

Raniganj Girls' College

**ASSIGNMENT ON INFLUENCE OF TERRAIN ON POPULATION
CHARACTERISTICS: A CASE STUDY OF SIKKIM**

Submitted by B.Sc. (Honours) Part II students

(Academic Year 2021-22)

Name of the student	Registration Number (2020-21)
ADRITA GHOSH	KNU20113001425
ANAMIKA CHATTERJEE	KNU20113001447
CHAITY CHATTERJEE	KNU20113001699
ESHA DHIBAR	KNU20113001264
INDU CHATTERJEE	KNU20113001338
MARIYA SULTANA	KNU20113001675
PRATIKSHA SHEET	KNU20113001380
PRATIVA GHOSH	KNU20113001285
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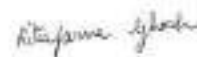
CERTIFICATE

This is to certify that this assignment titled “INFLUENCE OF TERRAIN ON POPULATION CHARACTERISTICS: A CASE STUDY OF SIKKIM” submitted by the students for the award of degree of B.Sc. Honours/ Program is a bonafide record of work carried out under my guidance and supervision.

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Place: Raniganj

Date: 25.07.2022



Assistant Professor, Department of Geography

Signature of the supervisor with designation and department

KAZI NAZRUL UNIVERSITY

INTERNAL ASSIGNMENT

ON

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*Submitted for part fulfilment of the undergraduate syllabus of Geography Honours,
Semester IV (CC-9)*

Department of Geography

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June, 2022

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It gives me immense pleasure to present the Assignment undertaken during B.Sc. 2nd year of Geography Honours. I owe special debt of gratitude to my Madam, Dr. Ritaparina Ghosh and Sir, Dipankar Chakraborty for their constant support and guidance throughout the course of my work. It is only their cognizant efforts that my endeavours have seen light of the day. I would like to thank our respected principal Madam Dr. Chhabi De for giving me the opportunity to participate in the geographical excursion. I would also like to thank my friends for their help and support. I have no valuable words to express my thanks, but my heart is still full of the favours received from every person.

Contents

	Page No.
Introduction	01
Physiography	02-04
climate	04
weather	05
Flora and Fauna	05-06
East sikkim	07-10
Data Analysis	11-13
conclusion	14
References	15

Introduction

Sikkim is a state located in Eastern Himalayas. SIKKIM or SiKKim is a name derived from the sanskrit word shikhim meaning 'crested'. In all of sikkim there is not a single kilometer of 'flat land'. The state of sikkim is located in the southern mountain ranges of Eastern Himalayas between Northern latitudes $27^{\circ}05' N$ and $28^{\circ}08' N$ and Eastern Longitudes $88^{\circ}10' E$ and $88^{\circ}55' E$. SIKKIM is the 22nd state of the Indian Union, which came into existence with effect from 16th May; 1975. SIKKIM is bounded by Nepal in the west, Bhutan in the east, Tibet in the north and state of west Bengal in the south. The state has been divided into four districts, viz. East, West, North and south districts.

It extends for 114 kms from North to south and for 64 kms from East to west. It has a total geographical area of 7096 square kms. Most of sikkim is in the lesser and greater Himalayan zone. It has a unique geographical location. Khamchejunga and Nathula Pass in the state.

Gangtok, the state capital is in east sikkim. It lies between 27 degrees to 16 minutes North to 27 degrees 21 minutes North. It has an altitude of 5500 feet above mean sea level. It is connected to Siliguri by the National Highway. The nearest airport and railway station is siliguri.

Physiography

The topography of Sikkim is characterized by great variations in elevation, ranging from 250 m to 8495 m. Most of the Sikkim is in the lesser and greater Himalayan zone. The state is girdled by high ridges on the North, East and West contain some imposing peaks and high altitude passes.

Glaciers are the perennial sources of fresh water that is discharged in the two major rivers, namely Teesta and Rangit. Records available suggests that as many as 84 glaciers in Sikkim covering an area of 440 sq. kms, with permanent snow fields measure around 251 sq. km area which when added to glaciers cover an area of 691 sq. kms.

Sikkim consists of more than 150 lakes located at different altitudes and are natural water bodies mostly as a product of glaciations and are confined to high altitude areas. Most of the lakes are source of fresh water and also of religious significance attracting pilgrims and tourists to the state. The most famous ones are Tsomgo and Khecheopari lakes.

Distinct micro morphology features of sikkim terrain include terraces and floodplains, valley-side slopes and landslide slopes, alluvial cones of different types and generations, tors, Kettles shaped depressions, terrace isles, sickle shaped rags, beveled plains, undulating plains, with deeply dissected valley, glacial or peri-glacial deposits related sedimentary structures crevasses, soil series or poly pedan gorges etc. These forms have been produced by the trunkstream Teesta and its innumerable tributaries - one of the important agents of denudation and deposition which moulds the landscape. (Mukhopadhyay 1998).

The hills of sikkim mainly consist of gneissose and half-schistose rocks, making their soil brown clay, and generally poor and shallow. The soil is coarse, with large amounts of iron oxide concentrations, ranging from neutral to acidic and has poor organic and mineral nutrients. This type of soil tends to support evergreen and deciduous forests.

A large portion of the sikkim territory including Gangtok is covered by the precambrian rock and is much younger in age than the hills. The rock consists of phyllites and schists and therefore the slopes are highly susceptible to weathering and prone to erosion. This combined with the intense rain, causes extensive soil erosion and heavy loss of soil nutrients through leaching.

As a result, landslides are frequent, isolating the numerous small towns and villages from the major urban centres.

The moisture content in the soil, mostly depending upon the soil thickness, has an explicit impact on forest type and coverage in any area. The entire state primarily consists of gneissose rocks and half-schistose rocks. The soil is developed from the gneissic group of rocks. They are typically coarse, often with ferric concentrations, neutral to acidic with poor organic / mineral nutrients. The high intensity of rainfall in the state often causes extensive soil erosion and heavy losses of nutrients of land by leaching.

Climate

Sikkim is characterized by a Himalayan type of climate. Altitude is the main factor controlling the climate and weather condition of the whole state including the capital city of Gangtok. The climatic conditions vary greatly due to the wide fluctuations in elevation ranging from 800 - 20,000 feet and sharp edged mountains. Relief features such as high mountains act as barriers for the movement of the Monsoon winds. Low temperature, high rainfall on windward slopes, comparatively dry on the leeward side and heavy precipitation in the form of snow at the mountain tops are the main features of the climate.

Weather

The weather of Gangtok is alpine with warm summer and cold winters. Temperatures range from a high of 25°C in summer to a low of about 3°C in winter. Snowfall is rare, and in recent times Gangtok has received snow only in 1990, 2004 and 2005. Temperatures below freezing are also rare. The region receives an annual rainfall of 3494 mm over 164 rainy days. The lower Himalayas in general are composed of labile rock formations and therefore prone to landslides even in dry seasons. These landslides can result in the capital being cut off from other parts of Sikkim and the mainland India.

Flora and Fauna

Sikkim is well-known for its biodiversity. The steep vertical climb from the plains of West Bengal to the high altitude areas of Sikkim represents one of the world's steepest altitude gradients. This accounts for the incredible variety of flora and fauna found in the region, ranging from the tropical to sub-arctic.

Flora around Gangtok includes temperate, deciduous forests of poplar, birch, oak, and elm, as well as evergreen, coniferous trees of the wet alpine. Densely forested regions of these evergreens lie just around the town. A wide variety of rare orchids are often featured in flower shows around the city. Sunflower, marigold, pansy, and other flowers bloom in November and December.

Bamboo grown in abundance along the slopes of Gangtok. In the lower reaches of the town, the vegetation graduates from alpine to subtropical and temperate deciduous.

Among the more commonly found animals in the alpine zone are yaks. They are domesticated and reared in North Sikkim mainly for their economic productiveness. Yak milk is used to make butter 'churpi', the wool comes in handy as raw material for carpets and blankets. The musk deer, found in the upper temperate regions, is today a species in the endangered list. A common denizen of Sikkim is the muntjac, or the Barking Deer.

Among the more exotic mammals is the Red panda which lives mostly on treetops. It is found at altitudes ranging from 6,000 to 12,000 feet. The snow leopard is an almost mythical animal. It has rarely been sighted and to date, only two field zoologists have succeeded in photographing this elusive animal in its habitat which can vary from 5,000 feet to as high as 18,000 feet. Blue sheep, flying squirrels, binturong, tahrs, marmots and musk deer are at home in this cool blanket of green.

East Sikkim

Gangtok

The capital city of Sikkim is fittingly called Gangtok, which means 'the town on the hilltop' in the local Bhutia language. From the former Royal palace at the top to the Queen's Bridge at the bottom, the city sprawls across approximately 15 kilometres on the west side of a long ridge flanking the Ranipool (Ranipul) River. At an average altitude of 5500 feet (1676 metres), and with a population of approximately 50,000 this historically important transit point on the trade route with Tibet became the capital of Sikkim in 1894. Gangtok combines an attractive mix of old world charm, traditional hospitality and a modern cosmopolitan outlook, making it an exciting place to spend a few days at the beginning or end of your Sikkimese journey. The town can be the ideal staging point for your travels across Sikkim's other districts, as you take advantage of top-notch tourism agencies, first class hotels and urban shopping amenities, or a comfortable haven with good food and hot showers at the end of your Sikkim adventure.

Although warmer than neighbouring Darjeeling, Gangtok is still a hill town with widely varying weather patterns, so take

extra care when packing. Summer temperatures can be as high as 28° celsius on sunny afternoons but may drop to 13° celsius on rainy evenings. In the winter, you can expect highs of 18° celsius and lows of 5° celsius. Gangtok sees over 150 inches of rainfall per year, primarily during the summer monsoon season.

Come prepared with light woollens and a rain jacket for the summer, and heavier clothes for the winter. Although central Gangtok's main commercial thoroughfare is slightly less than a kilometre in length, M. G. (Mahatma Gandhi) Marg is lined with shops, hotels, restaurants, bars, bakeries, studios, cyber cafes, pool rooms and curio shops. At the western end of the road, near the Thakurbari Temple and overlooking the Tourism Information centre, stands the statue of Unity, depicting the meeting of the Bhutia chieftain Khye Bumsa with the Lepcha leader Thekong Tek.

Built in memory of Harbhajan Singh, a lost sepoy from the 23rd Punjab Regiment, the Baba Harbhajan Singh Memorial Mandir lies between the Nathu la and Telep la passes. Legend has it that he appeared to his colleagues in a dream a few days after he went missing, and requested that a monument be built in his memory.

His fellow soldiers then erected this monument, which over the years acquired the status of a pilgrimage site. Devotees leave a bottle of water, which they collect a few days later to take back home, blessed by the spirit of this hardy soldier.

At an altitude of over 14,000 feet, the Nathu la is now open for domestic tourists. This is the highest point in Sikkim reachable by car, without the extra exertion of a trek. However, visitors with heart conditions or concerned about high-altitude sickness are advised to avoid this destination. The historically important Nathu la pass was the gateway to Tibet, and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Shigatse and Lhasa in the land of the snows. Now upon once again after several decades, visiting the pass is a once in a lifetime experience. You can walk up to the army viewpoint and look beyond into China, where green-uniformed Chinese army personnel with red stars on their caps stand to attention. All around them, the stark alpine landscape is interspersed with delicate primula blossoms and unique Himalayan rhubarb shrub. Visitors are advised to start for Nathu la as early in the day as possible to avoid inclement weather which typically arises in the afternoon.

35 Kilometres away from Gangtok at an altitude of 12,4000 feet (3780 metres) you reach the beautiful Tromgo Lake, which freezes over in winter and is fed by melting snows from the surrounding mountains. Local legend holds that lamas could forecast the future by studying the colour of the lake's waters. Fishing is totally prohibited and visitors are requested not to pollute the environs of the lake with rubbish in order to maintain its sanctity.

Tashi view point is an acclaimed spot for photography located about 8 kilometres north of Gangtok on the main road to North Sikkim. On a clear day, you can see the monasteries of Phodong and Labrang. An observatory tower has recently been established, along with a small but well-stocked cafeteria. Along the way, stop to marvel at the clear waters of Bakthong. Kyang edhu, a small waterfall between Gangtok and Tashi view point.

Data Analysisyear-wise increase in population

Population in sikkim has increased from 59014 in 1901 to 610577 in 2011. (Table No-1) (Figure No 1)

Table No:-1 Year-wise increase of population

Year	Population
1901	59014
1911	87920
1921	81721
1931	109808
1941	121520
1951	137725
1961	162189
1971	209843
1981	316385
1991	406457
2001	540851
2011	610577

Source :- census of India

Growth rate of population

Population growth rate is the rate at which population is increasing. population growth rate between 1901 and 1911 was 48.98 Percent which has decreased to 12.89 percent between 2001 and 2011. The maximum growth of population (50.77%) took place between 1971 and 1981 (Table No-2) (Figure No 2).

Table No 2: Growth rate of population (1901-2011)

Year	Growth Rate (%)
1901-1911	48.98
1911-1921	-7.05
1921-1931	34.37
1931-1941	10.67
1941-1951	13.33
1951-1961	17.76
1961-1971	29.38
1971-1981	50.77
1981-1991	28.47
1991-2001	33.06
2001-2011	12.89

Source : computed by the Author.

Male - Female Population -

Males constituted 65 percent of the population and females constituted 35 percent of the population in 2001 and 2011 (Figure No.3)

Literacy Rate -

Literacy rate has increased from 58.86 per cent in 2001 to 73.93 percent in 2011. Number of literates has increased from 318335 in 2001 to 449294 2011 (Figure No 4.)

Sex Ratio —

Sex Ratio is the number of females per thousand males sex ratio has improved from 875 in 2001 to 889 in 2011. child sex ratio has also improved from 938 in 2001 and 944 in 2011.

Density of population —

Density of population refers the number of persons per square kilometres. It has increased from 76 persons per square kilometres to 86 persons per square kilometres.

Rural and Urban population

only 24.97 percent of the total population in 2011 is urban and the rest 75.03 percent is rural.

Religious composition —

Majority of the population are Hindus (58%), followed by Buddhists (27%) and Christians (10%). (Figure No- 5)

Ethnic composition

Bhutia constitute 34 percent of the population, followed by Limbu (26%) and Lepcha (21%). (Figure No. 6)

Language Groups

Majority are Nepali speaking populations, followed by Hindi and Bhotia. (Fig-7)

District wise Population

East District is the most populous followed by S. District, W. District, N. District.

(Figure-8)

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

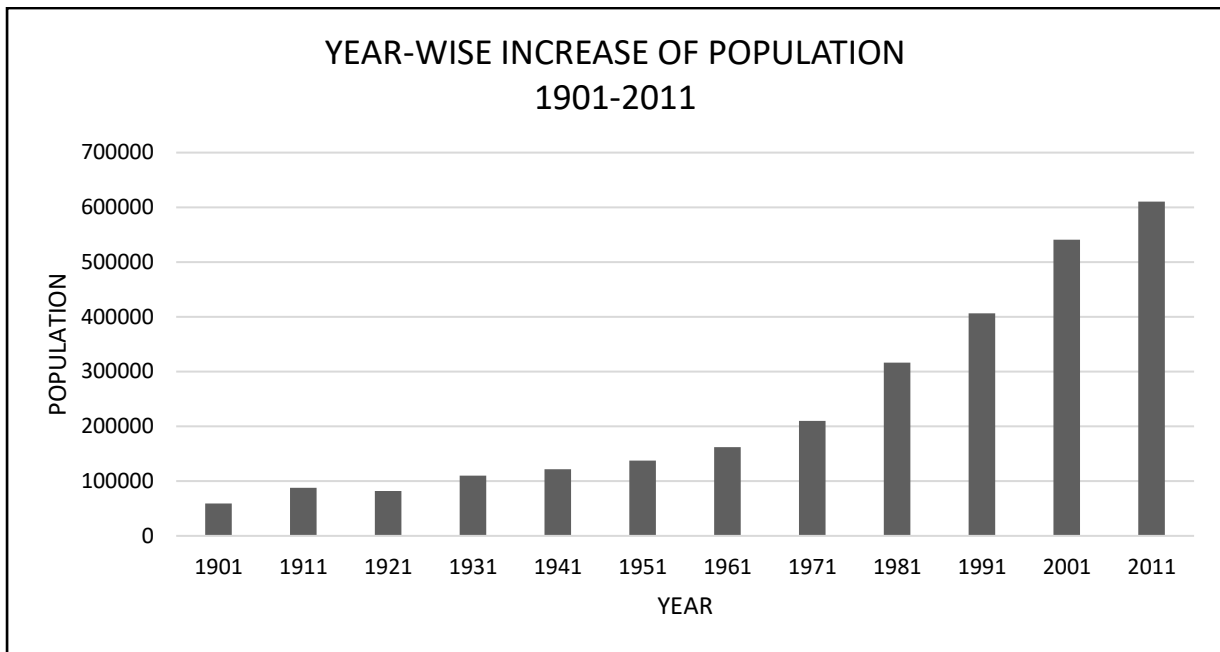


FIGURE NO.2: GROWTH RATE OF POPULATION (1901 TO 2011)

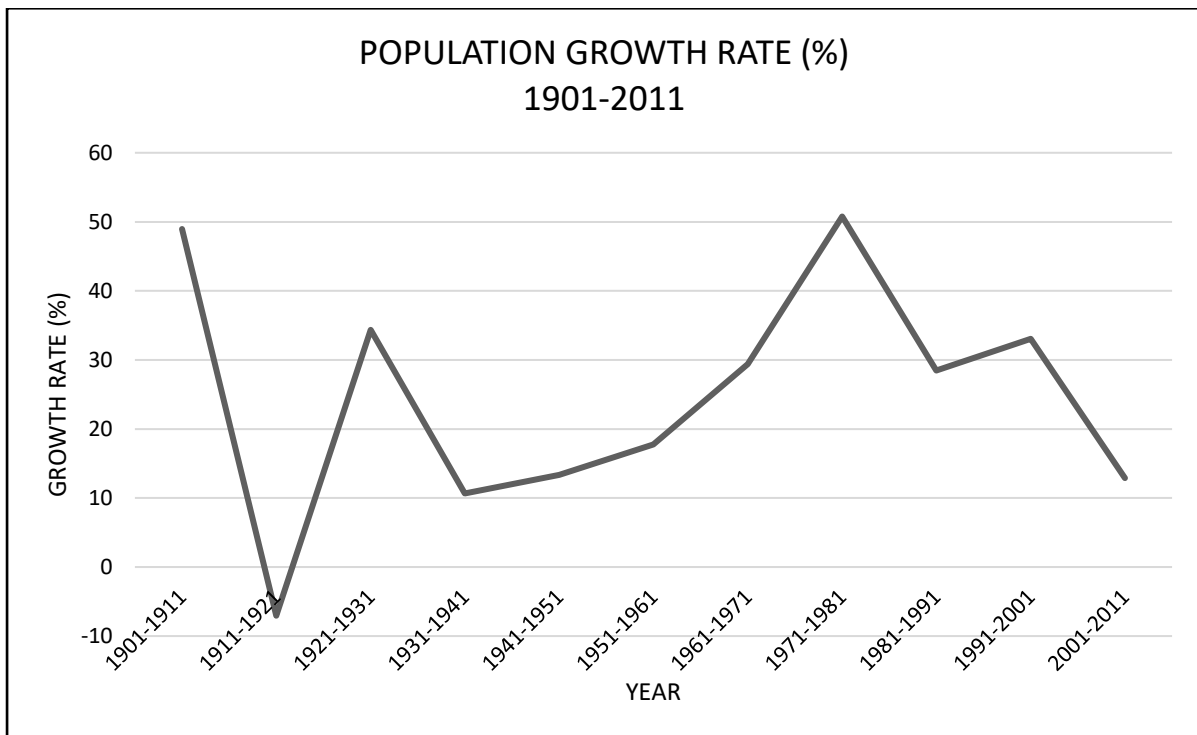


Figure No.3: Male-Female Population

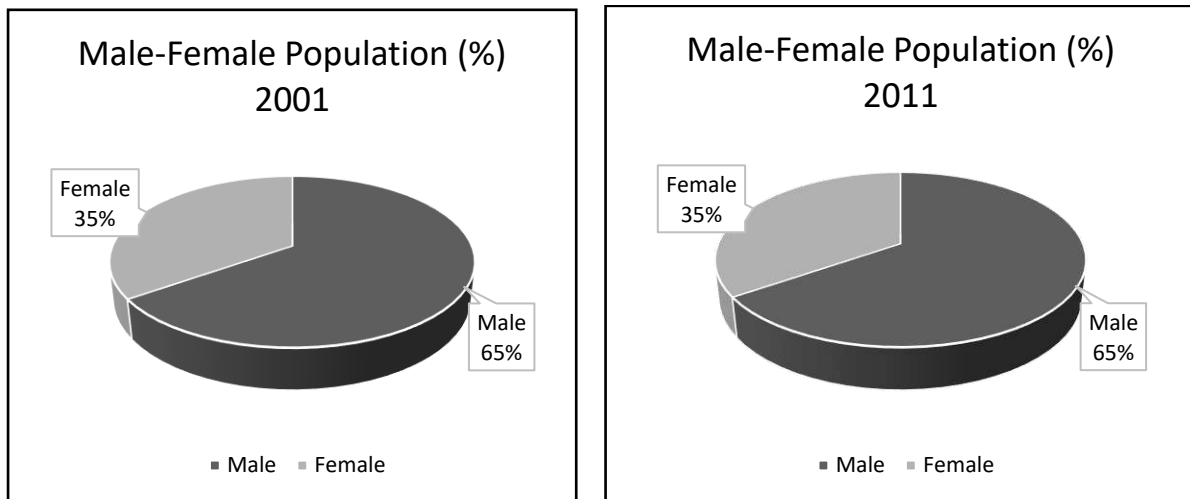


Figure No.4: Literacy rate (2001 and 2011)

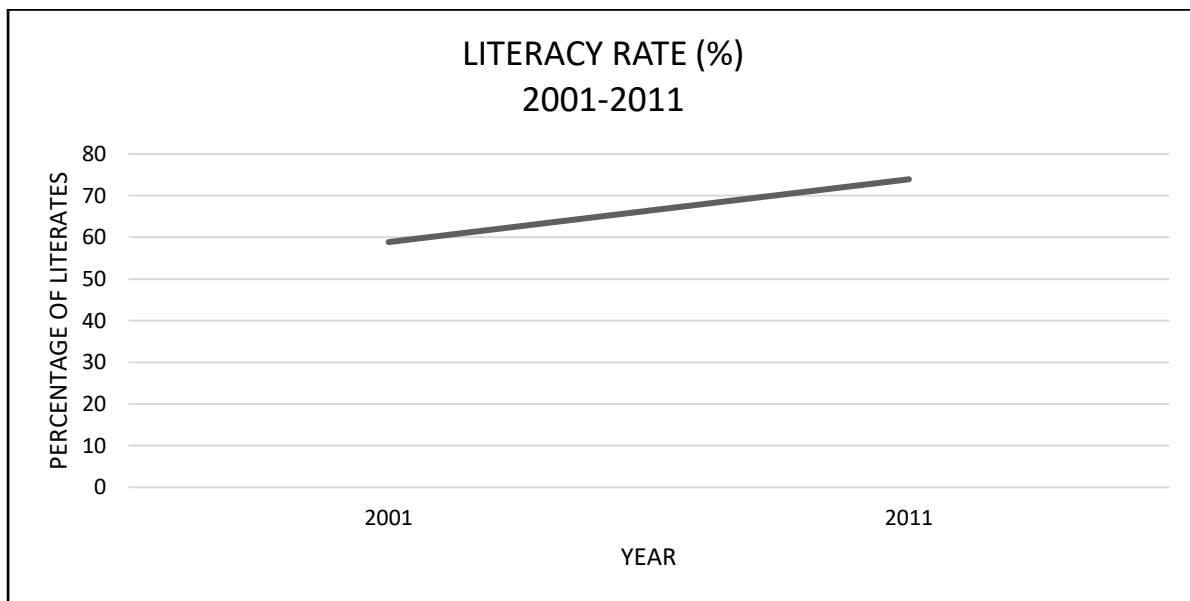


Figure No.5: Religious Composition

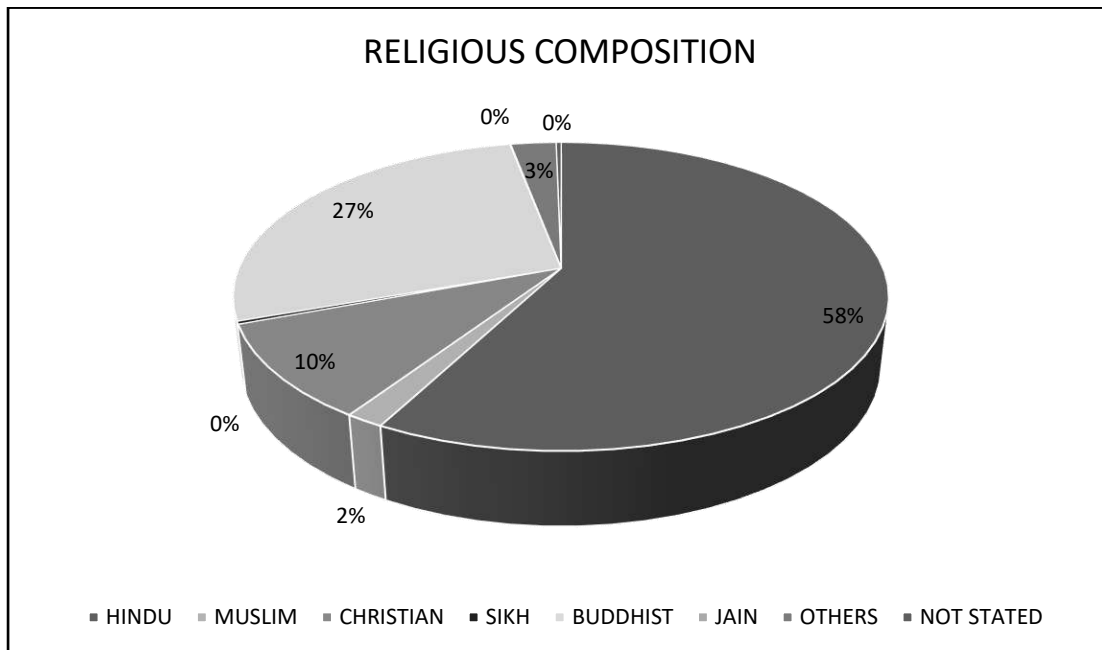


Figure No.6: Ethnic composition

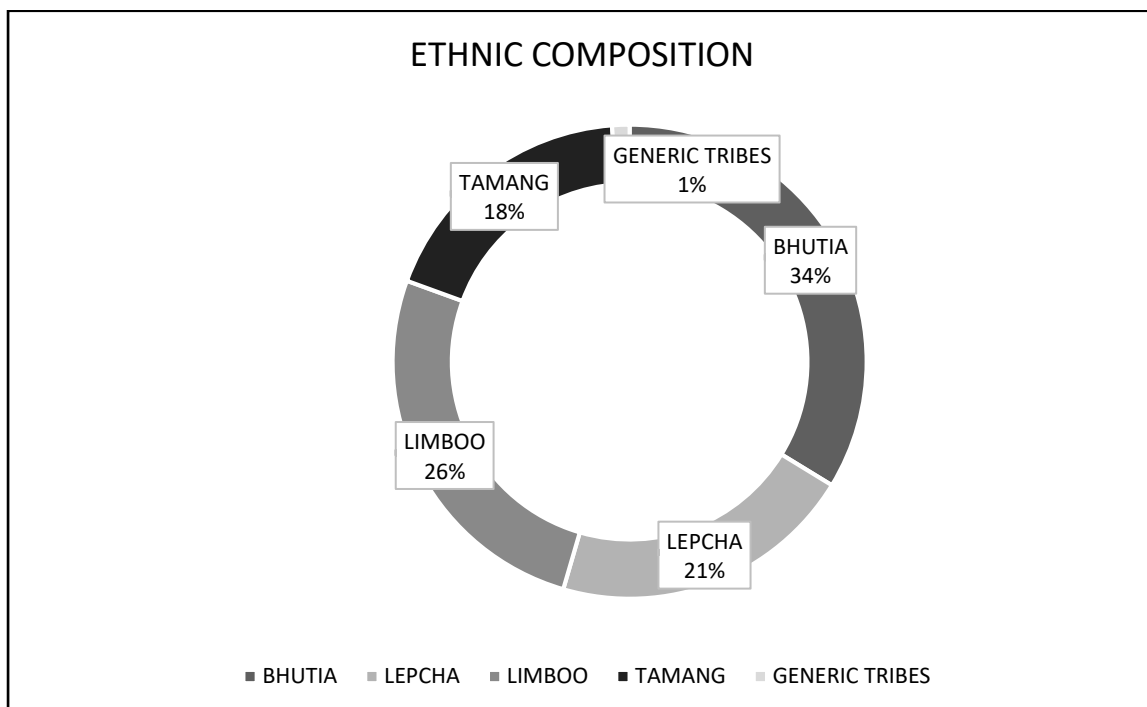


Figure No.7: Language Groups

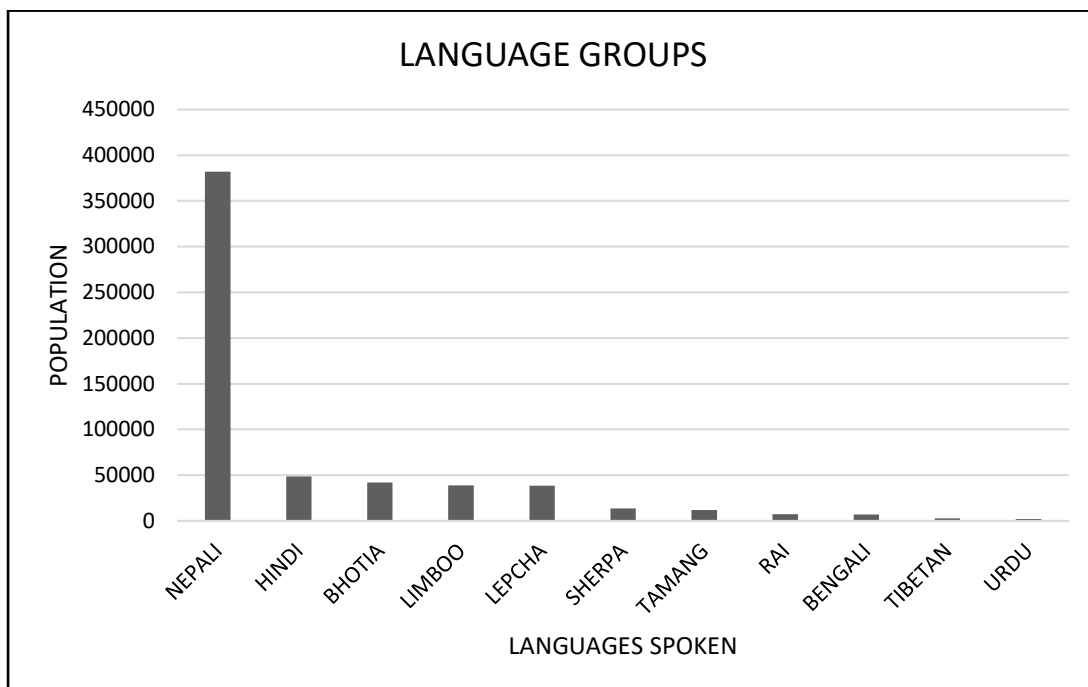
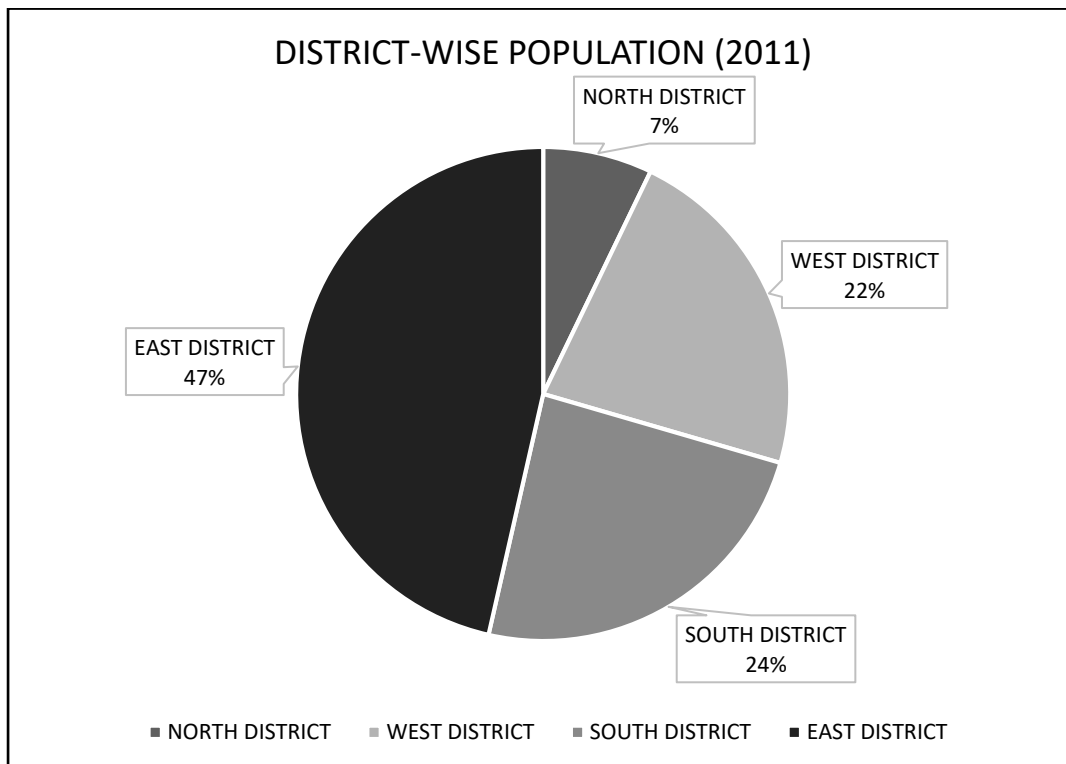


Figure No. 8: District-wise population



Conclusion

Sikkim with its mountainous landscapes has a pristine environment. There are great variations in elevation ranging from 250m to 8495m. It has a population of above six lakhs and has an area of 7096 square kilometres. Population density is 86 Persons per square kilometre as per census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups, ethnic and religious compositions. The lustrous Himalayan landscapes and a favourable weather have made the state, a favourite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. Though population density is low, which is an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93 percent. Sex ratio is 944. Out of the 4 districts, East District is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single-use plastic bottles since 1998. Despite of the tough mountainous terrain it has emerged as one of India's top environmental leaders.

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CONTENTS

Sl. NO.	SUBJECT	PAGE NO.
1)	ACKNOWLEDGEMENT	i
2)	CONTENTS	ii
3)	INTRODUCTION	1-2
4)	PHYSIOGRAPHY	2-5
5)	CLIMATE	5
6)	WEATER	6
7)	FLORA AND FAUNA	6-7
8)	EAST SIKKIM	8-12
9)	DATA ANALYSIS	13-15
10)	CONCLUSION	16
11)	REFERENCES	17

INTRODUCTION

Sikkim is a State located in Eastern Himalayas. Sikkim or Sikkim is a name derived from the Sanskrit word Sikkim meaning 'created'. In all of Sikkim there is not a single kilometre of 'flat land'. The State of Sikkim is located in the Southern mountain ranges of Eastern Himalayas between Northern Latitudes $27^{\circ}05'N$ and $28^{\circ}08'N$ and Eastern Longitudes $88^{\circ}10'E$ and $88^{\circ}55'E$. Sikkim is the 22nd State of the Indian Union, which came into existence with effect from 16th May, 1975. Sikkim is bounded by Nepal to the west, Bhutan to the east, Tibet to the north and State of West Bengal to the south. The State has been divided into four districts, viz. East, West, North and South districts.

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EAST SIKKIM

Gangtok

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At an altitude of over 14,000 feet, the Nathu La is now open for domestic tourists. This is the highest point of Sikkim reachable by car, without the extra exertion of a trek. However, visitors with heart conditions or concerned about high-altitude sickness are advised to avoid this destination. The historically important Nathu La pass was the gateway to Tibet, and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Shigatse and Lhasa in the land of the

Snows. Now open once again after several decades, visiting the pass is a once in a lifetime experience. You can walk up to the army viewpoint and look beyond into China, where green-uniformed Chinese army personnel with red stars on their caps stand to attention. All around them, the stark alpine landscape is interspersed with delicate primula blossoms and the unique Himalayan rhubarb shrub. Visitors are advised to start for Nathu La as early in the day as possible to avoid inclement weather which typically arises in the afternoon.

35 kilometres from Gangtok at an altitude of 12,400 feet (3780 metres) you reach the beautiful Tsomgo Lake, which freezes over in winter and is fed by melting snows from the surrounding mountains. Local legend holds that lamas could forecast the future by studying the colour of the lake's waters. Fishing is totally prohibited and visitors are requested not to pollute the environs of the lake with rubbish in order to maintain its sanctity.

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DATA ANALYSIS

YEAR-WISE INCREASE IN POPULATION

Population in Sikkim has increased from 59014 in 1901 to 610577 in 2011 (Table no.1) and (Figure No.1)

Table NO.1: Year-WISE INCREASE OF POPULATION

YEAR	POPULATION
1901	59014
1911	87920
1921	21721
1931	109808
1941	121520
1951	137725
1961	162189
1971	209843
1981	316385
1991	406457
2001	540851
2011	610577

Source; census of India.

Growth Rate of Population

Population growth rate is the rate at which population is increasing. Population growth rate between 1901 and 1911 was 48.98 per cent which has decreased to 12.89 per cent between 2001 and 2011. The maximum growth of population (50.77%) took place between 1971 and 1981 (Table no. 2 and Figure no. 2)

Table NO. 2 : Growth Rate of Population (1901 to 2011)

YEAR	GROWTH RATE (%)
1901 - 1911	48.98
1911 - 1921	-7.05
1921 - 1931	34.37
1931 - 1941	10.67
1941 - 1951	13.33
1951 - 1961	17.76
1961 - 1971	29.38
1971 - 1981	50.77
1981 - 1991	28.47
1991 - 2001	33.06
2001 - 2011	12.89

Source: computed by the Author

Male-Female Population

Males constituted 65 per cent of the population and females constituted 35 per cent of the population in 2001 and 2011 (Figure no. 3).

Literacy Rate

Literacy rate has increased 58.86 per cent in 2001 to 73.93 per cent in 2011. Number of literates has increased from 319335 in 2001 to 419294 in 2011 (Figure no. 4)

Sex ratio is the numbers of females per thousand males. Sex ratio has improved from 875 in 2001 to 889 in 2011. Child Sex ratio has also improved from 938 in 2001 and 944 in 2011.

Density of population

Density of population refers the numbers of persons per square kilometers. It has increased from 76 persons per square kilometers to 86 persons per square kilometers.

Rural and Urban population

Only 24.97 per cent of the total population in 2011 is urban and the rest 75.03 per cent is rural.

Religious composition

Majority of the population are Hindus (58%), followed by Buddhists (27%) and Christians (10%).

(Figure no. 5)

Ethnic composition

Bhutias constitute 34 per cent of the population, followed by Limboo (26%) and Lepchas (21%) (Figure no. 6)

Language Groups

Majority are Nepali speaking population, followed by Hindi and Bhotia (Figure no. 7)

District-wise population

East District is the most populous followed by south district, west district (Figure no. 8)

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

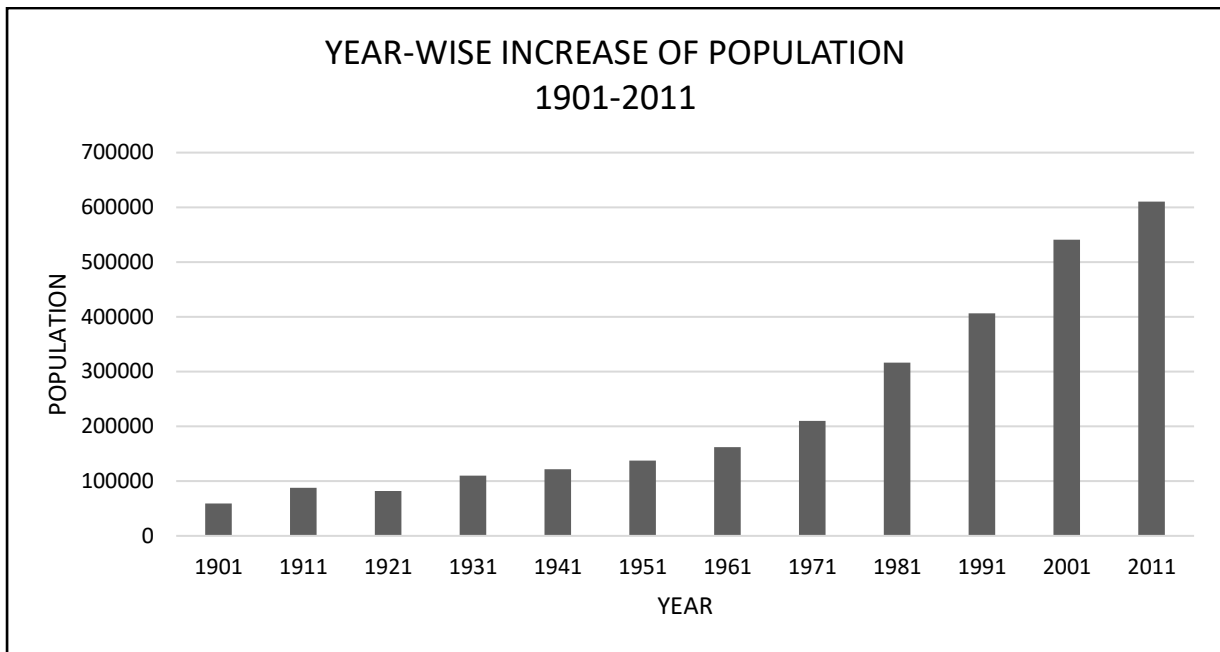


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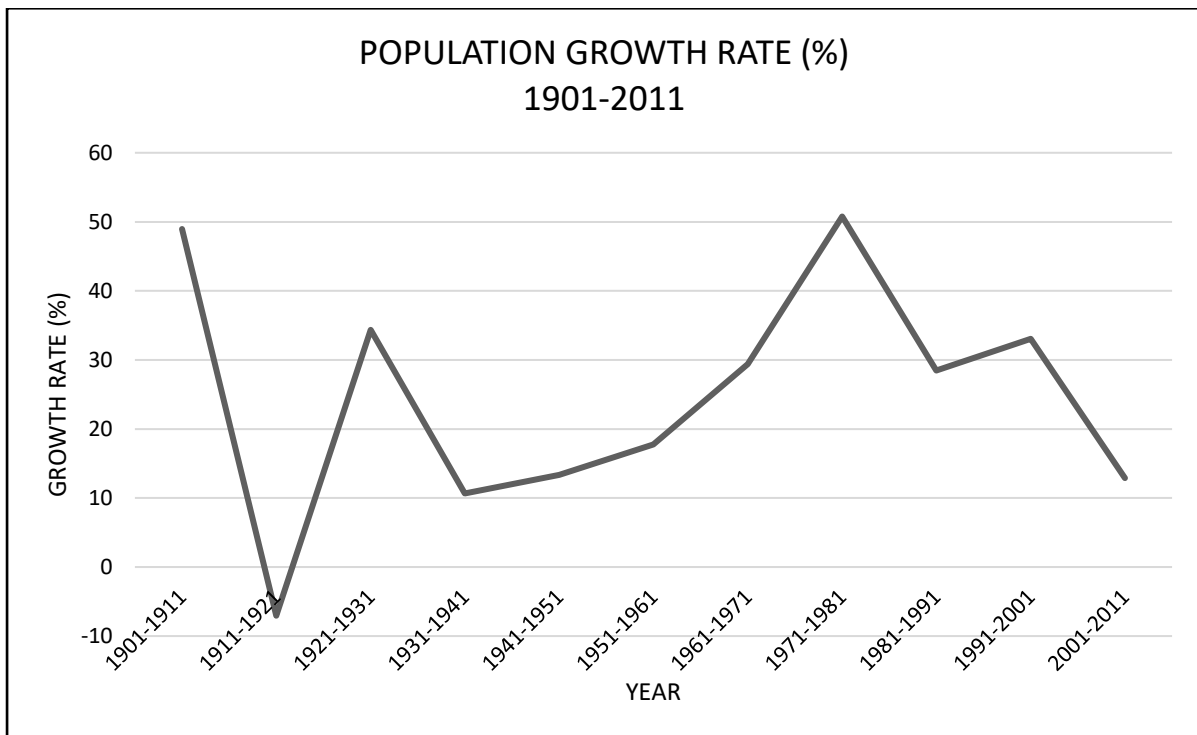


Figure No.3: Male-Female Population

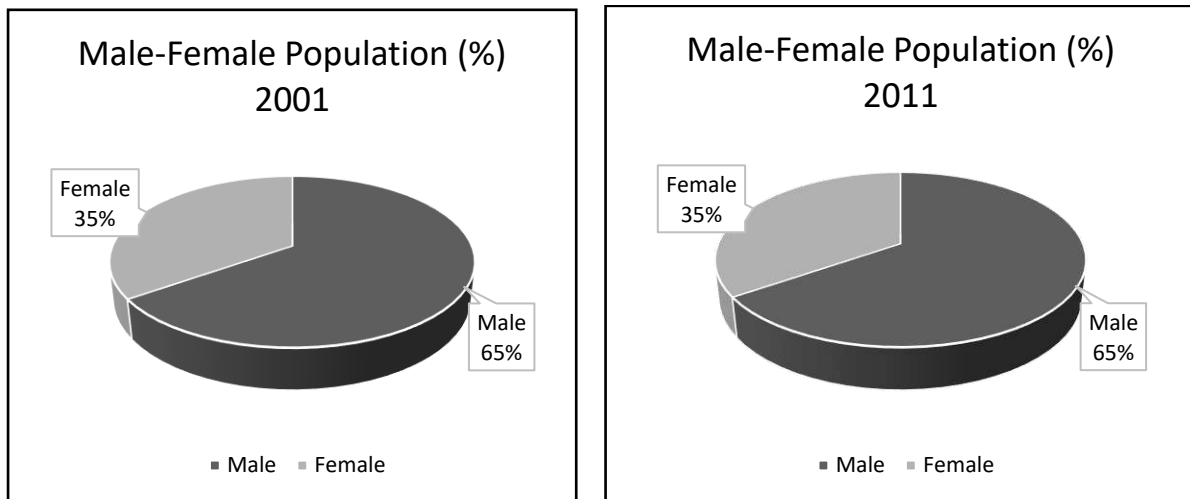


Figure No.4: Literacy rate (2001 and 2011)

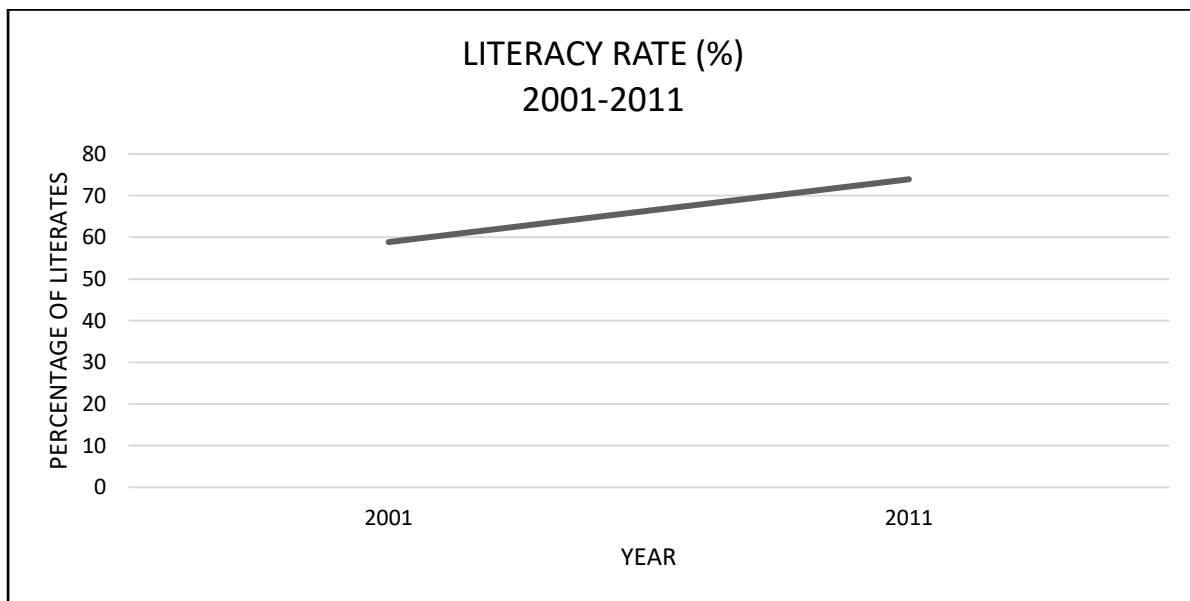


Figure No.5: Religious Composition

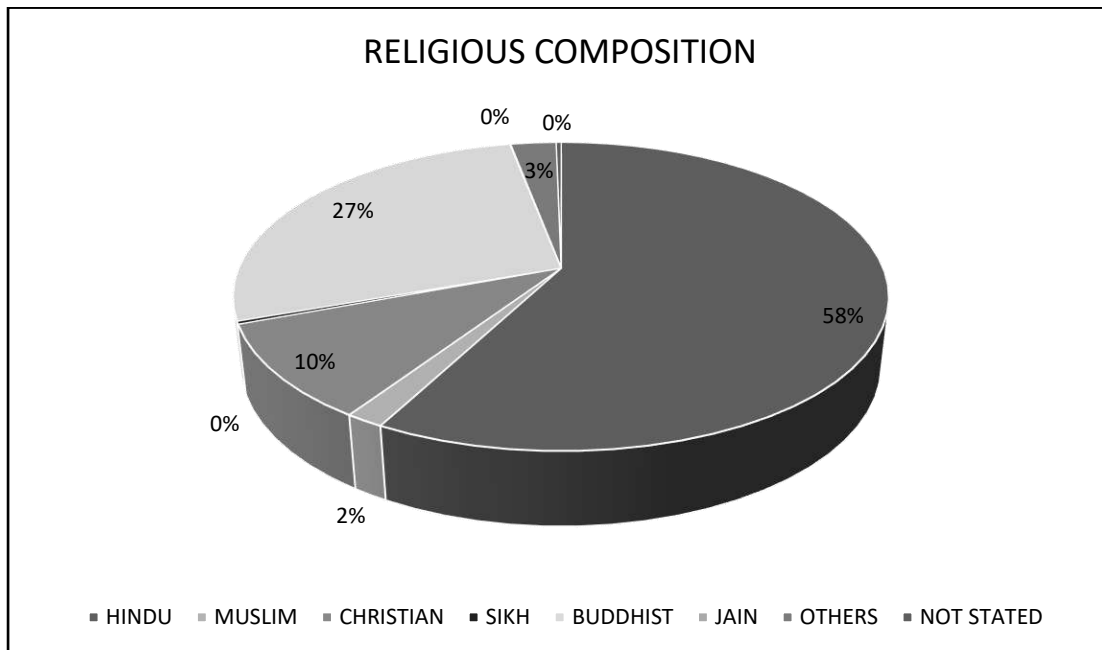


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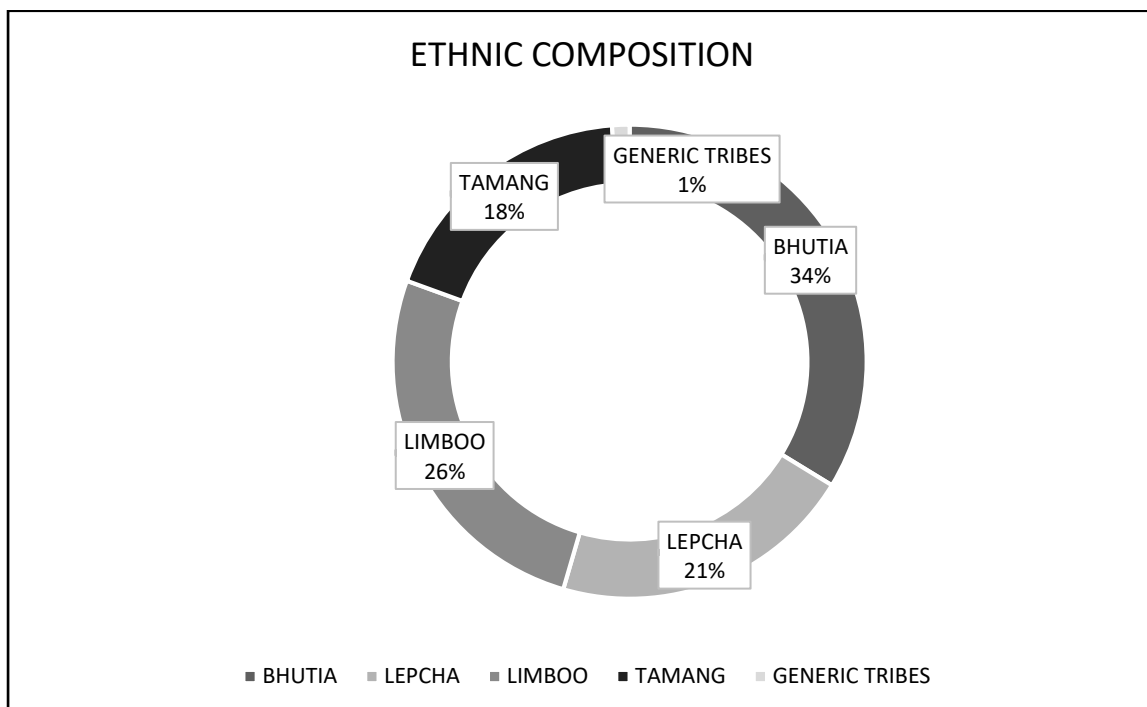


Figure No.7: Language Groups

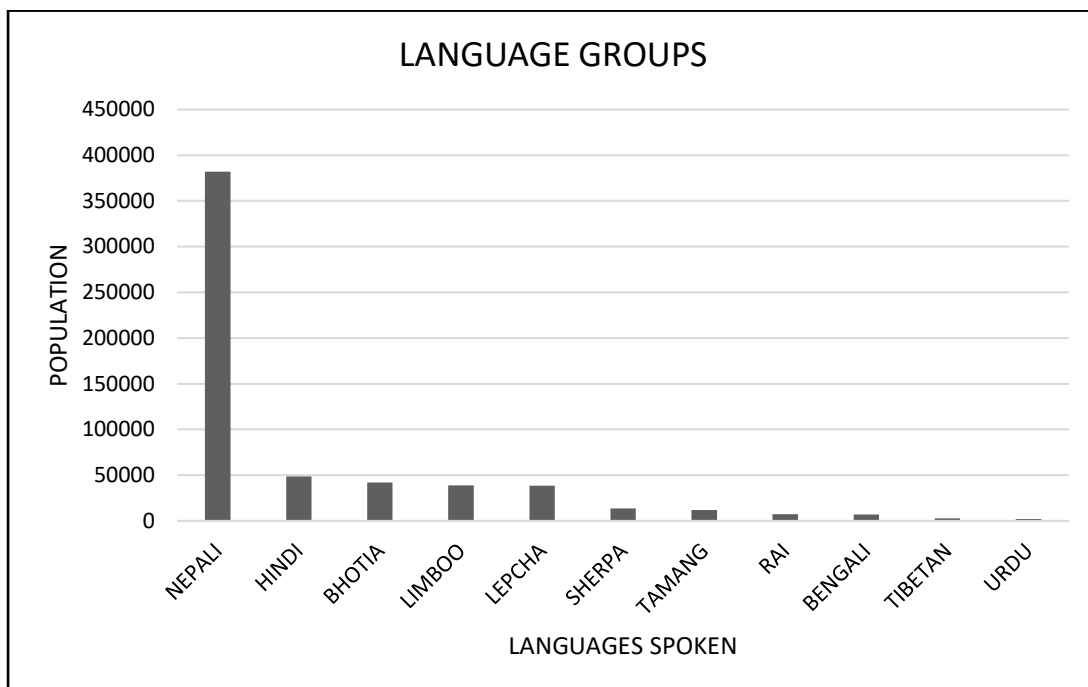
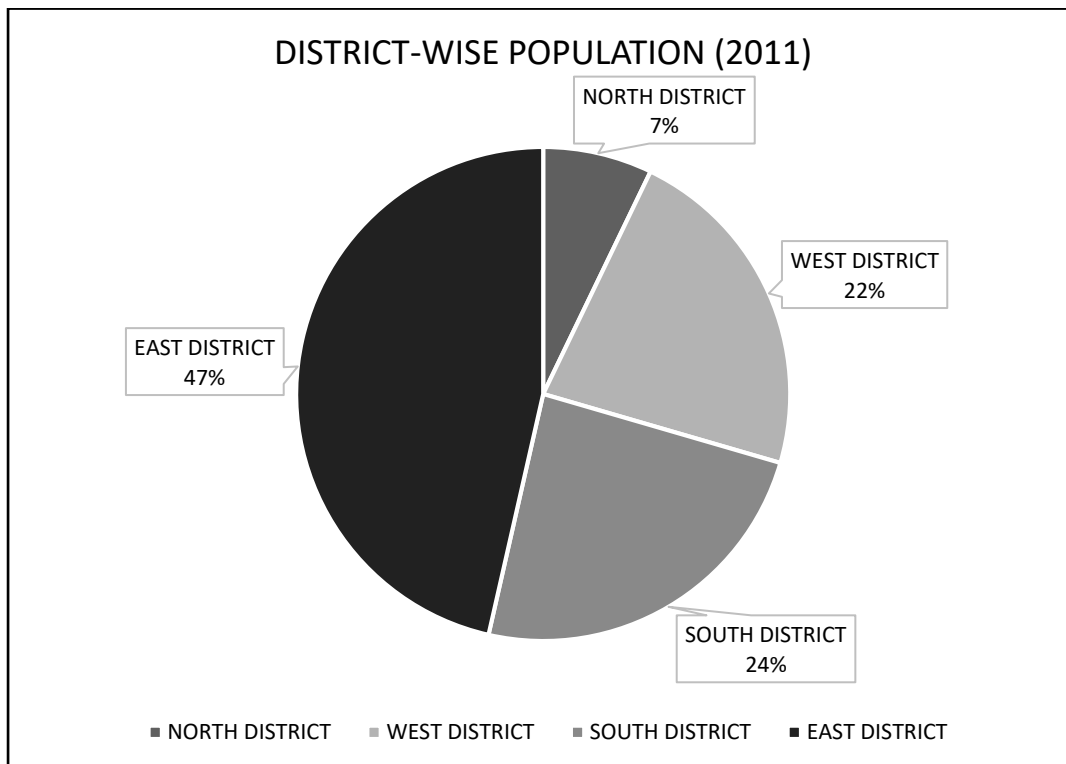


Figure No. 8: District-wise population



CONCLUSION

Sikkim with its mountainous landscape has a pristine environment. There are great variations in elevation ranging from 250m to 8495m. It has a population of above six lakhs and has an area of 7096 square kilometres. Population density is 86 persons per square kilometre as per census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups, ethnic and religious compositions. The lush, Himalayan landscapes and a favourable weather have made the state, a favourite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. Though population density is low, which has an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93 per cent. Sex ratio is 944. Out of the 4 districts, East District is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single-use plastic bottles since 1998. Despite of the tough mountainous terrain it has emerged as one of India's top environmental leaders.

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ACKNOWLEDGEMENT

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CONTENTS

SUBJECT	PAGE NO.
INTRODUCTION	1
PHYSIOGRAPHY	2-4
CLIMATE	4
WEATHER	4-5
FLORA AND FAUNA	5-6
EAST SIKKIM	6-9
DATA ANALYSIS	10-12
CONCLUSION	13
REFERENCES	14

Introduction

Sikkim is a state located in Eastern Himalayas. Sikkim or Sikhim is a name derived from the Sanskrit word Shikhim meaning "Crested". In all of Sikkim there is not a single kilometer of 'flat land'. The state of Sikkim is located in the southern mountain ranges of Eastern Himalayas between Northern Latitudes $27^{\circ}05'N$ and $28^{\circ}08'N$ and Eastern Longitudes $88^{\circ}10'E$ and $88^{\circ}55'E$. Sikkim is the 22nd state of the Indian Union, which came into existence with effect from 16th May, 1975. Sikkim is bounded by Nepal in the west, Bhutan in the east, Tibet in the north and state of West Bengal in the south. The state has been divided into four districts viz, East, West, North and South districts.

It extends for 114 kms from North to South and for 64 kms from East to West. It has a total geographical area of 7096 square kms. Most of Sikkim is in the lesser and greater Himalayan zone. It has a unique geographical location. Kanchenjunga and Nathula Pass is in this state.

Gangtok, the state capital is in East Sikkim. It lies between $40'16''$ North to $27^{\circ}21'$ North. It has an altitude of 5500 feet above mean sea level. It is connected to Siliguri by the National Highway. The nearest airport and railway station is Siliguri.

Physiography

The topography of Sikkim is characterized by great variations in elevation, ranging from 250 m to 8495 m. Most of the Sikkim is in the lesser and greater Himalayan zone. The state is girdled by high ridges on the North, East and West contain some imposing peaks and high altitude passes.

Glaciers are the perennial sources of fresh water that is discharged in the two major rivers, namely Teesta and Rangit. Records available suggests that as many as 84 glaciers in Sikkim covering an area of 440 sq km, with permanent snow fields measure around 251 sq km area which when added to glaciers cover an area of 691 sq kms.

Sikkim consists of more than 150 lakes located at different altitudes and are natural water bodies mostly as a product of glaciation and are confined to high altitude areas. Most of the lakes are source of fresh water and also of religious significance attracting pilgrims and tourists to the state. The most famous ones are Tsomgo and Khecheopari lakes.

Distinct micro-morphology features of Sikkim terrain include terraces and flood plains, valley side slopes and landslide slopes, alluvial cones of different types and generations, tors, kettle shaped depressions, terrace isles, sickle shaped rags, beveled plains, undulating plains, with deeply dissected valleys, glacial or periglacial deposits related sedimentary structures crevasses,

Soil series or Poly Pedan, gorges etc. These forms have been produced by the, trunkstream Teesta and its innumerable, tributaries - one of the important agents of denudation and deposition which moulds the landscape (Mukhopadhyay 1998).

The hills of Sikkim mainly consist of gneissose and half-schistose rocks, making their soil brown clay, and generally poor and shallow. The soil is coarse, with large amounts of iron oxide concentrations, ranging from neutral to acidic and has poor organic and mineral nutrients. This type of soil tends to support evergreen and deciduous forests.

A large portion of the Sikkim territory including Gangtok is covered by the Precambrian rock and is much younger in age than the hills. The rock consists of phyllites and schists and therefore, the slopes are highly susceptible to weathering and prone to erosion. This combined with the intense rain, causes extensive soil erosion, and heavy loss of soil nutrients through leaching. As a result, landslides are frequent, isolating the numerous small towns and villages from the major urban centres.

The moisture content in the soil, mostly depending upon the soil thickness, has an explicit impact on forest type and coverage in any area. The entire state primarily consists of gneissose rocks and half-schistose rocks. The soil is developed from the

gneissic group of rocks. They are typically coarse. Often with ferric concentrations, neutral to acidic with poor organic/mineral nutrients. The high intensity of rainfall in the state often causes extensive soil erosion and heavy losses of nutrients of land by leaching.

Climate:-

Sikkim is characterized by a Himalayan type of climate. Altitude is the main factor controlling the climate and weather condition of the whole state including in the capital city of Gangtok. The climatic conditions vary greatly due to the wide fluctuations in elevation ranging from 800-20,000 feet and sharp edged mountains. Relief features such as high mountains act as barriers for the movement of the monsoon winds. Low temperature, high rainfall on windward slopes, comparatively dry on the leeward side and heavy precipitation in the form of snow at the mountain tops are the main features of the climate.

Weather:-

The weather of Gangtok is alpine with warm summer and cold winters. Temperatures range from a high of 25°C in summer to a low of about 3°C in winter. Snowfall is rare, and in recent times Gangtok has received snow only in 1990, 2004 and 2005. Temperatures below freezing are also rare. The region receives an annual rainfall of 3494 mm over 164

rocking days. The lower Himalayas in general are composed of labile rock formations and therefore prone to landslides even in dry seasons. These landslides can result in the capital being cut off from other parts of Sikkim and the mainland India.

Flora and Fauna:-

Sikkim is well-known for its biodiversity. The steep vertical climb from the plains of West Bengal to the high altitude areas of Sikkim represents one of the world's steepest altitude gradients. This accounts for the incredible variety of flora and fauna found in the region, ranging from the tropical to sub-arctic.

Flora around Gangtok includes temperate, deciduous forests of poplar, birch, oak, and elm, as well as evergreen, coniferous trees of the wet alpine. Densely forested regions of these evergreens lie just around the town. A wide variety of rare orchids are often featured in flower shows around the city. Sunflower, marigold, poinsettia, and other flowers bloom in November and December. Bamboo grows in abundance along the slopes of Gangtok. In the lower reaches of the town, the vegetation graduates from alpine to subtropical and temperate deciduous.

Among the more commonly found animals in the alpine zone are yaks. They are domesticated and reared in North Sikkim mainly for their economic productivity. Yak milk is used to make butter, cheese, the wool comes in handy as raw material for carpets and blankets. The musk deer, found in the upper temperate regions, is today a species in

Sikkim is the monjac, or the Boar King Deer.

Among the more exotic mammals is the Red panda which lives mostly on treetops. It is found at altitudes ranging from 6,000 to 12,000 feet. The snow leopard is an almost mythical animal. It has rarely been sighted and to date, only two field zoologists have succeeded in photographing this elusive animal in its habitat which can vary from 5,000 feet to as high as 18,000 feet. Blue sheep, flying squirrels, binturong, tahrs, marmots and musk deer are at home in this cool blanket of green.

EAST SIKKIM:-

Gangtok:-

The Capital City of Sikkim is fittingly called Gangtok, which means 'the town on the hilltop' in the local Bhutia language. From the former Royal Palace at the top to the Queen's Bridge at the bottom, the city sprawls across approximately 15 kilometres on the west side of a long ridge flanking the Rainpool (Ranipul) River. At an average altitude of 5500 feet (1676 metres), and with a population of approximately 50,000, this historically important transit point on the trade route with Tibet became the capital of Sikkim in 1894.

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Source:- Censuses of India

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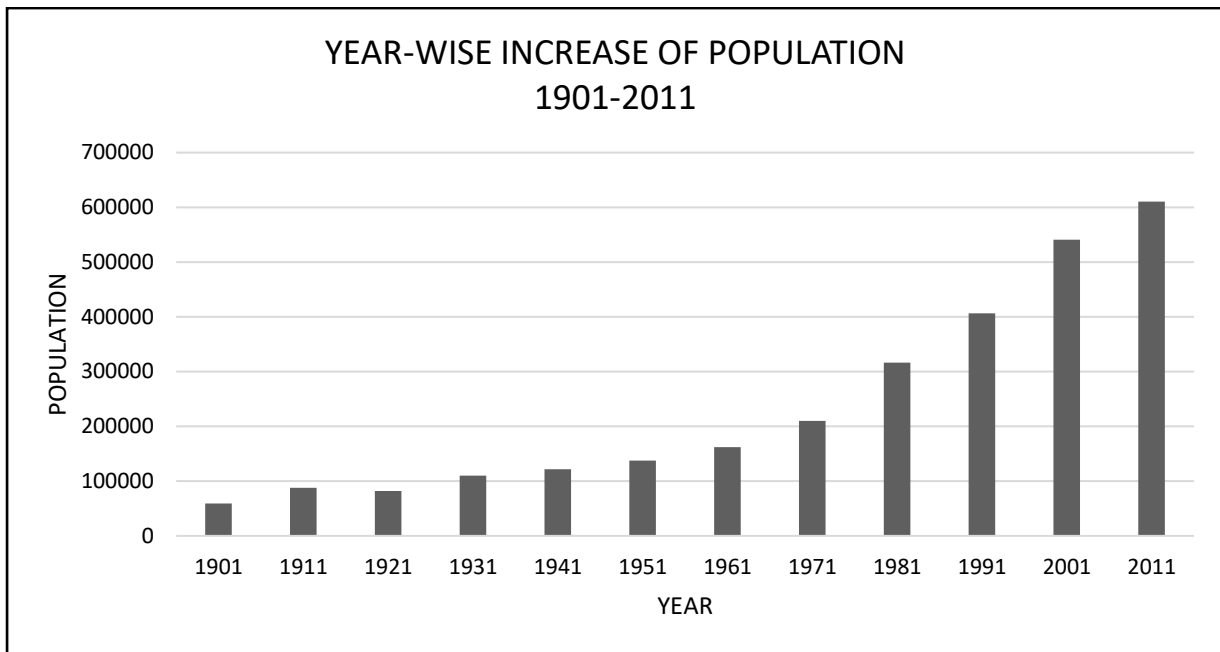


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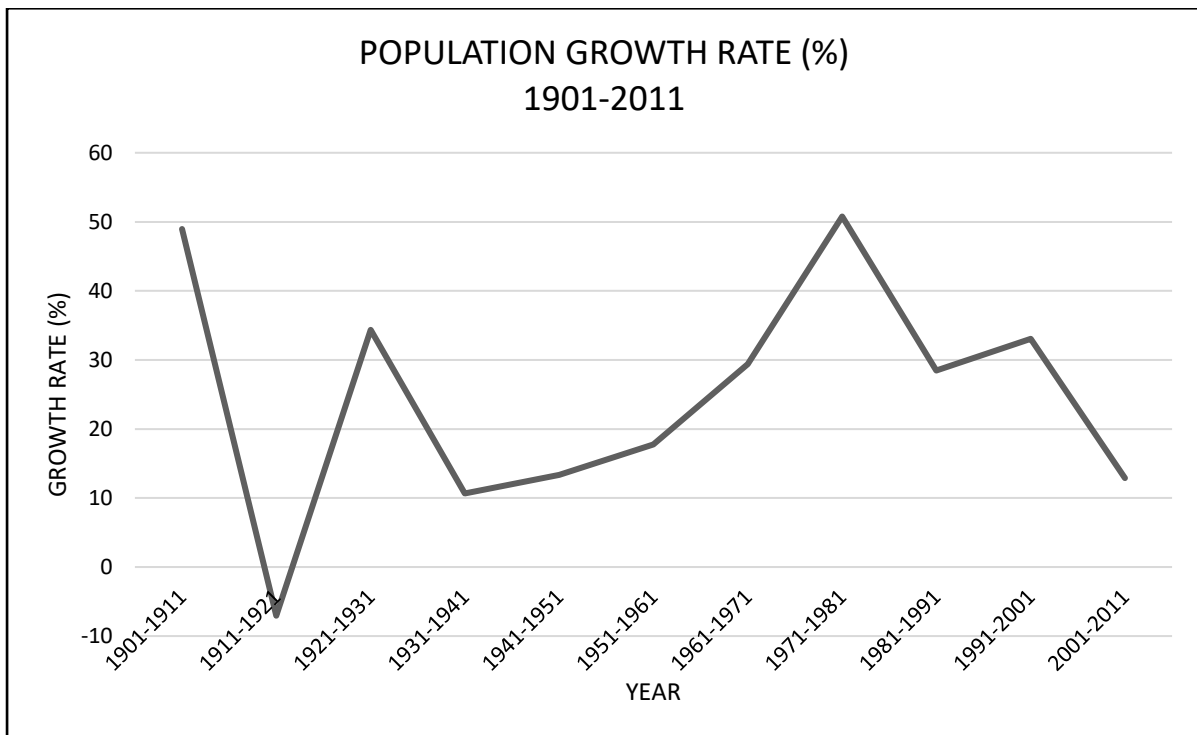


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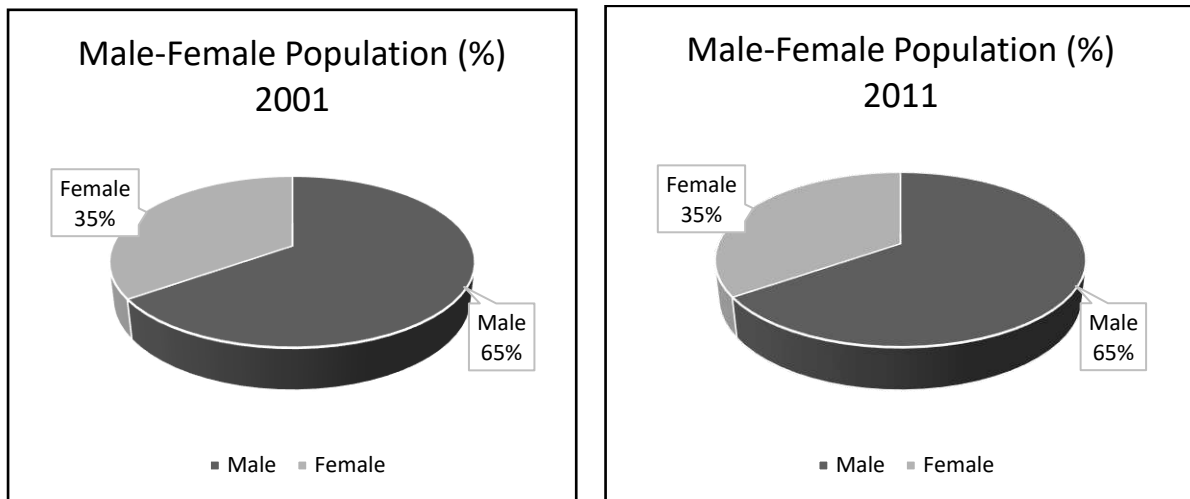


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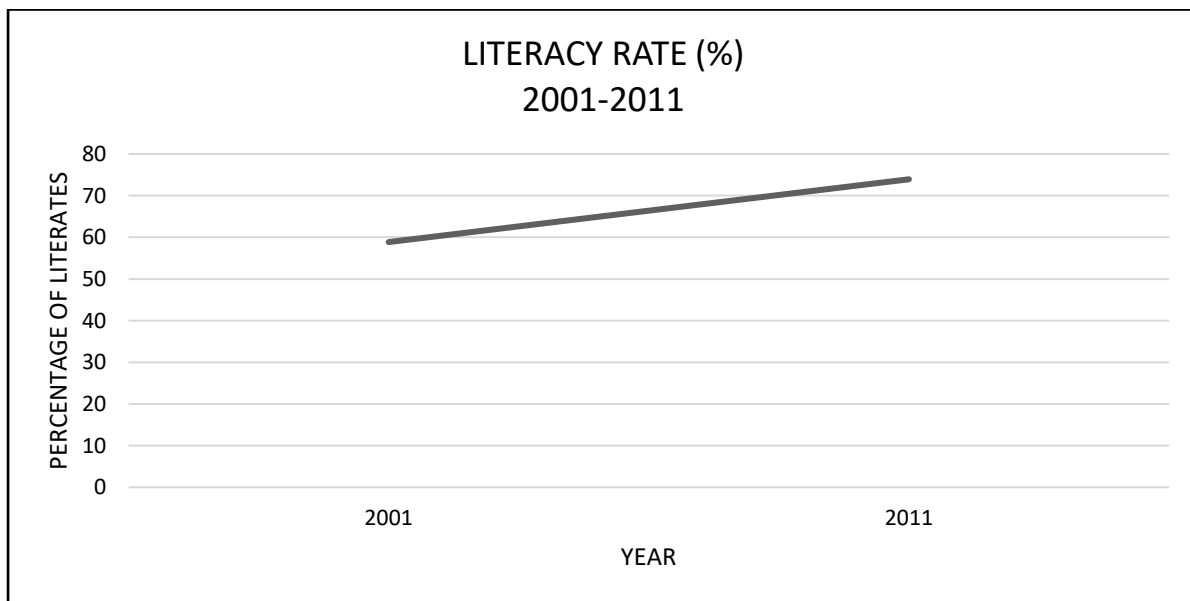


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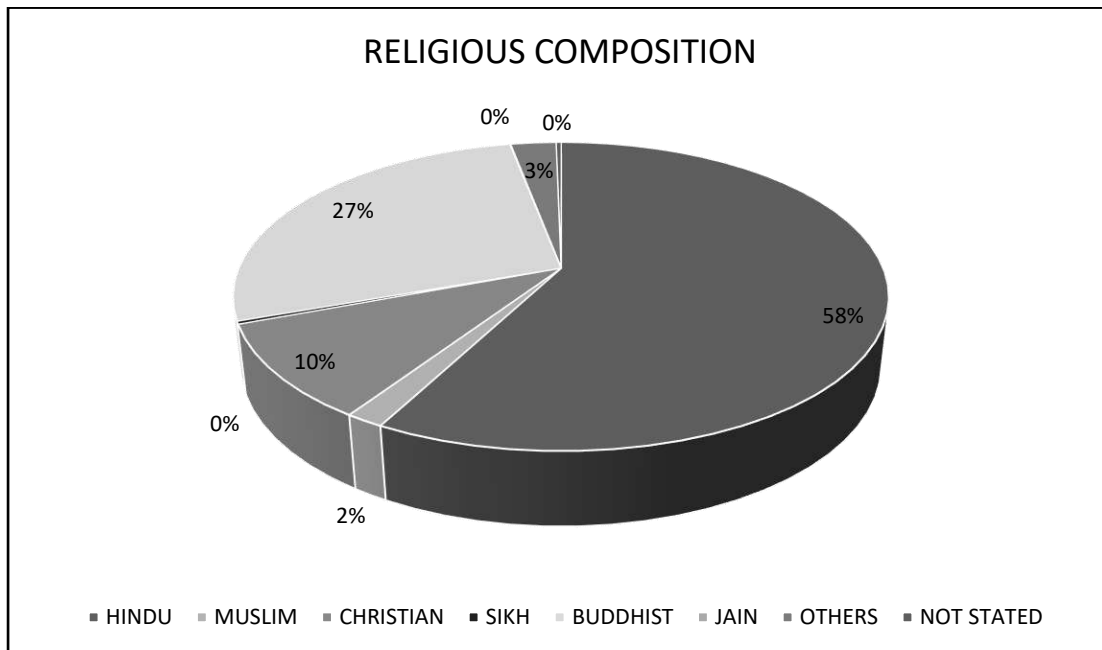


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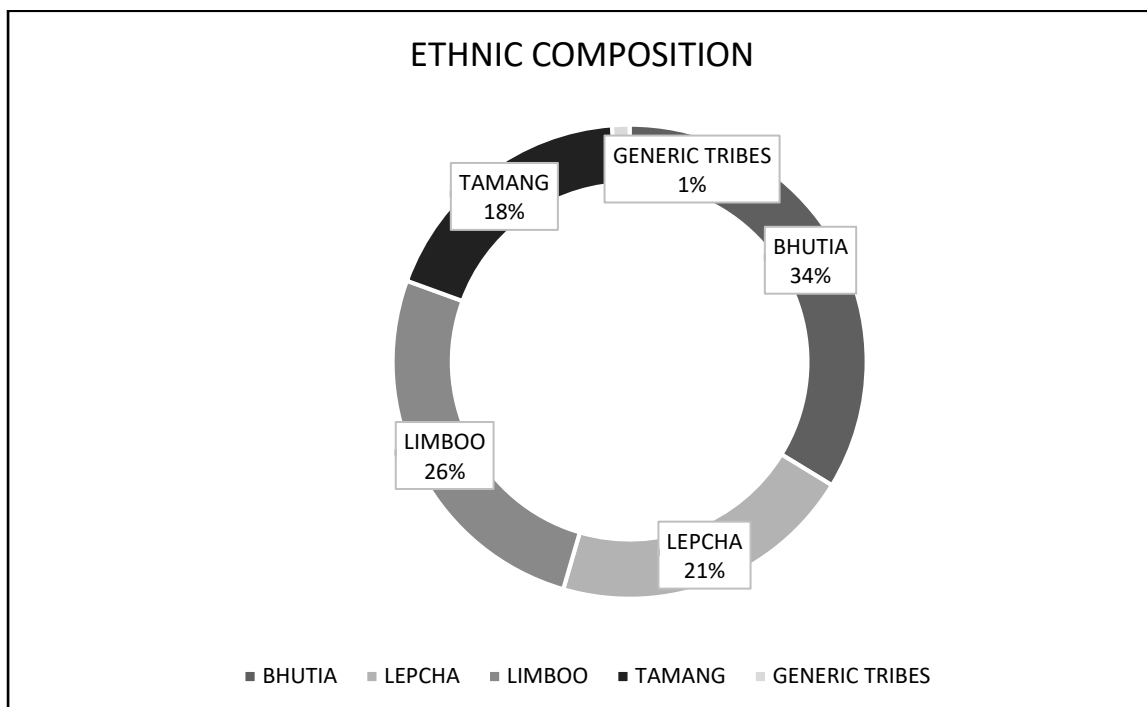


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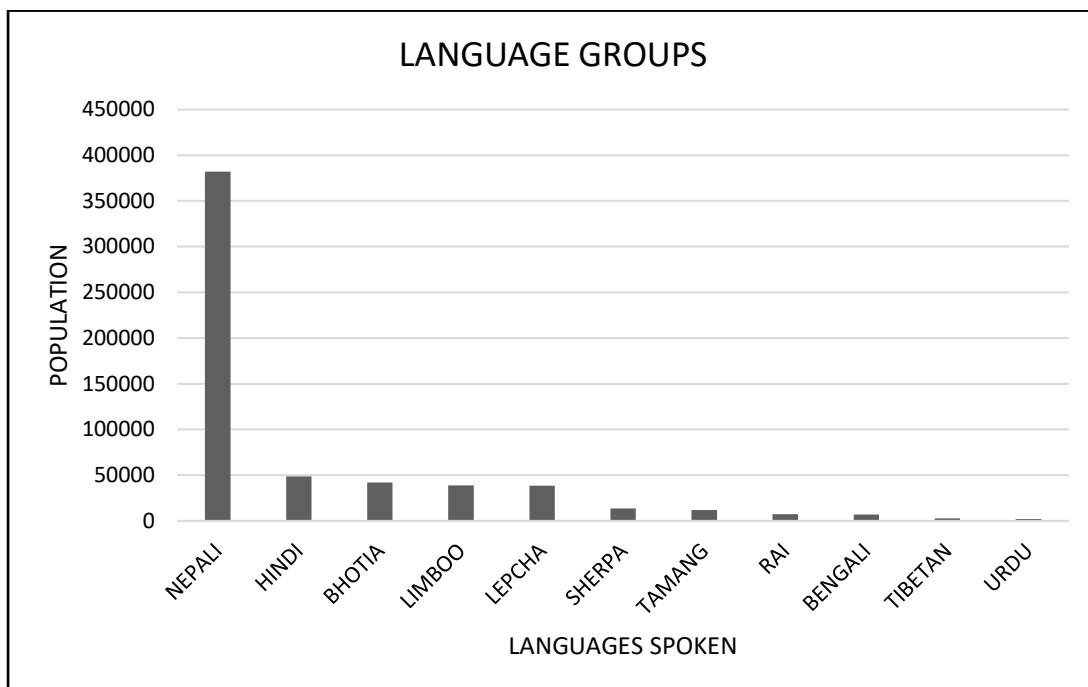
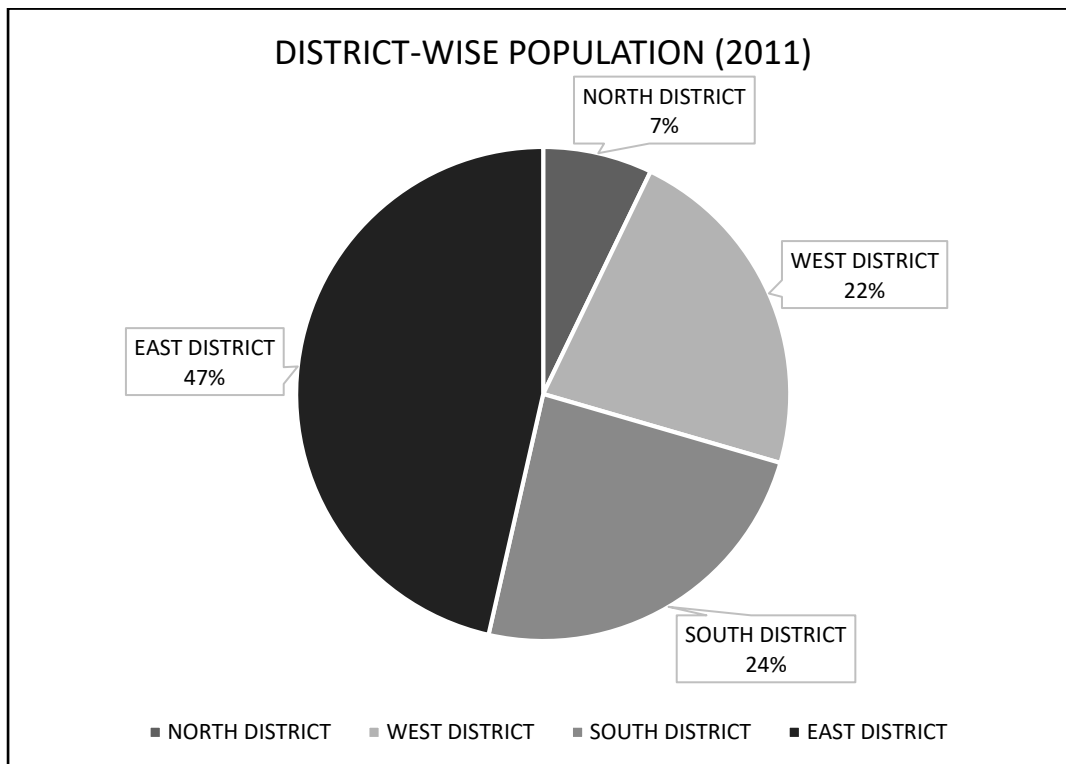


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Ryushu
30/6/2022

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CONTENTS

SUBJECT	PAGE NO.
INTRODUCTION	1
PHYSIOGRAPHY	2-4
CLIMATE	4
WEATHER	4
FLORA AND FAUNA	5-7
EAST SIKKIM	7-9
DATA ANALYSIS	10-12
CONCLUSION	13
REFERENCES	14

INTRODUCTION

Sikkim is a state located in Eastern Himalayas. Sikkim or Sikkim is a name derived from the Sanskrit word Shikim meaning 'erected'. In all of Sikkim there is not a single kilometer of 'flat land'. The state of Sikkim is located in the southern mountain ranges of Eastern Himalayas between Northern latitudes $27^{\circ}05'N$ and $28^{\circ}08'N$ and Eastern Longitudes $88^{\circ}10'E$ and $88^{\circ}55'E$. Sikkim is the 22nd state of the Indian Union, which came into existence with effect from 16th May, 1975. Sikkim is bounded by Nepal in the West, Bhutan in the east, Tibet in the north and State of West Bengal in the South. The state has been divided into four districts, viz East; West, North and South districts.

It extends for 114 kms from North to South and for 64 kms from East to West. It has a total geographical area of 7096 square kms most of Sikkim is in the lesser and greater Himalayan zone. It has a unique geographical location. Khamchenjunga and Nathula pass is in the state.

Gangtok, the state capital is in East Sikkim. It lies between 27 degrees to 16 minutes North to 27 degrees 21 minutes North. It has an altitude of 5500 feet above mean sea level. It is connected to Siliguri by the National Highway. The nearest airport and railway station is Siliguri.

PHYSIOGRAPHY

The topography of Sikkim is characterized by great variations in elevation, ranging from 250 m to 8495 m. Most of the Sikkim is in the Lesser and Greater Himalayan zone. The state is gridled by high ridges on the North, East and West contain some imposing peaks and high altitude passes.

Glaciers are the perennial sources of fresh water that is discharged in the two major rivers, namely Teesta and Rangit. Records available suggests that as many as 84 glaciers in Sikkim covering an area of 440 sq kms, with permanent snow fields measure around 251 sq km area which when added to glaciers cover an area of 691 sq kms.

Sikkim consists of more than 150 lakes located at different altitudes and are natural water bodies mostly as a product of glaciation and are confined to high altitude areas. Most of the lakes are source of fresh water and also of religious significance attracting pilgrims and tourists to the state. The most famous ones are Tsomgo and Khecheopari lakes.

Distinct micro-morphology features of Sikkim terrain include terraces and flood plains, valley side slopes and land slide slope, alluvial cones of different types and generations, tors, kettle shaped depressions, terrace isles, sickle shaped sags, beveled plains, undulating plains, with deeply dissected valleys, glacial or periglacial deposits related sedimentary structures crevasses, soil series

on poly pedon, gorges etc. These forms have been produced by the trunk stream Teesta and its innumerable tributaries - one of the important agents of denudation and deposition which moulds the landscape. (Mukhopadhyay 1998).

The hills of Sikkim mainly consist of gneissose and half schistose rocks, making their soil brown clay, and generally poor and shallow. The soil is coarse with large amounts of iron oxide concentrations, ranging from neutral to acidic and has poor organic and mineral nutrients. This type of soil tends to support evergreen and deciduous forests.

A large portion of the Sikkim territory including Gangtok is covered by the precambrian rock and is much younger in age than the hills. The rock consists of phyllites and schists and therefore the slopes are highly susceptible to weathering and prone to erosion. This combined with the intense rain, causes extensive soil erosion and heavy loss of soil nutrients through leaching. As a result landslides are frequent, isolating the numerous small towns and villages from the major urban centres.

The moisture content in the soil, mostly depending upon the soil thickness, has an explicit impact on forest type and coverage in any area. The entire state primarily consists of gneissose rocks and half-schistose rocks. The soil is developed from the gneissic group of rocks. They are typically coarse, often with ferric concentrations,

neutral to acidic with poor organic mineral nutrients. The high intensity of rain fall in the state often causes extensive soil erosion and heavy losses of nutrients of land by leaching.

CLIMATE :-

Sikkim is characterized by a Himalayan type of climate. Altitude is the main factor controlling the climate and weather condition of the whole state including the capital city of Gangtok. The climate conditions vary greatly due to the wide fluctuations in elevation ranging from 800-20,000 feet and sharp edged mountains. Relief features such as high mountains act as barriers for the movement of the monsoon winds. Low temperature, high rain fall on windward slopes, comparatively dry on the leeward side and heavy precipitation in the form of snow at the mountain tops are the main features of the climate.

WEATHER :-

The weather of Gangtok is alpine with warm summer and cold winters. Temperatures range from a high of 25°C in summer to a low of about 3°C in winter. Snow fall is rare, and in recent times Gangtok has received snow only in 1990, 2004 and 2005. Temperatures below freezing are also rare. The region receives an annual rainfall of 3494 mm over 164 rainy days. The lower Himalayas in general are composed of labile rock formations and therefore prone to land slides even in dry seasons. These land slides can result in the capital being cut off from other parts of Sikkim and the mainland India.

FLORA AND FAUNA

Sikkim is well-known for its biodiversity. The steep vertical climb from the plains of West Bengal to the high altitude areas of Sikkim represents one of the world's steepest altitude gradients. This accounts for the incredible variety of flora and fauna found in the region, ranging from the tropical to sub-arctic.

Flora around Gangtok includes temperate, deciduous forests of poplar, birch, oak and elm, as well as evergreen, coniferous trees of the wet alpine. Densely forested regions of these evergreens lie just around the town. A wide variety of rare orchids are often in flower shows around the city. Sunflower, marigold, poinsettia, and other flowers bloom in November and December. Bamboo grows in abundance along the slopes of Gangtok. In the lower reaches of the town, the vegetation graduates from alpine to subtropical and temperate deciduous.

Among the more commonly found animals in the alpine zone are yaks. They are domesticated and reared in North Sikkim mainly for their economic productiveness. Yak milk is used to make butter 'churpi', the wool comes in handy as raw material for carpets and blankets. The musk deer, found in the upper temperate regions, is today a species in the endangered list. A common denizen of bamboo grows in abundance along the slopes of Gangtok. In the lower reaches of the town the vegetation graduates from alpine to subtropical and temperate deciduous.

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making it an exciting place to spend a few days at the beginning or end of your Sikkimese journey. The town can be the ideal staging point for your travels across Sikkim's other districts, as you take advantage of top notch tourism agencies, first class hotels and urban shopping amenities, or a comfortable haven with good food and hot showers at the end of your Sikkim adventure.

Although warmer than neighbouring Darjeeling, Gangtok is still a hill town with widely varying weather patterns, so take extra care when packing, summer temperatures can be as high as 28° Celsius on sunny afternoons but may drop to 13° Celsius on rainy evenings. In the winter, you can expect highs of 18° Celsius and lows of 5° Celsius. Gangtok sees over 150 inches of rainfall per year, primarily during the summer monsoon season. Come prepared with light woollens and a rain jacket for the summer, and heavier clothes for the winter.

At an altitude of over 14,000 feet, the Nathula is now open for domestic tourists. This is the highest point in Sikkim reachable by car, without the extra exertion of a trek. However, visitors with heart conditions or concerned about high-altitude sickness are advised to avoid this destination. The historically important Nathula Pass was the gateway to Tibet, and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Shigatse and Lhasa in the land of the snows. Now open once again after several decades, visiting the pass is a once in a lifetime experience. You can walk up to the army view point

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Among the more exotic mammals is the Red panda which lives mostly on treetops. It is found at altitudes ranging from 6,000 to 12,000 feet. The snow leopard is an almost mythical animal. It has rarely been sighted and to date, only two field zoologists have succeeded in.

Photographing this elusive animal in its habitat which can vary from 5,000 feet to as high as 18,000 feet. Blue sheep, flying squirrels, binturong, tahars, marmots and musk deer are at home in this cool blanket of green.

EAST SIKKIM

GANGTOK :-

The capital city of Sikkim is fittingly called Gangtok, which means the town on the hilltop in the local Bhutia language. From the former Royal Palace at the top to the Queen's Bridge at the bottom, the city sprawls across approximately 15 kilometres on the west side of a long ridge flanking the Ranipool (Ranipul) River. At an average altitude of 5500 feet (1676 meters), and with a population of approximately 50,000, this historically important transit point on the trade route with Tibet became the capital of Sikkim in 1894. Gangtok combines an attractive mix of old world charm, traditional hospitality and a modern cosmopolitan outlook.

and look beyond into China, where green-uniformed Chinese army personnel with red stars on their caps stand to attention. All around them, the stark alpine landscape is interspersed with delicate primula blossoms and the unique Himalayan rhubarb shrub. Visitors are advised to start for Nathula as early in the day as possible to avoid inclement weather which typically arises in the afternoon.

35 kilometers away from Gangtok at an altitude of 12,400 feet (3780 meters) you reach the beautiful Tsomgo Lake, which freezes over in winter and is fed by melting snows from the surrounding mountains. Local legend holds that lamas could forecast the future by studying the colour of the lake's waters. Fishing is totally prohibited and visitors are requested not to pollute the environs of the lake with rubbish in order to maintain its sanctity.

Although central Gangtok's main commercial thoroughfare is slightly less than a kilometre in length, M.G. (Mahatma Gandhi) Marg is lined with shops, hotels, restaurants, bars, bakeries, studios, cybercafes, pool rooms and curio shops. At the western end of the road, near the Thakurbari temple and overlooking the Tourism Information Centre, stands the statue of unity depicting the meeting of the Bhutia chief Khye Bumsa with the Lepcha leader Thekong Tek.

Built in memory of Harbajan Singh, a lost spy from the 23rd Punjab Regiment, the Baba Harbajan Singh Memorial Mandir lies between the Nathula and

Telep La Passes. Legend has it that he appeared to his colleagues in a dream a few days after he went missing and requested that a monument be built in his memory. His fellow soldiers then erected this monument, which over the years acquired the status of a pilgrimage site. Devotees leave a bottle of water, which they collect a few days later to take back home, blessed by the spirit of this hardy soldier.

Tashi view point is an acclaimed spot for photography located about 8 kilometers north of Gangtok on the main road to north Sikkim. On a clear day recently been established, along with a small but well-stocked cafeteria. Along the way, stop to marvel at the clear waters of Bakthong, Kyongchhu, a small water fall between Gangtok and Tashi view point.

TABLE NO.2 GROWTH RATE OF POPULATION (1901 TO 2011)

YEAR	GROWTH RATE (%)
1901 - 1911	48.98
1911 - 1921	-7.05
1921 - 1931	34.37
1931 - 1941	10.67
1941 - 1951	13.33
1951 - 1961	17.76
1961 - 1971	29.38
1971 - 1981	50.77
1981 - 1991	28.47
1991 - 2001	33.06
2001 - 2011	12.89

SOURCE - COMPUTED BY THE AUTHOR

MALE - FEMALE POPULATION:-

Males constituted 65 percent of the population and females constituted 35 percent of the population in 2001 and 2011 (Figure No.3)

LITERACY RATE:-

Literacy rate has increased from 58.86 percent in 2001 to 73.93 percent in 2011. Number of literates has increased from 318335 in 2001 to 449294 in 2011 (Figure No.4)

SEX RATIO:-

Sex ratio is the number of females per thousand males. Sex ratio has improved from 875 in 2001 to 889 in 2011. Child sex ratio has also improved from 938 in 2001 and 944 in 2011.

DENSITY OF POPULATION:-

Density of population refers the number of persons per square kilometers. It has increased from 76 persons per

DATA ANALYSISYEAR-WISE INCREASE IN POPULATION

Population in Sikkim has increased from 59014 in 1901 to 610577 in 2011 (Table No.1) and (Figure No.1)

Table No.1: YEARWISE INCREASE OF POPULATION

YEAR	POPULATION
1901	59014
1911	87920
1921	81721
1931	109808
1941	121520
1951	137725
1961	162189
1971	209843
1981	316385
1991	406457
2001	540851
2011	610577

Source: census of India

GROWTH RATE OF POPULATION

Population growth rate is the at which population is increasing. Population growth rate between 1901 and 1911 was 48.98 percent which has decreased to 12.89 percent between 2001 and 2011. The maximum growth of population (50.77%) took place between 1971 and 1981 (Table No 2 and Figure No2)

square kilometres to 86 persons per square kilometres.

RURAL AND URBAN POPULATION:-

Only 24.97 percent of the total population in 2011 is urban and the rest 75.03 percent is rural.

RELIGIOUS COMPOSITION:-

Majority of the population are Hindus (58%), followed by Buddhists (27%) and Christians (10%) (Figure No. 5)

ETHNIC COMPOSITION:-

Bhutias constitute 34 per cent of the population, followed by Limboo (26%) and Lepchas (21%) (Figure No. 6)

LANGUAGE GROUPS:-

Majority are Nepali speaking population, followed by Hindi and Bhotia (Figure No. 7)

DISTRICT - WISE POPULATION:-

East District is the most populous followed by South District, West District and North District (Figure No. 8)

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

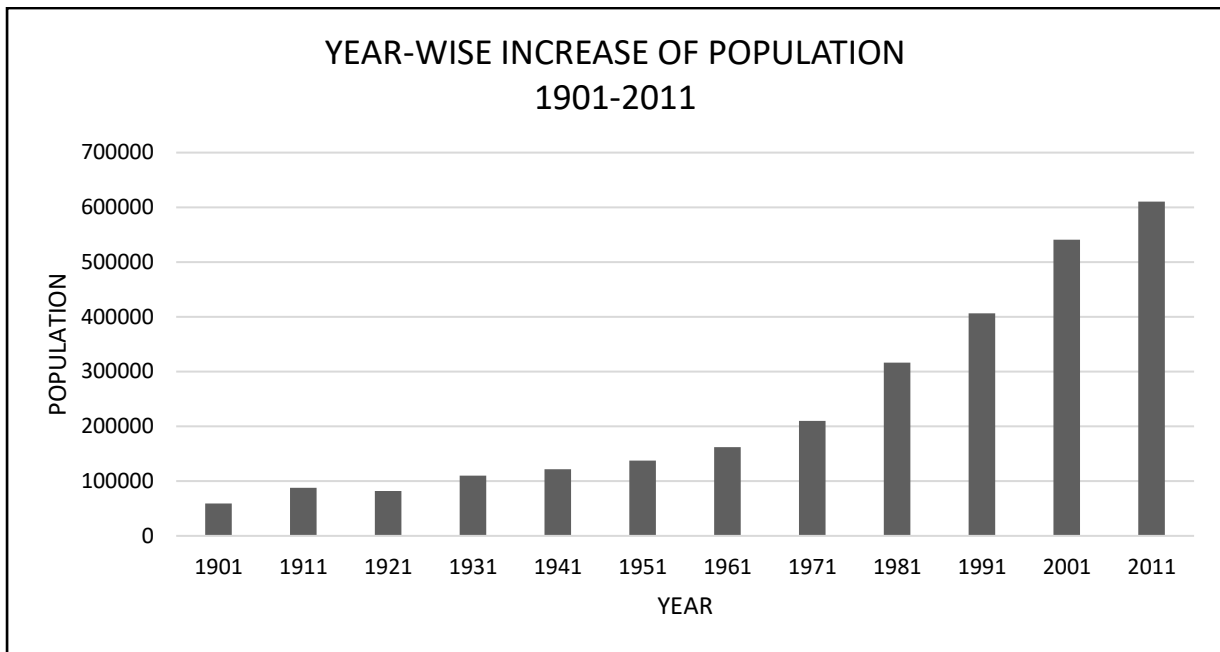


FIGURE NO.2: GROWTH RATE OF POPULATION (1901 TO 2011)

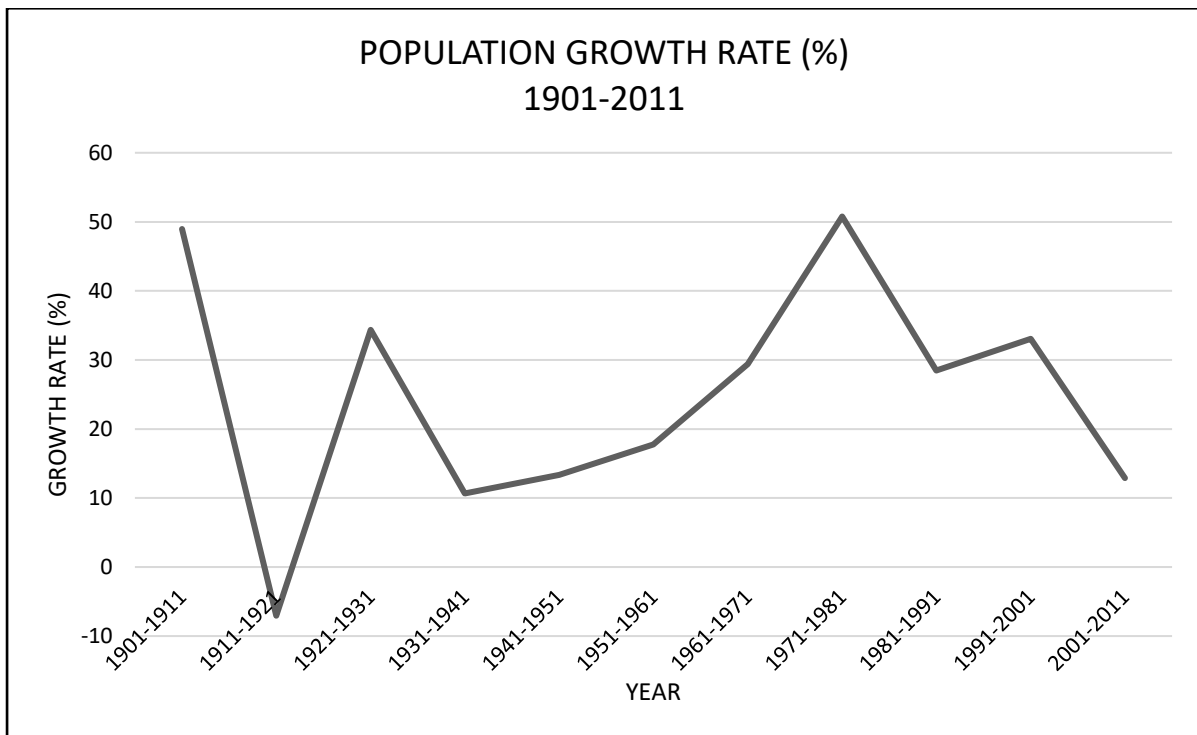


Figure No.3: Male-Female Population

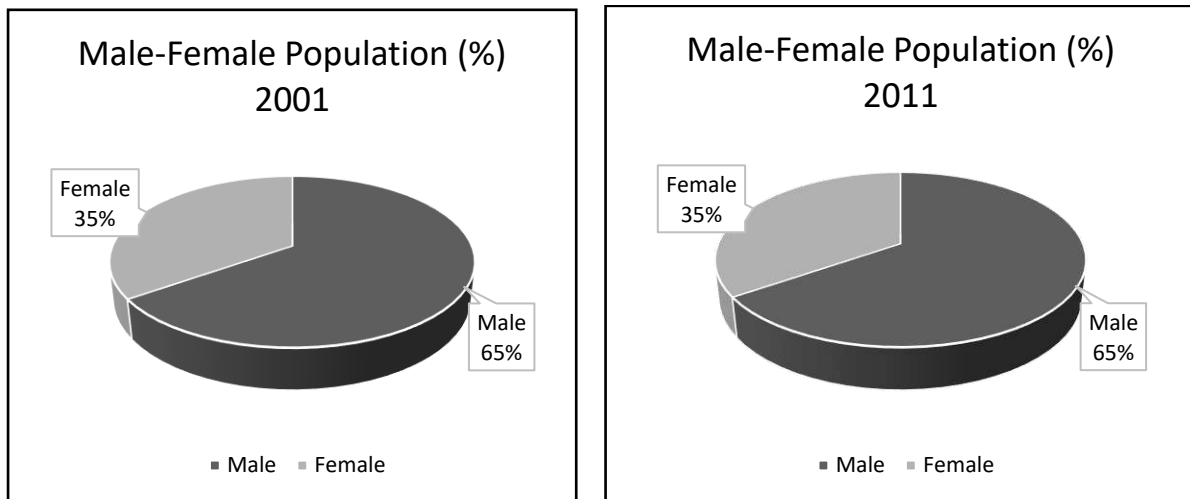


Figure No.4: Literacy rate (2001 and 2011)

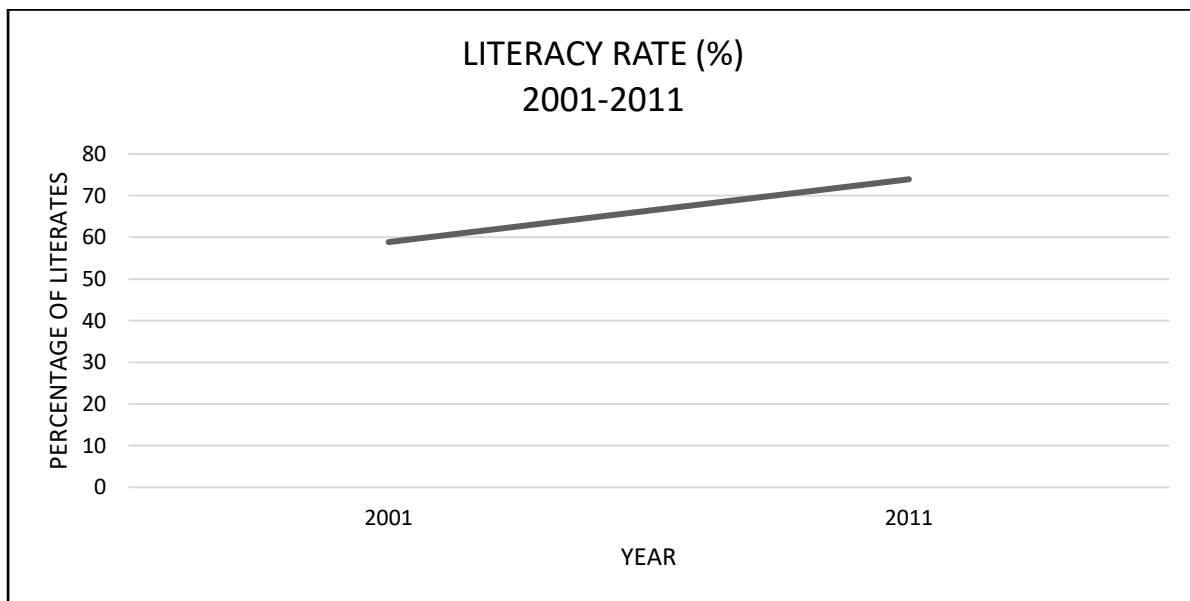


Figure No.5: Religious Composition

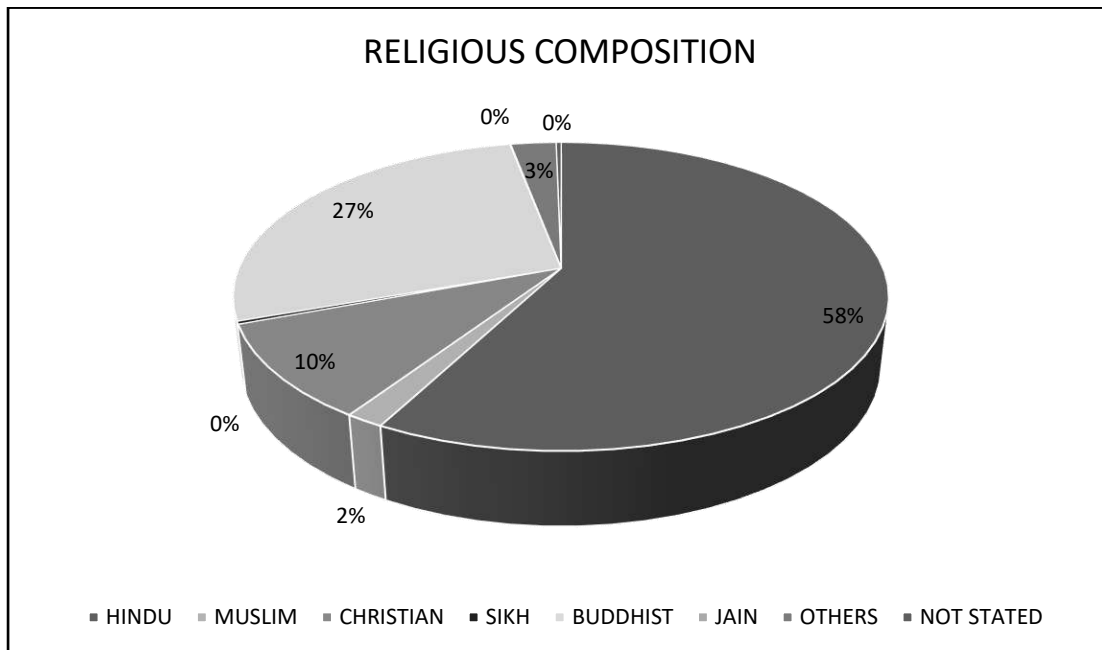


Figure No.6: Ethnic composition

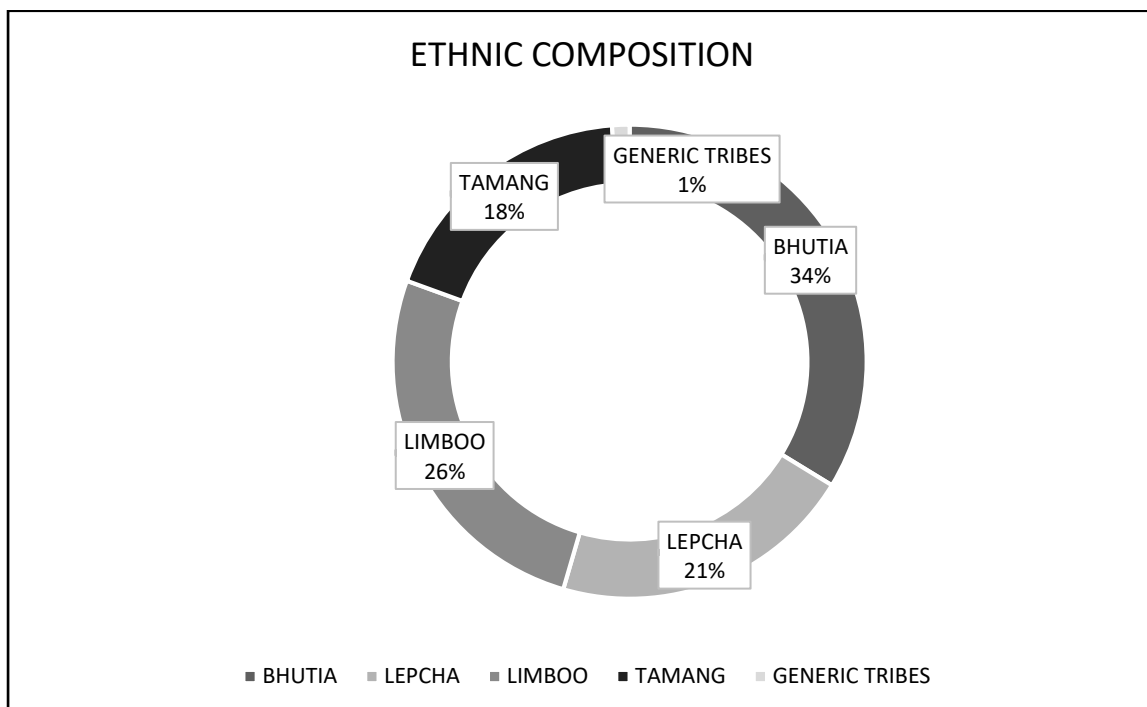


Figure No.7: Language Groups

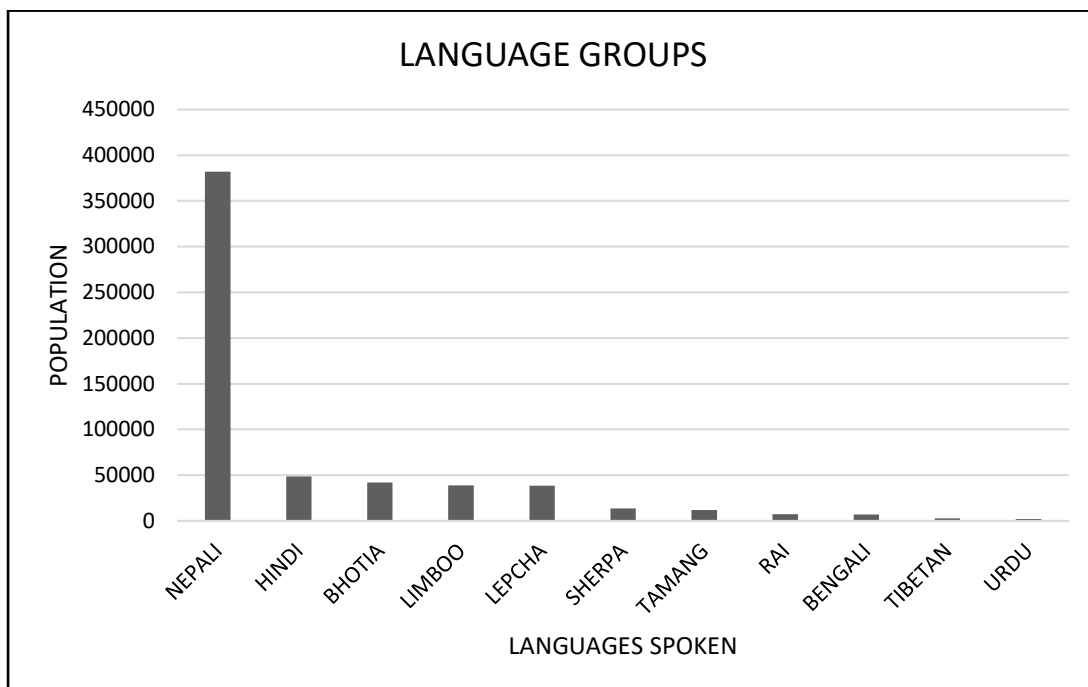
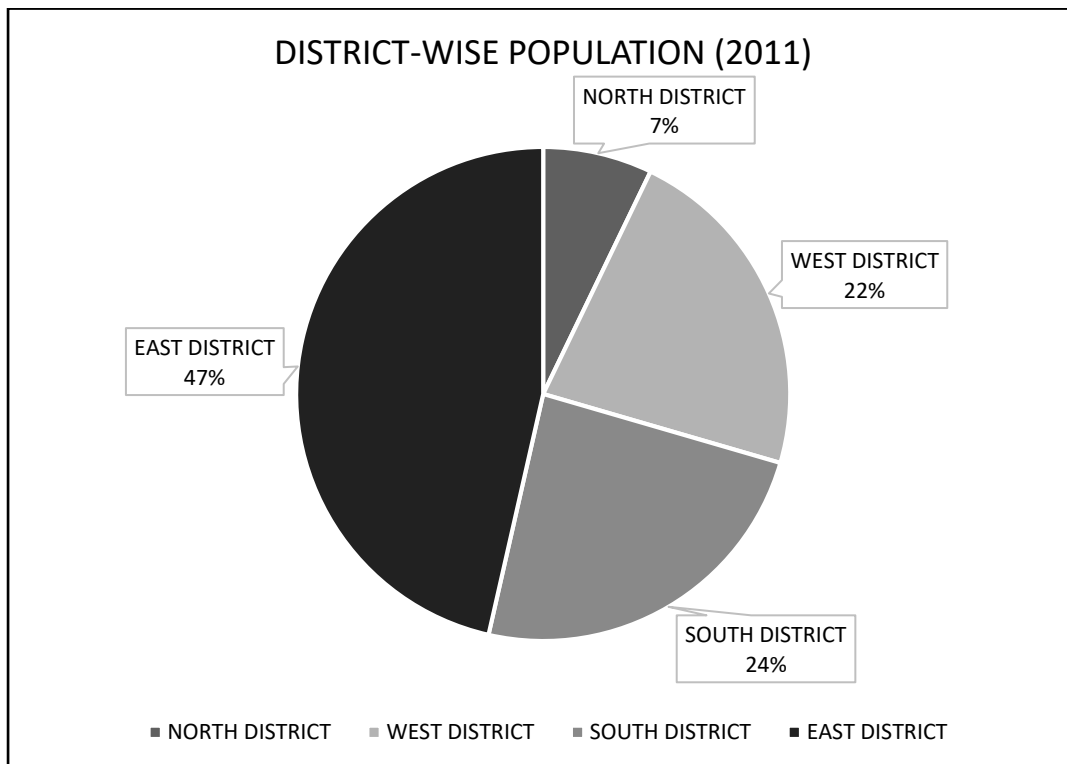


Figure No. 8: District-wise population



CONCLUSION

Sikkim with its mountainous landscapes has a pristine environment. There are great variations in elevation ranging from 250m to 8495m. It has a population of above six lakhs and has an area of 7096 square kilometres. Population density is 86 persons per square kilometre as per Census 2011. It is administratively divided into 4 districts. It is culturally diverse state with varied language groups, ethnic and religious compositions. The lustrous Himalayan landscapes and a favourable weather have made the state, a favourite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. Though population density is low, which is an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93 percent, Sex ratio is 944. Out of the 4 districts, East District is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single use plastic bottles since 1998. Despite of the tough mountainous terrain it has emerged as one of India's top environmental leaders.

rytosh
5/12/2022

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CONTENT

Subject	Page No.
Introduction	1
Physiography	2 - 3
Climate	4 - 5
Weather	5
Flora and Fauna	5 - 6
East Sikkim	7 - 10
Data Analysis	11 - 12
Conclusion	13
References	14

INTRODUCTION

Sikkim is a state located in eastern Himalayas. Sikkim or Sikkim is a name derived from the Sanskrit word Shi-khim meaning 'crested'. In all of Sikkim there is not a single kilometer of 'flat land'. The state of Sikkim is located in the southern mountain ranges of Eastern Himalayas between Northern Latitudes $27^{\circ}05' N$ and $28^{\circ}08' N$ and Eastern Longitudes $88^{\circ}10' E$ and $88^{\circ}55' E$. Sikkim is the 22nd state of the Indian Union, which came into existence with effect from 16th May, 1975. Sikkim is bounded by Nepal in the west, Bhutan in the east, Tibet in the North and State of West Bengal in the South. The state has been divided into four districts, viz. East, West, North and South districts.

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EAST SIKKIM

GHANGTOK

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Tashi view point is an acclaimed spot for photography located about 8 kilometres north of Gangtok on the main road to North Sikkim. On a clear day, you can see the monasteries of Phodong and Labrang. An observatory tower has recently been established, along with a small but well-stocked cafeteria. Along the way, stop to marvel at the clear waters of Bathong Kyong chu, a small waterfall between Gangtok and Tashi view point.

DATA ANALYSIS

YEAR-WISE INCREASE IN POPULATION

Population in Sikkim has increased from 59014 in 1901 to 610577 in 2011 (Table No. 1) and (Figure No. 1)

Table No. 1: year-wise Increase of population

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Source: Census of India

GROWTH RATE OF POPULATION

Population Growth rate is the rate at which population is increasing. Population Growth rate between 1901 and 1911 was 48.98% which has decreased to 12.89% between 2001 and 2011. The maximum growth of population (50.77%) took place between 1971 and 1981 (Table no. 2 and Figure No. 2)

Table No. 2: Growth Rate of Population (1901 to 2011)

YEAR	GROWTH RATE (%)
1901 - 1911	48.98
1911 - 1921	-7.05
1921 - 1931	34.37
1931 - 1941	10.67
1941 - 1951	13.33
1951 - 1961	17.76
1961 - 1971	23.38
1971 - 1981	50.77
1981 - 1991	28.47
1991 - 2001	33.06
2001 - 2011	12.89

Source: Computed by the Author

• MALE - FEMALE POPULATION

Males constituted 65% of the population and females constituted 35% of the population in 2001 and 2011 (Figure No. 3)

• LITERACY - RATE

Literacy rate has increased from 58.86% in 2001 to 73.93% in 2011. Number of literates has increased from 318335 in 2001 to 449294 in 2011 (Figure No. 4)

• SEX RATIO

Sex Ratio is the number of females per thousand males. Sex ratio has improved from 875 in 2001 to 889 in 2011. Child sex ratio has also improved from 938 in 2001 to 944 in 2011.

• DENSITY OF POPULATION

Density of Population refers to the number of persons per square kilometre. It has increased from 76 persons per square kilometre to 86 persons per square kilometre.

• RURAL AND URBAN POPULATION

Only 24.97% of the total population in 2011 is urban and the rest 75.03% is rural.

• RELIGIOUS COMPOSITION

Majority of the population are Hindus (58%), followed by Buddhists (27%) and Christians (10%) (Figure No. 5)

• ETHNIC COMPOSITION

Bhutias constitute 34% of the population, followed by Limboo (26%) and Lepchas (21%) (Figure No. 6)

• LANGUAGE GROUPS

Majority are Nepali speaking population, followed by Hindi and Bhotia (Figure No. 7)

• DISTRICTWISE POPULATION

East District is the most populous followed by South District, West District and North District (Figure No. 8)

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

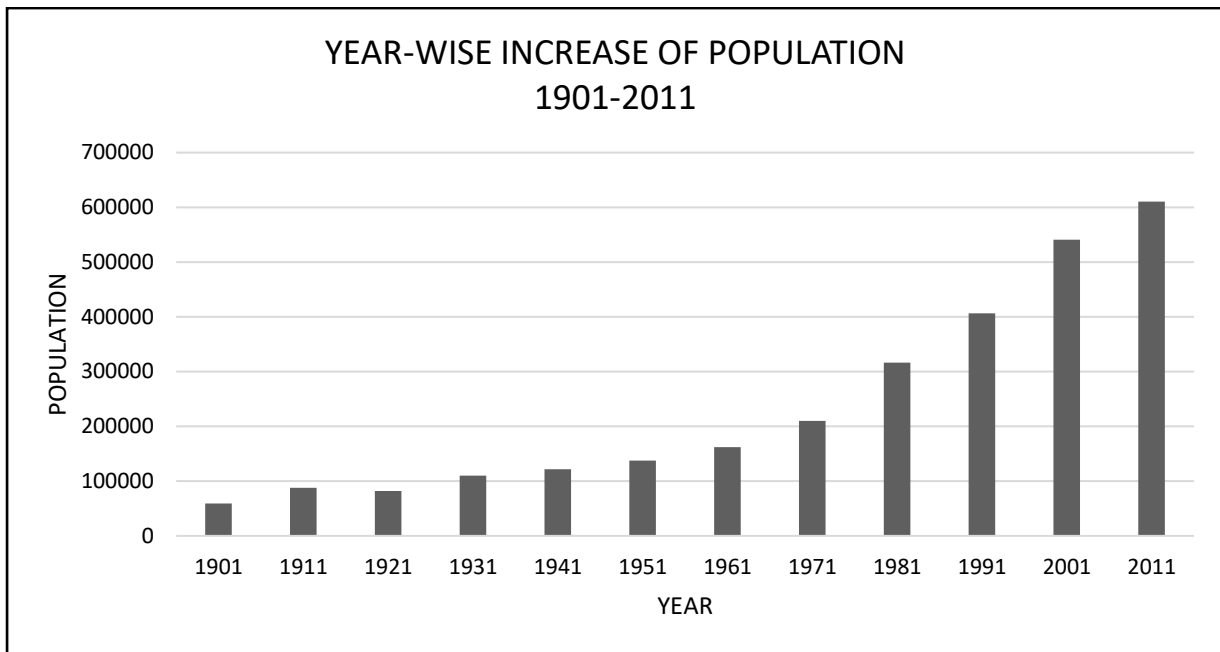


FIGURE NO.2: GROWTH RATE OF POPULATION (1901 TO 2011)

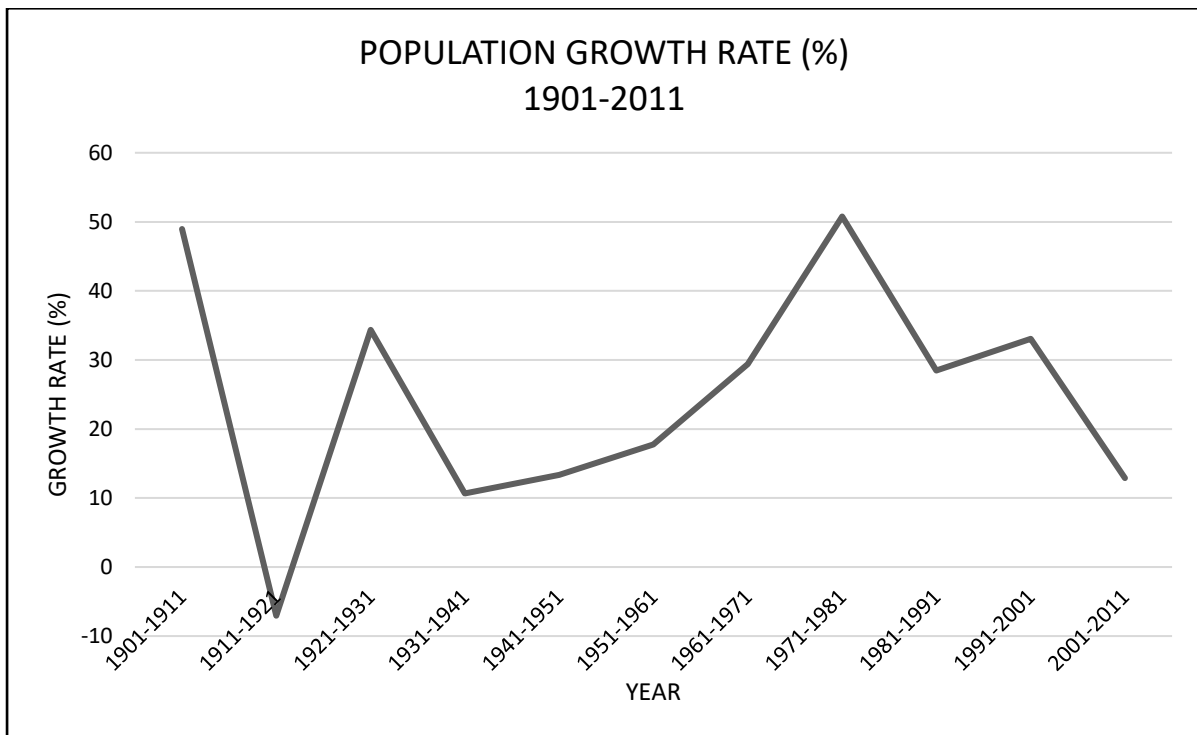


Figure No.3: Male-Female Population

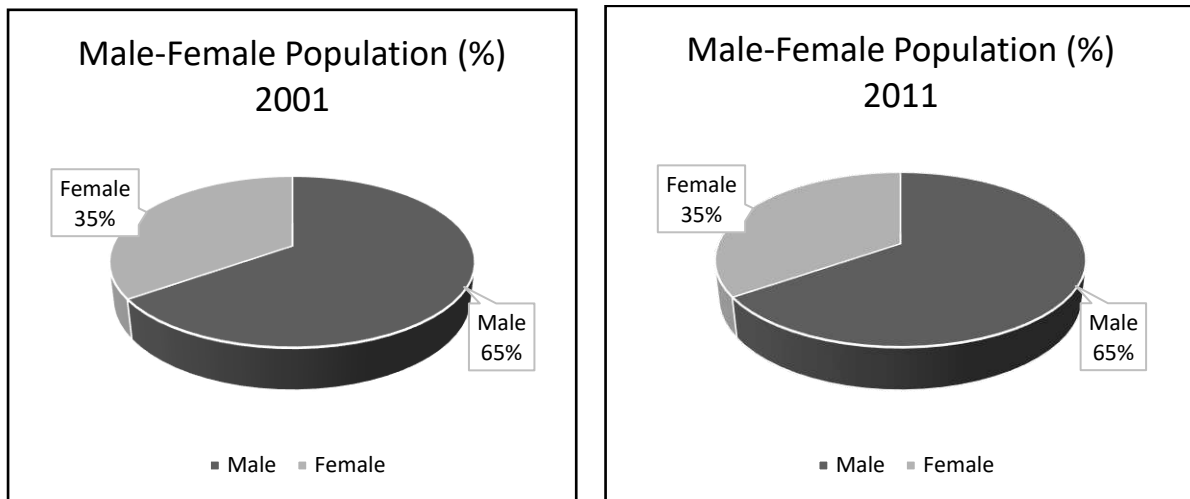


Figure No.4: Literacy rate (2001 and 2011)

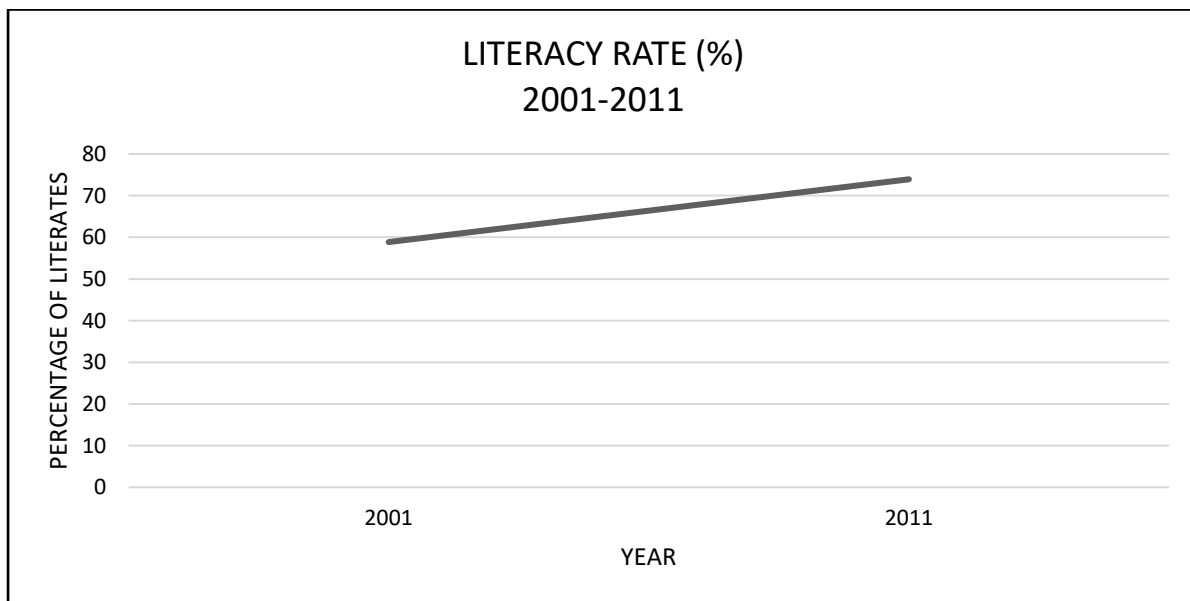


Figure No.5: Religious Composition

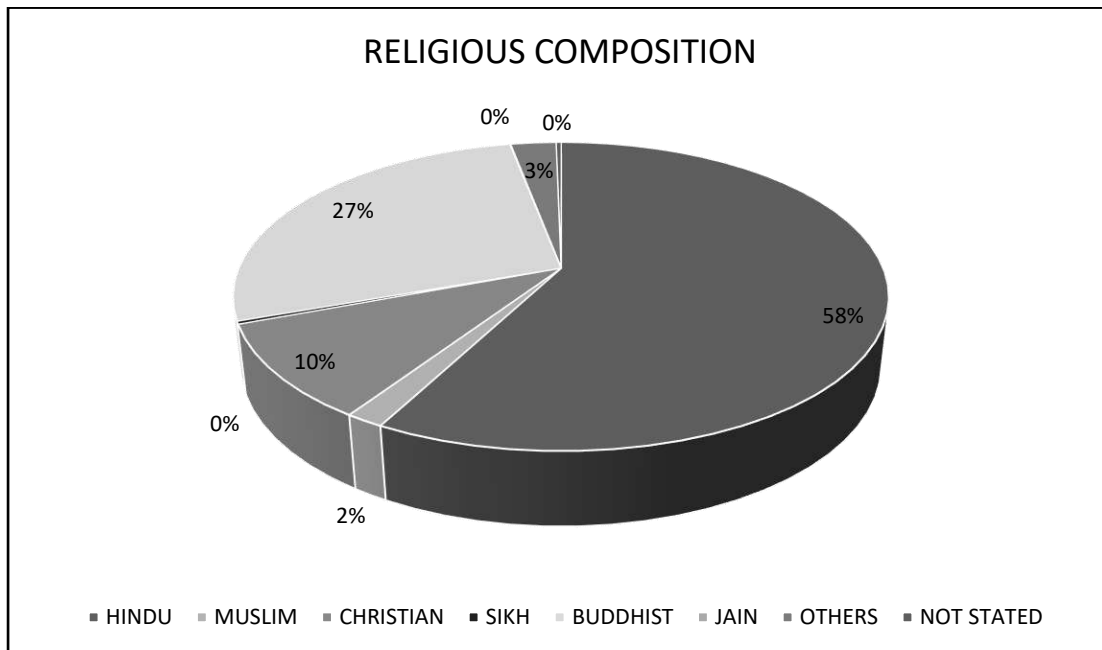


Figure No.6: Ethnic composition

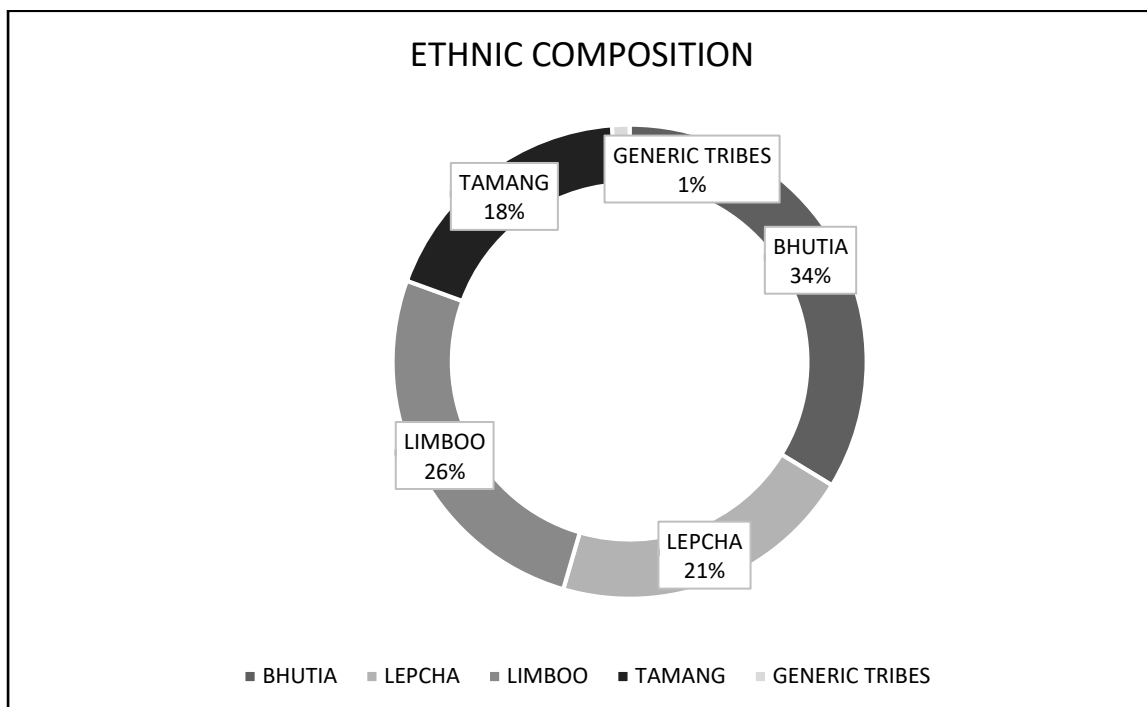


Figure No.7: Language Groups

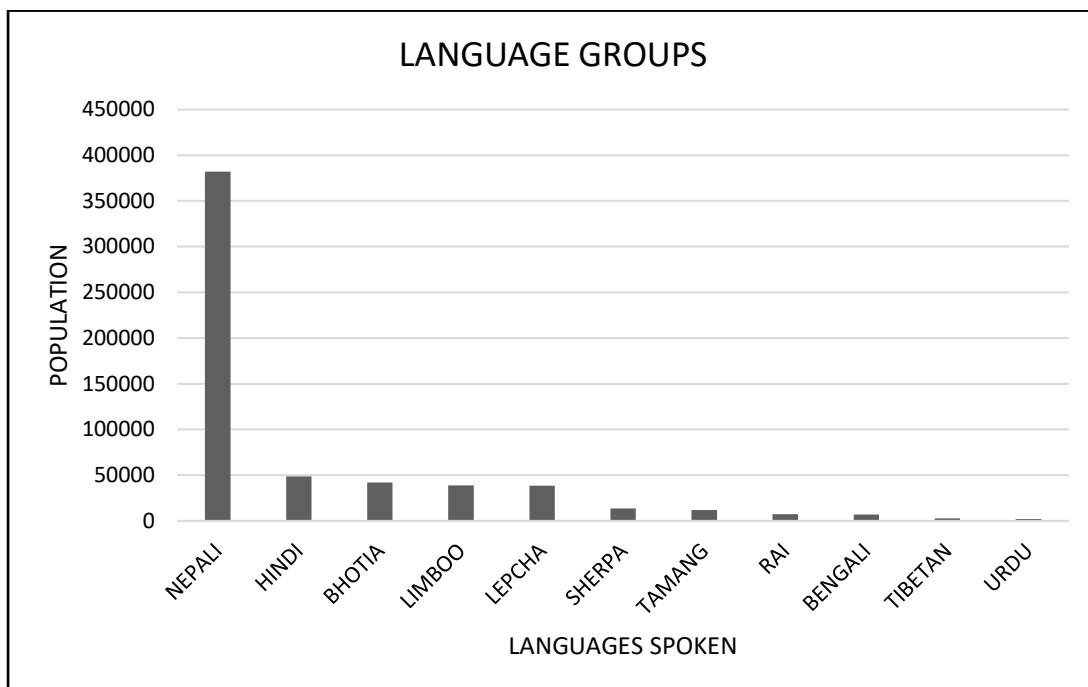
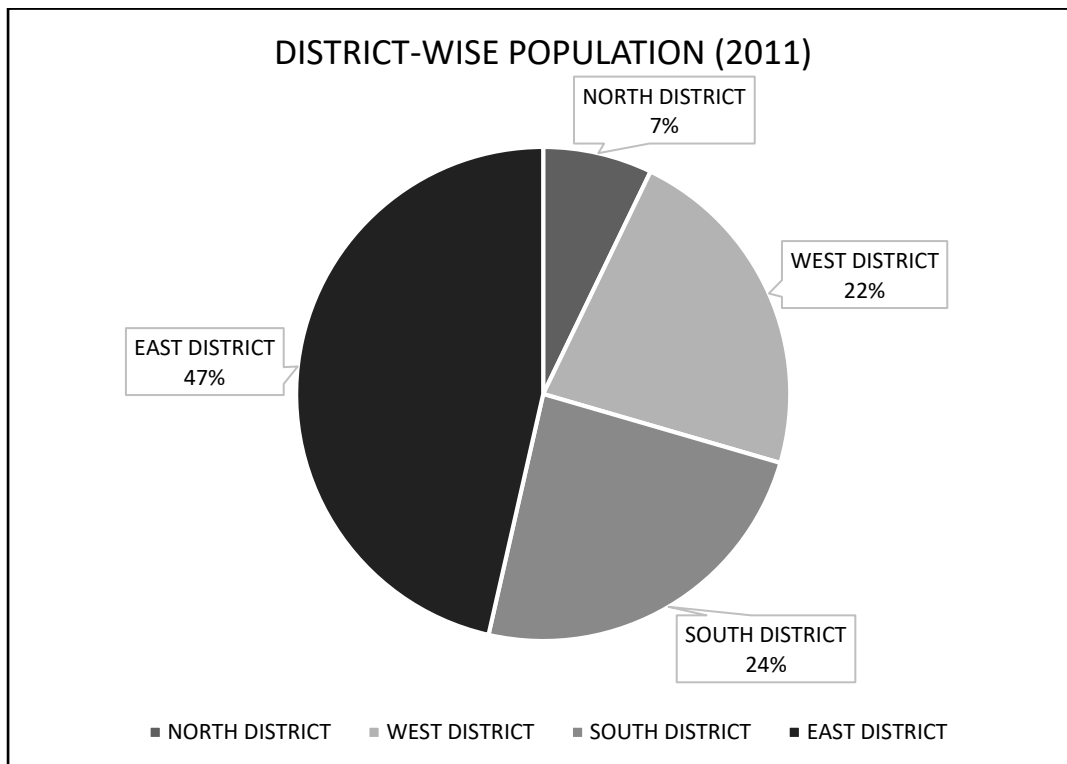


Figure No. 8: District-wise population



CONCLUSION

Sikkim with its mountainous landscapes has a pristine environment. There are great variations in elevation ranging from 250m to 8495m. It has a population of above six lakhs and has an area of 7096 square km. Population density is 86 persons per square kilometre as per census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups, ethnic and religious compositions. The lush green Himalayan landscapes and a favourable weather have made the state, a favourite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. Though population density is low, which is an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93%. Sex ratio is 944. Out of the 4 districts, East district is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single use plastic bottles since 1998. Despite of the tough mountainous terrain it has emerged as one of the India's top environmental leaders.

Rylooh
30/11/2022

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It gives me immense pleasure the Assignment undertaken during B.Sc 2nd Year of Geography Honours. I owe special debt of gratitude to my Madam, Dr. Rakaparna Ghosh and Sir, Dipankar Chatterjee for their constant support that my endeavors have seen light of the day. I would like to thank our respected Principal Madam Dr. Chhabra for giving me the opportunity to participate in the geographical excursion. I would also like to thank my friends for their help and support. I have no valuable words to express my thanks, but my heart is still full of the favours received from every person.

CONTENTS

	<u>Page No.:</u>
INTRODUCTION	1 - 2
PHYSIOGRAPHY	2 - 4
CLIMATE	5
WEATHER	5 - 6
FLORA AND FAUNA	6 - 7
EAST SIKKIM	7 - 11
DATA ANALYSIS	12 - 15
CONCLUSIONS	16
REFERENCES	17

Introduction

Sixxim is a state located in Eastern Himalayas. ~~Sixxim~~ meaning 'Crested'. In all of Sixxim there is not a single kilometre of 'Flat land'. The state of Sixxim is located in the southern mountain ranges of Eastern Himalays between northern latitudes 27°05' and 28°04' and Eastern Longitudes 98°10'E and 98°55'E. Sixxim is bounded by Nepal in the west, ~~Bhutan~~ in the east, Tibet in the north and state of West Bengal in the south. The state has been divided into four districts, viz, East, West North and South districts

It extends for 114 kms from North to south and for 64 kms from East to west. It has a total geographical area of 7096 square kms. Most of Sixxim is in the lesser and greater Himalayan zone. It has a unique geographical location. Khanekeo Jangsa and Nathula Pass in this state.

Gangtok, the state capital is in east Sixxim. It lies between 27 degrees to 26 minutes North to 27 degree 21 minutes North. It has an altitude

of 5500 feet above mean sea level. It is connected to Siliguri by the National Highway. The nearest airport and railway station is in Siliguri.

Physiography

The topography of Sikkim is characterized by great variations in elevation, ranging from 250 m to 8495 m. Most of the Sikkim is in the Lesser and Greater Himalayan zone. The state is gearded by high ridges on the north, East and West contain some imposing peaks and high altitude passes.

Glaciers are the perennial sources of fresh water that is discharged in the two major rivers, namely Teesta and Rangit. Records available suggest that as many as 84 glaciers in Sikkim covering an area of 440 sq kms, with permanent snow fields measure around 251 sq km area which when added to glaciers cover an area of 691 sq kms.

Sikkim consists of more than 150 lakes located at different altitude and are natural water bodies mostly as a product of glaciation's and are confined to high altitude areas. Most of the lakes are source of fresh water and also religious significance attracting pilgrims and tourist.

A large portion of the Sikkim territory including Gangtok is covered by the Precambrian rock and is much younger in age than the hills. The rock consists of phyllites and schists and therefore the slopes are highly susceptible to weathering and prone to erosion. This combined with the intense rain, causes extensive soil erosion and heavy loss of soil nutrients through leaching. As a result, landslides are frequent, isolating the numerous small town and villages from the major urban centres.

The moisture content in the soil, mostly depending upon the soil thickness, has an explicit impact on forest type and coverage in any area. The entire state primarily consists of gneissic rocks and half-schistose rocks. The soil is developed from the gneissic group of rocks. They are typically coarse, often with ferric concentrations neutral to acidic with poor organic/minerals nutrients. The high intensity of rainfall in the state often causes extensive soil erosion and heavy losses of nutrients of land leaching.

tourists to the state. The most famous ones are Tsomgo and Khedepari lakes.

Distinct micro-morphology features of Sikkim terrain include terraces and floodplains, valley-side slopes and landslide slopes, alluvial cones of different types and generation, tors, kettle shaped depressions, terrace isles, sickle shaped ridges, beveled plains, undulating plains, with deeply dissected valleys, glacial or peri-glacial deposits related sedimentary structures crevasses, soil series or poly pedon gorges etc. These forms have been produced by the trunk stream Teesta and its innumerable tributaries - one of the important agents of denudation and deposition which moulds the landscape. (Mukhopadhyay 1998)

The hills of Sikkim mainly consist of gneissose and half-schistose rocks, making their soil brown clay, and generally poor and shallow. The soil is coarse, with large amounts of iron oxide concentration ranging from neutral to acidic and has poor organic and mineral nutrients. This type of soil tends to support evergreen and deciduous forests.

CLIMATE:

Sikkim is characterized by a Himalayan type of climate. Altitude is the main factor controlling the climate and weather condition of the whole state including the capital city of Gangtok. The climate condition vary greatly due to the wide fluctuation in elevation ranging from 800 - 20,000 feet and sharp edged mountains. Relief features such as high mountains act as barriers for the movement of the monsoon winds. Low temperature high rainfall on windward slopes, comparatively dry on the leeward side and heavy precipitation in the form of snow at the mountain tops are the main features of the climate.

Weather:

The weather of Gangtok is alpine with warm summer and cold winters. Temperatures range from a high 25°C in summer to a low of about 3°C in winter. Snowfall is rare, and in recent times Gangtok has received snow only in 1990, 2004 and 2005. Temperatures below freezing are also rare. The region receives an annual rainfall of 3454 mm over 164 rainy days. The lower Himalayas in general are composed of labile rock formations and

Therefore prone to landslides even in dry seasons. These landslides can result in the capital being cut off from other parts of Sikkim and the mainland India.

FLORA AND FAUNA:

Sikkim is well-known for its biodiversity. The steep vertical climb from the plains of West Bengal to the high altitude areas of Sikkim represents one of the world's steepest altitude gradients. This accounts for the incredible variety of flora and fauna found in the region, ranging from the tropical to sub-arctic.

Flora around Gangtok includes temperate, deciduous forests of poplar, birch, oak, and elm, as well as evergreen coniferous trees of the west alpine. Densely forested regions of these evergreens lie just around the town. A wide variety of rare orchids are often featured in flower shows around the city. Sunflowers, marigold, Poinsettia, and other flowers bloom in November and December. Bamboo grows in abundance along the slopes of Gangtok. In the lower reaches of the town, the vegetation graduates from alpine to subtropical and temperature deciduous.

Among the more commonly found animals in the alpine zone are yaks. They are domesticated and reared in North Sikkim mainly for their economic productivity. Yak milk is used to make butter ('churpi'), the wool comes in handy as raw material for carpets and blankets. The musk deer, found in the upper temperate regions, is today a species in the endangered list. A common denizen of Sikkim is the muntjac or the Barking Deer.

Among the more exotic mammals is the Red Panda which lives mostly on treetops. It is found at altitudes ranging from 6,000 to 12,000 feet. The snow leopard is an almost mythical animal. It has rarely been sighted and to date, only two field zoologists have succeeded in photographing this elusive animal in its habitat which can vary from 5000 feet to as high as 1800 feet. Blue sheep, flying squirrels, barking deer, ibex, marmots and musk deer are at home in this cool blanket of green.

EAST SIKKIM

Gangtok

The capital city of Sikkim is fittingly called Gangtok which means the town on the hilltop in the local Bhutia.

language. From the former Royal Palace at the top to the Queen's Bridge at the bottom, the city sprawls across approximately 15 kilometres on the west side of a long ridge flanking the Pailpud (Ranipur) River. At an average altitude of 5500 feet (1676 metres) and with a population of approximately 50,000, this historically important transit point on the trade route with Tibet became the capital of Sikkim in 1894. Gangtok combines an attractive approximately 50,000 the mix of old world charm, traditional hospitality and a modern cosmopolitan outlook, making it an exciting place to spend a few days at the beginning or end of your Sikkimese journey. The town can be ideal stopping point for as you take advantage of top-notch tourism agencies, first class hotels and urban shopping amenities or a comfortable haven with good food and hot showers at the end of your Sikkim adventure.

Although warmer than neighbouring Darjeeling Gangtok is still a hilltown with widely varying weather patterns, so take extra care when

Paexing. Summer temperatures can be as high as 28° Celsius on sunny afternoons but may drop to 13° Celsius on rainy evenings. In the winter, you can expect high of 18° and lows of 5° Celsius. Gangtok sees over 150 inches of rainfall per year, primarily during the summer monsoon season. Come prepared with light woollens and a rain jacket for the summer and heavier clothes for the winter.

At an altitude of over 14,000 feet, the Nathu La is now open for domestic tourists. This is the highest point in Sikkim reachable by car, without the extra exertion of a trek. However, visitors with heart conditions or concerned about high-altitude sickness are advised to avoid this destination. The historically important Nathu La Pass was the gateway to Tibet and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Sikkim and Lhasa in the land of the snows. Now open once again after several decades, visiting the Pass is a once-in-a-lifetime experience. You can walk up to the army viewpoint and look beyond into China, where - uniformed Chinese

Army personnel with red stars on their caps stand to attention. All around them, the stark alpine landscape is interspersed with delicate primula blossoms and the unique Himalayan rhubarb shrub. Visitors are advised to start for Nathu La as early in the day as possible to avoid inclement weather which typically arises in the afternoon.

35 kilometres away from Gangtok at an altitude of 12,400 feet (3780 metres) you reach the beautiful Tsomgo Lake. which freezes over in winter and is fed by melting snows from the surrounding mountains. Local legend holds that lamas could forecast the future by studying the colour of the lake's waters. Fishing is totally prohibited and visitors are requested not to pollute the environs of the lake with rubbish in order to maintain its sanctity.

Although central Gangtok's main commercial thoroughfare is slightly less than a kilometre in length, M.G. (Mahatma Gandhi) Marg is lined with shops, hotels, restaurants, bars, bakeries, studios, cyber, cafes, pool rooms and curio shops. At the western end of the road, near the Thaxubane Temple and overlooking

The Tourism information Centre stands the statue of Unity, depicting the meeting of the British Chieflain Nye Bumsa with the Lepcha leader Thonong Tex.

Built in memory of Harbhanjan Singh, a last sepoy from the 23rd Punjab Regiment, the Baba Harbhanjan Singh Memorial Mandir lies between the Nalku La and Jelep La Passes. Legend has it that he appeared to his colleagues in a dream a few days after he went missing, and requested that a monument be built in his memory. His fellow soldiers then erected this monument, which over the years acquired the status of a pilgrims site. Devotees leave a bottle of water, which they collect a few days later to take back home. blessed by the spirit of this hardy soldier

Tashi View Point is an acclaimed spot for photography located about 8 kilometre north of Gangtok on the main road to North Sikkim. On a clear day, you can see the monasteries of Phodong and Labrang. An observatory tower has recently been established, along with a small but well-stocked cafeteria. Along the way, stop to marvel at the clear waters of Takthong yong, or a small waterfall between Gangtok and Tashi View Point.

DATA ANALYSIS

YEAR WISE INCREASE IN POPULATION

Population in Sirmur has increased from 59014 in 1901 to 610577 in 2011 (Table No-1) and (Figure No 1)

Table No. 1: YEAR-WISE INCREASE OF PO

YEAR	POPULATION
1901	59014
1911	87920
1921	81721
1931	109808
1941	121520
1951	137725
1961	162189
1971	209813
1981	316385
1991	406457
2001	540851
2011	610577

Source: Census of India

GROWTH RATE OF POPULATION

Population growth rate is the rate at which population is increasing. Population growth rate between 1901 and 1911 was 48.38 Percent which has decreased to 12.89 Percent between 2001 and 2011. The maximum growth of population (50.771) took place between 1971

and 1981 (Table No-2 and figure No-2)

Table No-2: GROWTH RATE OF POPULATION (1971 to 2011)

YEAR	GROWTH RATE (%)
1901 - 1911	48.08
1911 - 1921	-7.05
1921 - 1931	34.37
1931 - 1941	10.67
1941 - 1951	13.33
1951 - 1961	17.76
1961 - 1971	29.38
1971 - 1981	50.77
1981 - 1991	28.47
1991 - 2001	33.06
2001 - 2011	12.89

MALE - FEMALE POPULATION

Males constituted 55% of the population and females constituted 45 percent of the population in 2001 and 2011 (Figure No-3)

LITERACY RATE

Literacy rate has increased from 58.86 Percent in 2001 to 73.73 Percent in 2011. Number of literates has increased

from 319335 in 2001 to 449274 in 2011 (Figure 04)

SEX RATIO

Sex Ratio is the number of females per thousand males. Sex ratio has improved from 875 in 2001 to 889 in 2011. Child sex ratio has also improved from 938 in 2001 and 944 in 2011.

DENSITY OF POPULATION

Density of population refers to the number of persons per square kilometre. It has increased from 76 persons per square kilometre to 86 persons per square kilometre.

RURAL AND URBAN POPULATION

Only 24.97 percent of the total population in 2011 is urban and the rest 75.03 percent is rural.

RELIGIOUS COMPOSITION

Majority of the population are Hindus (58.1%) followed by Buddhists (27.1%) and Christians (10.1%) (Figure no-5)

ETHNIC COMPOSITION

Bhutias constitute 34 percent of the population, followed by Limbus (26.1%) and Lepchas (21.1%) (Figure no-6)

LANGUAGE GROUPS

Majority are Nepali speaking population, followed by Hindi and Bhotia (figure no-7)

DISTRICT WISE POPULATION

East District is the most population followed by South district, West District and North District (figure no-8)

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

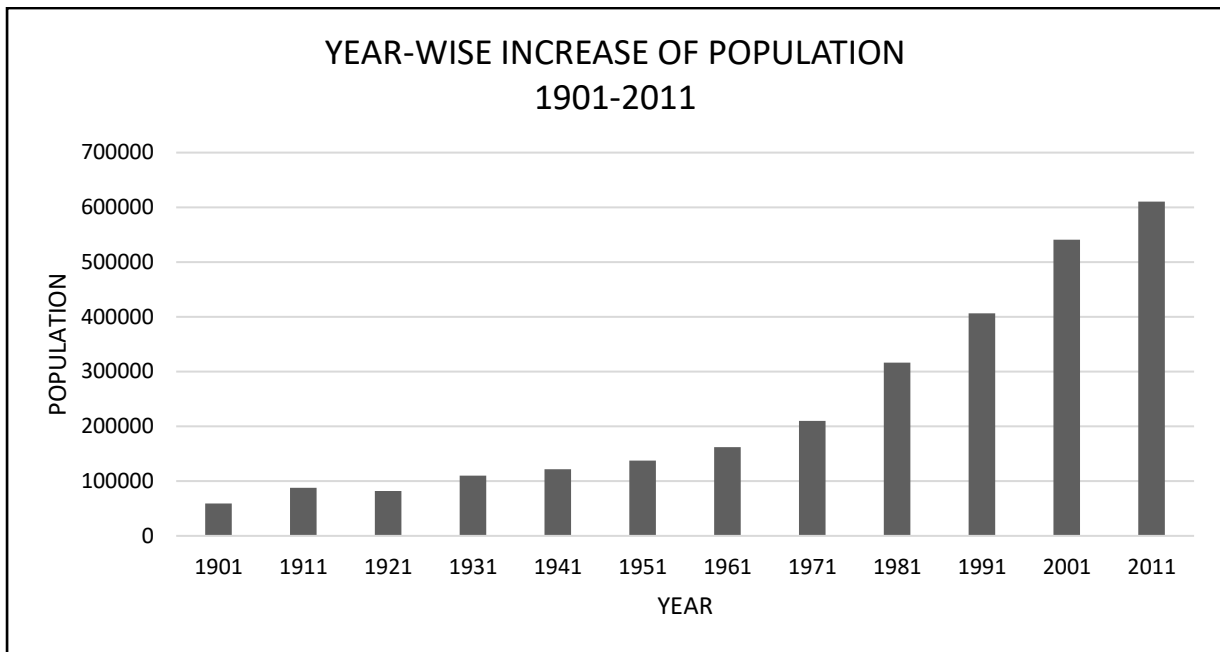


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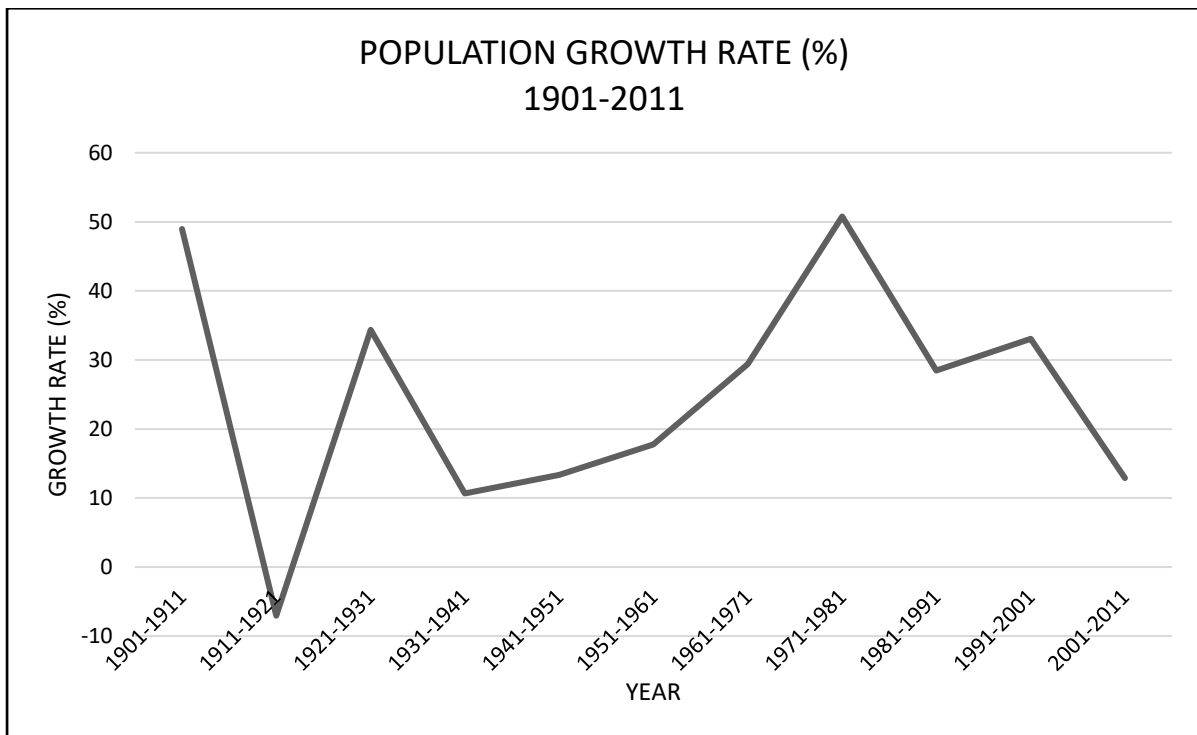


Figure No.3: Male-Female Population

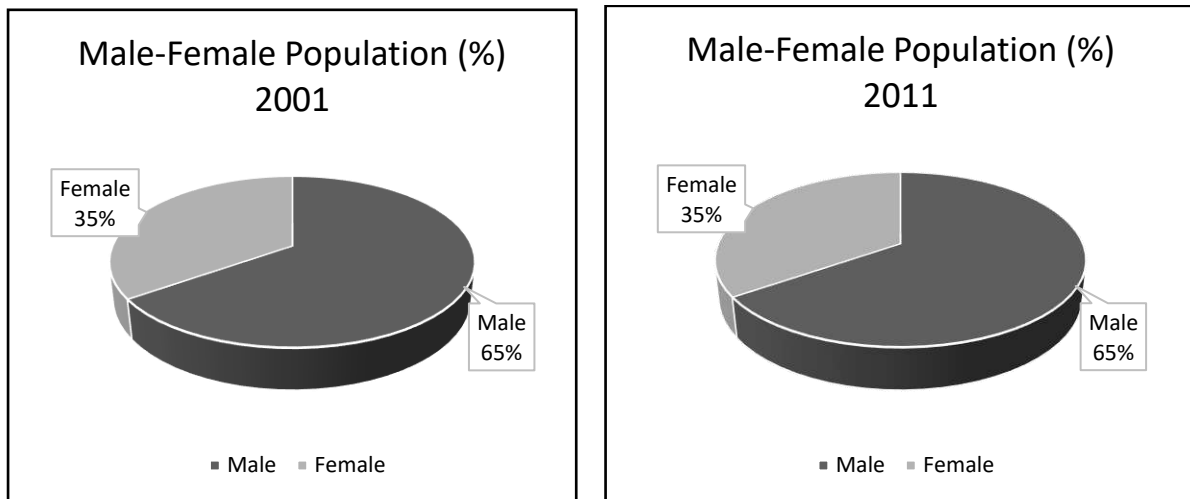


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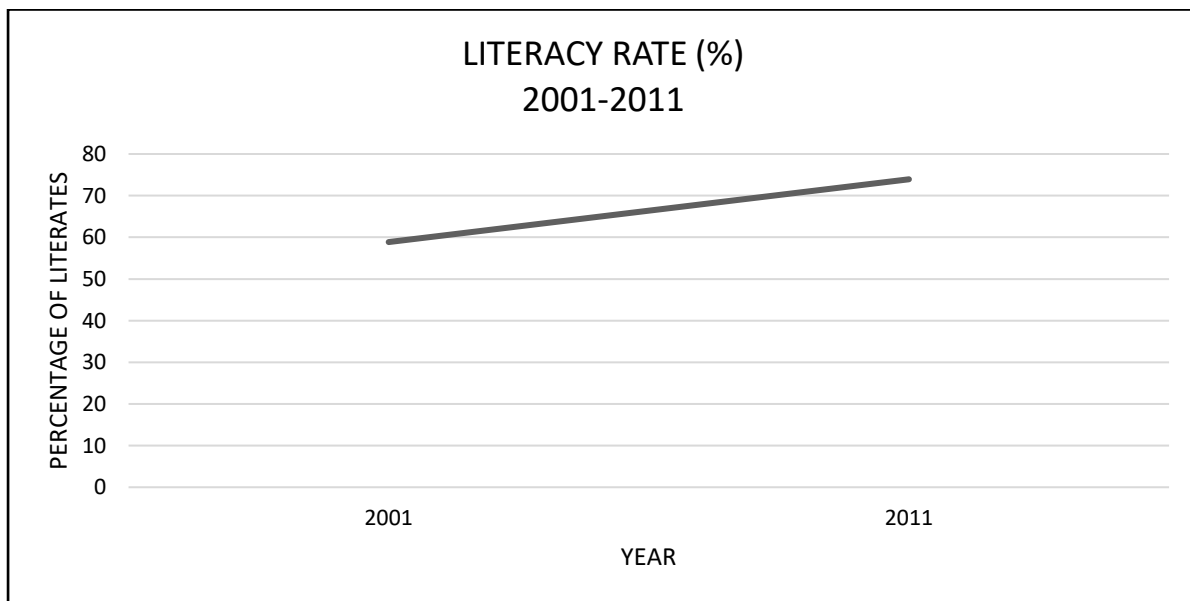


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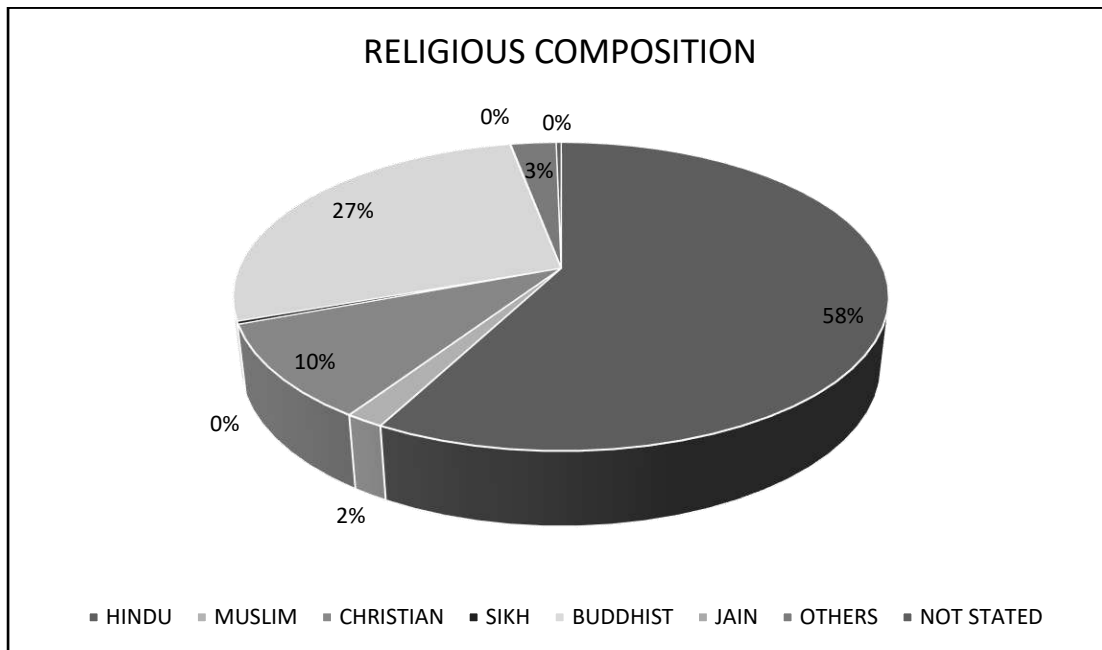


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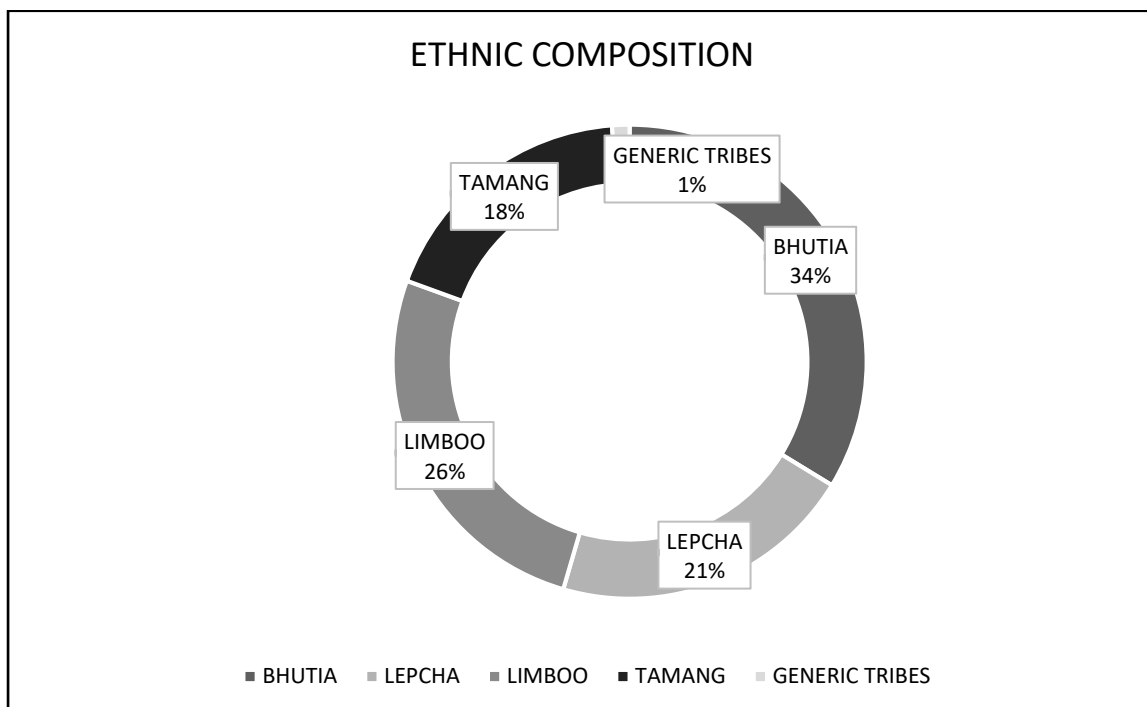


Figure No.7: Language Groups

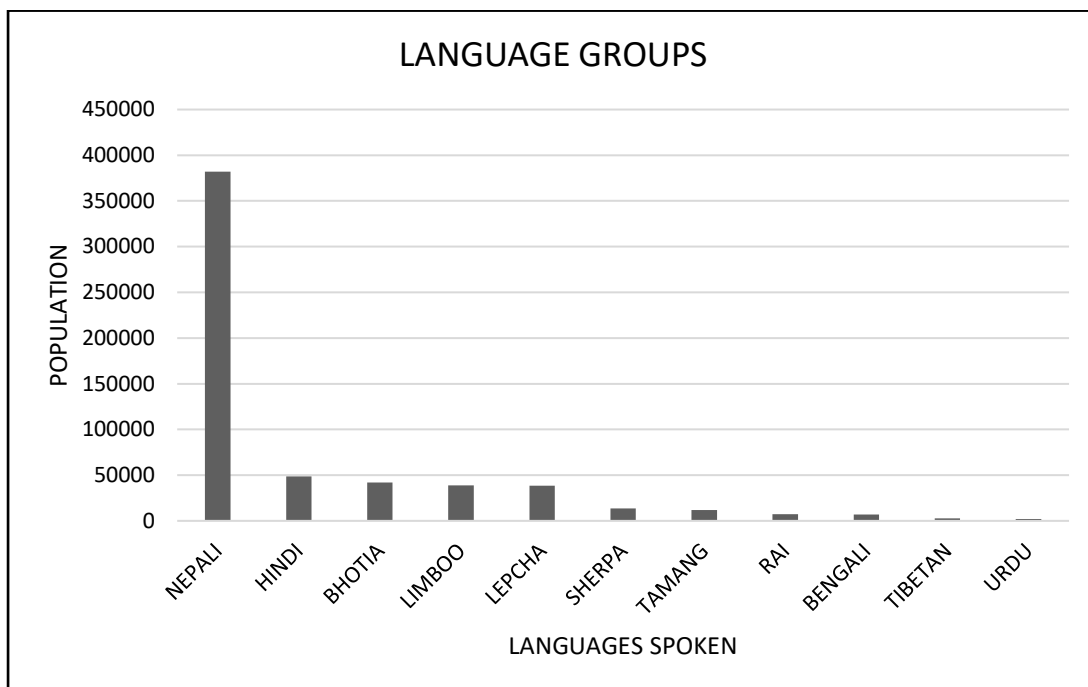
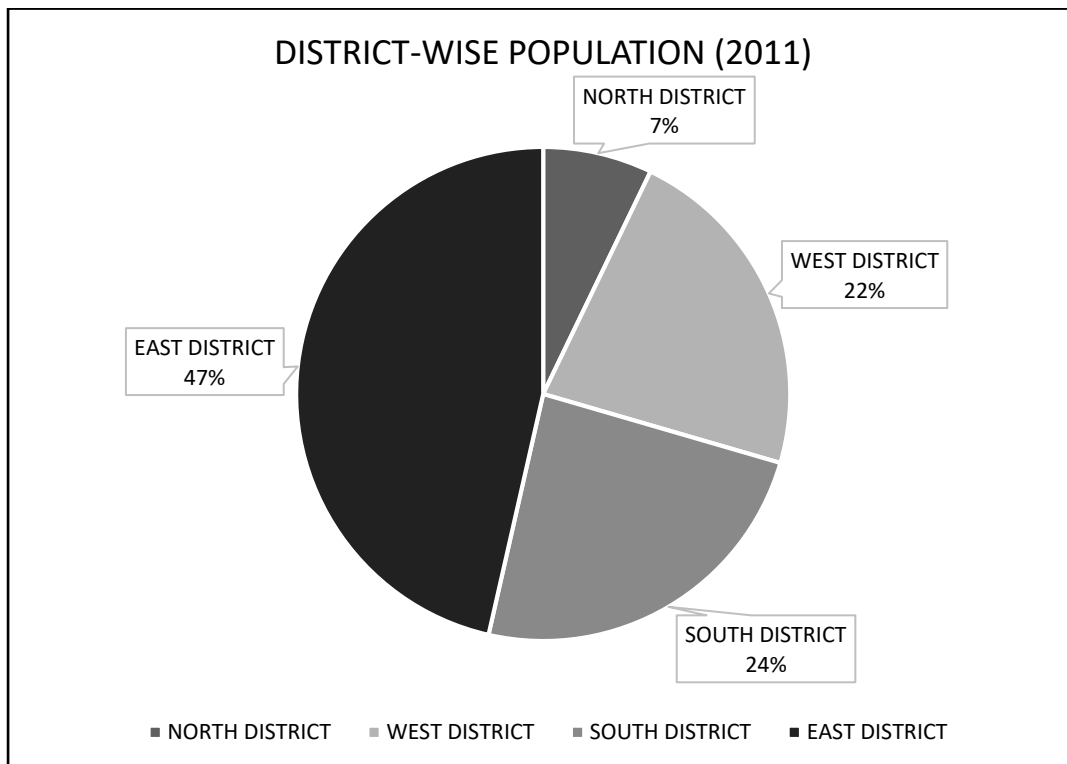


Figure No. 8: District-wise population



CONCLUSION

Sikkim with its mountainous landscapes has a pristine environment. There are great variation in elevation ranging from 250 m to 8495 m. It has a population of above six lakhs and has an area of 7096 square kilometres. Population density is 86 persons per square kilometres as per Census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups, ethnic and religious compositions. The lustrous Himalayan landscapes and a favorable weather have made the state, a favourite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. Though population density is low, which is an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.73 per cent. Sex ratio is 944. Out of the 4 districts, East District is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single-use plastic bottles since 1998.

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CONTENTS

	Page NO
INTRODUCTION	1
PHYSIOGRAPHY	1-2
CLIMATE	3
WEATHER	3
FLORA AND FAUNA	3-4
EAST SIKKIM	4-6
DATA ANALYSIS	6-7
CONCLUSION	8
REFERENCES	8

INTRODUCTION

Sikkim is a state located in Eastern Himalayas. Sikkim is a name derived from the Sanskrit word Shikhim, meaning 'Crested'. In all of Sikkim there is not a single kilometer of 'Flat land'. The state of Sikkim is located in the southern mountain ranges of Eastern Himalayas between Northern latitudes $27^{\circ}05'N$ and $28^{\circ}08'N$ and Eastern longitudes $88^{\circ}10'E$ and $88^{\circ}55'E$. Sikkim is the 22nd state of the Indian Union, which came into existence with effect from 16th May 1975. Sikkim is bounded by Nepal in the west, Bhutan in the east, Tibet in the north and state of West Bengal in the south. The state has been divided into four districts, viz East, West, North and South districts.

It extends for 114 kms from North to South and for 64 kms from East to West. It has a total geographical area of 7096 square kms. Most of Sikkim is in the lesser and greater Himalayan zone. It has a unique geographical location. Khanchenjunga and Nathula Pass is in this state.

Gangtok the state capital is in East Sikkim. It lies between 27 degrees to 16 minutes North to 27 degrees 21 minutes North. It has an altitude of 5500 feet above mean sea level. It is connected to Siliguri by the National Highway. The nearest airport and railway station is Siliguri.

PHYSIOGRAPHY.

The topography of Sikkim is characterized by great variations in elevation, ranging from 250 m to 8485 m. Most of the Sikkim is in the lesser and greater Himalayan zone. The state is girdled by high ridges on the North, East and West contain some imposing peaks and high altitude passes.

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Most of the lakes are source of fresh water and also of religious significance attracting pilgrims and tourists to the state. The most famous ones are Tsomgo and Khecheopari lakes.

District micro-morphology Features of Sikkim terrain include terraces and flood plains, valley side slopes and landslide slopes, alluvial cones of different types and generations, fans, kettle shaped depression, terrace isles, sickle shaped rags, beveled plains, undulating plains with deeply dissected valleys, glacial or peri glacial deposits related sedimentary structures crevasses, soil series or poly pedon, gorges etc. These forms have been produced by the trunkstream Teesta and its innumerable tributaries one of the important agents of denudation and deposition which moulds the landscape. (Mukhopadhyay 1998).

The hill of Sikkim mainly consist of gneissose and half schistose rocks, making their soil brown clay and generally poor and shallow. The soil is coarse, with large amounts of iron oxide concentrations ranging from neutral to acidic and has poor organic and mineral nutrients. This type of soil tends to support evergreen and deciduous forests.

A large portion of the Sikkim territory including Gangtok is covered by the Precambrian rock and is much younger in age than the hills. The rock consists of phyllites and schists and therefore the slopes are highly susceptible to weathering and prone to erosion. This combined with the intense rain, causes extensive soil erosion and heavy loss of soil nutrients through leaching. As a result, landslides are frequent, isolating the numerous small towns and villages from the major urban centres.

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CLIMATE

Sikkim is characterized by a Himalayan type of climate. Altitude is the main factor controlling the climate and weather condition of the whole state including the capital city of Gangtok. The climatic conditions vary greatly due to the wide fluctuations in elevation ranging from 800-2800 feet and sharp edged mountains. Relief features such as high mountains act as barriers for the movement of the monsoon winds. Low temperature, high rainfall on windward slopes, comparatively dry on the leeward side and heavy precipitation in the form of snow at the mountain tops are the main features of the climate.

WEATHER

The weather of Gangtok is alpine with warm summer and cold winters. Temperatures range from a high of 25°C in summer to a low of about 3°C in winter. Snowfall is rare, and in recent times Gangtok has received snow only in 1990, 2004 and 2005. Temperatures below freezing are also rare. The region receives an annual rainfall of ~~33~~ 3494mm over 164 rainy days. The lower Himalayas in general are composed of brittle rock formations and therefore prone to landslides even in dry seasons. These landslides can result in the capital being cut off from other parts of Sikkim and the mainland India.

FLORA AND FAUNA

Sikkim is well known for its biodiversity. The steep vertical climb from the plains of West Bengal to the high altitude areas of Sikkim represents one of the world's steepest altitudinal gradients. This accounts for the incredible variety of flora and fauna in the region, ranging from the tropical to sub-arctic.

Flora around Gangtok includes temperate, deciduous forests of poplar, birch, oak and elm, as well as evergreen, coniferous trees of the wet alpine. Densely forested regions of these evergreens lie just around the town. A wide variety of rare orchids are often featured in flower shows around the city. Sunflower, marigold, poinsettia and other flowers bloom in November and December. Bamboo grows in abundance along the slopes of Gangtok. In the lower reaches of the town, the vegetation graduates from alpine to subtropical and temperate deciduous.

Among the more commonly found animals in the alpine zone are yaks. They are domesticated and reared in North Sikkim mainly for their economic productiveness. Yak milk is used to make butter 'churpi', the wool comes is handy as

raw material for carpets and blankets. The musk deer, found in the upper temperate regions, is today a species in the endangered list. A common denizen of Sikkim is the mantjac, or the Barking Deer.

Among the more exotic mammals is the Red Panda which lives mostly on treetops. It is found at altitudes ranging from 6000 to 12000 feet. The snow leopard is an almost mythical animal. It has rarely been sighted and to date, only two field zoologists have succeeded in photographing this elusive animal in its habitat which can vary from 5000 feet to as high as 18,000 feet. Blue sheep, flying squirrels, binturong, tahes, marmots and musk deer are at home in this cool blanket of green.

EAST SIKKIM

Gangtok

The capital city of Sikkim is fittingly called Gangtok, which means 'the town on the hilltop' in the local Bhutia language. From the Losmer Royal Palace at the top to the Queen's Bridge at the bottom, the city sprawls across approximately 15 kilometres on the west side of a long ridge flanking the Ranipool (Ranipul) River. At an average altitude of 5500 feet (1676 metres), and with a population of approximately 50,000, this historically important transit point on the trade route with Tibet became the capital of Sikkim in 1894. Gangtok combines an attractive mix of old world charm, traditional hospitality and a modern cosmopolitan outlook, making it an exciting place to spend a few days at the beginning or end of your Sikkimese journey. The town can be the ideal staging point for your travels across Sikkim's other districts, as you take advantage of top notch tourism agencies, first class hotels and urban shopping amenities, or a comfortable haven with good food and hot showers at the end of your Sikkim adventure.

Although warmer than neighbouring Darjeeling, Gangtok is still a hill town with widely varying weather patterns, so take extra care when packing. Summer temperatures can be as high as 28° Celsius on sunny afternoons but may drop to 13° Celsius on rainy evenings. In the winter, you can expect highs of 18° Celsius and lows of 5° Celsius. Gangtok sees over 150 inches of rainfall per year, primarily during the summer monsoon season. Come prepared with light wools and a rain-jacket for the summer and heavier clothes for the winter.

At an altitude of over 14000 feet, the Nathula is now open for domestic tourists. This is the highest point in Sikkim reachable by car, without the extra exertion of a trek. However visitors with heart conditions or concerned about high altitude sickness are advised to avoid this destination. The historically important Nathula pass was the gateway to Tibet, and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Shigatse and Lhasa in the land of the snows. Now open once again after several decades, visiting the pass is a once in a lifetime experience. You can walk up to the army viewpoint and look beyond into China, where green-uniformed Chinese army personnel with red stars on their caps stand to attention. All around them, the stark alpine landscape is interspersed with delicate primula blossoms and the unique Himalayan rhubarb shrub. Visitors are advised to start for Nathula as early in the day as possible to avoid inclement weather which typically arises in the afternoon.

35 kilometres away from Gangtok at an altitude of 12,400 feet (3780 metres) you reach the beautiful Tsomgo Lake, which freezes over in winter and is fed by melting snows from the surrounding mountains. Local legend holds that lamas could forecast the future by studying the colour of the lake's waters. Fishing is totally prohibited and visitors are requested not to pollute the environs of the lake with rubbish in order to maintain its sanctity.

Although central Gangtok's main commercial thoroughfare is slightly less than a kilometre in length M.G. (Mahatma Gandhi) Marg is lined with shops, hotels, restaurants, bars, bakeries, studios, cyber cafes, pool rooms and curio shops. At the western end of the road, near the Thakurbari Temple and overlooking the Tourism Information Centre, stands the Unity, depicting the meeting of the Bhutia chieftain Khye Bumsa with the Lepcha leader Thekong Tek.

Built in memory of Harbhajan Singh a lost sepoy from the 23rd Punjab Regiment, the Baba Harbhajan Singh memorial mandir lies between the Nathula and Telep La passes. Legend has it that he appeared to his colleagues in a dream a few days after he went missing, and requested that a monument be built in his memory. His fellow soldiers then erected this monument, which over the years acquired the status of a pilgrimage site. Devotees leave a bottle of

water, which they collect a few days later to take back home, blessed by the spirit of this hardy soldier.

Tashi View Point is an acclaimed spot for photography, located about 8 kilometres north of Gangtok on the main road to North Sikkim. On a clear day, you can see the monasteries of Phodong and Lebrang. An observatory tower has recently been established, along with a small but well-stocked cafeteria. Along the way stop to marvel at the clear waters of Bakthong Kyong chu, a small waterfall between Gangtok and Tashi View Point.

DATA ANALYSIS

YEAR WISE INCREASE IN POPULATION

Population in Sikkim has increased from 58014 in 1901 to 616577 in 2011 (Table No.1) and (Figure No.1)

Table No.1: YEAR-WISE INCREASE OF POPULATION

YEAR	POPULATION
1901	58014
1911	87920
1921	81721
1931	109808
1941	121520
1951	137725
1961	162189
1971	209843
1981	316385
1991	406457
2001	540851
2011	616577

Source: Census of India

GROWTH RATE OF POPULATION

Population growth rate is the rate at which population is increasing. Population growth rate between 1901 and 1911 was 48.98 percent which has decreased to 12.98 percent between 2001 and 2011. The maximum growth of population (50.77%) took place between 1971 and 1981 (Table No.2 and Figure No.2)

Table No. 2: GROWTH RATE OF POPULATION (1901 TO 2011)

YEAR	GROWTH RATE (%)
1901-1911	48.98
1911-1921	-7.05
1921-1931	34.37
1931-1941	10.67
1941-1951	13.33
1951-1961	17.76
1961-1971	20.38
1971-1981	50.77
1981-1991	28.47
1991-2001	33.06
2001-2011	12.89

SOURCE: COMPUTED BY THE AUTHOR

MALE-FEMALE POPULATION

Males constituted 65 percent of the population and females constituted 35 percent of the population in 2001 and 2011 (Figure No. 3)

LITERACY RATE

Literacy rate has increased from 58.86 percent in 2001 to 73.93 percent in 2011. Number of literacy has increased from 318335 in 2001 to 449294 in 2011 (Figure No. 4)

SEX RATIO

Sex ratio is the number of females per thousand males. Sex ratio has improved from 875 in 2001 to 889 in 2011. Child sex ratio has also improved from 938 in 2001 and 944 in 2011.

DENSITY OF POPULATION

Density of Population refers the number of persons per square kilometres. It has increased from 76 persons per square kilometres to 86 persons per square kilometres.

RURAL AND URBAN POPULATION

Only 29.47 percent of the total population in 2011 is urban and the rest 75.03 percent in rural.

RELIGIOUS COMPOSITION

Majority the population are Hindus (58%), followed by Buddhists (27%) and Christians (10%) (Figure No. 5)

ETHNIC COMPOSITION

Bhutias constitute 34% of the population, followed by Limboo (26%) and Lepchas (21%) (Figure No. 6)

LANGUAGE GROUPS

Majority are Nepali speaking population, followed by Hindi and Bhotia (Figure No. 7)

DISTRICT WISE POPULATION

East District is the most populous followed by South District, West District and North District. (Figure No. 8)

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

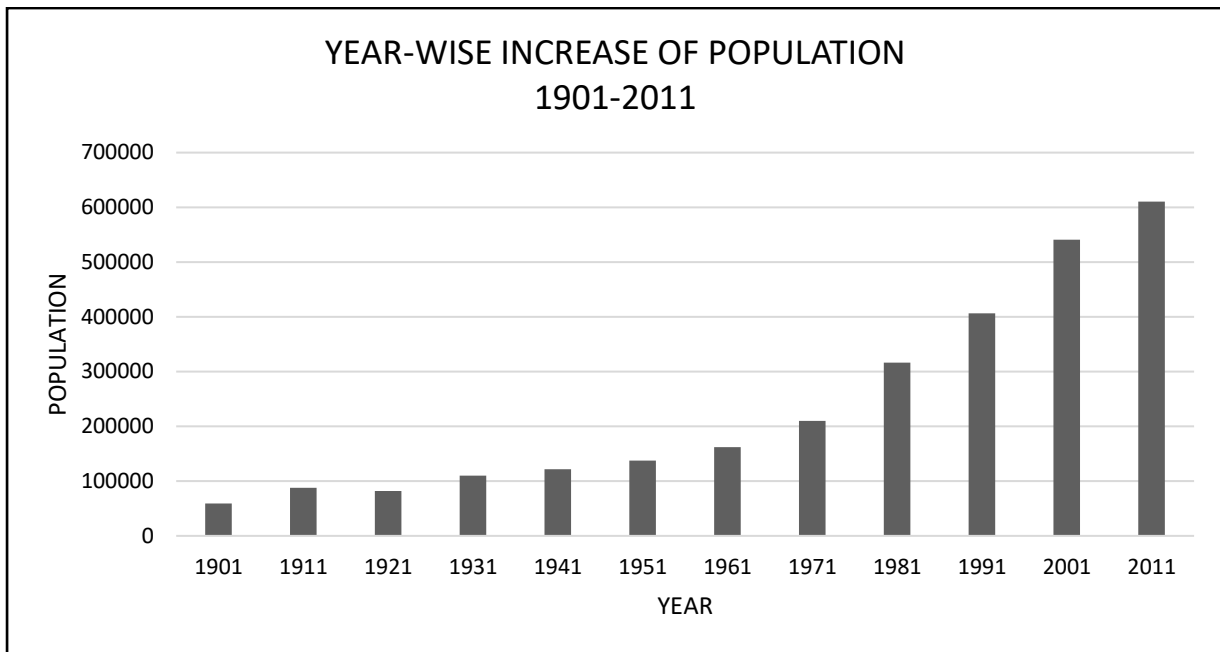


FIGURE NO.2: GROWTH RATE OF POPULATION (1901 TO 2011)

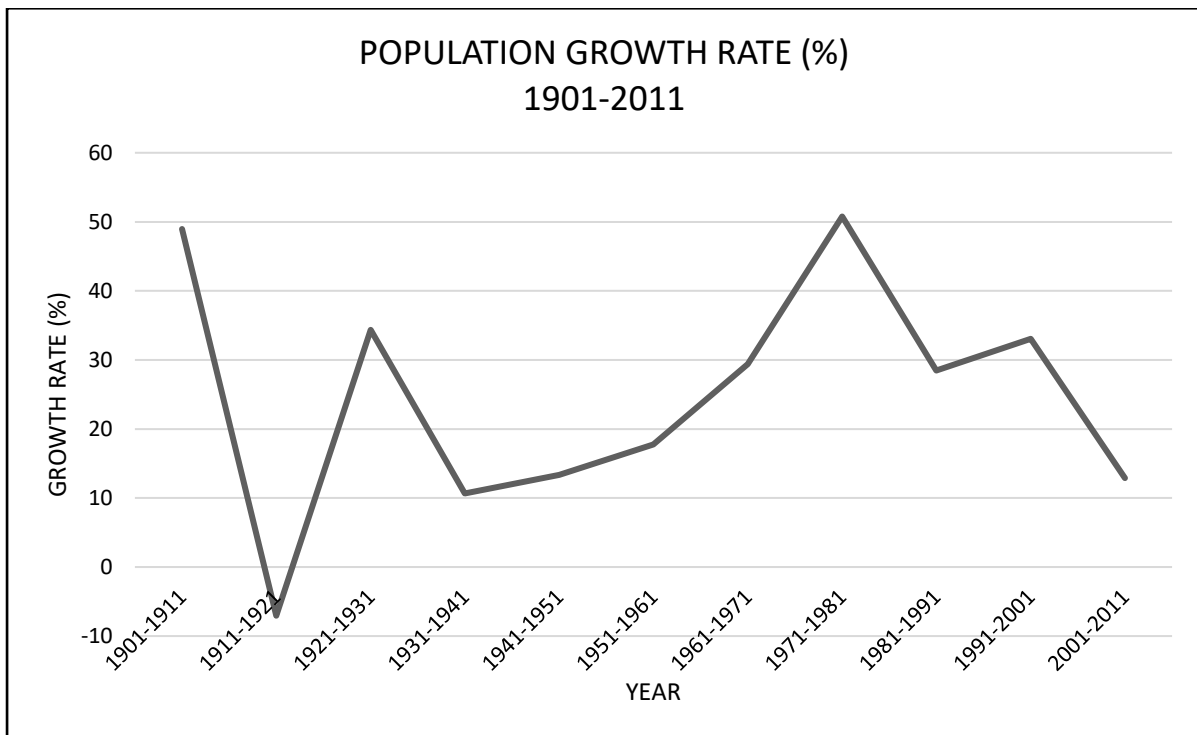


Figure No.3: Male-Female Population

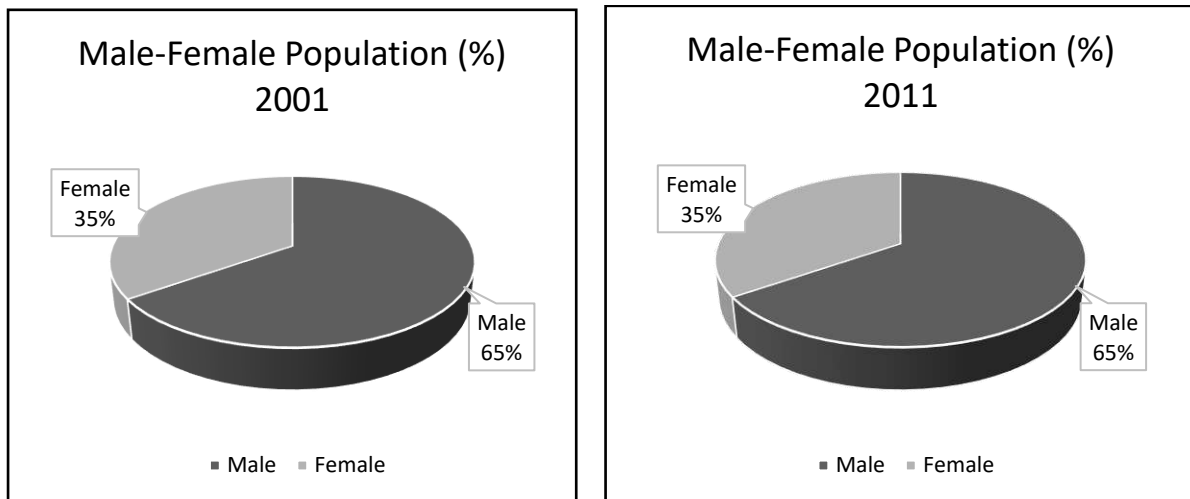


Figure No.4: Literacy rate (2001 and 2011)

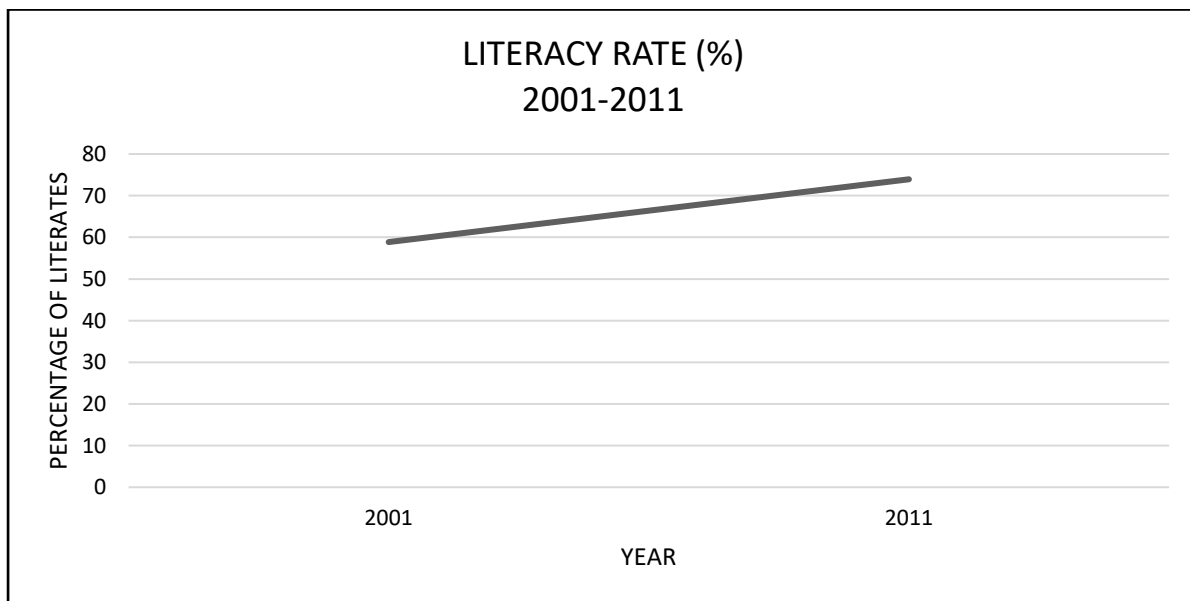


Figure No.5: Religious Composition

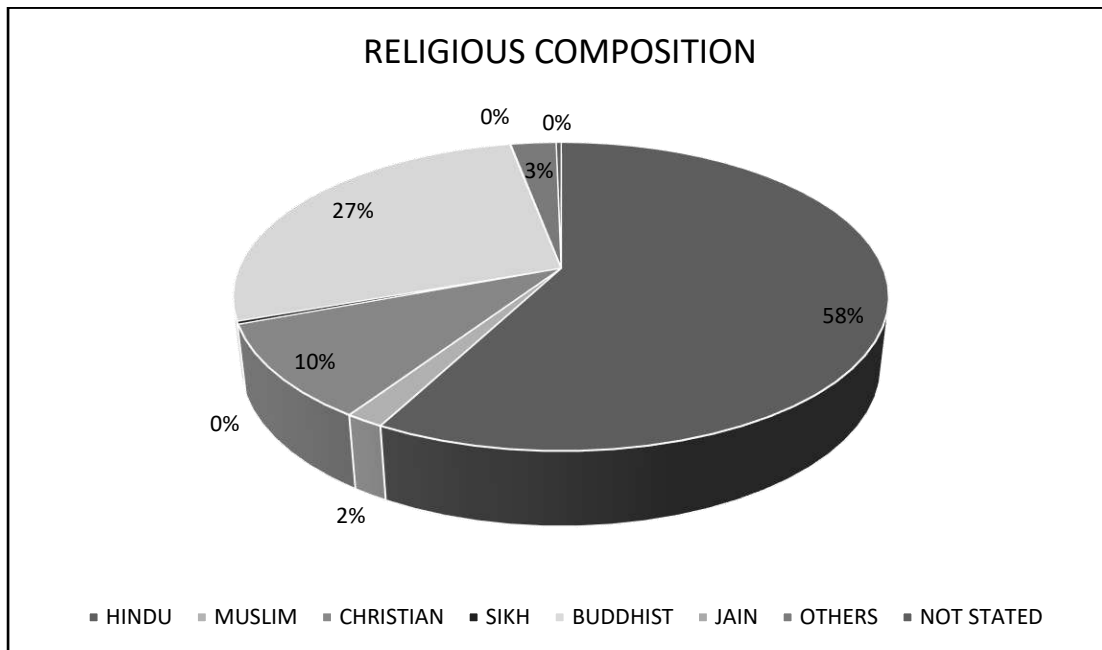


Figure No.6: Ethnic composition

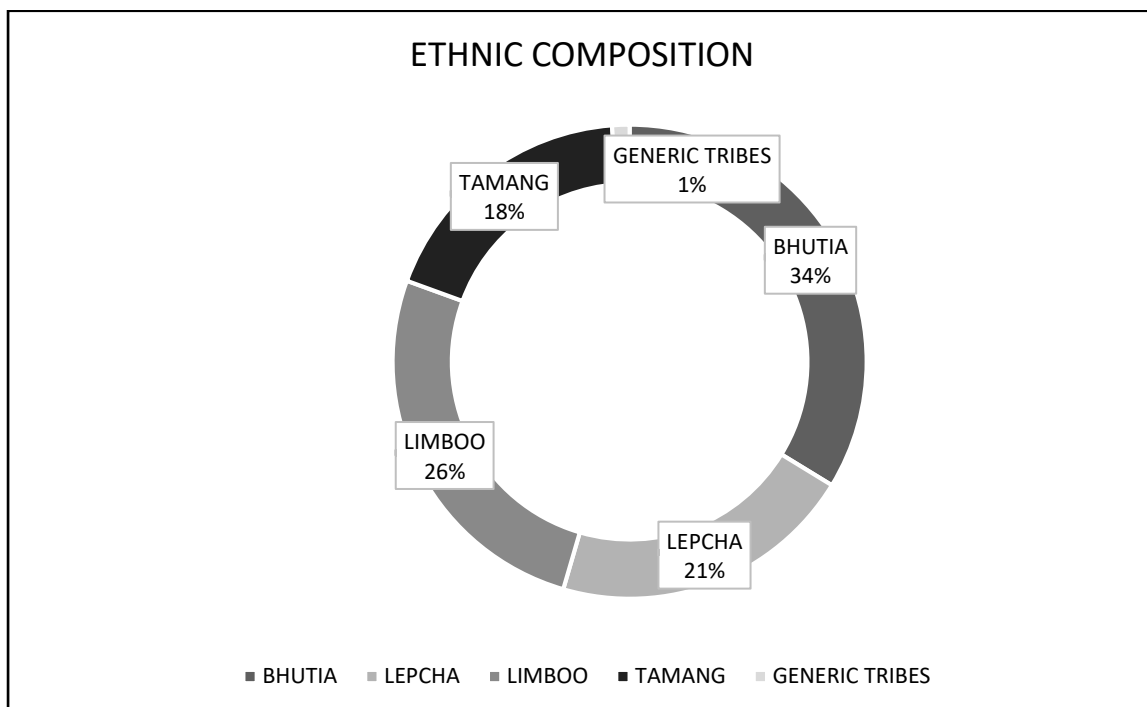


Figure No.7: Language Groups

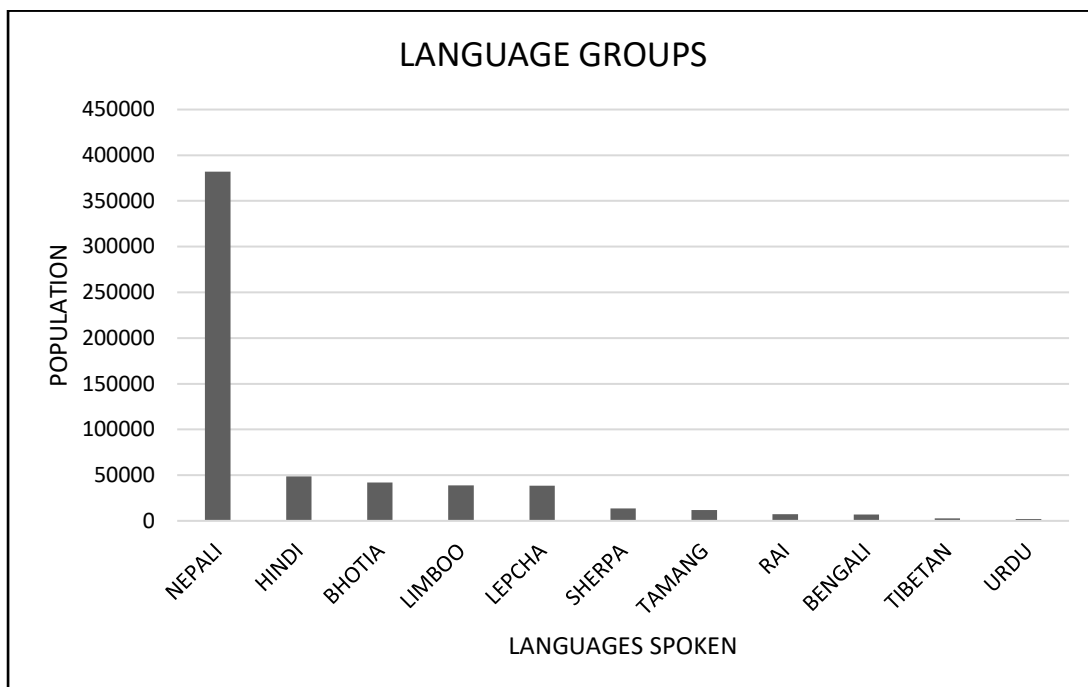
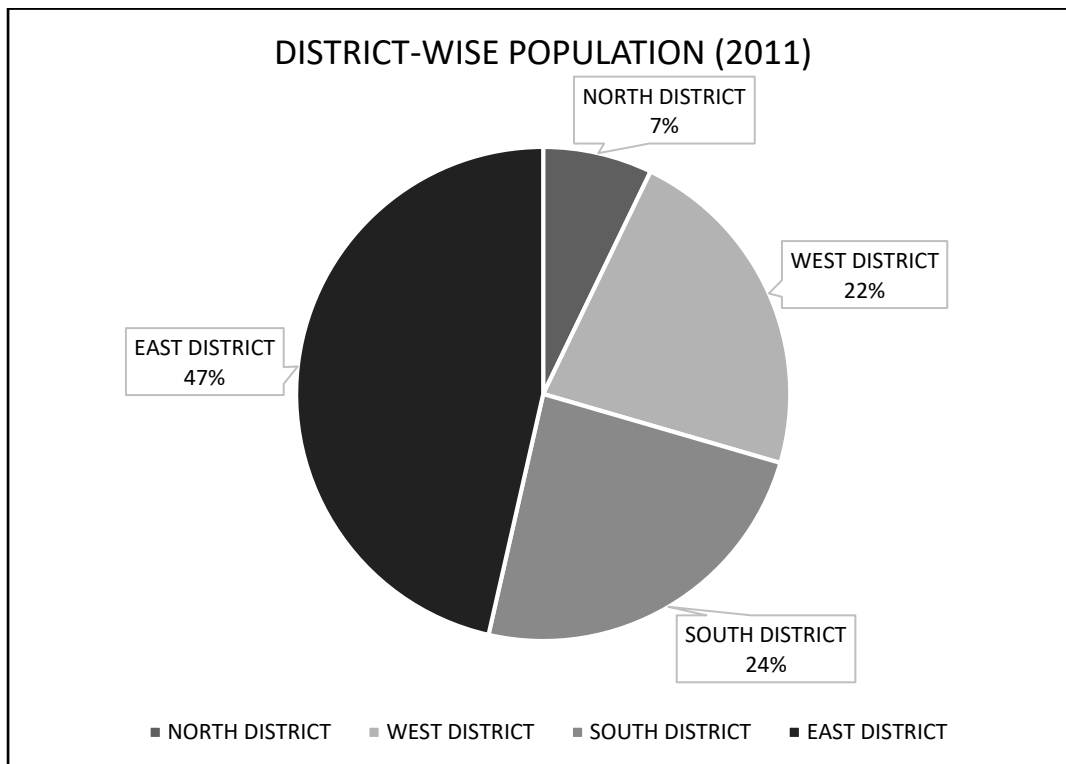


Figure No. 8: District-wise population



CONCLUSION

Sikkim with its mountainous landscape has a pristine environment. There are great variations in elevation ranging from 250m to 8495m. It has a population of above six lakhs and has an area of 7096 square kilometres. Population density is 86 persons per square kilometres as per census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups, ethnic and religious compositions. The lush green Himalayan landscapes and a favourable weather have made the state a favourite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. Though population density is low, which is an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93 percent. Sex ratio is 944. Out of the 4 districts, East District is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single-use plastic bottles since 1998. Despite of the tough mountainous terrain it has emerged as one of India's top environmental leaders.

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Rhythm
30/6/2022

Acknowledgement

It gives me immense pleasure to present the Assignment undertaken during B.Sc 2nd year of Geography Honours. I own special debt of gratitude to my Madam, Dr. Rituparna Ghosh and Sir, Dipankar Chakraborty for their constant support and guidance throughout the course of my work. It is only their cognizant efforts that my endeavors have seen light of the day. I would like to thank our respected principal Madam Dr. Chhabi De for giving me the opportunity to participate in the geographical excursion. I would also like to thank my friends for their help and support. I have no valuable words to express my thanks, but my heart is still full of the favours received from every person.

CONTENT

	÷ Page NO :-
Introduction	1-2
Physiography	2-5
Climate	5
Weather	5-6
Flora and Fauna	6-7
East sikkim	7-11
Data Analysis	11-14
Conclusion	15
Reference	16

Introduction :-

Sikkim is a state located in East Himalayas. Sikkim or Sikkim is a name derived from the Sanskrit word shikkim meaning 'erected'. In all of Sikkim there is not a single kilometer of 'flat land'. The state of Sikkim is located in the southern mountain ranges of Eastern Himalayas between Northern Latitudes $27^{\circ}05'N$ and $28^{\circ}08'N$ and Eastern Longitudes $88^{\circ}10'E$ and $88^{\circ}55'E$. Sikkim is the 22nd state of the Indian Union, which came into existence with effect from 16th May, 1975. Sikkim is bounded by Nepal in the west, Bhutan in the east, Tibet in the north and state of West Bengal in the south. The state has been divided into four districts, viz. East, West, North and South districts.

It extends for 114 kms from north to South and for 64 kms from East to West. It has a total geographical area of 7096 square kms. Most of Sikkim is in the lesser and greater Himalayan zone. It has a unique geographical location. Khanchenjunga and Nathula Pass is in this state.

Gangtok, the state capital is in East Sikkim. It lies between 27 degrees 16 minutes North to 27 degrees 21 minutes North. It has an altitude of 5500 feet above mean sea level.

It is connected to siliguri by the National Highway. The nearest airport and railway station is siliguri.

Physiography :-

The topography of sikkim is characterized by great variations in elevation, ranging from 250 m to 8495 m. Most of the sikkim is in the lesser and Greater Himalayan zone. The state is girdled by high ridges on the North, East and west contain some imposing peaks and high altitude passes.

Glaciers are the perennial sources of fresh water that is discharged in the two major rivers, namely Teesta and Rangit. Records available suggests that as many as 84 glaciers in sikkim covering an area of 440 sq kms, with permanent snow fields measures around 251 sq km area which when added to glaciers cover an area of 691 sq kms.

sikkim consists of more than 150 lakes located at different altitudes and are natural water bodies mostly as a product of glaciations and are confined to high altituder areas. Most of the lakes are source of fresh

water and also of religious significance attracting pilgrims and tourists to the state. The most famous ones are Tsomgo and Khecheopani lakes.

Distinct micro-morphology features of sikkim terrain include terraces and floodplains, valley-side slopes and landslide slopes, alluvial cones of different types and generations, tons, kettle shaped depressions, terrace isles, sickle shaped rags, beveled plains, undulating plains, with deeply dissected valleys, glacial or peri-glacial deposits related sedimentary structures crevasses, soil series or poly pedans gorges etc. These forms have been produced by the trunkstream Teesta and its innumerable tributaries - one of the important agents of denudation and deposition which moulds the landscape (Mukhopadhyay 1998)

The hills of sikkim mainly consist of gneissose and half-schistose rocks, making their soil brown clay, and generally poor and shallow. The soil is coarse with large amounts of iron oxide concentrations, ranging from neutral to acidic and has poor organic

and mineral nutrients. This type of soil tends to support evergreen and deciduous forests.

A large portion of the Sikkim territory including Gangtokh is covered by the Precambrian rock and is much younger in age than the hills. The rock consists of phyllites and schists and therefore the slopes are highly susceptible to weathering and prone to erosion. This combined with the intense rain, causes extensive soil erosion and heavy loss of soil nutrients through leaching.

As a result, land-slides are frequent isolating the numerous small towns and villages from the major urban centres.

The moisture content in the soil, mostly depending upon the soil thickness, has an explicit impact on forest type and coverage in any area. The entire state primarily consists of gneissose rocks and half-schistose rocks. The soil is developed from the group of rock. They are typically coarse, often with ferric concentrations, neutral to acidic with poor organic mineral nutrients. The high intensity of rainfall in the

state often causes extensive soil erosion and heavy losses of nutrients of land by leaching.

Climate :-

Sikkim is characterized by a Himalayan type of climate. Altitude is the main factor controlling the climate and weather condition of the whole state including the capital city of Gangtok. The climate conditions vary greatly due to the wide fluctuation in elevation ranging from 800-20,000 feet and sharp edged mountains. Relief features such as high mountains act as barriers for the movement of the monsoon winds. Low temperature, high rainfall on windward slopes, comparatively dry on the leeward side and heavy precipitation in the form of snow at the mountain tops are the main features of the climate.

Weather :-

The weather of Gangtok is alpine with warm summer and cold winters. Temperature range from a high of 25°C in summer to a low of about 3°C in winter. Snowfall is rare, and in recent times Gangtok has received snow only in 1990, 2004 and 2005. Temperature below freezing are also rare. The region receives an annual

rainfall of 3494 mm over 164 rainy days. The lower Himalayas in general are composed of labile rock formation and therefore prone to landslides even in dry seasons. These landslides can result in the capital being cut off from other parts of sikkim and the mainland India.

Flora and Fauna :-

sikkim is well known for its biodiversity. The steep vertical climb from the plains of west Bengal to the high altitude areas of sikkim represents one of the world's steepest altitude gradients. This accounts for the incredible variety of flora and fauna found in the region, ranging from the tropical to sub-arctic.

Flora around Gangtok includes temperate, deciduous forests of poplar, birch, oak, and elm, as well as evergreen, coniferous trees of the wet alpine. Densely forested regions of these evergreens lie just around the town. A wide variety of rare orchids are often featured in flower shows around the city. Sunflower, marigold, poinsettia, and other flowers bloom in November and December.

Bamboo grows in abundance along the slopes of Gangtok. In the lower reaches of the town, the vegetation graduates from alpine to subtropical and temperate

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Among the more exotic mammals is the Red panda which lives mostly on treetops. It is found at altitudes ranging from 6,000 to 12,000 feet. The Snow leopard is an almost mythical animal. It has rarely been sighted and to date , only two field zoologists have succeeded in photographing this elusive animal in its habitat which can vary from 5,000 feet to as high as 18,000 feet. Blue sheep , flying , squirrels , bint-wrong , tahars , marmots and musk deer are at home in cool blanket of green.

East sikkim :-

Gangtok :-

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At an altitude of over 14,000 feet, the Nathu La is now open for domestic touri-

sts. This is the highest point in Sikkim reachable by car, without the extra exertion of a trek. However, visitors with heart conditions or concerned about high-altitude sickness are advised to avoid this destination. The historically important Nathu La Pass was the gateway to Tibet, and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Shigatse and Lhasa in the land of their snows. Now open once again after several decades, visiting the pass is a once-in-a-lifetime experience. You can walk up to the army view point and look beyond into China, where green-uniformed Chinese army personnel with red stars on their caps stand to attention. All around them, the stark alpine landscape is interspersed with delicate Primula blossoms and the unique Himalayan rhubarb shrub. Visitors are advised to start for Nathu La as early in the day as possible to avoid inclement weather which typically arises in the afternoon.

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Data analysis :-

Year wise Increase in Population

Population in sikkim has increased from 59016 in 1901 to 610577 in 2011 (Table No.1) and (Figure No.1)

Table No 1 : year-wise increase of population

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1931	109808
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Source : census of India.

Growth Rate of Population

Population growth rate is the rate at which population is increasing. Population growth rate between 1901 and 1911 was 48.98 per cent which has decreased to 12.89 per cent between 2001 and 2011. The maximum growth of population (50.77) took place between 1971 and 1981 (Table No 2 and Figure No 2)

Table No 2 : Growth rate of Population (1901 To 2011)

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1901-1911	48.98
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1991-2001	33.06
2001-2011	12.89

Source - Computed by the Author

Male Female Population

Males constituted 65 percent of population and females constituted 35 percent of the population. (figure-3)

Literacy Rate

Literacy rate has increased from 58.86 percent in 2001 to 73.93 percent in 2011. Number of literates has increased from 318335 in 2001 to 449294 in 2011. (figure No-4)

Sex Ratio

sex Ratio is the number of females per thousand males. sex Ratio has improved from 875 in 2001 to 885 in 2011. child sex Ratio has also improved from 938 in 2001 and 944 in 2011.

Density of Population

Density of population refers to the number of persons per square kilometers. It has increased from 76 persons per square kilometers to 86 persons per square kilometers.

Rural and Urban Population

only 24.97 percent of total population in 2011 is urban and the rest 75.03 percent is rural.

Religious composition

Majority of the population are Hindus (58%) followed by Buddhists (27%) and Christians (10%) (figure No-5)

Ethnic Composition

Bhutias constitute 34 per cent of population followed by Limboo (26.1%) and Lepchas (21.1%) (figure No-6)

Language Groups

Majority are Nepali speaking population, followed by Hindi and Bhotia. (figure No-7)

District - wise population

East District is most populous followed by south District, west District, and North District. (figure No-8)

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

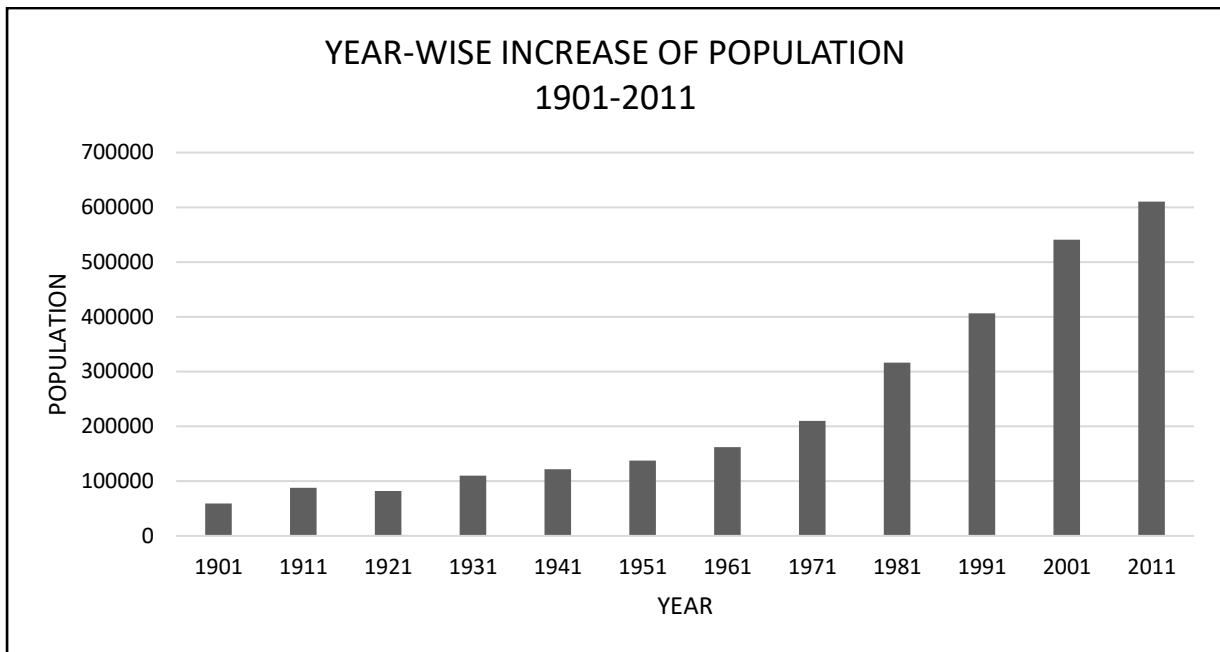


FIGURE NO.2: GROWTH RATE OF POPULATION (1901 TO 2011)

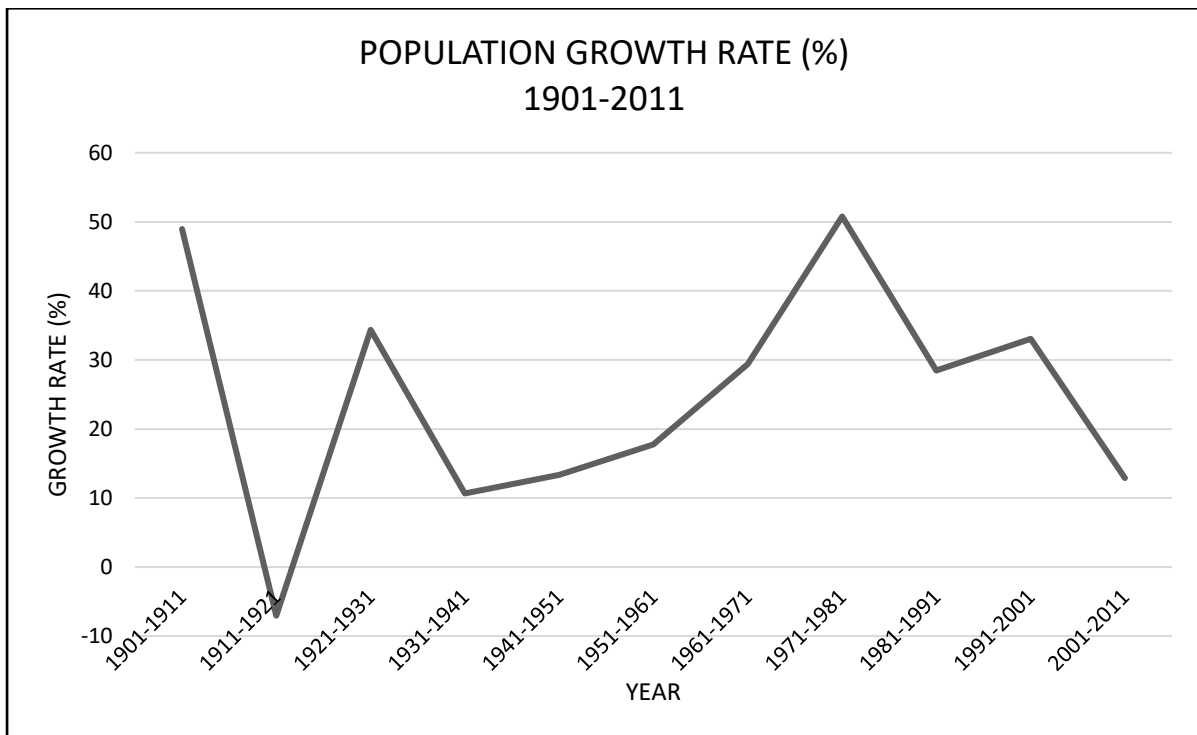


Figure No.3: Male-Female Population

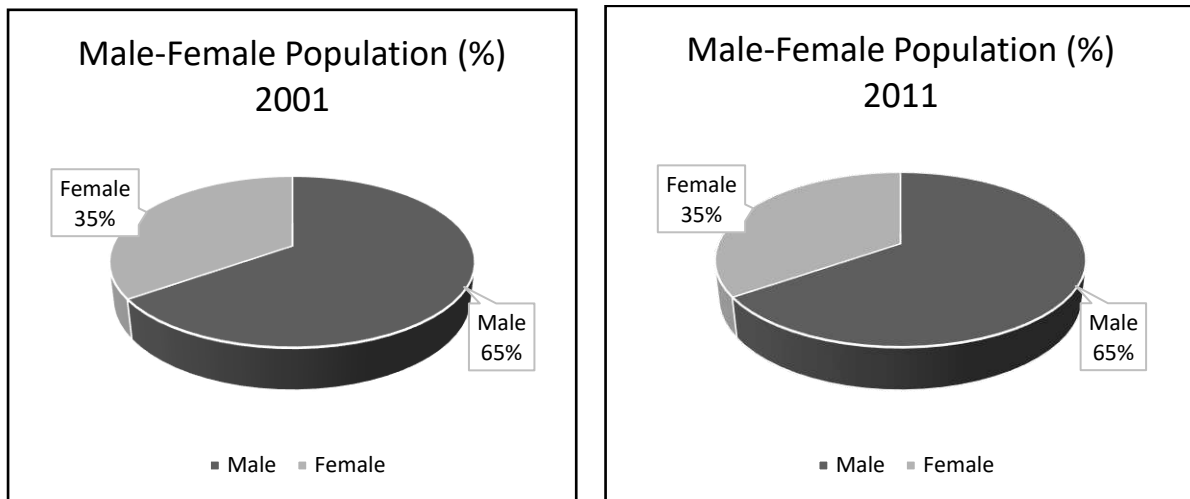


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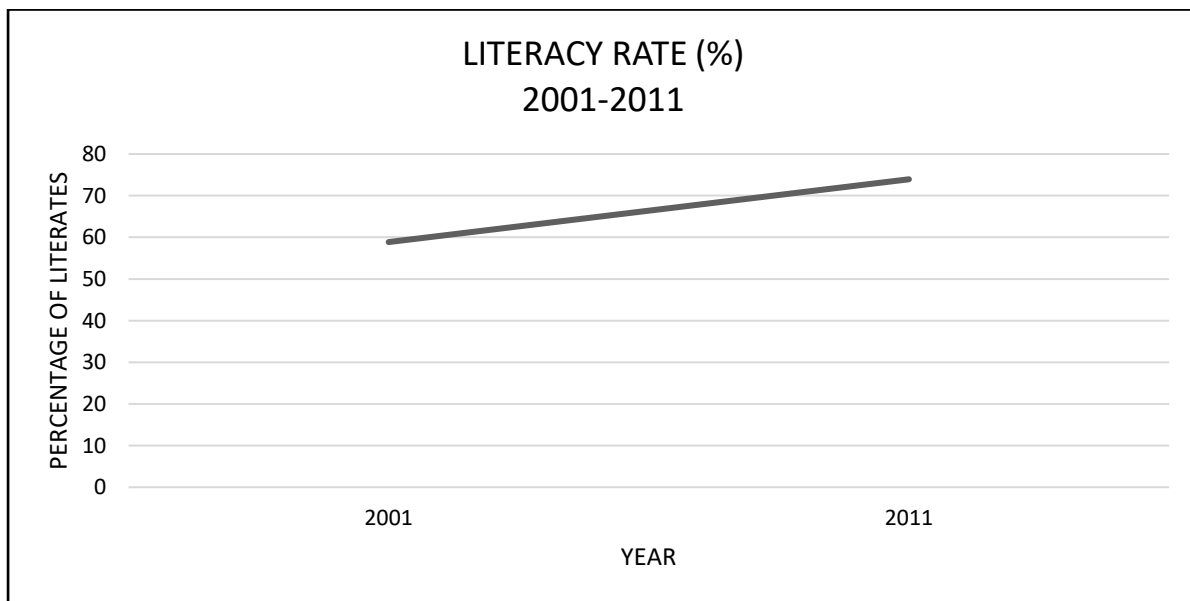


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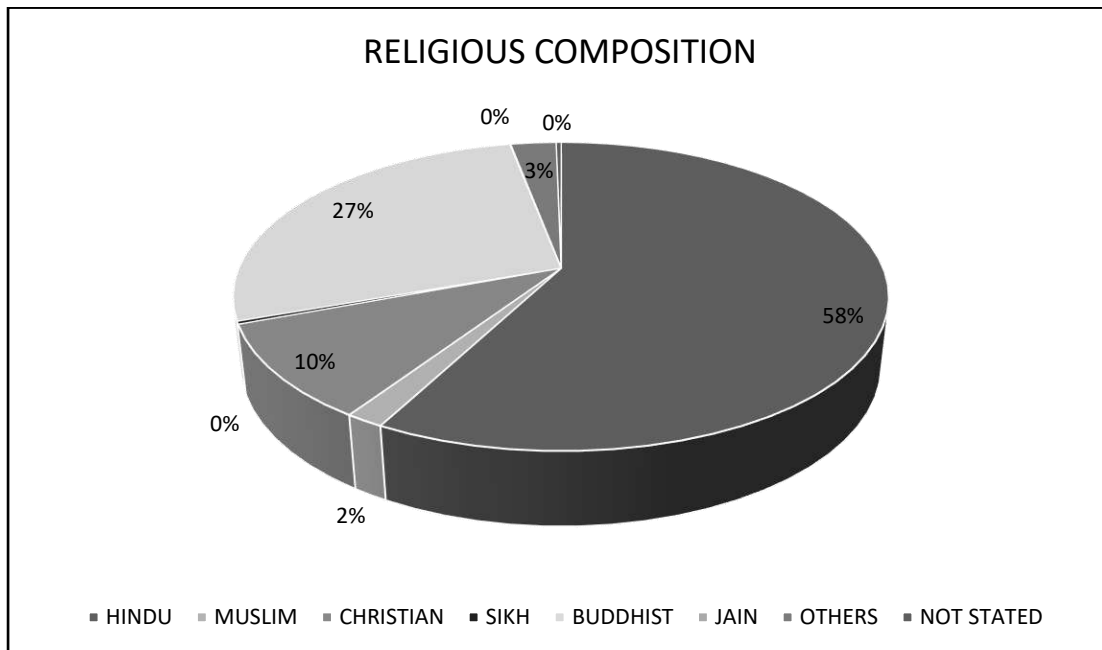


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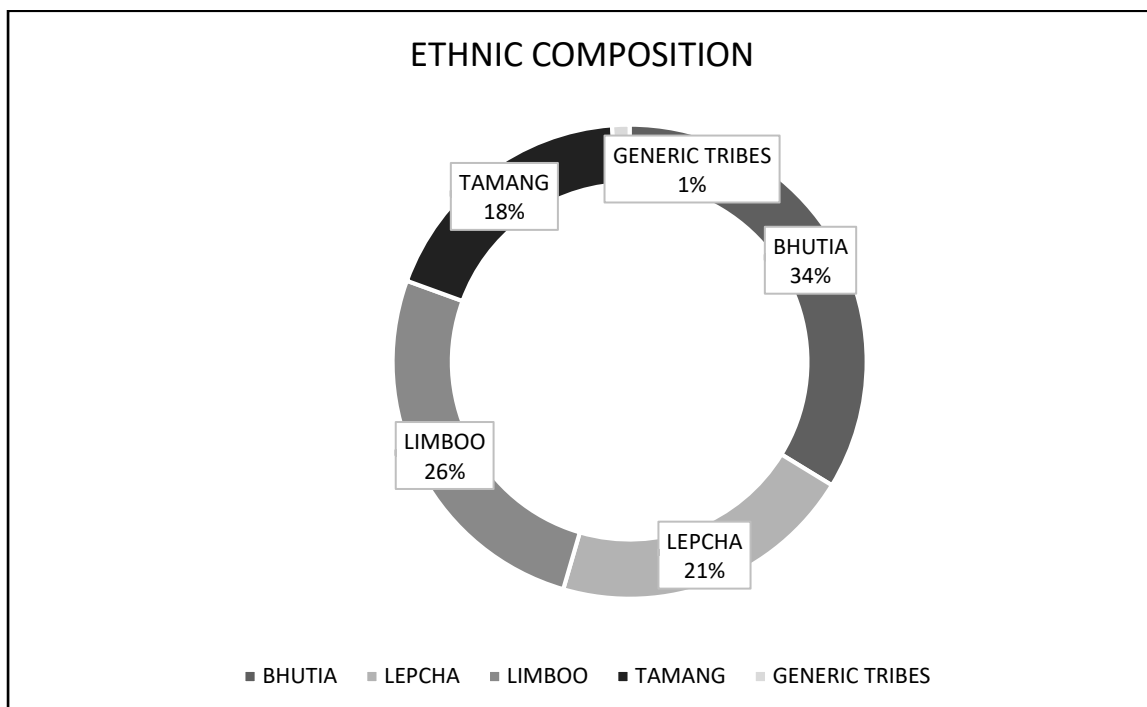


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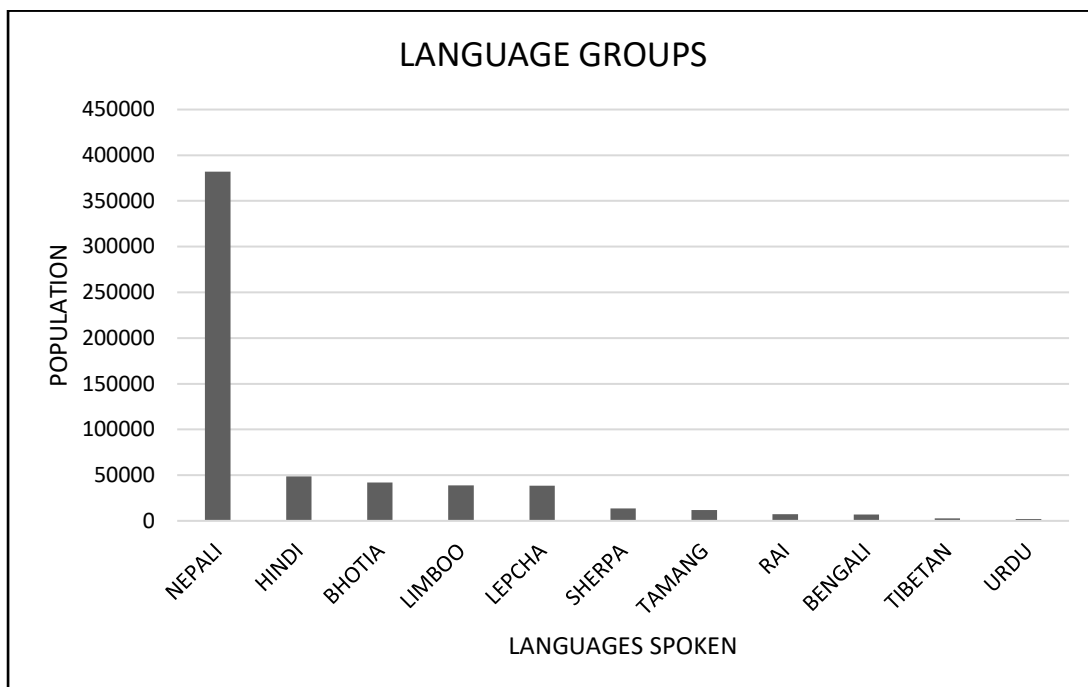
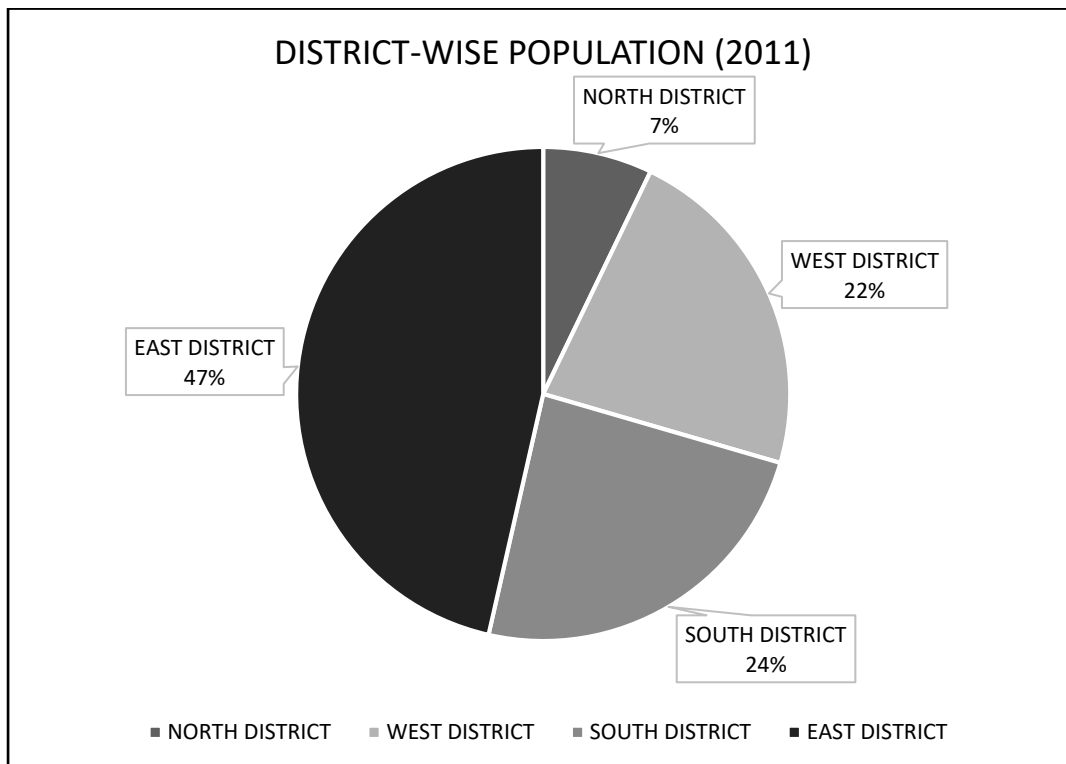


Figure No. 8: District-wise population



conclusion:-

sikkim with its mountainous land scape has a pristine environment. There are great variations in elevation ranging from 250m to 8495m. It has a population of above six lakhs and has an area 7096 square kilometres. Population density is 86 persons per square kilometres as per census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups ethnic and religious composition. The lustrous Himalayan landscape and a favourable weather have made the state, a favourite tourist destination of the world. Though population density is low, which is an obvious impact to terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93 per cent. Sex ratio is 944. Out of 4 districts, East district is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single-use plastic bottles since 1998. Despite of the tough mountainous terrain it has emerged as one of India's top environmental leaders.

rehash
30/6/2022

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CONTENTS

	<u>Page Nos.</u>
INTRODUCTION	1 - 2
PHYSIOGRAPHY	2 - 6
CLIMATE	6
WEATHER	7
FLORA AND FAUNA	7 - 9
EAST SIKKIM	10 - 15
DATA ANALYSIS	16 - 18
CONCLUSION	19
REFERENCES	20

Introduction:

Sikkim is a state located in Eastern Himalayas. Sikkim or Sikkim is a name derived from the Sanskrit word Shikim meaning 'erected'. In all of Sikkim there is not a single kilometer of 'flat land'. The state of Sikkim is located in the southern mountain ranges of Eastern Himalayas between Northern latitudes $27^{\circ}05'N$ and $28^{\circ}08'N$ and Eastern Longitudes $88^{\circ}10'E$ and $88^{\circ}55'E$. Sikkim is the 22nd state of the Indian union, which came into existence.

With effect from 16th May, 1975. Sikkim is bounded by Nepal in the west, Bhutan in the east, Tibet in the north and state of West Bengal in the south. The state has been divided into four districts, viz, East, West North and South districts.

It extends for 114 kms from North to South and for 64 kms from East to West. It has a total geographical area of 7096 square kms.

Most of Sikkim is the lesser and greater Himalayan zone. It has a unique geographical location. Kanchenjunga and Nathula Pass is this state.

Gangtok, the state capital is in east Sikkim. It lies between 27 degrees to 16 minutes North to 27 degrees 21 minutes North. It has an altitude of 5500 feet above mean sea level. It is connected to Siliguri by the National Highway. The nearest airport and railway station is Siliguri.

Physiography :

The topography of Sikkim is characterized by great variations in elevation, ranging from 250 m to 8495 m. Most of the Sikkim is in the lesser and greater Himalayan zone. The state is bounded by high ridges on the North, East and West contain some imposing peaks and high altitude passes.

Glaciers are the perennial sources of fresh water that is discharged in the two major rivers, namely Teesta and Rangit. Records available suggests that as many as 84 glaciers in Sikkim covering the area of 440 sq kms, with permanent snow field measure around 251 sq km are which when added to glaciers covers an area of 691 sq kms.

Sikkim consists of more than 150 lakes located at different altitudes and are natural water bodies mostly as a product of glaciation and are confined to high altitude areas. Most of the lakes are source of fresh water and also of religious significance attracting pilgrims and tourists to the state. The most famous ones are Tsomgo and Khecheopari lakes.

District micro-morphology features of Sikkim terrain include terraces and flood-plains, valley-side slopes and landslide slopes.

alluvial cones of different types and generations, fans, kettle shaped depression, terraced isles, sickle shaped mags, beveled plains, undulating plains, with deeply dissected valleys, glacial or peri-glacial deposits related sedimentary structures crevasses, soil series or poly pedon, gorges etc. These forms have been produced by the trunkstream Teesta and its innumerable tributaries - one of the important agents of denudation and deposition which moulds the landscape. (Mukhopadhyay 1998).

The hills of Sikkim mainly consist of gneissose and half-schistose rocks, making their soil brown clay, and generally poor and shallow. The soil is coarse, with large amounts of iron oxide concentration ranging from neutral to acidic and has poor organic and mineral nutrients. This type of soil tends to support evergreen and deciduous forests.

A large portion of the Sikkim territory including Gangtok is covered by the Precambrian rock and is much younger in age than the hills. The rock consists of phyllites and schists and therefore the slopes are highly susceptible to weathering and prone to erosion. The combination with the intense rain, causes extensive soil erosion and heavy loss of soil nutrients through leaching. As a result, landslides are frequent, isolating the numerous small towns and villages from the major urban centres.

The moisture content in the soil, mostly depending upon the soil thickness, has an explicit impact on forest type and coverage in any area. The entire state primarily consists of gneissic rocks and half-schistose rocks. The soil is developed from the gneissic group of rocks. They are typically coarse, often with ferric concentrations, neutral

to acidic with poor organic/mineral nutrients. The high intensity of rainfall in the state often causes extensive soil erosion and heavy losses of nutrients of land by leaching.

CLIMATE:

Sikkim is characterized by a Himalayan type of climate. Altitude is the main factor controlling the climate and weather condition of the whole state including the capital city of Gangtok. The climatic conditions vary greatly due to the wide fluctuations in elevation ranging from 800-20,000 feet and sharp edged mountains. Relief features such as high mountains act as barriers for the movement of the monsoon winds. Low temperature, high rainfall on windward slopes, comparatively dry on the leeward side and heavy precipitation in the form of snow at the mountain tops are the main features of the climate.

Weather:

The weather of Gangtok is alpine with warm summer and cold winters. Temperatures ranges from a high of 25°C in summer to a low of about 3°C in winter. Snowfall is rare, and in recent time Gangtok has received snow only in 1990, 2004 and 2005. Temperature below freezing are also rare. The region receives an annual rainfall of 3494 mm over 164 rainy days. The lower Himalayas in general are composed of labile rock formations and therefore prone to landslides even in dry seasons. These landslides can result in the capital being cut off from other parts of Sikkim and the mainland India.

FLORA AND FAUNA:

Sikkim is well-known for its biodiversity. The steep vertical climb from the plains of West Bengal to the high altitude areas of Sikkim represents one of the world's steepest altitude gradients.

This accounts for the incredible variety of flora and fauna found in the region, ranging from the tropical to sub-arctic.

Flora around Gangtok includes temperate, deciduous forests of poplar, birch, oak, and elm, as well as evergreen, coniferous trees of the wet alpine. Densely forested regions of these evergreens line just around the town. A wide variety of rare orchids are often featured in flower shows around the city. Sunflower, marigold, poinsettia, and other flowers bloom in November and December. Bamboo grows in abundance along the slopes of Gangtok. In the lower reaches of the town, the vegetation graduates from alpine to subtropical and temperate deciduous.

Among the more commonly found animals in the alpine zone are yaks. They are domesticated and reared in North Sikkim mainly for their economic productivity. Yakk milk is used to make butter 'chempi', the wool comes

in handy as raw material for carpets and blankets. The musk deer, found in the upper temperate regions, is today a species in the endangered list. A common denizen of Sikkim is the muntjac, or the Barking Deer.

Among the more exotic mammals is the Red Panda which lives mostly on treetops. It is found at altitudes ranging from 6,000 to 12,000 feet. The Snow Leopard is an almost mythical animal. It has rarely been sighted and to date, only two field zoologists have succeeded in photographing this elusive animal in its habitat which can vary from 5,000 feet to as high as 18,000 feet. Blue Sheep, flying squirrel, binturong, tahrs, marmots and musk deer are at home in this cool blanket of green.

EAST SIKKIM

Gangtok:

The capital city of Sikkim is fittingly called Gangtok, which means 'the town on the hilltop' in the local Bhutia language. From the formal Royal Palace at the top to the Queen's Bridge at the bottom, the city sprawls across approximately 15 kilometers on the west side of a long ridge flanking the Rainbow (Rainput) River. At an average altitude of 5500 feet (1676 metres), and with a population of approximately 50,000, this historically important transit point on the trade route with Tibet became the capital of Sikkim in 1894. Gangtok combines an attractive mix of old world charm, traditional hospitality and a modern cosmopolitan outlook, making it an exciting place to spend a few days at the beginning or end of your Sikkimese journey.

The town can be the ideal staging point for your travels across Sikkim's other districts, as you take advantage of top-notch tourism agencies, first class hotels and urban shopping amenities, on a comfortable haven with good food and hot showers at the end of your Sikkim adventure.

Although warmer than neighbouring Darjeeling, Gangtok is still a hill town with widely varying weather patterns, so take extra care when packing. Summer temperature can be as high as 28° Celsius on sunny afternoons but may drop to 13° Celsius on rainy evenings. In the winter, you can expect highs of 18° Celsius and lows of 5° Celsius. Gangtok sees over 150 inches of rainfall per year, primarily during the summer monsoon season. Come prepared with light woollens and a rain jacket for the summer, and heavier clothes for the winter.

At an altitude of over 14,000 feet, the Nathu La is now open for domestic tourists. This is the highest point in Sikkim reachable by car, without the extra exertion of a trek. However, visitors with heart conditions or concerned about high-altitude sickness are advised to avoid this destination. The historically important Nathu La Pass was the gateway to Tibet, and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Shigatse and Lhasa in the Land of the Snows. Now open once again after several decades, visiting the pass is a once in a lifetime experience. You can walk up to the army viewpoint and look beyond into China, where green-uniformed Chinese army personnel with red stars on their caps stand to attention. All around them, the stark alpine landscape is interspersed with delicate primula blossoms and the unique Himalayan rhubarb shrub. Visitors are advised to start for Nathu La as early in the day as possible to avoid the inclement

weather which typically arises in the afternoon. 35 kilometres away from Gangtok at an altitude of 12,400 feet (3780 metres) you reach the beautiful Tsomgo lake, which freezes over in winter and is fed by melting snow from the surrounding mountains. Local legend holds that James could forecast the future by studying the colours of the lake's waters. Fishing is totally prohibited and visitors are requested not to pollute the environs of the lake with rubbish in order to maintain its sanctity.

Although central Gangtok's main commercial thoroughfare is slightly less than a kilometre in length, M. G. (Mahatma Gandhi) Marg is lined with shops, hotels, restaurants, bars, bakeries, studios, cyber cafes, pool rooms and curio shops. At the western end of the road, near the Thakurobari Temple and overlooking the Tourism Information centre, stands the status of unity, depicting the meeting of the Bhutia chieftain Khye Dumsa with the Lepcha leader

Thekong Tek.

Built in memory of Harbhajan Singh, a last Sepoy from the 23rd Punjab Regiment, the Baba Harbhajan Singh Memorial Mandir lies between the Nathu La and Jelep La passes. Legend has it that he appeared to his colleagues in a dream a few days after he went missing and requested that a monument be built in his memory. His fellow soldiers then erected this monument, which over the years acquired the status of a pilgrimage site. Devotees leave a bottle of water, which they collect a few days later to take back home, blessed by the spirit of this hardy soldier.

Tashi view point is an acclaimed spot for photography located about 8 kilometers north of Gangtok on the main road to North Sikkim. On a clear day, you can see the monasteries of Phodong and Jabmang. An observatory tower has necessarily been established, along with a small but well stocked cafeteria.

Along the way, stop to marvel at the clear waters of Bakthong Kyong chu, a small waterfall between Gangtok and Tashi view point.

DATA ANALYSISYEAR-WISE INCREASE IN POPULATION

Population in Sikkim has increased from 5904 in 1901 to 610577 in 2011 (Table No.1) and (Figure No.1)

Table No.1: YEAR-WISE INCREASE OF POPULATION

YEAR	POPULATION
1901	5904
1911	87920
1921	81721
1931	109808
1941	121520
1951	137725
1961	162189
1971	209849
1981	316385
1991	406457
2001	540851
2011	610577

Source: census of India.

GROWTH RATE OF POPULATION:

Population growth rate is the rate at which population is increasing. Population growth rate between 1901 and 1911 was 48.98% which has decreased to 12.89% between 2001 and 2011. The maximum growth of population (50.77%) took place between 1971 and 1981 (Table No.2 and Figure No.2).

Table No. 2: GROWTH RATE OF POPULATION (1901 to 2011)

YEAR	GROWTH RATE (%)
1901-1911	48.98
1911-1921	-7.05
1921-1931	34.97
1931-1941	10.67
1941-1951	19.83
1951-1961	17.76
1961-1971	29.98
1971-1981	50.77
1981-1991	28.47
1991-2001	33.06
2001-2011	19.89

SOURCE: COMPUTED BY THE AUTHOR

MALE-FEMALE POPULATION

Males constituted 65% of the Populations and females constitute 35% of the Population in 2001 and 2011 (Figure No.3).

LITERACY RATE

Literacy rate has increased from 58.68% in 2001 to 73.93% in 2011. Number of literates has increased from 318335 in 2001 to 449294 2011 (Figure No.4)

SEX RATIO

Sex ratio is the number of females per thousands males. Sex ratio has improved from 875 in 2001 to 889 in 2011. Child sex ratio has also improved from 938 in 2001 and 944 in 2011.

DENSITY OF POPULATION

Density of Population refers the number of persons per square kilometres. It has increased from 76 persons per square kilometres to 86 persons per square kilometres.

RURAL AND URBAN POPULATION

Only 24.97% of the total population in 2011 is urban and the rest 75.03% is rural.

RELIGIOUS COMPOSITION

Majority of the population are Hindus (58%), followed by Buddhists (27%) and Christians (10%) (Figure No.5)

ETHNIC COMPOSITION

Bhujias constitute 34% of the population, followed by Limboo (26%) and Lepchas (21%) (Figure No.6).

LANGUAGE GROUPS

Majority are Nepali speaking population, followed by Hindi and Bhotia (Figure No.7)

DISTRICT-WISE POPULATION

East District is the most populous by South District, West District and North District (Figure No.8).

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

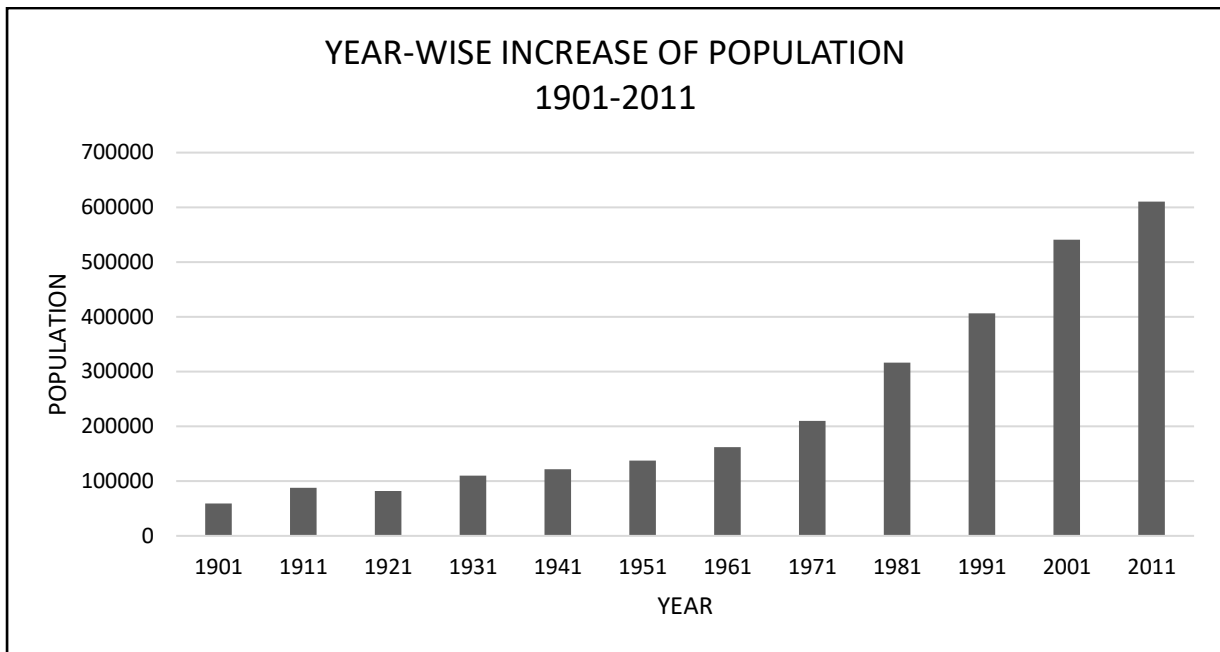


FIGURE NO.2: GROWTH RATE OF POPULATION (1901 TO 2011)

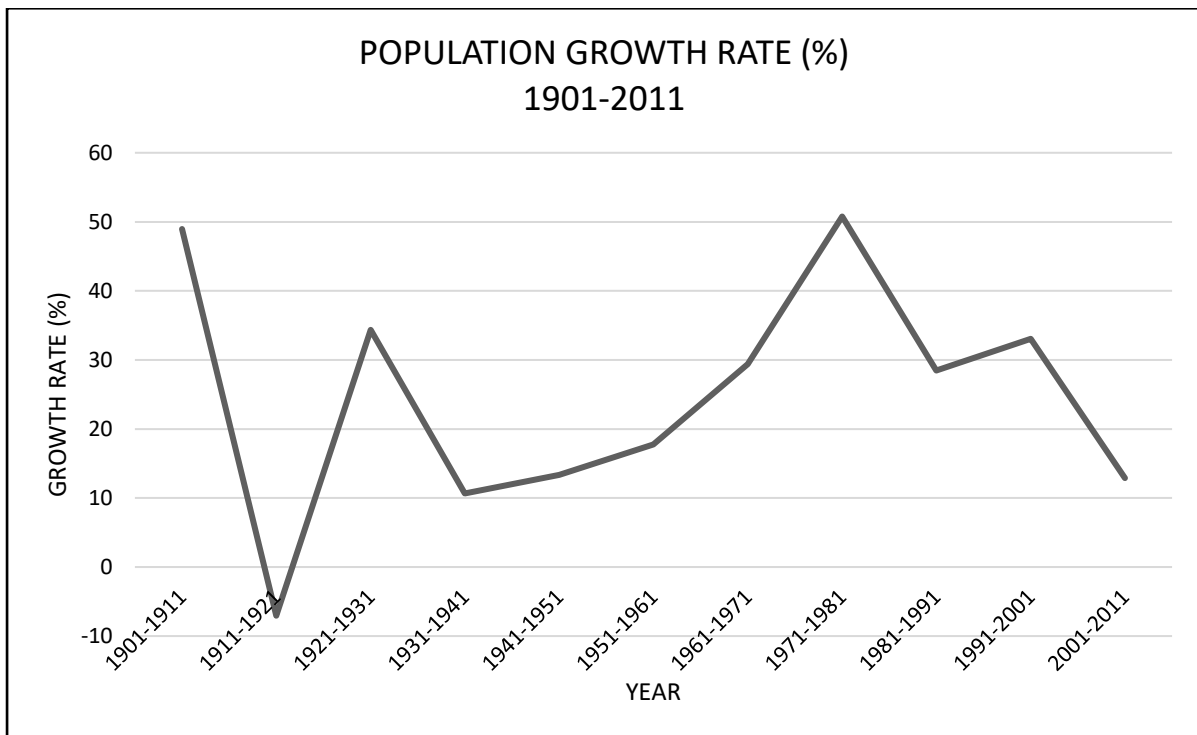


Figure No.3: Male-Female Population

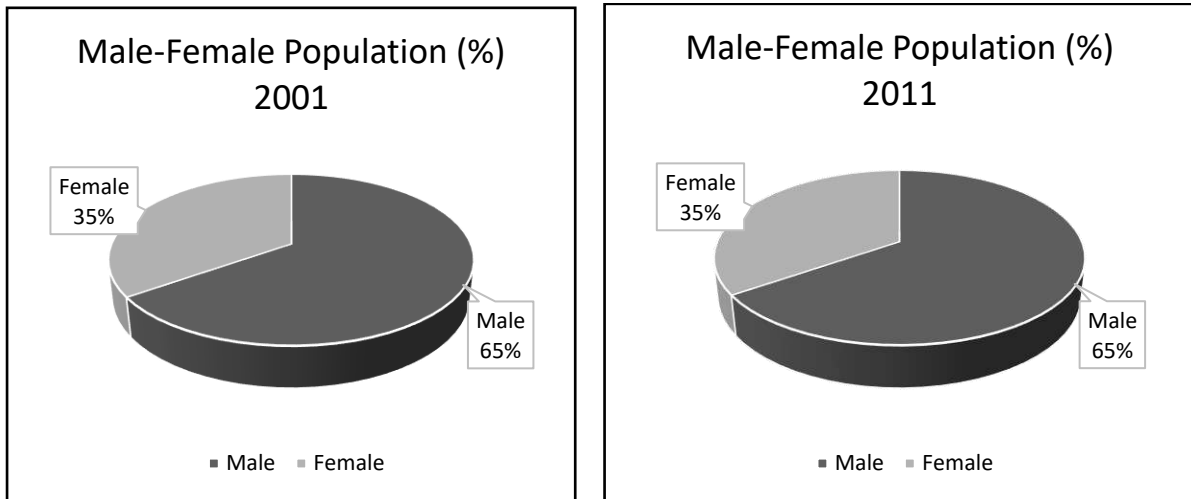


Figure No.4: Literacy rate (2001 and 2011)

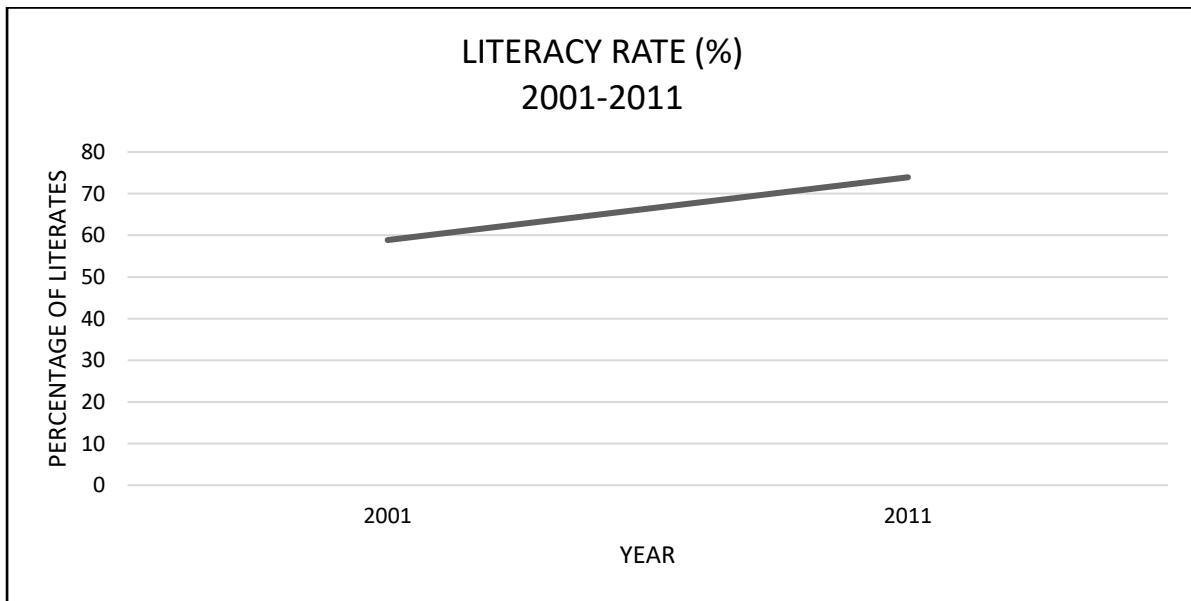


Figure No.5: Religious Composition

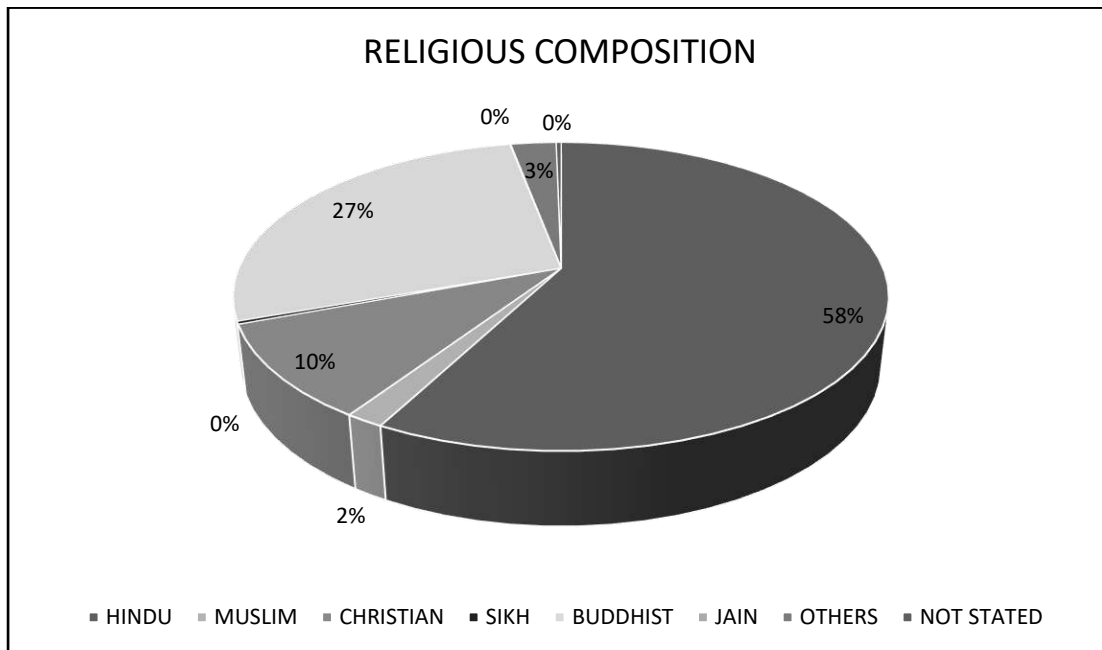


Figure No.6: Ethnic composition

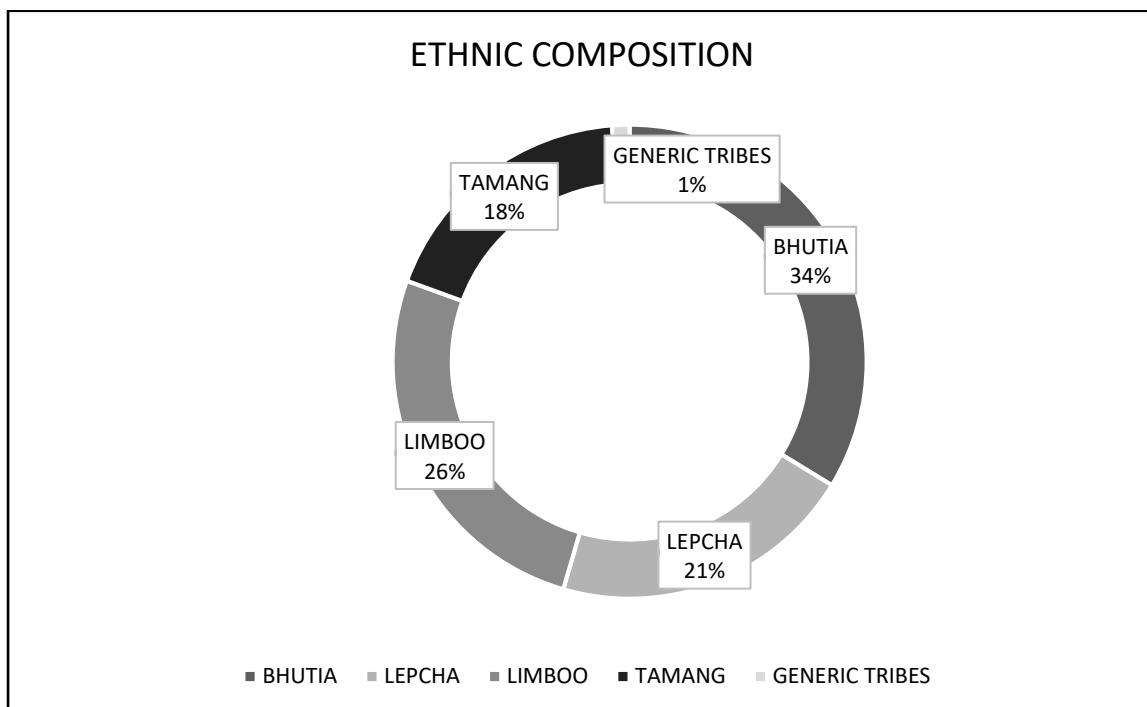


Figure No.7: Language Groups

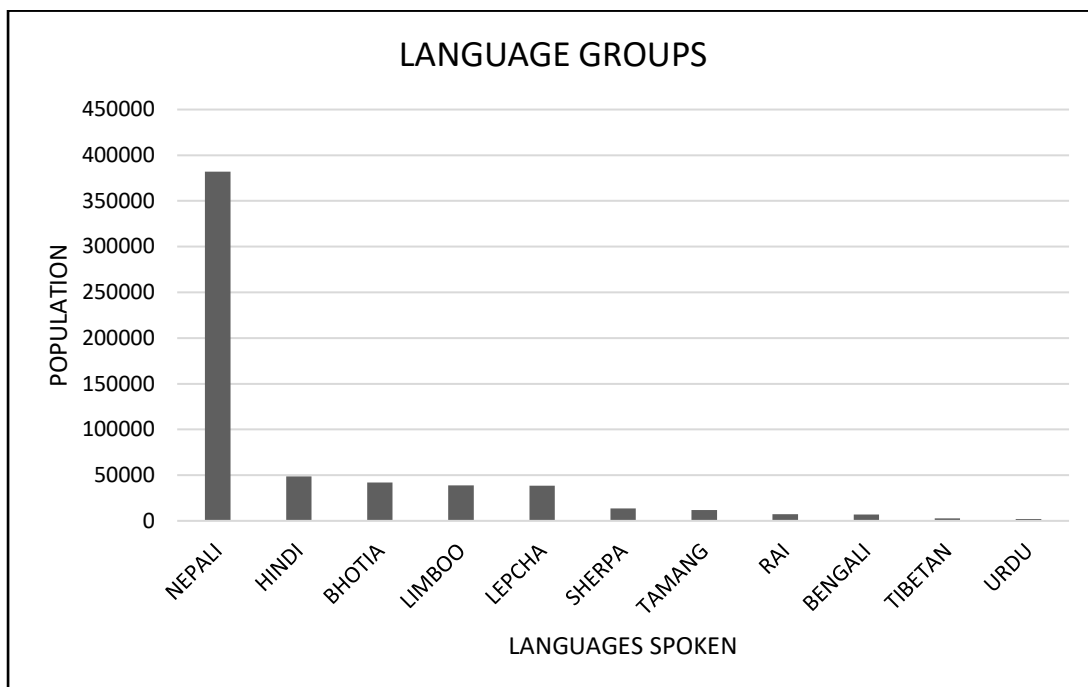
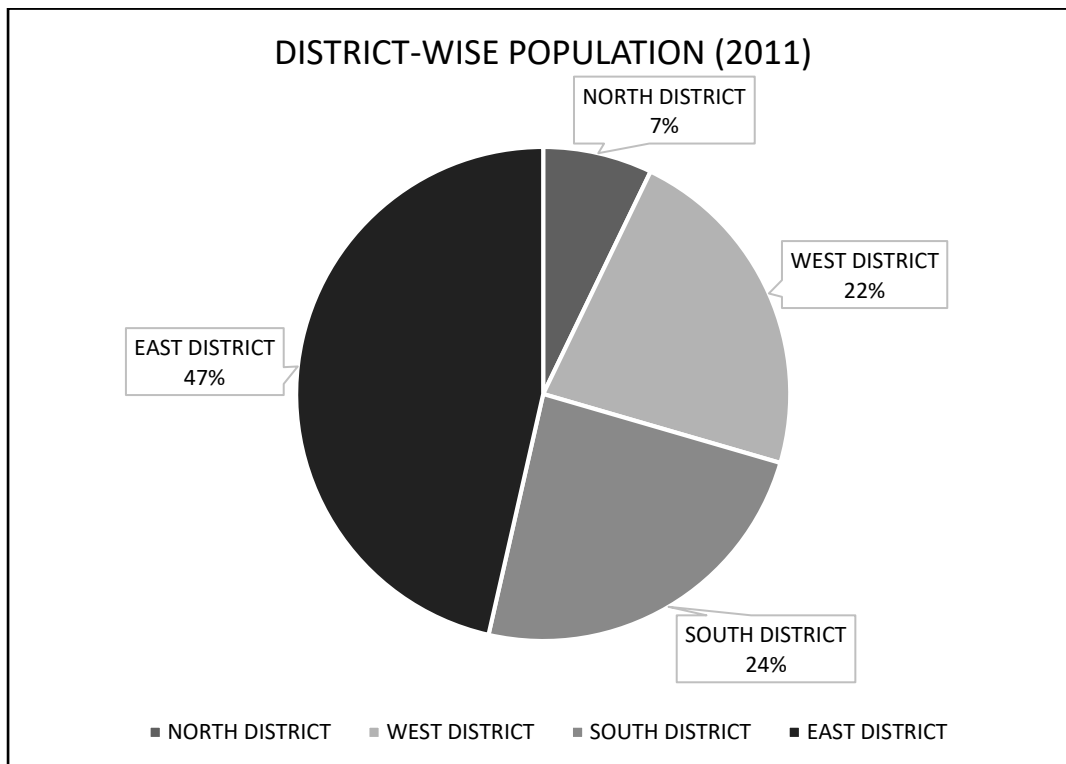


Figure No. 8: District-wise population



CONCLUSION

Sikkim with its mountainous landscapes has a pristine environment. There are great variations in elevation ranging from 250 m to 8495 m. It has a population of above six lakhs and has an area of 7096 square kilometres. Population density is 86 persons per square kilometre as per census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups, ethnic and religious compositions. The lustrous Himalayan landscapes and a favourable weather have made the state, a favorite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. The clean and green image of Sikkim has made it the top tourist destinations of the world. Though population density is low, which is an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93%. Sex ratio is 944. Out of the 4 districts, East district is the most populous. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single-use plastic bottles since 1998.

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CONTENTS

Subject	Page No
Introduction	01
Physiogeography	02-04
climate	0.4
Weather	05
Flora and Fauna	05-06
East sikkim	06-09
Data Analysis	10-12
Conclusion	13
References	14

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Introduction

Page - 01

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Physiography

page-02

The topography of sikkim is characterized by great variations in elevation, ranging from 250 m to 8495 m. Most of the sikkim is in the Lesser and Greater Himalayan zone. The state is girdled by high ridges on the north, East and West contain some imposing peaks and high altitude passes.

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Gangtok

East Sikkim

The capital city of sikkim is fittingly called Gangtok which means the town on the hilltop in the local Bhutia language. From the former Royal Palace at the top to the Queen's Bridge at the bottom, the city sprawls across approximately 15 kilometres on the west side of a long ridge flanking the Ranipool (Ranipul) River. At an average altitude of 5500 feet

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The historically important Nathu La pass was the gateway to Tibet, and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Shigatse and Lhasa in the land of the snows. Now open once again after several decades, visiting the pass is a once in a lifetime experience. You can walk up to the army viewpoint and look beyond into China, where green-uniformed Chinese army personnel with red stars on their caps stand to attention. All around them the stark alpine landscape is interspersed with delicate primula blossoms and the unique Himalayan thubach shrub. Visitors are advised to start for Nathu La as early in the day as possible to avoid inclement weather which typically arises in the afternoon.

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Built in memory of Harbajam Singh, a lost spy from the 23rd Punjab Regiment, the Baba Harbajam Singh Memorial Mandir lies between the Nathula and Jelep La passes. Legend has it that he appeared to his colleagues in a dream a few days after he went missing and requested that a monument be built in his memory. His fellow soldiers then erected this monument, which over the years acquired the status of a pilgrimage site. Devotes leave a bottle of water, which they collect a few days later to take back home, blessed by the spirit of this hardy soldier.

Tashi view point is an acclaimed spot for photography located about 8 kilometres north of Gangtok on the main road to North Sikkim. On a clear day, you can see the monasteries of Phodong and Labrang. An observatory tower has recently been established, along with a small but well-stocked cafeteria. Along the way, stop to marvel at the clear waters of Bakthong, Kyong Chhu, a small waterfall between Gangtok and Tashi view point.

Data AnalysisYear-Wise Increase In Population

Population in Sikkim has increased from 59014 in 1901 to 610577 in 2011 (Table No.1) and (figure no.1)

Table No.1: Year-Wise Increase of population

Year	Population
1901	59014
1911	87920
1921	81721
1931	109808
1941	121520
1951	137725
1961	162189
1971	209843
1981	316385
1991	406457
2001	540851
2011	610577

Growth Rate of Population

Population growth rate is the rate at which population is increasing. Population growth rate between 1901 and 1911 was 48.98 percent which has decreased to 12.89 percent between 2001 and 2011. The maximum growth of population (50.77%) took place between 1971 and 1981 (Table No. 2 and figure No. 2).

Table No : 2: Growth Rate of Population (1901 To 2011)

Year	Growth Rate (%)
1901-1911	48.98
1911-1921	7.05
1921-1931	34.37
1931-1941	10.67
1941-1951	13.33
1951-1961	17.76
1961-1971	29.38
1971-1981	50.77
1981-1991	28.47
1991-2001	33.06
2001-2011	12.89

Male - Female population

Male constituted 65 percent of the population and females constituted 35 percent of the population in 2001 and 2011 (Figure No 3)

Literacy Rate

Literacy rate has increased from 58.86 percent in 2001 to 73.93 percent in 2011. Number of literates has increased from 318355 in 2001 to 449294 in 2011

Sex Ratio

Sex ratio is the number of females per thousand males. Sex ratio has improved from 875 in 2001 to 889 in 2011. Child sex ratio has also improved from 938 in 2001 and 944 in 2011.

Density of Population

Density of population refers the number of persons per square kilometre. It has increased 76 persons per square kilometre to 86 persons per square kilometre.

Rural and Urban population

Only 24.97 percent of the total population in 2011 is urban and the rest 73.03 percent is rural.

Religious composition

Majority of the populations are Hindus (58%), followed by Buddhists (27%) and Christians (10%).

Ethnic Composition

Bhutias constitute 34 percent of the population followed by Limboo (26%) and Lepchas (21%).

Language Groups

Majority are Nepali speaking population, followed by Hindi and Bhojia.

District-wise population

East District is the most populous followed by south District, West District and North District.

FIGURE NO.1: YEAR-WISE INCREASE OF POPULATION (1901-2011)

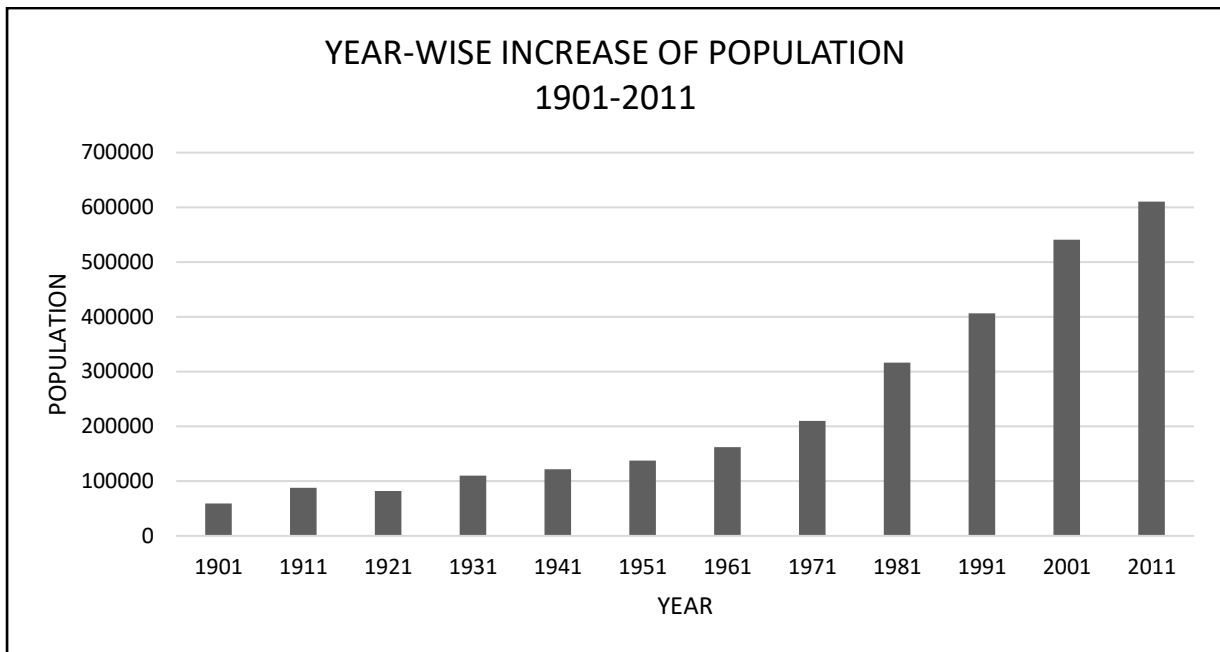


FIGURE NO.2: GROWTH RATE OF POPULATION (1901 TO 2011)

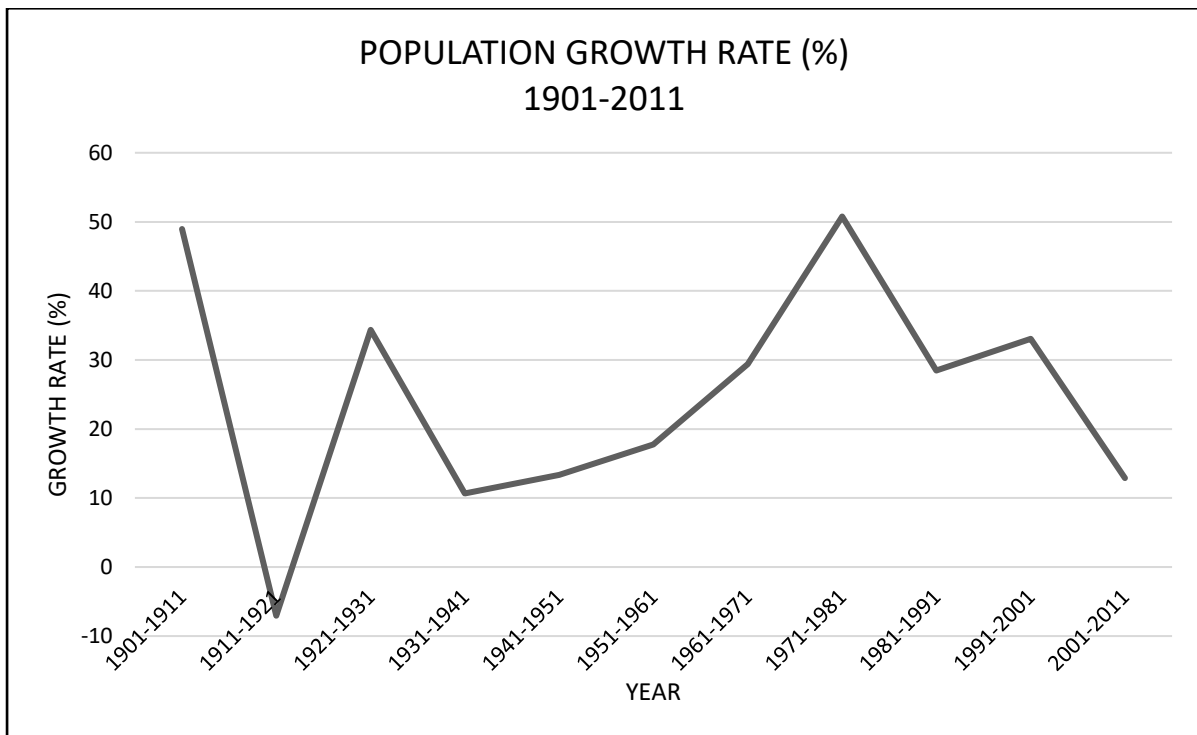


Figure No.3: Male-Female Population

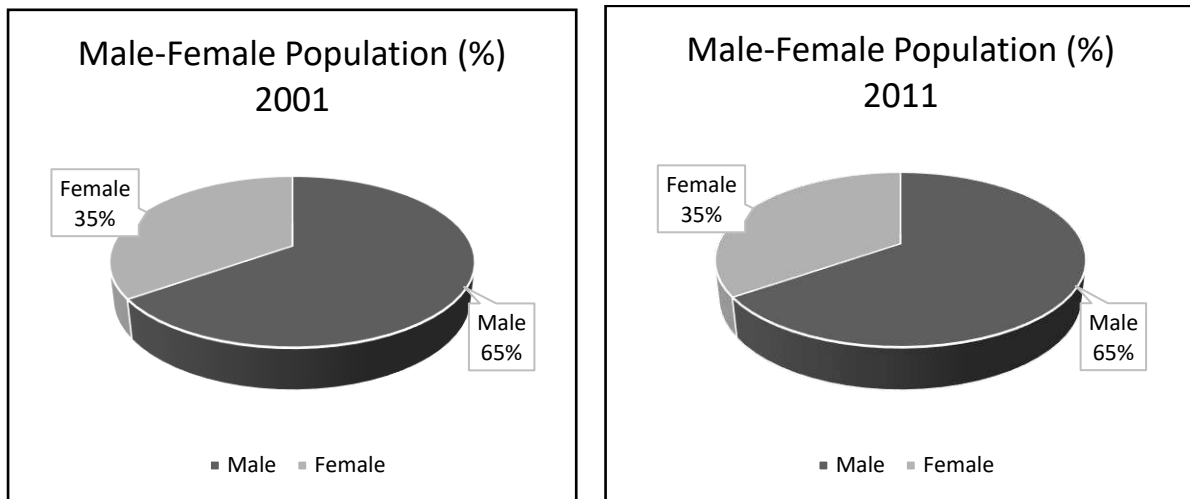


Figure No.4: Literacy rate (2001 and 2011)

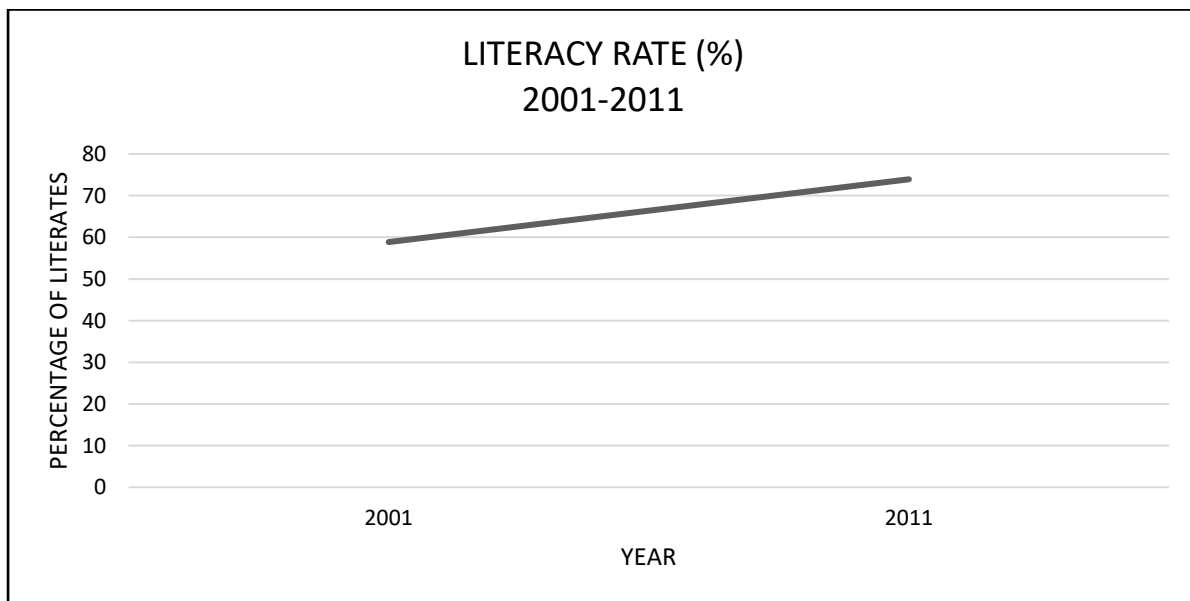


Figure No.5: Religious Composition

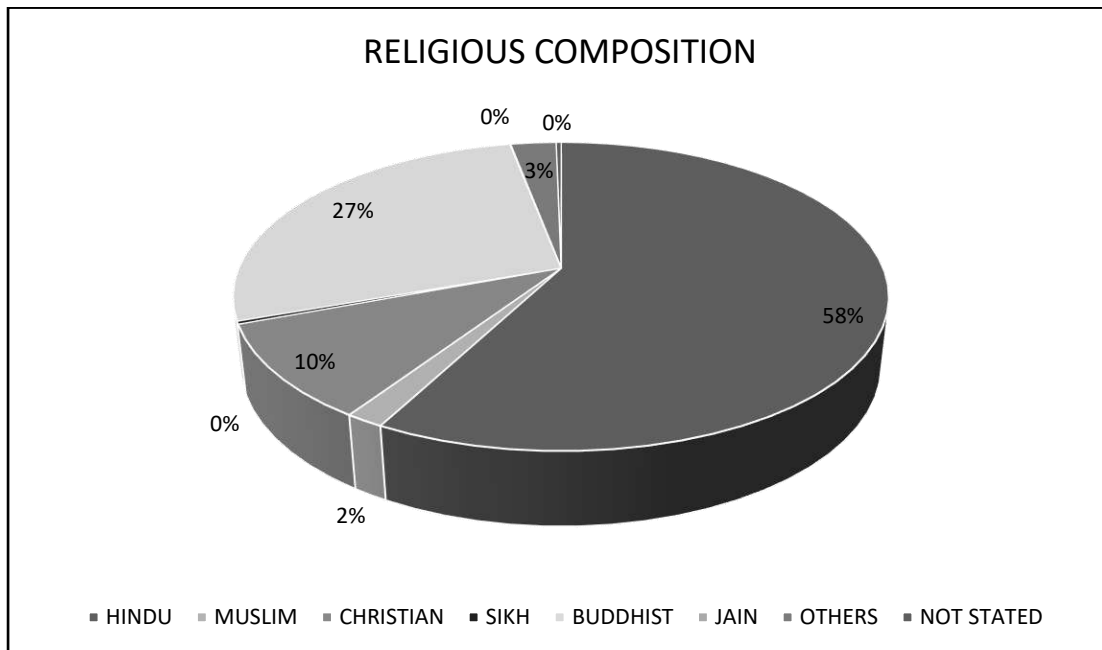


Figure No.6: Ethnic composition

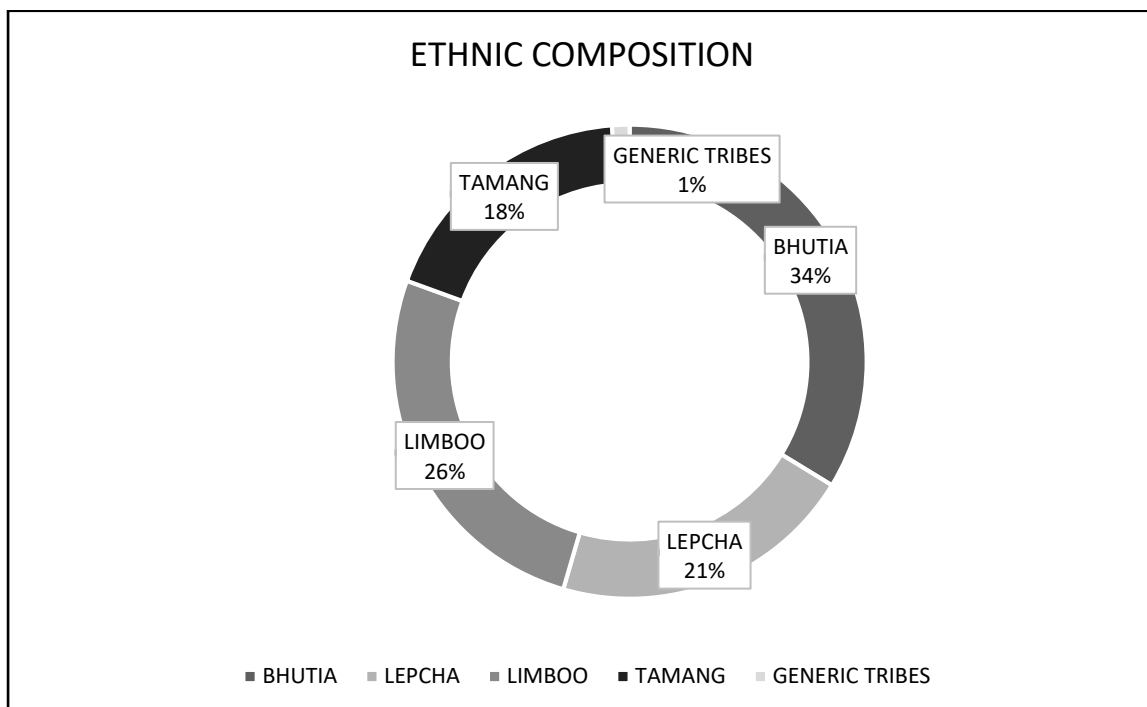


Figure No.7: Language Groups

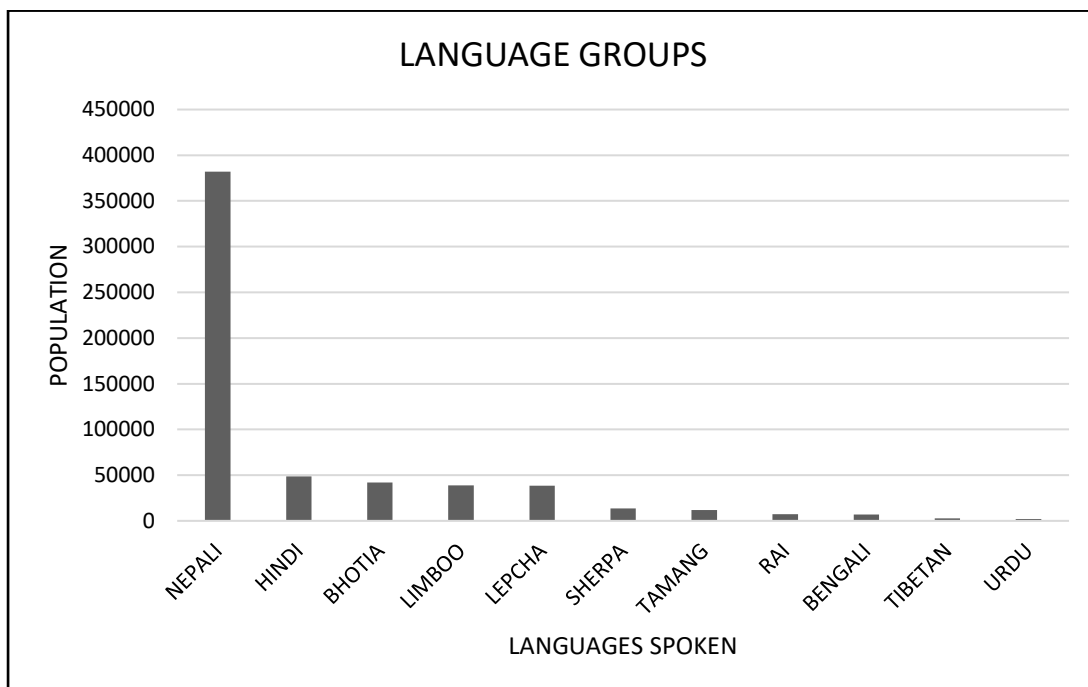
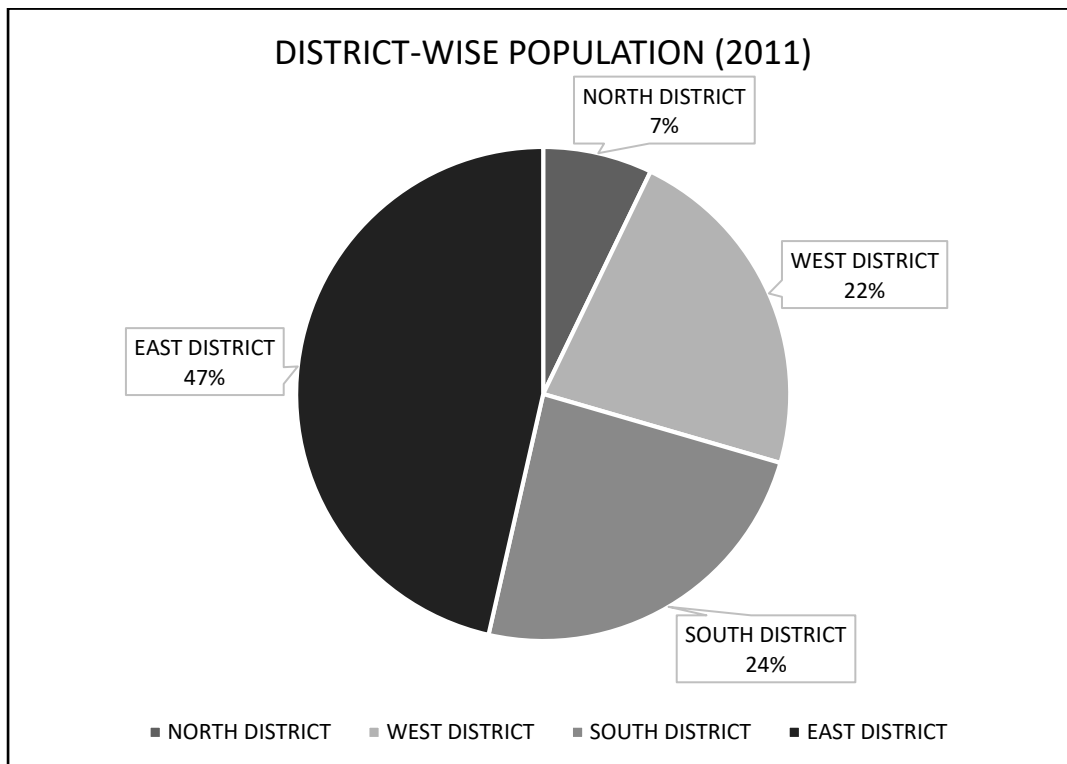


Figure No. 8: District-wise population



Conclusion

Sikkim with its mountainous landscapes has a pristine environment. There are great variations in elevation ranging from 250m to 8495m. It has a population of above six lakhs and has an area of 7096 square kilometres. population density is 86 persons per square kilometre as per census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups, ethnic and religious compositions. The lustrous Himalayan landscapes and a favourable weather have made the state, a favourite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. Through population density is low, which is an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93 percent. Sex ratio is 944. out of the 4 districts, East District is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single-use plastic bottles since 1998. Despite of the rough mountainous terrain it has emerged as one of India's top environmental leaders.

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page = 14

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CONTENTS

SL. NO.	SUBJECT	PAGE NO.
1)	INTRODUCTION	1-2
2)	PHYSIOGRAPHY	2-4
3)	CLIMATE	4-5
4)	WEATHER	5
5)	FLORA AND FAUNA	5-7
6)	EAST SIKKIM	7-10
7)	DATA ANALYSIS	11-13
8)	CONCLUSION	14-15
9)	REFERENCES	16

INTRODUCTION: SIKKIM is a state located in Eastern Himalayas. SIKKIM or SIKKIM is a name derived from the Sanskrit word SIKKIM meaning 'crested'. In all of SIKKIM there is not a single kilometer of 'flat land'. The state of SIKKIM is located in the southern mountain ranges of Eastern Himalayas between Northern latitudes $27^{\circ}05'N$ and $28^{\circ}08'N$ and Eastern Longitudes $88^{\circ}10'E$ and $88^{\circ}55'E$ SIKKIM is the 22nd state of the Indian Union, which came into existence with effect from 16th May, 1975. SIKKIM is bounded by Nepal in the west, Bhutan in the east, Tibet in the north and state of West Bengal in the south. The state has been divided into four districts, viz. East, West, North and South districts.

It extends for 114 kms from North to South and for 64 kms from East to West. It has a total geographical area of 7096 square kms. Most of SIKKIM is in the Lesser and Greater Himalaya zone. It has a unique geographical location. Khamche - Nijunga and Nathula pass is in this state. Gangtok, the state capital is in East SIKKIM. It lies between 27 degrees to 16 minutes North to 27 degrees 21 minutes North. It has an altitude of 5500 feet above

mean sea level. It is connected to Siliguri by the national Highway. The nearest airport and railway station is Siliguri.

Physiography: The topography of Sikkim is characterized by great variations in elevation, ranging from 250 m to 8195 m. Most of the Sikkim is in the lesser and greater Himalayan zone. The state is girdled by high ridges on the North, East and West contain some imposing peaks and high altitude passes.

Glaciers are the perennial sources of fresh water that is discharged in the two major rivers, namely Teesta and Rangit. Records available suggests that as many as 84 glaciers in Sikkim covering an area of 440 sq kms, with permanent snow fields measure around 251 sq km area which when added to glaciers cover an area of 691 sq kms.

Sikkim consists of more than 150 lakes located at different altitudes and are natural water bodies mostly as a product of glaciations and are confined to high altitude areas. Most of the lakes are source of fresh water and also of religious significance attracting pilgrims and tourists to the state. The most famous

ones are Tsomgo and Khecheopari lakes.

Distinct micro-morphological features of Sikkim terrain include terraces and floodplains, valley-side slopes and landslide slopes, alluvial cones of different types and orientations, fans, kettle shaped depressions, terrace isles, sickle shaped gaps, beveled plains, undulating plains, with deeply dissected valleys, glacial or peri-glacial deposits related sedimentary structures crevasses, soil series or pale pedon, gorges etc. These forms have been produced by the trunkstream Teesta and its innumerable tributaries - one of the important agents of denudation and deposition which moulds the landscape. (Mukhopadhyay 1998),

The hills of Sikkim mainly consist of gneissose and half-schistose rocks, making their soil brown clay, and generally poor and shallow. The soil is coarse, with large amounts of iron oxide concentrations, ranging from neutral to acidic and has poor organic and mineral nutrients. This type of soil tends to support evergreen and deciduous forests.

A large portion of the Sikkim territory including Gangtok is covered by the Precambrian rock and is much younger in age than the hills. The rock consists

of gneisses and schists and therefore the slopes are highly susceptible to weathering and prone to erosion. This combined with the intense rain, causes extensive soil erosion and heavy loss of soil nutrients through leaching. As a result, landslides are frequent, isolating the numerous small towns and villages from the major urban centres.

The moisture content in the soil, mostly depending upon the soil thickness, has an explicit impact on forest type and coverage in any area. The entire state primarily consists of gneissic rocks and half-schistose rocks. The soil is developed from the gneissic group of rocks. They are typically coarse, often with ferric concentrations, neutral to acidic with poor organic/mineral nutrients. The high intensity of rainfall in the state often causes extensive soil erosion and heavy losses of nutrients of land by leaching.

Climate: Sikkim is characterized by a Himalayan type of climate. Altitude is the main factor controlling the climate and weather condition of the whole state including the capital city of Gangtok. The climatic conditions vary greatly due to the wide fluctuations in elevation ranging from 800 - 20,000 feet and sharp edged mountains.

Relief features such as high mountains act as barriers for the movement of the monsoon winds. Low temperature, high rainfall on windward slopes, comparatively dry on the leeward side and heavy precipitation in the form of snow at the mountain tops are the main features of the climate.

Weather: The weather of Gangtok is alpine with warm summer and cold winters. Temperatures range from a high of 25°C in summer to a low of about 3°C in winter. Snowfall is rare, and in recent times Gangtok has received snow only in 1990, 2004 and 2005. Temperatures below freezing are also rare. The region receives an annual rainfall of 3494 mm over 164 rainy days. The Lower Himalayas in general are composed of labile rock formations and therefore prone to landslides even in dry seasons. These landslides can result in the capital being cut off from other parts of Sikkim and the mainland India.

Flora and Fauna: Sikkim is well-known for its biodiversity. The steep vertical climb from the plains of West Bengal to the high altitude areas of Sikkim represents one of the world's steepest altitude gradients. This accounts for the incredible variety of flora and fauna found in the region, ranging from the tropical to sub-arctic.

Flora around Gangtok includes temperate,

deciduous forests of poplar, birch, oak, and elm, as well as evergreen, coniferous trees of the wet alpine. Dense forested regions of these evergreens lie just around the town. A wide variety of rare orchids are often featured in flower shows around the city. Sunflower, marigold, pansy, and other flowers bloom in November and December. Bamboo groves in abundance along the slopes of Gangtok. In the lower reaches of the town, the vegetation gradually changes from alpine to subtropical and temperate deciduous.

Among the more commonly found animals in the alpine zone are yaks. They are domesticated and reared in North Sikkim mainly for their economic productivity. Yak milk is used to make butter 'churpi'; the wool comes in hand as raw material for carpets and blankets. The musk deer, found in the upper temperate regions, is today a species in the endangered list. A common denizen of Sikkim is the muntjac, or the barking deer.

Among the more exotic mammals is the Red Panda which lives mainly on tree trunks. It is found at altitudes ranging from 6,000 to 12,000 feet. The Snow Leopard is an almost mythical animal. It has rarely been sighted and to date, only two field zoologists have succeeded in photographing this elusive animal in

Page no. - 07

its habitat which can vary from 5,000 feet to as high as 18,000 feet. Blue sheep, flying squirrels, Himalayan, leopards, martens and musk deer are at home in this coal blanket of green.

East Sikkim: Gangtok: The capital city of Sikkim is fittingly called Gangtok, which means 'the town on the hilltop' in the local Bhutia language. From the former royal palace at the top to the Queen's Bridge at the bottom, the city sprawls across approximately 15 kilometres on the west side of a long ridge flanking the Ranipool (Ranipal) River. At an average altitude of 5500 feet (1676 metres), and with a population of approximately 50,000, this historically important transit point on the trade route with Tibet became the capital of Sikkim in 1894. Gangtok combines an attractive mix of old world charm, traditional hospitality and a modern cosmopolitan outlook, making it an exciting place to spend a few days at the beginning or end of your Sikkimese journey. The town can be the ideal staging point for your travels across Sikkim's other districts, as you take advantage of top-notch tourism agencies, first-class hotels and urban shopping amenities, or a comfortable haven with good food and hot showers at the end of your Sikkim adventure.

Although warmer than neighbouring Darjeeling, Gangtok is still a hill town with widely varying weather patterns, so take extra care when packing. Summer temperatures can be as high as 28° celsius on sunny afternoons but may drop to 13° celsius on rainy evenings. In the winter, you can expect highs of 18° celsius and lows of 5° celsius. Gangtok sees over 150 inches of rainfall per year, primarily during the summer monsoon season. Come prepared with light woollens and a rain jacket for the summer, and heavier clothes for the winter.

At an altitude of over 14,000 feet, the Nathu La is now open for domestic tourists. This is the highest point in Sikkim reachable by car, without the extra exertion of a trek. However, visitors with heart conditions or concerned about high-altitude sickness are advised to avoid this destination. The historically important Nathu La pass was the gateway to Tibet, and was used extensively by traders and porters travelling from Kalimpong and the plains on their way to Shigatse and Lhasa in the land of the snows. Now open once again after several decades, visiting the pass is a once in a lifetime experience. You can walk up to the army viewpoint and look beyond into China, where green-uniformed Chinese army personnel with red stars on their caps stand to attention. All around them, the stark alpine landscape

is interspersed with delicate primula blossoms and the unique Himalayan rhubarb shrub. visitors are advised to start for Nathu La as early in the day as possible to avoid inclement weather which typically arises in the afternoon. 35 kilometres away from Gangtok at an altitude of 12,400 feet (3780 metres) you reach the beautiful Tsomgo Lake. which freezes over in winter and is fed by melting snows from the surrounding mountains. Local legend holds that lamas could forecast the future by studying the colour of the lake's waters. Fishing is totally prohibited and visitors are requested not to pollute the environs of the lake with rubbish in order to maintain its sanctity. Although central Gangtok's main commercial thoroughfare is slightly less than a kilometre in length. M. G. (Mahatma Gandhi) Marg is lined with shops, hotels, restaurants, bars, bakeries, studios, cafes, pool rooms and curio shops. At the western end of the road, near the Thakurbari temple and overlooking the tourism information centre, stands the statue of unity, depicting the meeting of the British chieflain Khazim Bumza with the Lepcha leader Tsekong Tek.

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DATA ANALYSISYEAR - WISE INCREASE IN POPULATION

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Source: census of India

GROWTH RATE OF POPULATION

Population growth rate is the rate at which population is increasing. Population growth rate between 1901 and 1911 was 48.98% which has decreased to 12.89% between 2001 and 2011. The maximum growth of population (50.77%) took place between 1971 and 1981 (Table No.2 and Figure No.2)

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(1901 TO 2011)

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1951-1961	17.76
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1971-1981	50.77
1981-1991	28.47
1991-2001	33.06
2001-2011	12.89

SOURCE: COMPUTED BY THE AUTHOR

MALE-FEMALE POPULATION

Males constituted 65% of the population and females constituted 35% of the population in 2001 and 2011 (Figure No. 3).

LITERACY RATE

Literacy rate has increased from 58.86% in 2001 to 73.93% in 2011. Number of literates has increased from 318335 in 2001 to 449299 in 2011 (Figure No. 4)

SEX RATIO

Sex ratio is the number of females per thousand males. Sex ratio has improved from 875 in 2001 to 889 in 2011. Child sex ratio

Page No. 13

has also improved from 933 in 2001 to 944 in 2011.

DENSITY OF POPULATION

Density of population refers the number of persons per square kilometre. It has increased from 76 persons per square kilometre to 86 persons per square kilometre.

RURAL AND URBAN POPULATION

only 24.97% of the total population in 2011 is urban and the rest 75.03 percent is rural.

RELIGIOUS COMPOSITION

majority of the population are Hindus (58%), followed by Buddhists (27%) and Christians (10%) (Figure No. 5)

ETHNIC COMPOSITION

Bhutias constitute 39% of the population, followed by Limboo (26%) and Lepchas (21%) (Figure No. 6)

LANGUAGE GROUPS

majority are Nepali speaking population, followed by Hindi and Bhotia (Figure No. 7)

DISTRICT - WISE POPULATION

East district is the most populous, followed by south district, west district and north district (Figure No. 8)

CONCLUSION

Sikkim with its mountainous landscapes has a pristine environment. There are great variations in elevation ranging from 350m to 8495m. It has a population of above 6 lakhs and has an area of 7096 square kilometres. Population density is 86 persons per square kilometres as per census 2011. It is administratively divided into 4 districts. It is a culturally diverse state with varied language groups, ethnic and religious compositions. The lustrous Himalayan landscapes and a favourable weather have made the state, a favourite tourist destination. The clean and green image of Sikkim has made it the top tourist destinations of the world. Though population density is low, which is an obvious impact of terrain on population distribution but other demographic characteristics are quite significant. Literacy rate is 73.93%. Sex ratio is 944. Out of the 4 districts, East district is the most populous, the probable reason for this is the location of Gangtok, the state capital. Gangtok is the largest city in the state. Sikkim is an environmentally conscious state, banning the use of plastic specially the use of single

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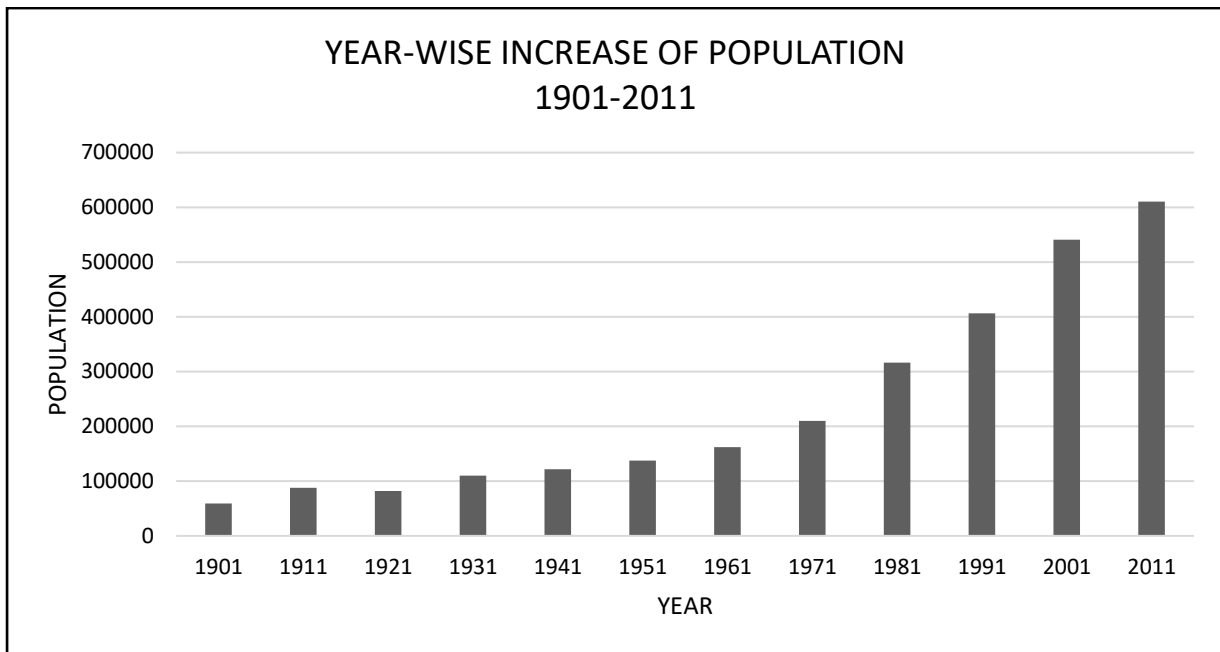


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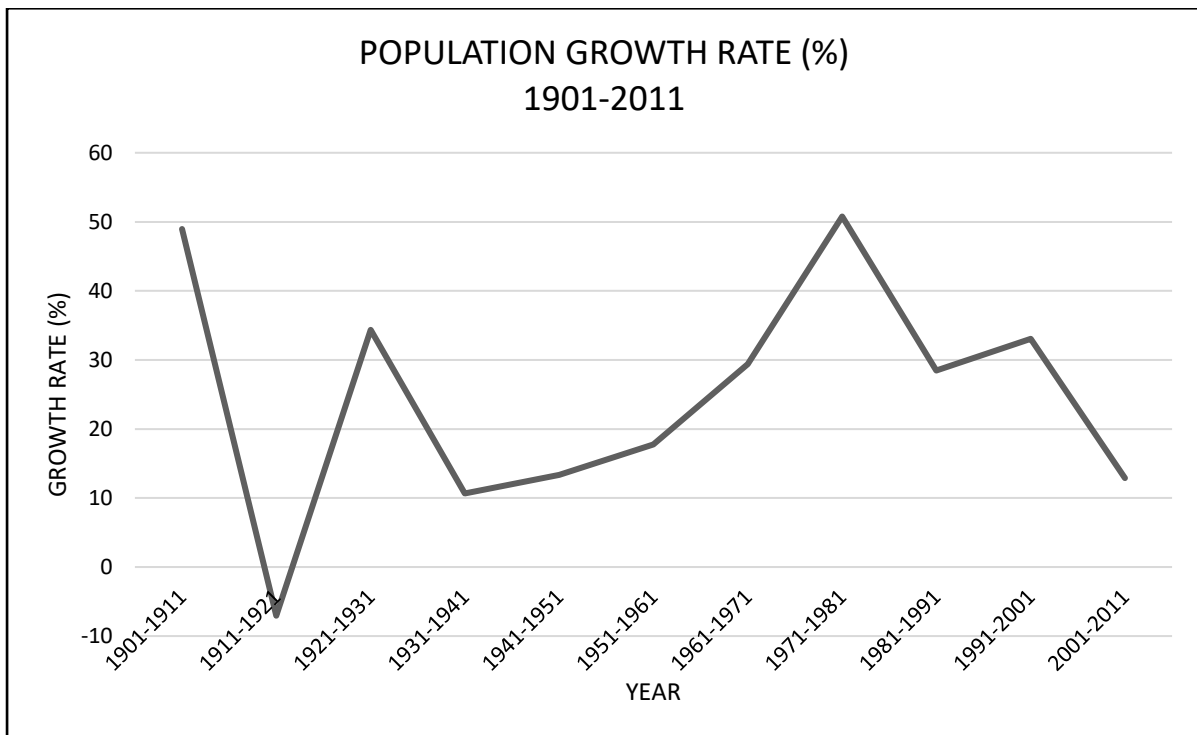


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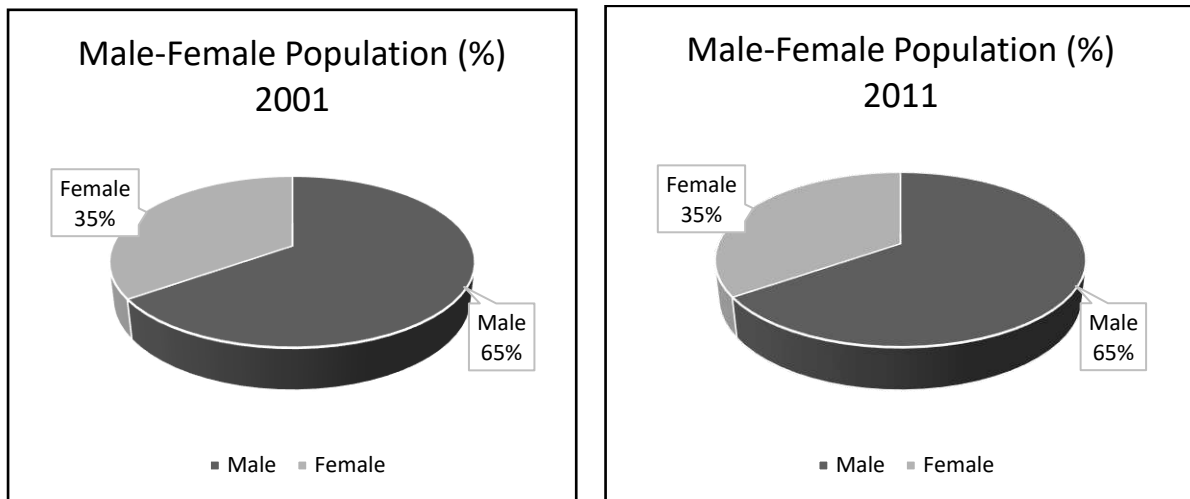


Figure No.4: Literacy rate (2001 and 2011)

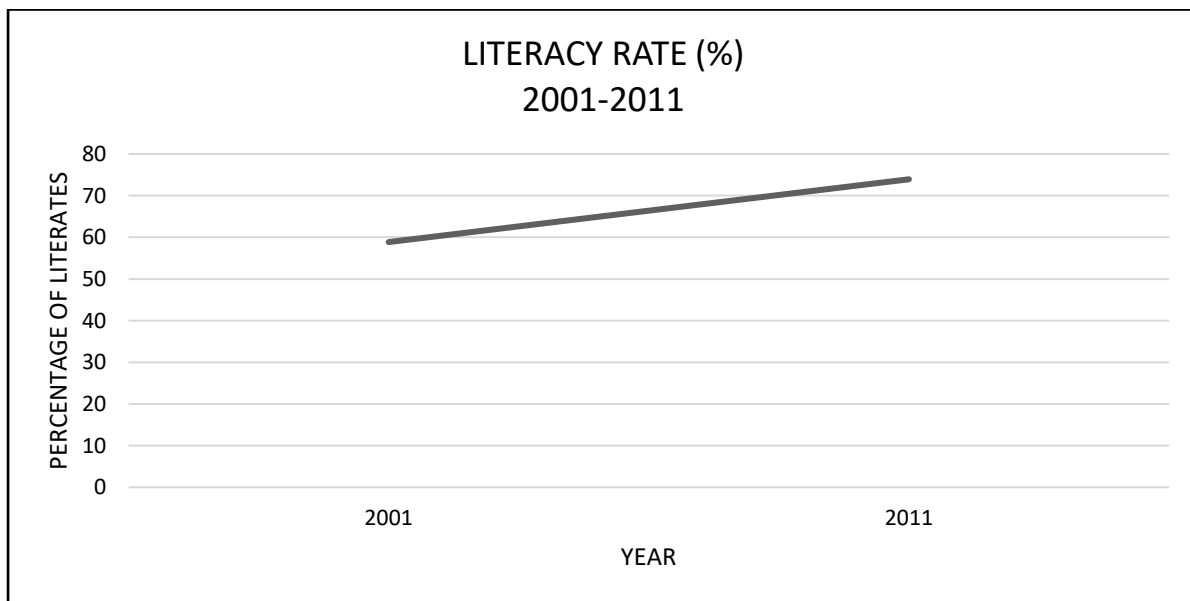


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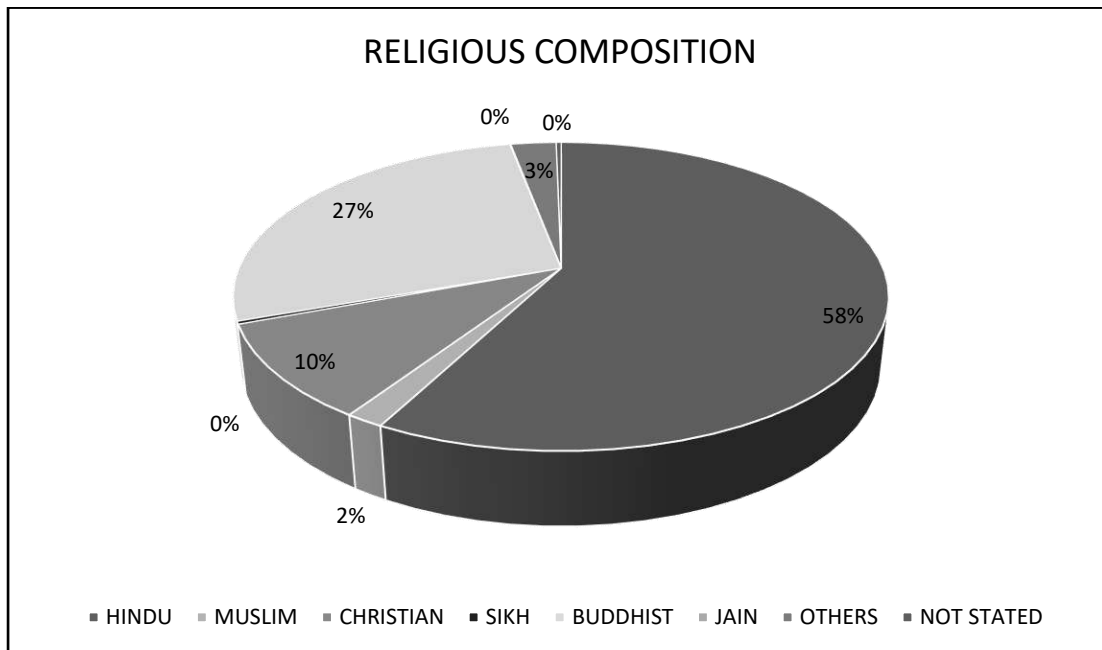


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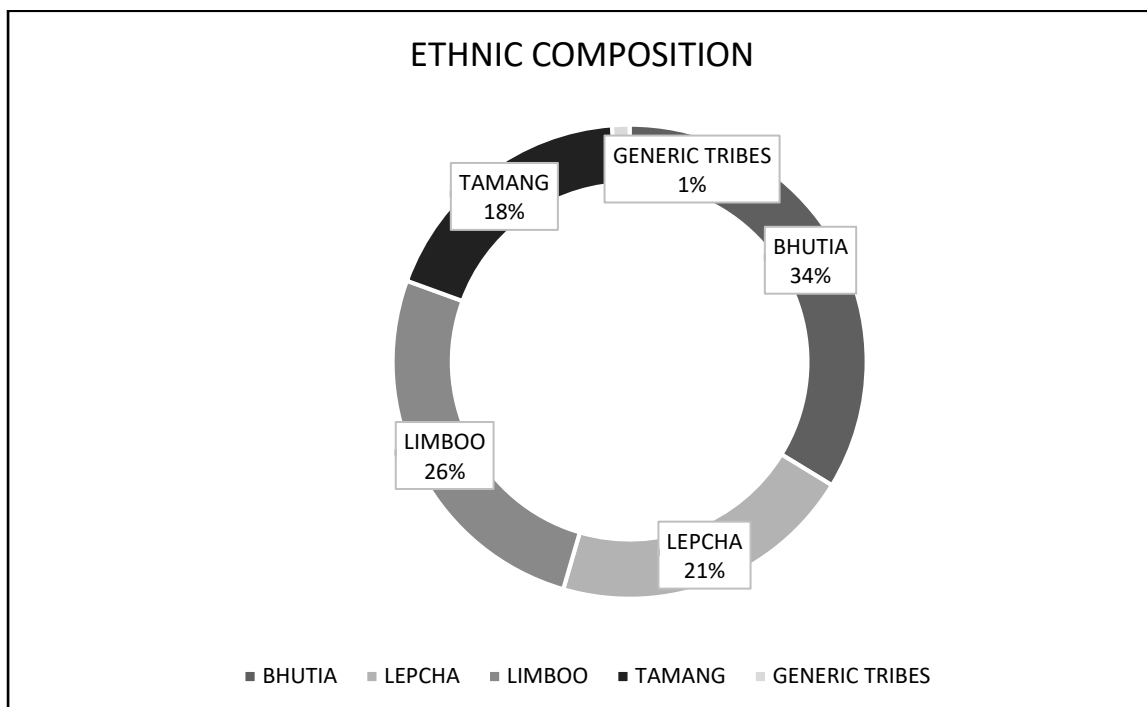


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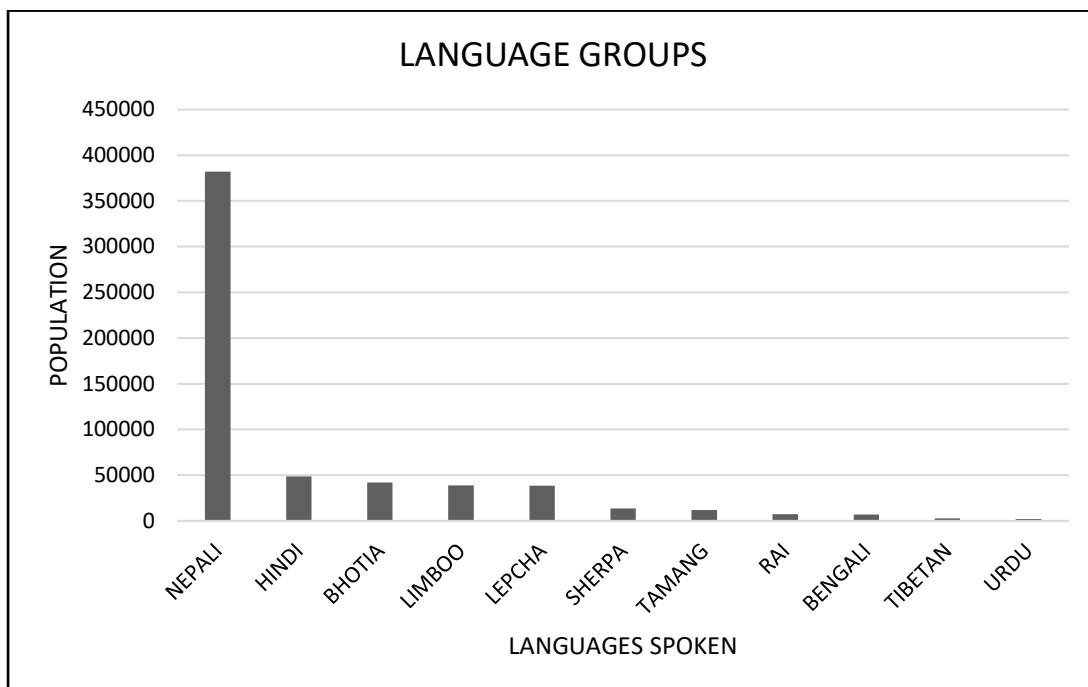
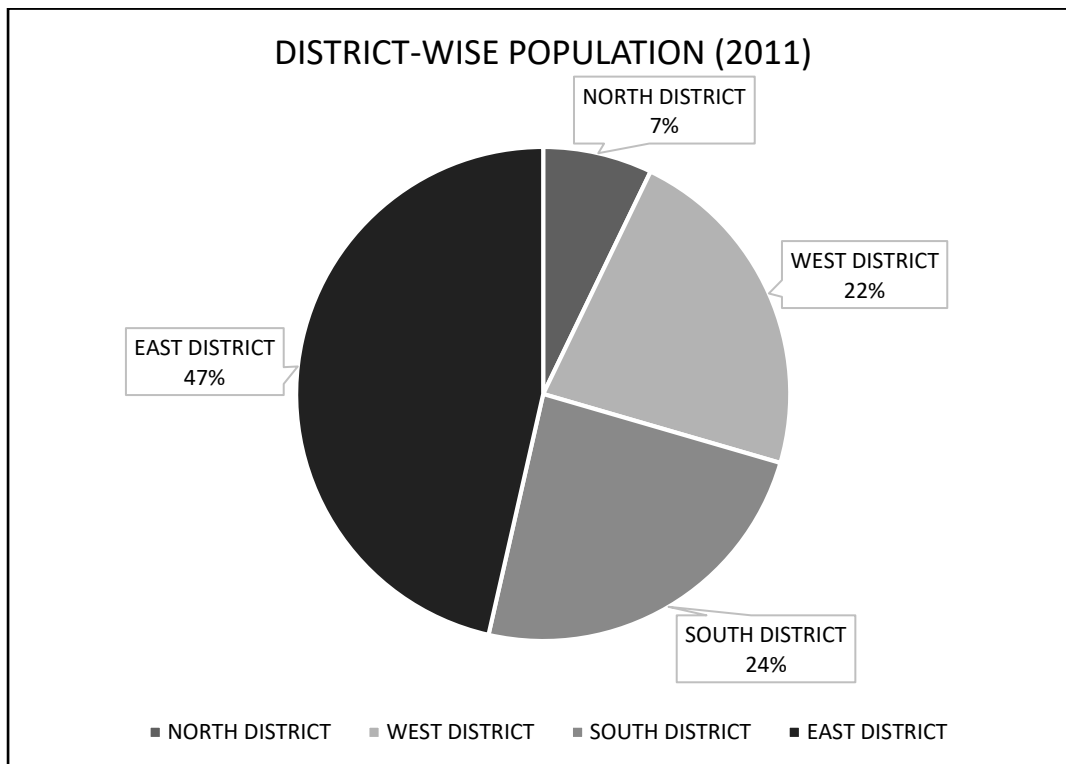


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