exceeds the size and the capacity of the pasture to produce sufficient grass is called overgrazing. When the pasture is overgrazed, grass and toddler grow less well. As a result, their milk and other products decrease.

The animals are then forced to invade croplands and forest land. Some animals strip the bark from trees stunting their growth. An over grazed pasture is always bare of vegetation cover and is easily eroded by wind, rainfall and running water. Bhutan has limited land for use of pasture. The increasing population of domestic animals will have an adverse effect on Bhutan's mountainous environment. Thus, to tackle this situation an efficient planning is required.



Land Use

Land Use	% 1994	Total Area Sq. km 1995	% of Land 1995
Forest	64.4%	29,045 sq. km	62.5%
Agriculture	7.9%	3,088 sq. km	6.6%
Pasture	3.9%	1,564 sq. km	3.4%
Other	23.9%	12,803 sq. km	27.5%
Total	100.1%	46,500 sq. km	100%

Source:- Land use planning project; Ministry of Agriculture, Thimpu.

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