SOCIAL SCIENCE-IX

PART-I

PUNJAB SCHOOL EDUCATION BOARD

Sahibzada Ajit Singh Nagar

First Edition : 2018..... 38406 Copies

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Price : ₹ 106.00/-

Published by : Secretary, Punjab School Education Board, Vidya Bhawan Phase-VIII, Sahibzada Ajit Singh Nagar-160062. & Printed by Tania Graphics, Sarabha Nagar, Jalandhar City

FOREWORD

Punjab School Education Board, has been engaged in the endeavour to prepare textbooks for all the classes at school level. The book in hand is one in the series and has been prepared for the students of class IX. Punjab Curriculum Framework (PCF) 2013 which is based on National Curriculum Framework (NCF) 2005, recommends that the child's life at school must be linked to their life outside the school. The syllabi and textbook in hand is developed on the basis of the principle which makes a departure from the legacy of bookish learning to activity-based learning in the direction of child-centred system.

The success of this effort depends upon the steps that school principals and teachers will encourage pupils to reflect on their own learning and to pursue imaginative activities which will inculcate creativity. This initiative is possible if we perceive and treat children as participants in learning not only as receivers of a fixed body of knowledge. The methodology of teaching and evaluation will also determine how effective this textbook proves for making childern's life a happy learning experience at school, rather than a source of stress or boredom.

Geography part of the book will help to develop a balanced perspective related to issues concerning the environment, resources and development at different levels i.e. from local to global. Geography must be taught keeping in mind the need to inculcate a critical appreciations for conservation and environmental concerns in the child along with developmental issues particularly with special reference to the state they are living in.

The Economics component will enable students to observe economic institutions like the family, the market and the state. Economics is being introduced to the child at this level, it is important that the topics should be discussed from the perspective of the people. Board always welcomes suggestions for the improvement of the book in future.

Chairman

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GEOGRAPHY

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1.0 INDIA: AN INTRODUCTION

'The Republic of India' is a vast nation having numerous geographical features. India is the seventh largest country of the world and world's most populated nation after China. The total 17.5% population of world is living in just 2.4% area of the world (Census of 2011). The great Himalayan mountain, range situated in its north separates it from Asia and makes it a distinct geographical entity. The fertile plains of Satluj Ganga and Brahmaputra are providing food security. The peninsular plateau is a store house of minerals. India has some of the greatest rivers and lakes of the world and is surrounded by sea from three sides and these aspects makes our nation a sub-continent.

Largest countries of the world in terms of area

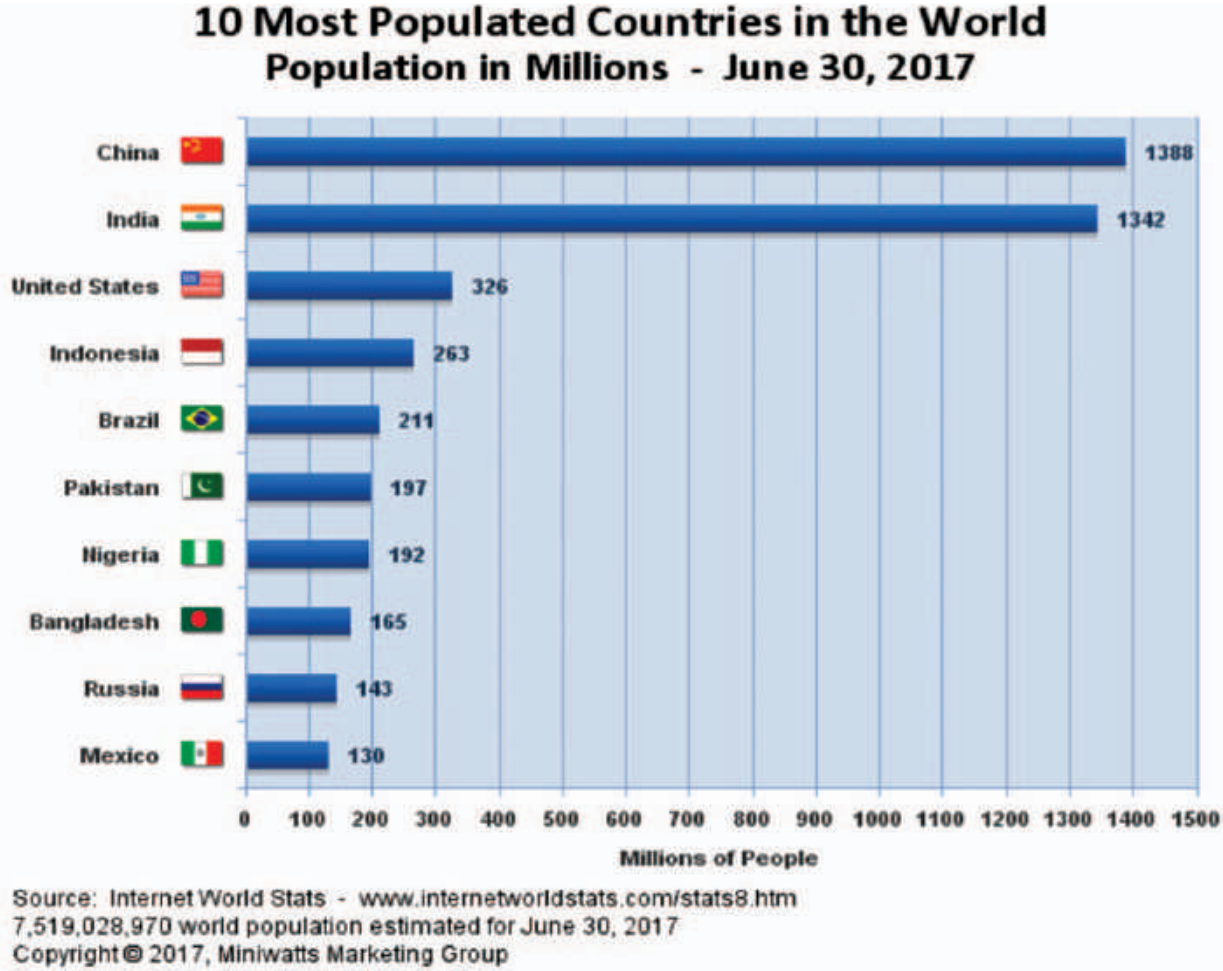
S.No.	Name of the country	Area (Square km)
1.	Russia	1,70,75,000
2.	Canada	99,76,140
3.	China	95,56,960
4.	United States of America	93,63,169
5.	Brazil	85,11,965
6.	Australia	76,82,300
7.	India	32,87,263
8.	Argentina	27,66,890
9.	Kazakhstan	27,17,300
10.	Algeria	23,81,740

Source : Economic and Social Department of U.N. (2013-14)

Ten largest countries of world in terms of population

S.No.	Name of the country	Population	Percentage
1.	China	1,36,52,70,000	19%
2.	India	1,24,59,50,000	17.5%
3.	U.S.A	31,82,92,000	4.4%
4.	Indonesia	24,74,24,598	3.45%
5.	Brazil	20,77,70,000	2.83%
6.	Pakistan	18,80,20,000	2.62%
7.	Nigeria	17,85,17,000	2.49%
8.	Bangladesh	15,65,29,000	2.18%
9.	Russia	14,60,00,000	2.04%
10.	Japan	12,70,90,000	1.77%

Source : Population on 1 June 2014, From the official websites respective countries



1.1 LOCATION OF INDIA

India is situated north of the equator between 8°.4' to 37°.6' north latitude and 68°.7' to 97°.25' east longitude.It is the seventh-largest country in the world, with a total area of 32,87,263 square kilometre. It has a land frontier of 15,200 km and a coastline of 7,516.6 km.

India:Latitudes and Longitudes

India measures 3,214 km from Dafdar (J&K) in north to Kanyakumari (Cape Commorin) in south. It measures 2,933 km from Kibithu, Arunachal Pradesh in East to Guhar moti (Gujarat) in the west. The southern most point of India is Indira Point located in Car Nicobar Island in Indian Ocean.

There is a difference of around 30° between eastern and western most extent of India. Earth rotates on its axis from west to East. It completes its one full rotation i.e. 360° in 24.6 hours or by 1° in every 4 minutes. It means, it rotate 30° in 120 minutes (30 × 4 = 120 minutes) therefore actual time difference of 2 hours exists between eastern and western points of India, therefore, when sun rises in Arunachal Pradesh there is still dark in Gujarat and Maharashtra.

You must have heard about the Indian standard time, which is based on 'Standard Meridian' (82°.30' East longitude). It passes through Allahabad (Uttar Pradesh). Indian Standard time is 5.30 hours ahead to 0° i.e Prime Meridian which passes through Greenwich (England).

INDIA IN THE WORLD

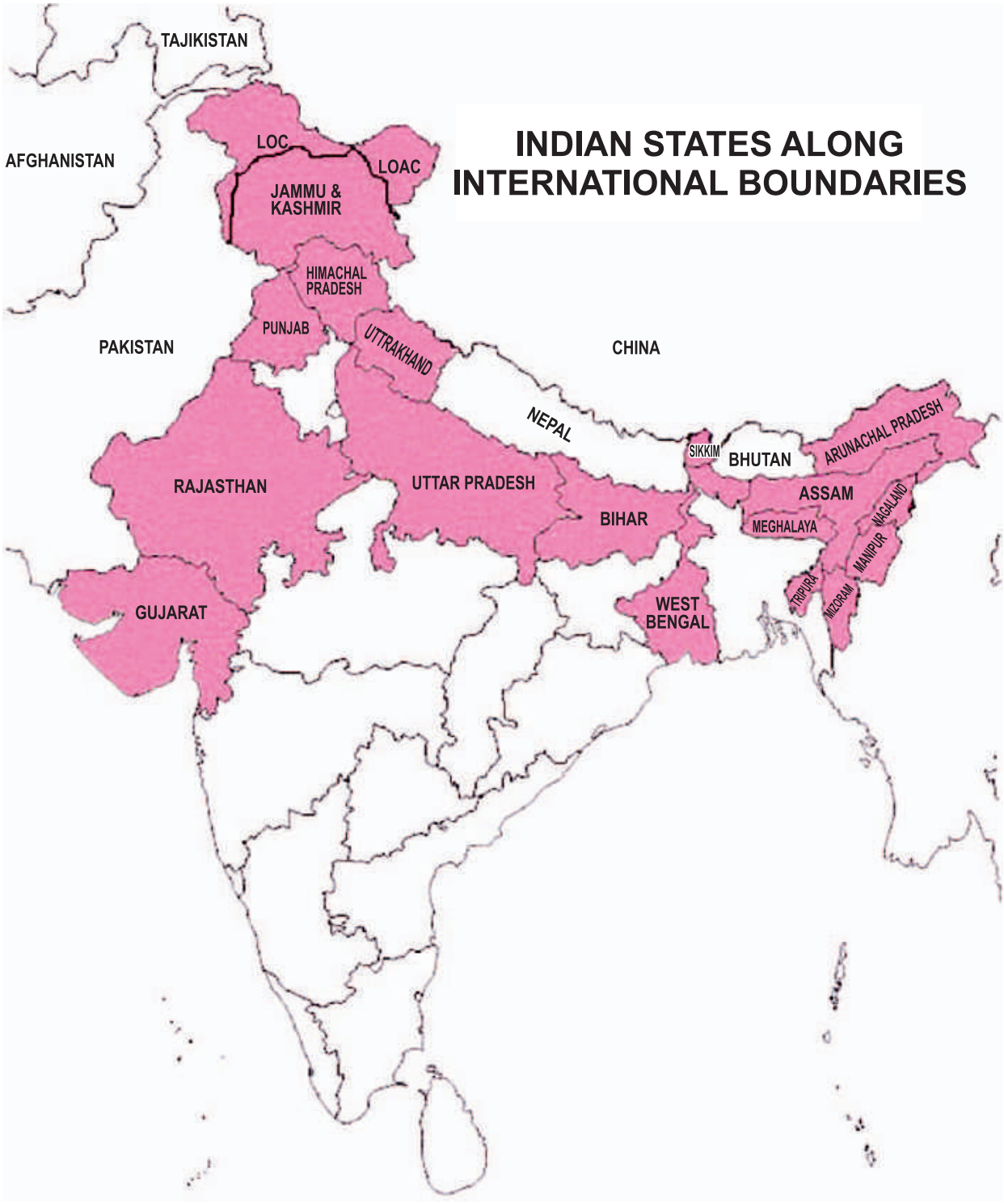
India is situated in south of Asia which is largest continent of the world. The high altitude Himalayan range is situated in its north and Indian ocean lies towards its south. The peninsular plateau is surrounded by Arabian sea in west and Bay of Bengal in the East. The Tropic of Cancer passes exactly through the middle of the country, which divides it into two equal halves. India shares its land frontiers with seven countries which include Myanmar, Afghanistan, Pakistan, Nepal, Bangladesh, Bhutan and China.

Map : India in World

India shares longest border with Bangladesh and its length is 4,096 km while shortest boundary lies with Afghanistan which is only 80km.

Length bifurcation of India's international border

S.No.	Name of the country	Length of border (KM)	Percentage
1.	Bangladesh	4,096	26.95%
2.	China	3,917	25.77%
3.	Pakistan	3,310	21.78%
4.	Nepal	1,752	11.55%
5.	Myanmar	1,458	9.59%
6.	Bhutan	587	3.86%
7.	Afghanistan	80	0.52%



INTERNATIONAL TRADE OF INDIA

India's 96% of total trade takes place through the oceans since India is surrounded by sea from three sides. India has trade relations with U.S.A Canada, Europe, Asia, Africa and with almost all the nations of the world. The Trade relations got boost

with American and European countries after the opening of Suez Canal. India has got a important place in the South Asian Association for Regional cooperation (SAARC) because of its geopolitical position in Indian Ocean. SAARC in a group of eight nations namely; (1) Afghanistan (2) Bangladesh (3) Bhutan (4) India (5) Maldives (6) Nepal (7) Pakistan (8) Srilanka

INDIAN POLITICAL ADMINISTRATION

India is administratively divided into 29 states (provinces) and 7 union territories. The detailed information about there is included in the chart and map given below:

India : Political

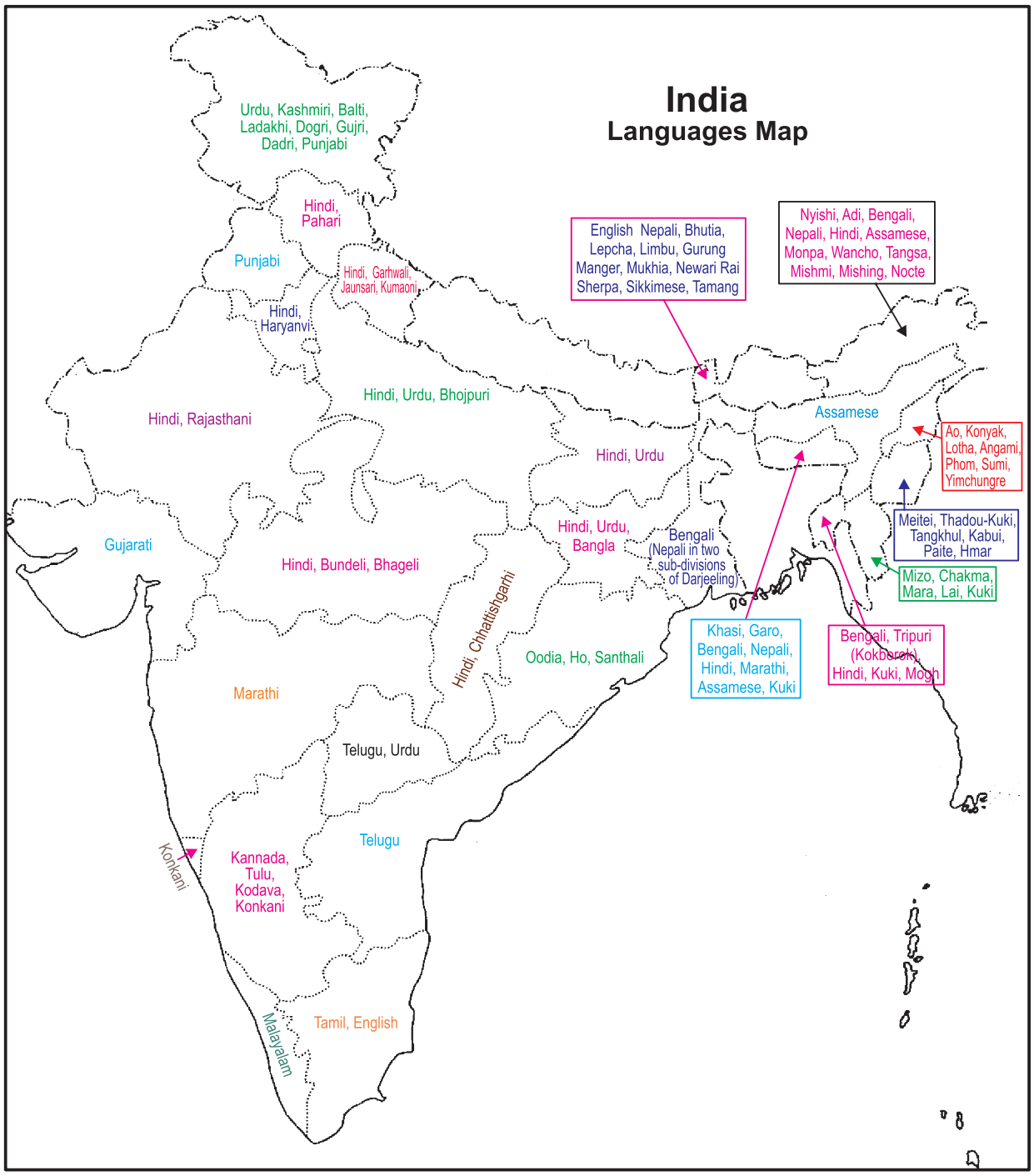
S.No.	State/U.T.	Capital	Area (Square km)	Principal Language
1.	Andhra Pradesh	Hyderabad	1,60,205	Telugu, Urdu
2.	Arunchal Pradesh	Itanagar	83,743	Adi, Aka, Nepali Diqur, Monpa, Nayishi ,Mishmi, Khentei, Agma, Vancho
3.	Assam	Dispur	78,438	Assmese, Bodo
4.	Bihar	Patna	94,163	Hindi, Urdu
5.	Chhattisgharh	Raipur	1,36,034	Hindi, Chhattisgarhi
6.	Goa	Panaji	3,702	Marathi, Konkani
7.	Gujarat	Gandhinagar	1,96,024	Gujarati

Contd.

8.	Haryana	Chandigarh	44,212	Hindi, Punjabi, Haryanvi
9.	Himachal Pradesh	Shimla	55,673	Hindi Pahari, Punjabi
10.	Jammu and Kashmir	Srinagar	2,22,236	Urdu, Kashmiri, Balti, Ladakkhi, Dogri, Gujari, Dadri, Punjabi
11.	Jharkhand	Ranchi	79,714	Hindi, Bangla
12.	Karnataka	Bangaloro	1,91,791	Kannada
13.	Kerala	Tiruvanthapuran	38,863	Malyalam
14.	Madhya Pradesh	Bhopal	3,08,252	Hindi, Bundelkhandi,
15.	Maharashtra	Mumbai	3,07,713	Marathi
16.	Manipur	Imphal	22,429	Manipuri, English
17.	Meghalaya	Shillong	22,429	Khasi, Garo English
18.	Mizoram	Aizwal	21,081	Mizo, English
19.	Nagaland	Kohima	16,579	Aco, konyak, Angmi jema, zothe
20.	Odisha	Bhubneshwar	1,55,820	Oriya
21.	Punjab	Chandigrah	50,362	Punjabi
22.	Rajasthan	Jaipur	3,42,239	Hindi, Rajasthani

Contd.

23.	Sikkim	Gangtok	7,096	Lepcha, Bhotia Limbu, Sikkim, Nepali
24.	Tamil Nadu	Chennai	1,30,058	Tamil
25.	Telangana	Hydrabad	1,14,840	Telugu, Urdu
26.	Tripura	Agartala	10,492	Bangla, Kokbarak
27.	Uttar Pradesh	Lucknow	243,286	Hindi, Urdu, Bhojpuri
28.	Uttrakhand	Dehradun	53,484	Hindi
29.	West Bengal	Kolkata	88,752	Bangla
Union Territories				
1.	Andaman and Nicobar	Port blair	80,73	Bangla, Nicobari Hindi, Tamil, Telgu
2.	Chandigarh	Chandigarh	114	Punjabi, Hindi
3.	Dadra and Nagar Haveli	Silvasa	491	Gujarati, Hindi
4.	Daman and diu	Daman	102	Gujarati, Marathi
5.	Delhi (National Capital Region)	Delhi	1484	Hindi, Punjabi, Urdu
6.	Lakshadweep	Kavaratti	32	Malyalam
7.	Puddncherry	Pudducherry	492	Tamil Telugu, Malyalam, English, French


India
Languages Map
Urdu, Kashmiri, Balti, Ladakhi, Dogri, Gujri, Dadri, Punjabi
Hindi, Pahari
Punjabi
Hindi, Garhwali, Jaunsari, Kumaoni
Hindi, Haryanvi
English Nepali, Bhutia, Lepcha, Limbu, Gurung Manger, Mukhia, Newari Rai Sherpa, Sikkimese, Tamang
Nyishi, Adi, Bengali, Nepali, Hindi, Assamese, Monpa, Wancho, Tangsa, Mishmi, Mishing, Nocte
Hindi, Urdu, Bhojpuri
Hindi, Rajasthani
Assamese
Ao, Konyak, Lotha, Angami, Phom, Sumi, Yimchungre
Hindi, Urdu
Meitei, Thadou-Kuki, Tangkhul, Kabui, Paite, Hmar
Gujarati
Hindi, Urdu, Bangla
Bengali (Nepali in two sub-divisions of Darjeeling)
Hindi, Bundeli, Bhageli
Mizo, Chakma, Mara, Lai, Kuki
Hindi, Chhattishgarhi
Khasi, Garo, Bengali, Nepali, Hindi, Marathi, Assamese, Kuki
Bengali, Tripuri (Kokborok), Hindi, Kuki, Mogh
Oodia, Ho, Santhali
Marathi
Telugu, Urdu
Telugu
Konkani
Kannada, Tulu, Kodava, Konkani
Tamil, English
Malayalam

CHAPTER AT A GLANCE

- India is second most populated and seventh largest country of the world.
- Mighty Himalayas separate India from Asia to give it identity of sub-continent.
- India's North-South expansion is 3,214 km, while East-West extent is 2933 km.
- Indian Standard Time is advance by 5 hrs 30 min as compared to Greenwich Meridian Time.
- There are nine neighbouring countries around India which share their borders with us.
- India's land boundary is 15,200 km long while coastline measures 7,516 km.
- SAARC means South Asian Association for Regional Co-operation.
- India has 29 States and 7 Union Territories.
- Chandigarh and Hyderabad are two cities which are capitals of more than one state.
- Delhi is National Capital Territory while New Delhi is capital of India.

EXERCISES

A Map Work

Show in the outline map of India :

(*i*) Indian Standard Meridian $\left(82\frac{1}{2}^{\circ}\text{E}\right)$

(*ii*) Tropic of Cancer

(*iii*) States and Territories using Punjabi as their language.

(*iv*) Two neighbours of India the boundries of which do not touch Sea.

(*v*) India's neighbouring island country.

ACTIVITY

(*i*) Colour India's neighbouring SAARC nations in a map and display map in class room.

(*ii*) Show 29 states and 7 union territories with their capitals in two outline maps of India.

B Objective Type Questions

Answer the following questions in a single word to one sentence length :

1. Which country stands third in the world on the basis of area ?
2. Which country is fifth in the world on the basis of area and population ?
3. Saurashtra is region of which state among the following :
   (*i*) Manipur (*ii*) Gujarat (*iii*) Maharashtra (*iv*) Nagaland
4. Which city among the following is not a capital :
   (*i*) Raipur (*ii*) Ahmedabad (*iii*) Ranchi (*iv*) Panaji
5. Which latitudinal extent among following is right for India :
   (*i*) 8º.4′ N to 37º.6′ N (*ii*) 8º.4′ S to 37º.6′ S
   (*iii*) 6º.2′ N to 35º.2′ N (*iv*) 6º.2′ S to 35º.2′ S
6. What is the constitutional name given to India?

C Short Answer Questions

Give short answers for the following questions :

1. Name the northern, southern, eastern and western extents of India.
2. Write a note on Indian Standard Meridian.
3. Explain the difference of two hours in time of Arunachal Pradesh and Gujrat.
4. Which languages are used in Jammu & Kashmir and Telangana?
5. Write a short note on SAARC.

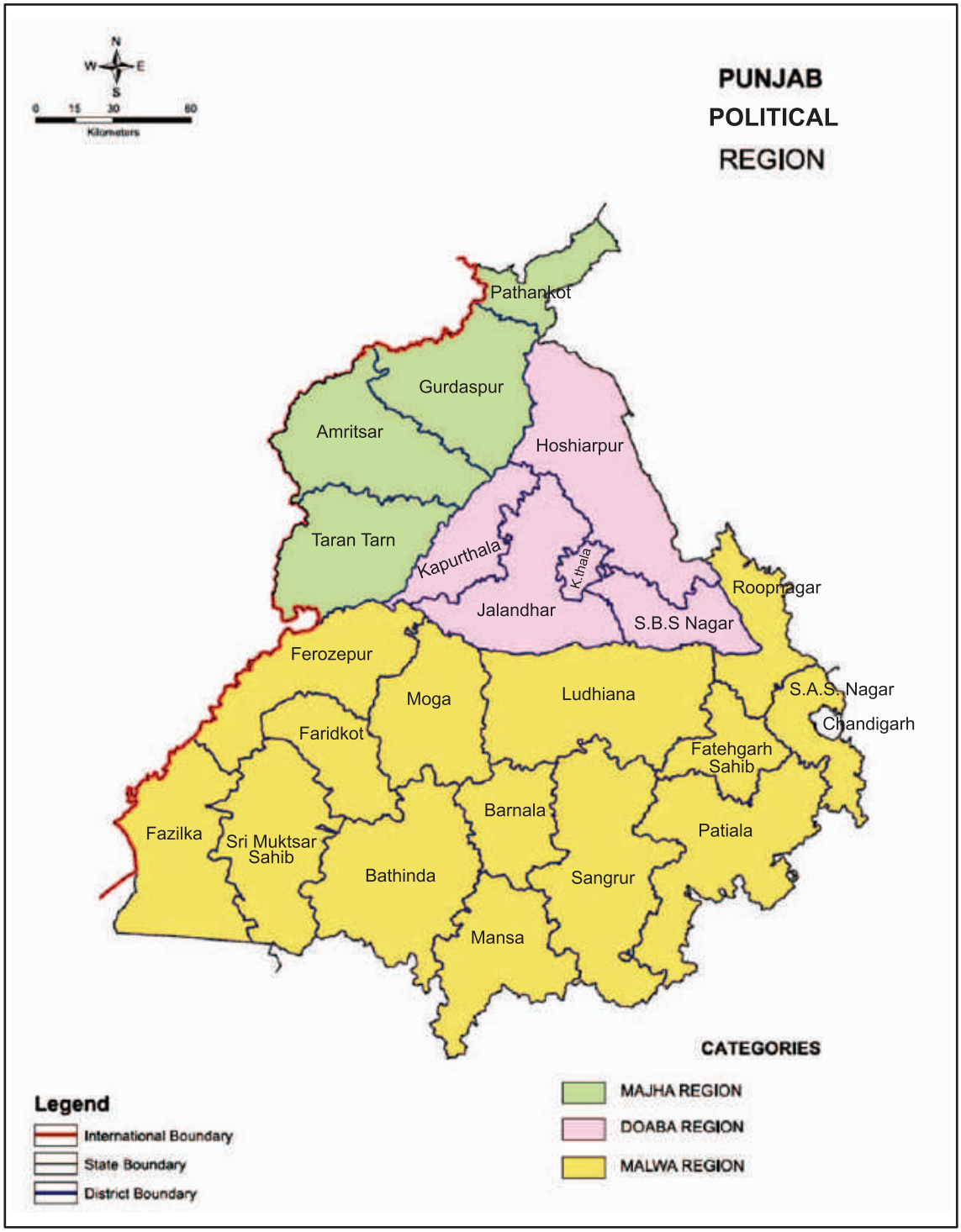
D Long Answer Questions

Answer the following questions in detail :

1. Give details of India's international trade.
2. Write names of any 10 states and 5 union territories of India with their capitals.
3. Distribute India politically and explain biggest and smallest state on the basis of area.

* * *

1 (b) Punjab : Size and Location



PUNJAB : AN INTRODUCTION

Punjab is a land of five rivers. Its geographical location has a special importance for Indian sub-continent. Punjab is also known as creator of history and culture of India. It remains a home of one of the oldest civilization, which include cities like Harrapa and Mohanjodaro, Indus valley civilization. Punjab has remained a gateway to the foreigners. Aryans, Greeks, Kushans, Ghaznavi, Taimoors, Mughals, Afghans entered India through Punjab and changed the history and culture of the land.

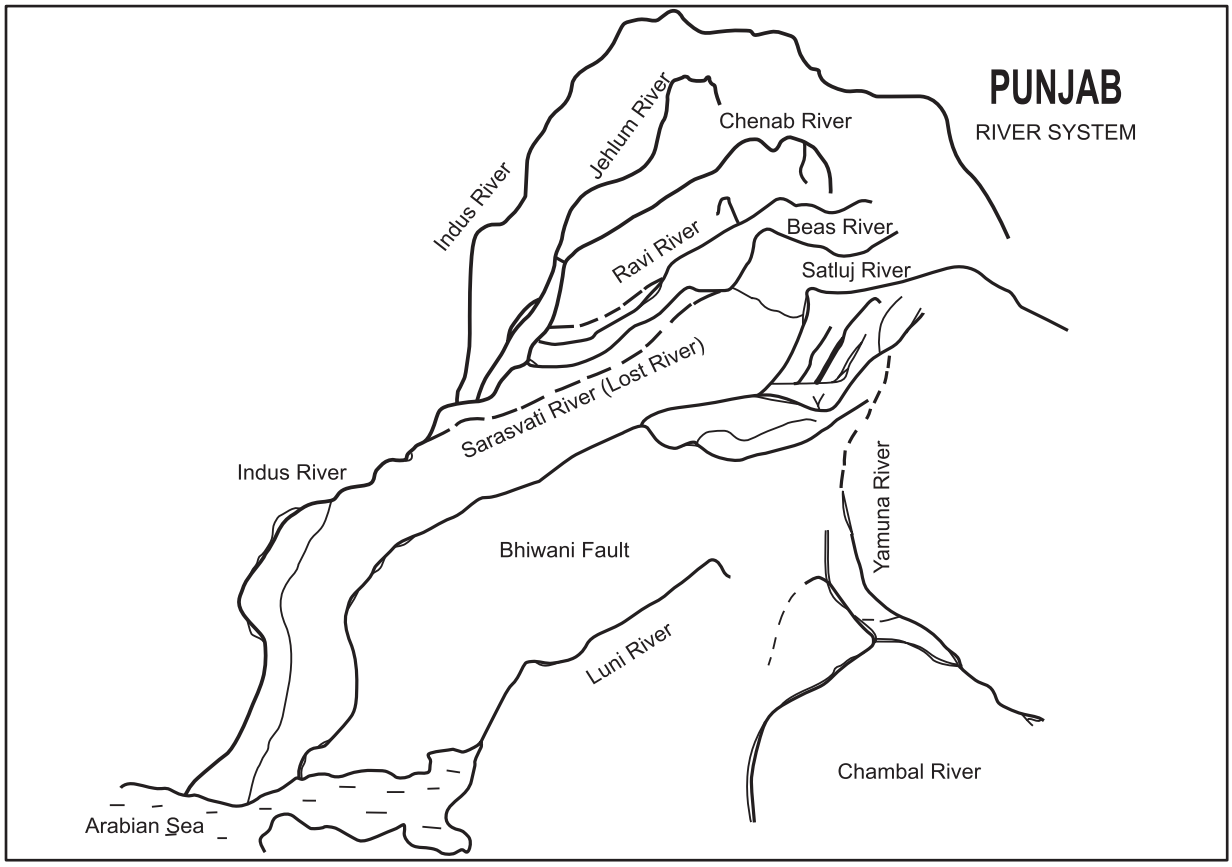
GEOGRAPHICAL HISTORY OF PUNJAB

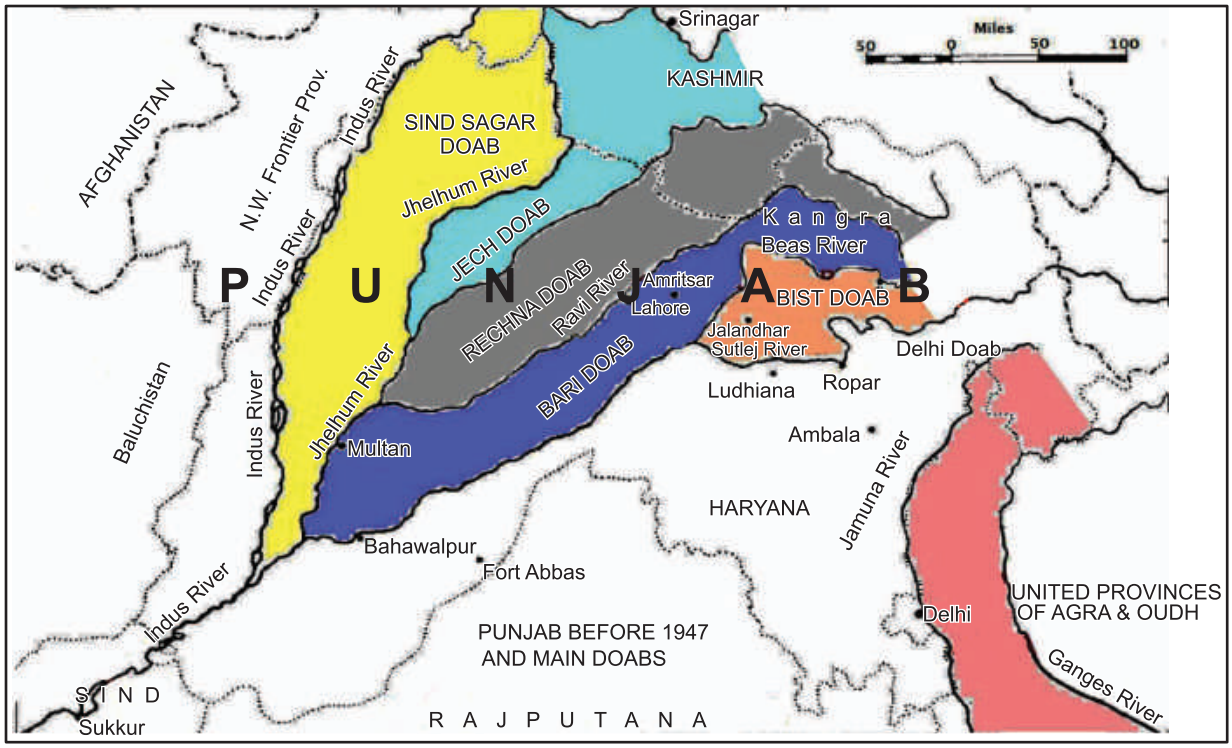
Word 'Punjab' is formed by the combination of two Persian words 'Punj' which means five and 'Aab' which means water. So the word 'Punjab' means land of five rivers. In Rigveda (One of the most ancient scripture of Aryans), Punjab is mentioned as 'Sapt Sindhu' or 'Land of Seven rivers'. In Puranas, Punjab is mentioned as 'Panchand' and 'Pantapotamia' the name was given to this land by Greeks which also means 'Land of five rivers'. According to a great historian, Alexander Cunningham, 'Tak' Tribe was once living in Punjab and therefore it was also known as 'Tak' Pradesh' During the rule of Maharaja Ranjit Singh, the borders of Punjab in North-West region was known as Lahore state.

Following are the Seven rivers of Punjab.

Name of River	Ancient name	English-Roman name
Sindh	Sindhu	Indus
Jehlum	Vitista	Jehlum
Chenab	Askini	Chenab
Ravi	Purushni	Ravi
Beas	Vipasa	Beas
Satluj	Shutudri	Satluj
Sarswati	Sursuti	Saraswati

After the partition in 1947, most of the fertile part of Punjab went to Pakistan. Only 34% part of undivided punjab became the part of India and moreover the large network of canal irrigation system also went to Pakistan.





On 15th 1948, the princely state of Punjab which included Patiala, Nabha, Malerkotla, Jind, Kapurthala, Faridkot, Nalagarh and Kalsia, were combined and a new state PEPSU (Patiala and East Punjab States Union) was formed. In 1956 Indian States were reorganised and 'PEPSU' was merged to form united Punjab. It was one of the bases of Shah commission recommendations. On 1st November, 1966, Punjab was again divided on the linguistic basis, and two new states Himachal Pradesh and Harayana were carve out of it.

PUNJAB : PRESENT STATUS

Punjab is situated in North-West of India. Pakistan lies towards in its West, Himachal Pradesh on its East, Harayana towards its South and Rajasthan is situated towards its South-West. Punjab extents from the latitudes 29°.30' North to 32°.32' North and longitudes 73°.55' East to 76°.50' East. Its total area is 50,362 square kilometer. It consists of 1.6% of total land area of India. On the basis of size it is at 20th place among 29 states of India.

Regional Distribution of administrative districts

Majha Region	Doaba Region	Malwa Region	Puadh Region
1. Sri Amritsar	5. Hoshiarpur	9. Barnala	19. Fatehgarh Sahib
2. Gurdaspur	6. Jalandhar	10. Bathinda	20 Patiala
3. Pathankot	7. Kapurthala	11. Faridkot	21. Roopnager
4. Taran Taran Sahib	8. Shaheed Bhagat Singh Nagar (Nawanshehar)	12. Fazilka	22. Sahibzada Ajit Singh Nagar (Mohali)
		13. Ferozepur	
		14. Ludhiana	
		15. Mansa	
		16. Moga	
		17. Sri Mukatsar Sahib	
		18. Sangrur	

First District of Punjab, Amritsar, literally means, the pool of nector (Amritsar). The old name of this place was 'Chakk Ramdas' and this city has remained known as major business hub since its inception. Gurdaspur city was established in 16th

centunary. This districts's town Kalanaur is the place where Mughal king Akbar attained crown while another town Batala is known for its cottage industry. District of Pathankot was carved out of Gurdaspur in 2011. This district in the foothill of Shiwaliks is smallest district of Punjab. District Tarn Taran was carved out of Amritsar in 2006, although this city was on the old Delhi-Lahore road and was established by Guru Arjan Dev Ji.

District Hoshiarpur has a mixed topography. Most of its area is mountainous, while some part is plain. Its town Mahilpur is known as nursery of Football while Tanda-Urhmurh is known for its small scale furniture and musical instruments industries. Jallandhur, another historical city of Punjab is major Media centre. Once the city was known for cottage industry of sports goods. A village in this district, Sansarpur, is known as nursery of Hockey.

Kapurthala is a former princely city where, J.C.T. Mills and Pushpa Gujral Science city have given it a new identity after 1947. Saheed Bhagat Singh Nagar, also known as Nawashahar was made district in 1995. Barnala was also once part of Princely state of Patiala and came up as a district is 2006 only. It is known as most thinly populated district as per 2011 census. Bathinda is heart of Malwa region and finds its refrences in writings of Ibn-Babuta also. First female Muhammadan ruler of (Delhi Sultanate), India, Begum Razia Sultan too stayed here for some time. This city is big junction of Railways presently. Faridkot was formed as district in 1972 and named after sufi saint, Baba Sheikh Farid Ji. Two more districts were carved out of it in 1995.

District Fazilka is 21st district of Punjab which lies in cotton producing belt and is known for production of kinow and other citrus fruits. The climate of this region to also similer to Mediterranean climate. Ferozepur is a historical and old district which was there even before 1947. Ludhiana was inhabited by rulers of Lodhi Dynasty in 1480 and is famous for hosiery industry and Punjab Agriculture University. Mansa came up as a district in 1992 and is better known as 'Land of white gold' for lying in rich cotton growing region. Moga was made 17th district of Punjab is 1995. The town was second largest centre of Christanity after Ludhiana during British rule. Mukatsar also finds its inception in 1995 while its name finds relation with historical events connected with Sri Guru Gobind Singh Ji. Sangrur, once capital of Jind State in known for diversity found in the district. Its southern region resembles of puadhi region.

Fatehgarh Sahib, named at the youngest Sahibzada of Guru Gobind singh Ji, Baba Fateh Singh, came up as district in 1992. Patiala is former princely state and has remained capital of PEPSU (Patiala and East Punjab States Union) till 1955. Known

educational hub, it lost its area to two districts. Roopnagar also known as Ropar earlier was used to be inhabited even in 11th century. Situated at the banks of Satluj, this city formed boundary of Maharaja Ranjit Singh's empire. Towards its west, Sahibzada Ajit Singh Nagar came up as a district is 2006 and is still better known as Mohali.

Administrative setup of Punjab

Sr. No.	District	Tehsil or sub division	Sub Tehsil	Block
1.	Amritsar	Amritsar-I Amritsar-II Baba Bakala Ajnala	Majitha Attari Tarsika Lopoke Ramdas	Tarsika Rayya Ajnala Chogawnaa Majitha Verka Jandiala Guru Harsha Chhina Attari
2.	Gurdaspur	Gurdaspur Batala Dera Baba Nanak	Kahnuwaan Kalanaur Dinanagar Naushehra Majha Singh Dhariwal Sri Hargobindpur Kadiyan Fatehgarh Churiyan	Kalanaur Fatehgarh Churi your Batala Sri Hargobindpur Dinanagar Kahnuwan Dhariwal Gurdaspur Kadian Dera Baba nanak Dorangla
3.	Pathankot	Pathankot Dharkalan	Narrot Jaimal Singh Bamiyal	Bamiyal Dharkalan Narot Jaimal Singh Pathankot Sujanpur Gharota
4.	Tarn Taran	Tarn Taran Patti Khadoor Sahib	Jhabaal Chohla Sahib Naushahra	Khadoor Sahib Naushahra Pannua Gandiwind

Contd.

			Pannua Khemkaran Harike Bhikhiwind Goindwal Sahib	Tarn Taran Valtoha Bhikhiwind Chohla Sahib
5.	Kapurthala	Kapurthala Phagwara Sultanpur Lodhi Bhulath	Dhilwan Talwandi	Kapurthala Phagwara Nadala Sultanpur Lodhi
6.	Jalandhar	Jalandhar-I Jalandhur-II Nakodar Shahkot Phillaur	Admapur Bhogpur Kartarpur Mehatpur Lohian Noormahal Goraya	Jalandhar West Noormahal Rurka Kalan Adampur Nakodar Jalandhar East Shahkot Bhogpur Phillaur Lohiyan khas Mehatpur
7.	Shaheed Bhagat Singh Nagar (Nawan-shehar)	Nawanshehar Balachour Banga		Nawashehar Sarhoya Balanchaur Banga
8.	Hoshiarpur	Hoshiarpur Dasuya Mukerian Garhshankar	Talwara Tanda Garhshankar Talwara Mahilpur	Hoshiarpur-I Hoshiarpur-II Tanda Mukarian Bhoonga Mahilpur Garhshankar Hajipur Dasuya
9.	Roopnagar	Roopnagar Anandpur Sahib	Noorpur Bedi Morinda	Roopnagar Morinda

		Chamkaur Sahib Nangal		Noorpur Bedi Anandpur Sahib Chamkaur Sahib
10.	Sahibzada Ajit Singh Nagar	Mohali, Dera Bassi Kharar	Banur Majri	Dera Bassi Kharar
11.	Ludhiana	Ludhiana (East) Ludhiana (West) Jagraon Payal Samrala Raikot Khanna	Kumkum Kalan Dehlon Mullanpur Dabha Sahnewal Sidhwan Bet Malaud Machhiwara	Sudhar Machhiwara Pakhowal Dehlon Sidhwan Bet Doraha Khanna Raikot
12.	Ferozepur	Ferozepur Zira Guru Harsahai	Talwandi Bhai Mamdot Makhoo	Ferozepur Ghall Kalan Guru Harsahai Makhoo Mamdot
13.	Faridkot	Faridkot Kotkapura Jaiton	Sadik	Faridkot Kotkapura
14.	Mukatsar	Mukatsar Mallot Giddarbaha	 Lakheywali Lambi Doda	Mallot Lambi Giddarbaha Muktsar
15.	Bathinda	Bathinda Rampura phool Talwandi sabo	Sangat Nathana Goniyana mandi Bhagta Bhaika Baleyan wali Maurh	Sangat Bathinda Talwandi sabo Maurh Rampura phool
16.	Mansa	Mansa Budhlada Sardulgarh	Bhikhi Jogga Bareta Jhunir	Mansa Bhikhi Budhlada Jhunir

17.	Moga	Moga Dharamkot Baghapurana Nihal singh Wala	Kot Ise Khan Badhni Kalan	Moga-I Moga-II Nihal singh wala Kot Ise Khan Baghapurana
18.	Sangrur	Sangrur Sunam Dhuri Malerkotla Moonak Lehra	Bhwanigarh Longowal Dirba Chema Sherpur Ahmedgarh Amargarh Khanauri	Sangrur Malerkotla-I Malerkotla-II
19.	Barnala	Barnala Tapa	Dhanaula Mehal kalan Bhadaur	Barnala Shehna Mehal kalan
20.	Patiala	Patiala Nabha Samana Rajpura Patran	Dudan Sadhan Bhadson Ghanaur	Patiala Ghanaur Nabha Samana Bhunarke Sanaur Patran
21.	Fatehghar Sahib	Fatehgarh Sahib Bassi pathana Amloh Khanna	Mandi Gobindgarh	Khanna Amloh Bassi pathana Sirhind
22.	Fazilka	Fazilka Jalalabad Abohar	Armiwala Shekh Subhaan Seeto Gunno Khoohiyan Sarwar	Khoohiyan sarwar Abohar Jalalabad Fazilka

Punjab has 5 divisions namely; Jalandhar, Patiala, Ferozepur, Faridkot and Roopnagar

Districts : 22

Sub Division : 86

Block : 145

Source : Punjab Statistical Department, 2012

CHAPTER AT A GLANCE

- ☞ Ruling cultures of Aryans, Greeks, Kushans, Gaznavis, Taimurs, Mughals and Afghans have contributed in shaping culture of Punjab.
- ☞ Ancient names for Punjab had been Sapt Sindhu, Panchnad, Pantopotamia and Tuk Pradesh.
- ☞ Present Punjab (Eastern Punjab) is merely 20% of the pre-partition Punjab in area.
- ☞ PEPSU (1948-1956) State included area of formerly princely states of East Punjab.
- ☞ Punjab constitutes of 5 administrative divisions, 22 districts, 86 sub-divisions and 145 blocks.
- ☞ Smallest district of Punjab is Pathankot.
- ☞ Ancient names of Satluj, Beas and Ravi were Suttdari, Vipasa and Purshani respectively.
- ☞ Kapurthala, Patiala, Sangrur, Nabha, Malerkotla are former princely cities of Punjab.
- ☞ Boundaries of 7 other districts touch boundaries of district Ludhiana.

EXERCISES

A Map Work

Show in outline map of Punjab :

(*i*) Six districts of Punjab adjoining international border.

(*ii*) The capital and 22 district headquarters of Punjab.

B Objective Type Questions

Answer the following questions in a single word to one sentence length :

1. What is literary meaning of word 'Punjab'?
2. Give full form of PEPSU.
3. What are latitudinal and longitudinal extents of Punjab?
4. What are ancient names of Ravi, Beas and Satluj?
5. Which of the following districts do not touch international border :

   (*i*) Pathankot (*ii*) Faridkot (*iii*) Fazilka (*iv*) Tarn Taran

6. Which pair among the following is not correct :

(*i*) Batala : Agricultural implements industry

(*ii*) Jalandhar : Sports materials industry

(*iii*) Abohar : Musical instruments industry

(*iv*) Gobindgarh : Iron Furnaces industry

C Short Answer Questions

Give short answers for the following questions :

1. Name any six non-private universities of Punjab and their place of location.
2. What is geographical location of punjab and its neighbourhood.
3. How many divisons, districts, tehsils and blocks are there in Punjab?
4. Write a note on PEPSU.
5. If you want to go to Fazilka from Pathankot, without touching any border district, what way shall you follow ?

D Long Answer Questions

Answer the following questions in detail :

1. Introduce with geographical history of Punjab.
2. Give summarised information about any five districts falling in Malwa region.
3. Which centres have developed as cottage or small scale industries in Punjab, introduce those?

* * *

2 (a) India : Physiographic Units

INTRODUCTION

Physical Geography is that branch of Geography in which we study about the formation of physiographic units and factors responsible for their formation. India

Physical Map of India

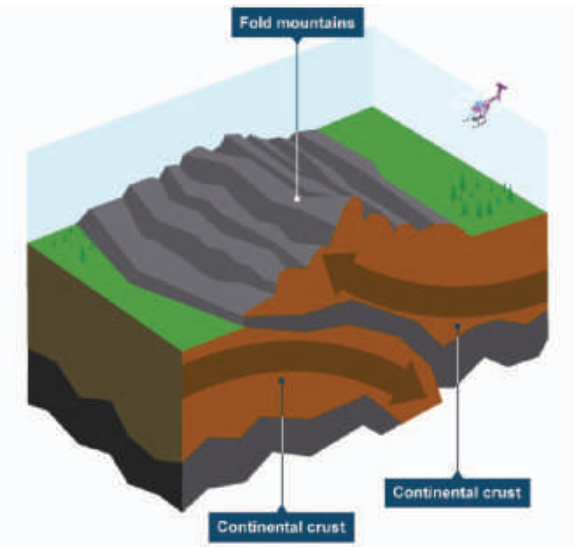
has vast extent of physical units as features. In its north the young fold mountains called Himalayas are situated. it also has one of the oldest physical units of world i.e. peninsular plateau. Various Endogenetic and Exogenetic Forces are responsible for the formation of there physical units. Out of total land area of India, 18.6% in covered by small mountains, 10.7% by high mountains, 27.7% by peninsular plateau and 45% by various types of plains.

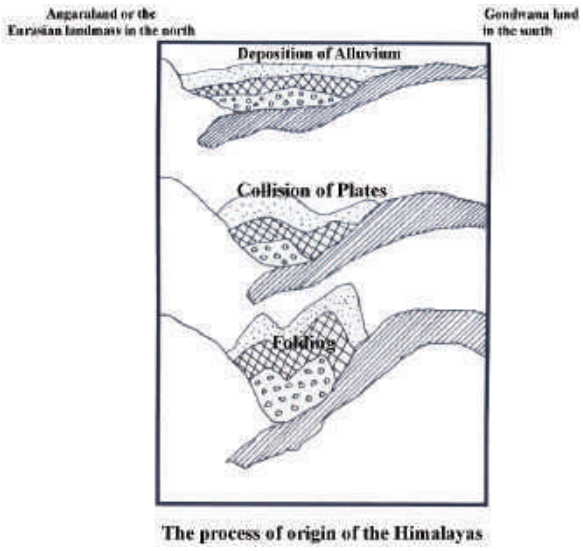
On the basis of physical features. India my be divided into following five divisions :

1. The Great Himalayan mountains
2. The Northern plains and desert
3. The Peninsular plateau
4. The Coastal plains
5. The Islands

RISE OF HIMALAYAN MOUNTAINS

The movements of tectonic plates have resulted into rise of Himalayas. Where Himalayan mountains are situated at present, some 120 million years ago, there was roaring sea called Tethys. Eurasian land mass was situated towards north of this sea and Gondwana land mass towards south. Rivers flowing from these two land masses deposited large amount of alluvium in the sea and with the movement of Gondwana land towards north west, the alluviums deposited in Tethys got folded and started rising which resulted in the formation of Himalayas.





The process of origin of the Himalayas

The Indian plate still continues to move towards northwards beneath Eurasian plate and because of this Himalayas are rising at the rate of 5 to 10cm annually.

Himalayan mountains are the youngest and highest fold mountains of the world. It extends 2400 kilometer in length and width of Himalayas varies from 400 to 500 kilometer in Jammu and Kashmir to 200 kilometer in Arunachal pradesh.

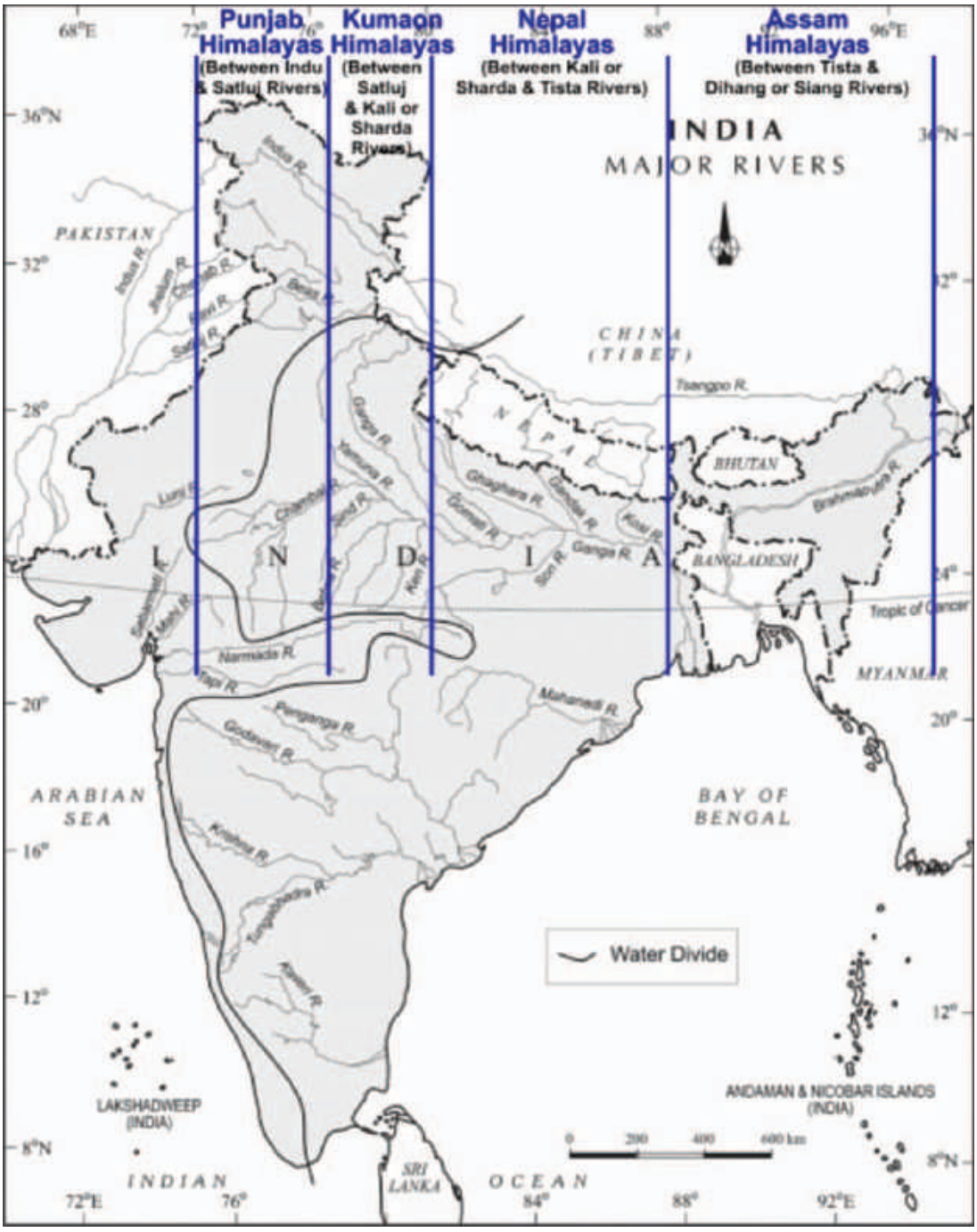
Himalayan mountain ranges are classified as follows :

(i) Trans Himalayas

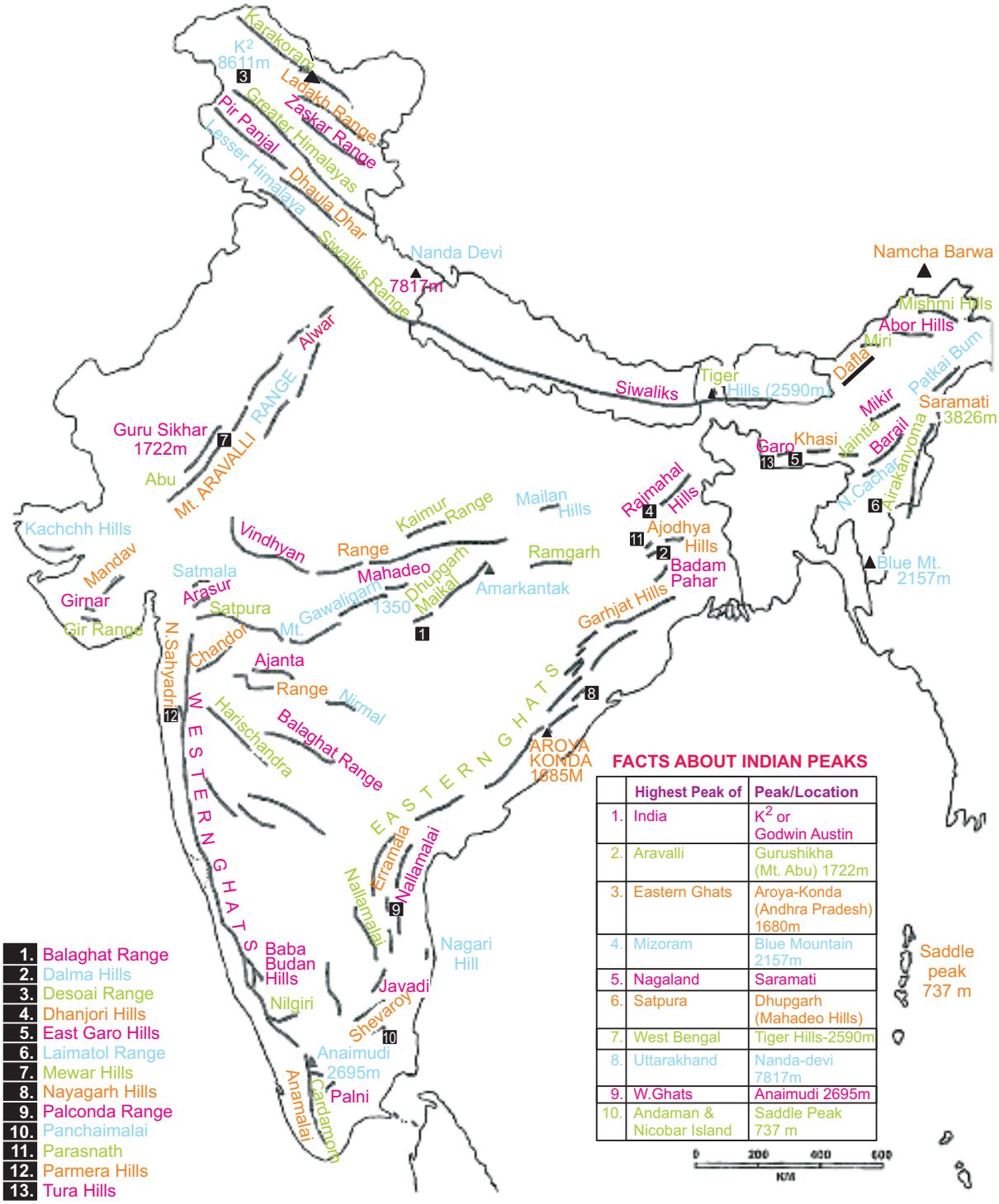
(ii) The Great Himalyas

(iii) The Lesser Himalayas

(iv) The Shiwaliks and Pooravanchal



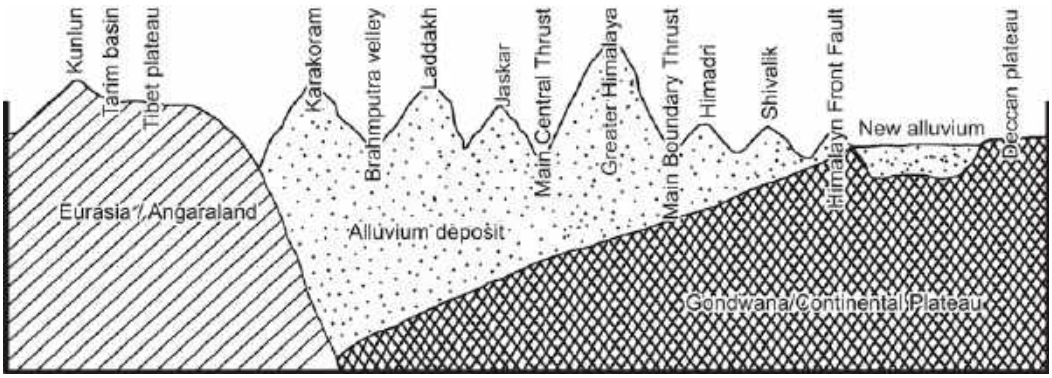
Regions of Himalaya



1. Balaghat Range
2. Dalma Hills
3. Desoai Range
4. Dhanjori Hills
5. East Garo Hills
6. Laimatol Range
7. Mewar Hills
8. Nayagarh Hills
9. Palconda Range
10. Panchaimalai
11. Parasnath
12. Parmera Hills
13. Tura Hills

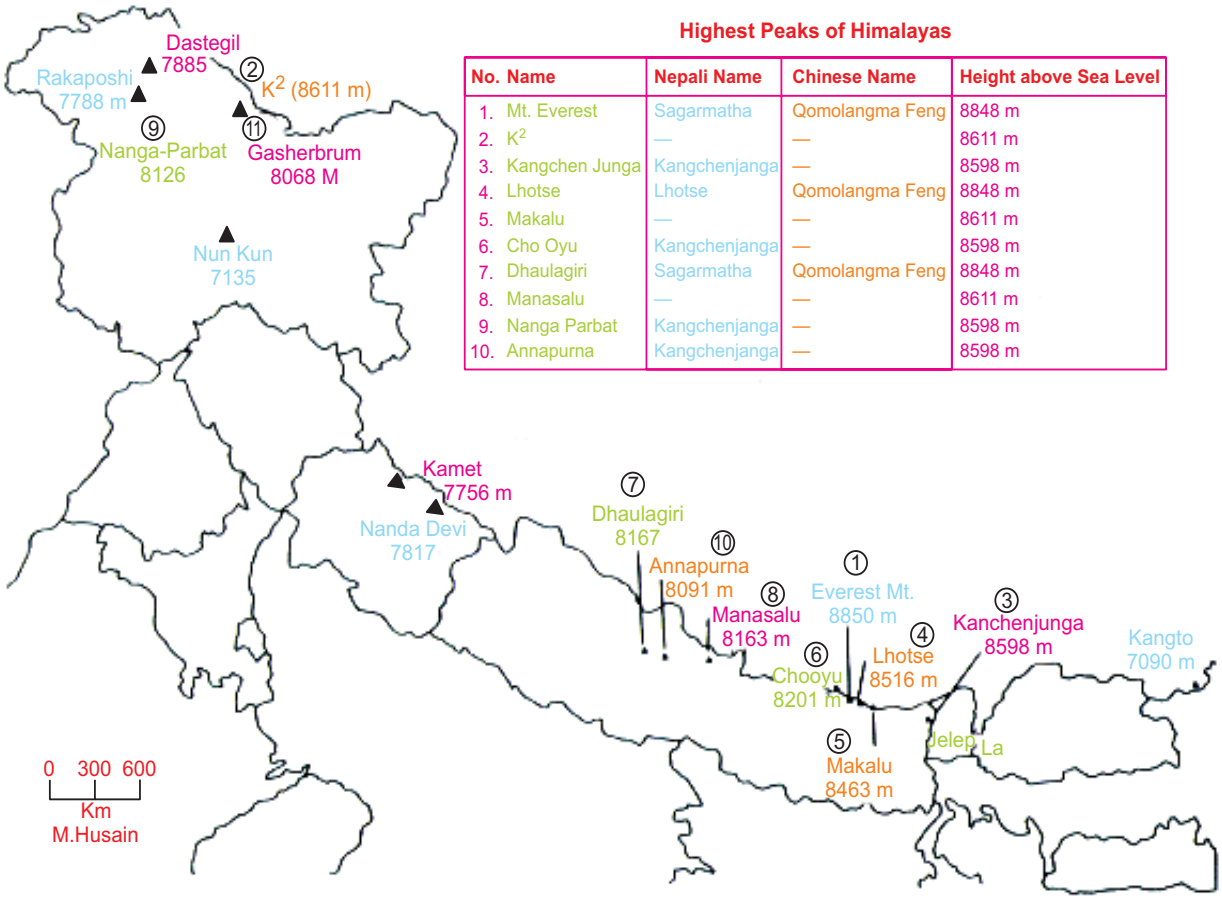
FACTS ABOUT INDIAN PEAKS

	Highest Peak of	Peak/Location
1.	India	K^2 or Godwin Austin
2.	Aravalli	Gurushikha (Mt. Abu) 1722m
3.	Eastern Ghats	Aroya-Konda (Andhra Pradesh) 1680m
4.	Mizoram	Blue Mountain 2157m
5.	Nagaland	Saramati
6.	Satpura	Dhupgarh (Mahadeo Hills)
7.	West Bengal	Tiger Hills-2590m
8.	Uttarakhand	Nanda-devi 7817m
9.	W.Ghats	Anaimudi 2695m
10.	Andaman & Nicobar Island	Saddle Peak 737 m



Profile of Indian landmass Interior

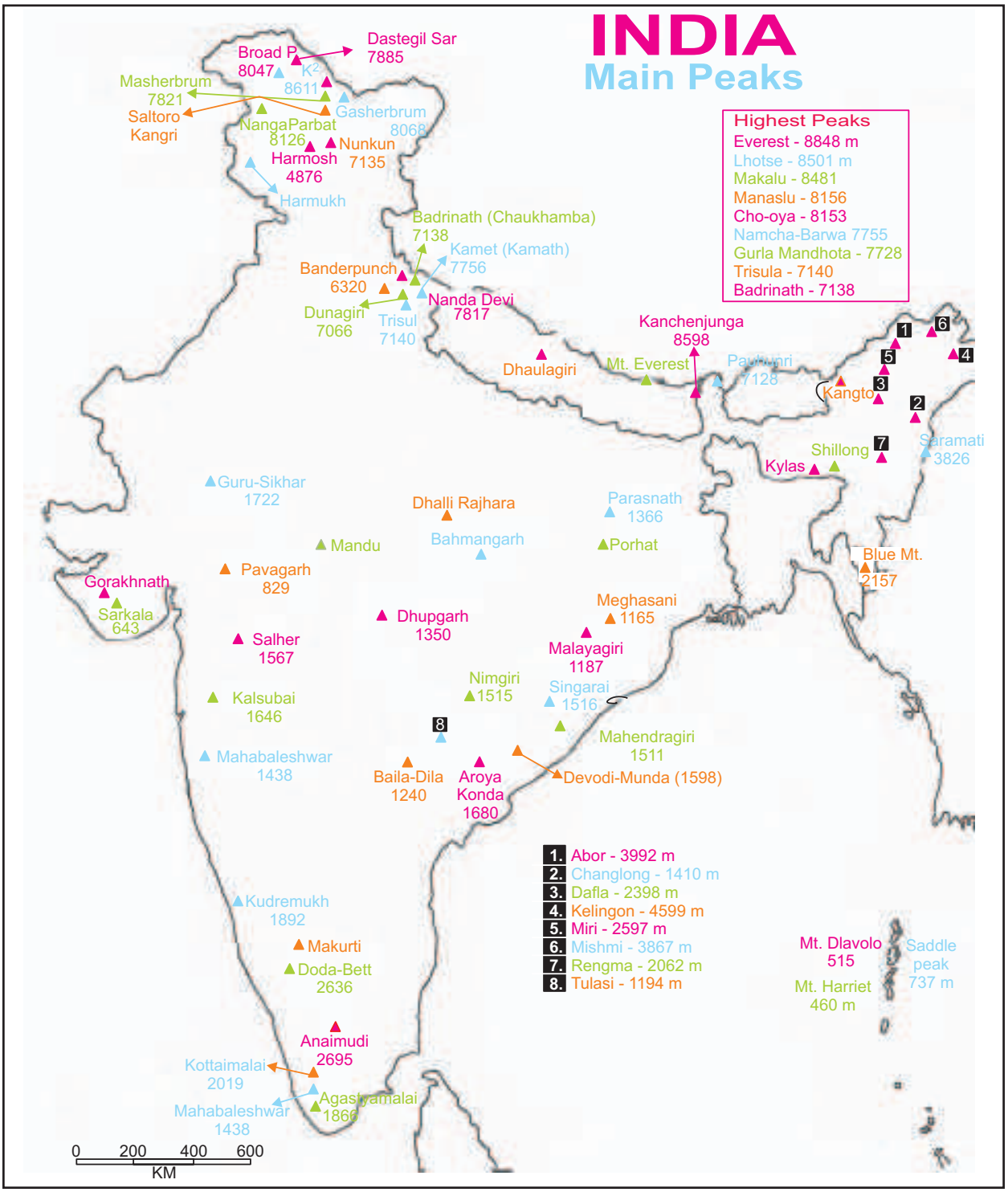
(i) Trans Himalayas : Trans Himalayas lie in the north of Great Himalayas, also known as Tibet Himalayas. Its extent from west to east is around 2000 kilometer long with average height from sea level about 6000 meter, Zasker, Ladakh, Rakasposhi and Kailash mountain ranges lie in Trans-Himalayas. Its major mountain peaks are K2 which is the highest mountain peak of India and second highest peak of the world. Gasherbrum-I (8068 m) and Gasherbrum II (8035 m) are other high peaks.



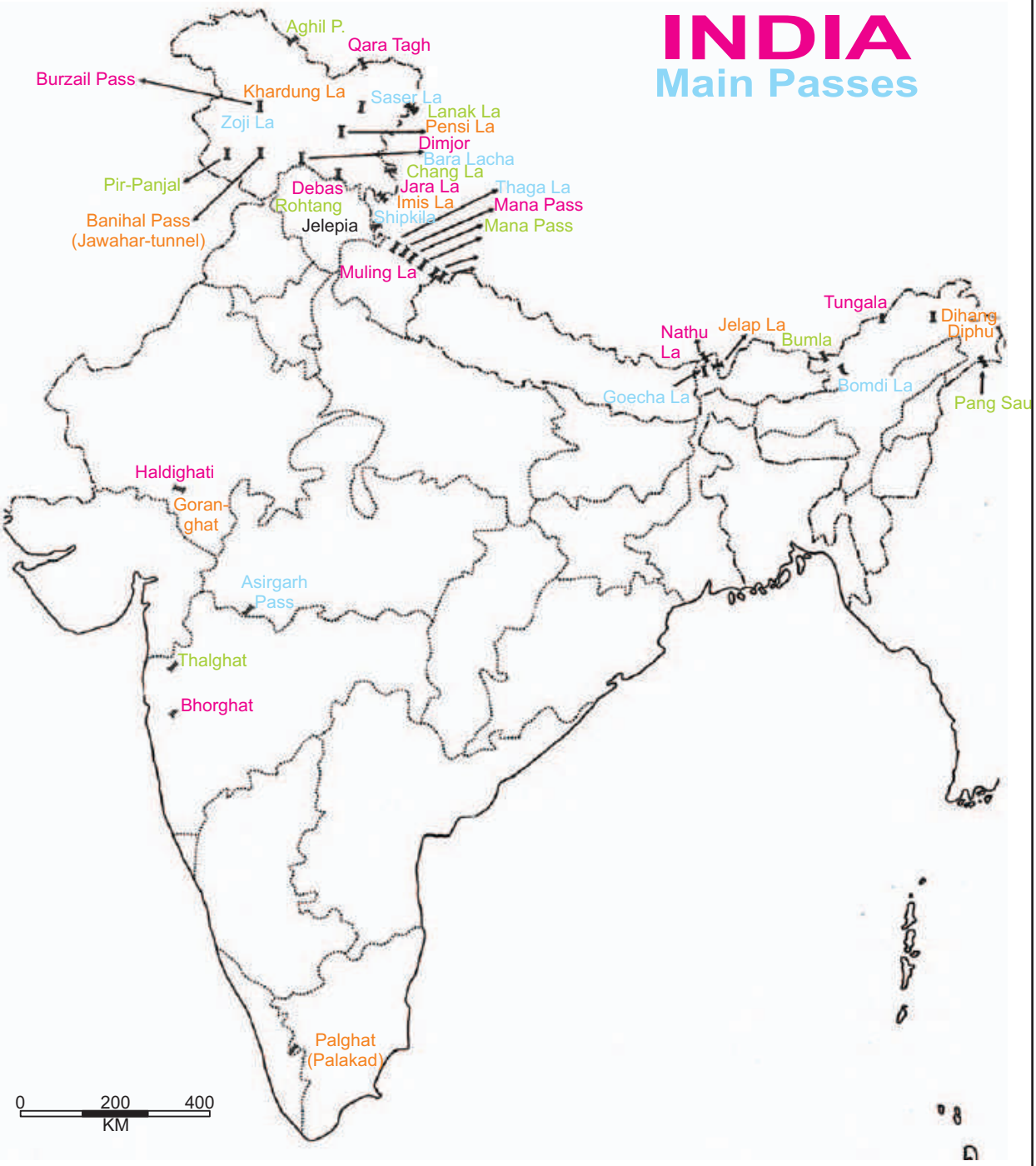
Highest Peaks of Himalayas

No.	Name	Nepali Name	Chinese Name	Height above Sea Level
1.	Mt. Everest	Sagarmatha	Qomolangma Feng	8848 m
2.	K^2	—	—	8611 m
3.	Kangchen Junga	Kangchenjanga	—	8598 m
4.	Lhotse	Lhotse	Qomolangma Feng	8848 m
5.	Makalu	—	—	8611 m
6.	Cho Oyu	Kangchenjanga	—	8598 m
7.	Dhaulagiri	Sagarmatha	Qomolangma Feng	8848 m
8.	Manasalu	—	—	8611 m
9.	Nanga Parbat	Kangchenjanga	—	8598 m
10.	Annapurna	Kangchenjanga	—	8598 m

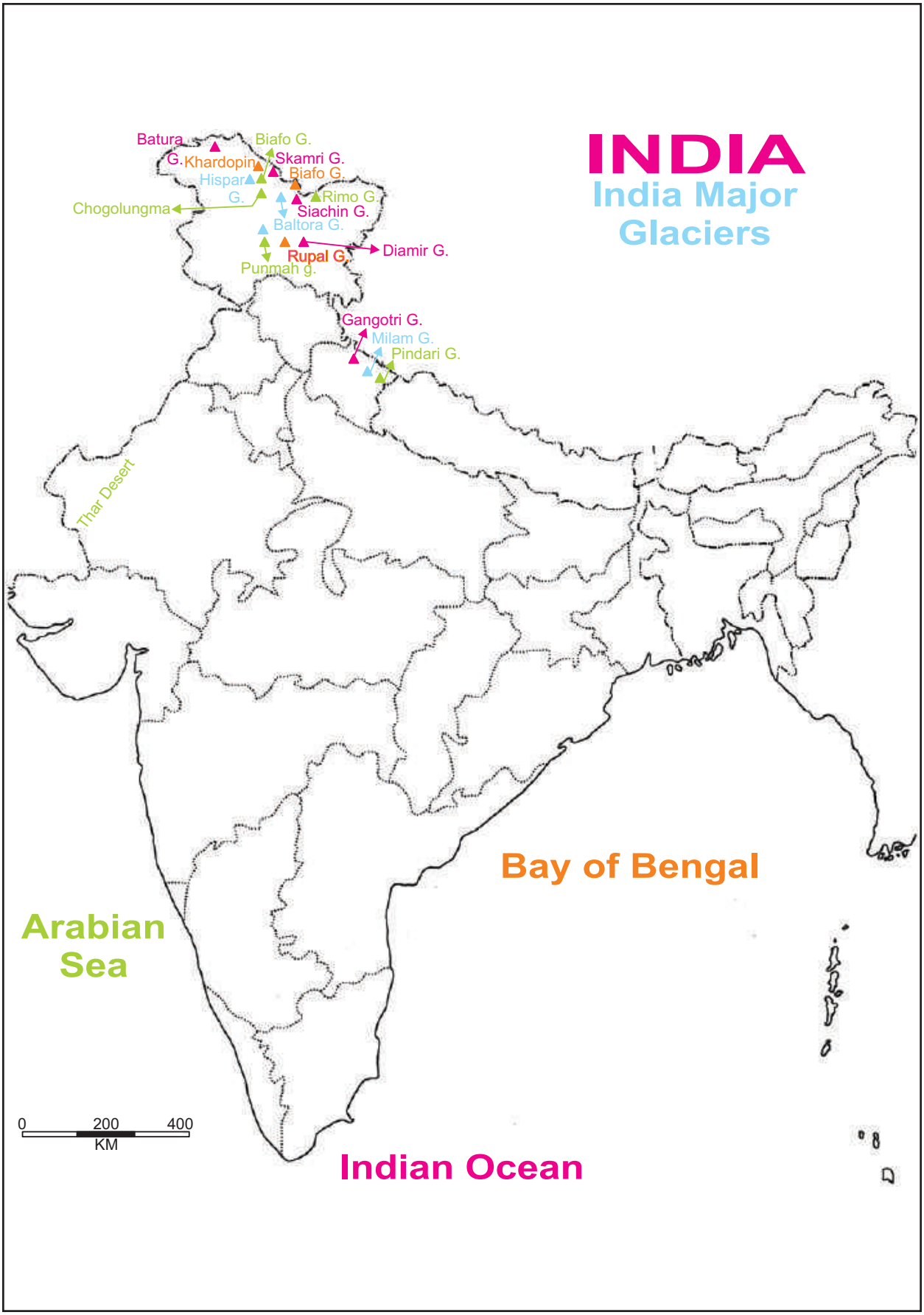
(ii) Great Himalayas : The range is known as Internal Himalaya or Himadri also. Average height of this range is 6100 meter and length 2400 km. It ascends from Naga mountains in north–west the Namcha Barwa in east. Mount Everest (8848 meter) which is highest peak of the world, is situated in this range. In Nepal this mountain peak is known as 'Sagar Matha' and 'Chomolungma' in Tibet Some other major peaks of this range are Kanchenjunga, Makalu, Dhaulagiri, Nanga Parbat, Annapurna, Gasherbrum I and II etc.



Various passes are situated in this mountain range, which have been used to cross the Himalayas. These passes lie in different states of India e.g. In Kashmir, it is Zojila and Burzil. In Himachal Pradesh we have Bara-Lacha la, Shipki-la while Tang-la, Niti pass, Lipulekh are situated in Uttrakhand. Nathula and Jalepla passes are situated in Sikkim. In local language 'la' means 'pass'.



Map : India Main Passes


INDIA
India Major Glaciers
Batura G.
Biafo G.
Khardopin G.
Skamri G.
Biafo G.
Hispar G.
Rimo G.
Siachin G.
Chogolungma G.
Baltora G.
Rupal G.
Diamir G.
Punmah g.
Gangotri G.
Milam G.
Pindari G.
Thar Desert
Bay of Bengal
Arabian Sea
Indian Ocean
0 200 400
KM

(iii) Inner or Lesser Himalayas : The mountain range is between the great Himalayas and Shiwalik range. Average height of the range is 5050 meter Pir Panjal, Dauladhar, Mussoorie, Nagtiba, Mahabharat etc. are major peaks of this range. Mostly these peaks are covered with snow whole year long. Various famous hill stations like Mussoorie, Shimla, Dalhouise, Nainital, Chakrata, Kangra, Kullu Valley, Ranikhet are situated with in this range and these hill station attract tourists from all over the world.

(iv) The Shiwalik range and Purvanchal : This range is also known as outer Himalayas. It is 2400 kilometer long and 50 km wide in Himachal Pradesh and less than 15 km wide in Brahamaputra valley. In Jammu this is known as 'Mountain of Jammu', In Arunachal Pradesh it is known as Dafla, Miri, Mishmi, Abor and in Uttrakhand these are known as 'Dudhwa'. Himalayas abruptly turn southwards and take hairpin turn at Dihang in Arunachal Pradesh. This range is known as Purvanchal. Patkai Bum, Naga hills, Eastern Manipur hills, Brail, Garo, Khasi, Jaintia are major mountain peaks of this range.

EFFECTS AND ADVANTAGES OF HIMALAYAS

1. Himalayas protect us from the extreme cold winds coming from North and India receives rainfall when Monsoon winds strike against these mountains to rise high and get saturated, and cause orographic rainfall.

2. Himalayas act as natural border with China. In 1962 Chinese forces had crossed it and attacked India and broke the myth of formidable barrier in the North.

3. Various major rivers of India originate from Himalayas. The alluvium brought down by the rivers result in formation of Ganga-Brahmaputra plains, which provide food security to 1.3 billion Indian people.

4. Himalayan mountains are home of various type of trees and shrubs which are used in Ayurvedic medicines.

5. Tourists from all over the world visit the hill stations situated in Himalayas e.g Dalhouise, Mcleodganj, Shimla, Nainital Mandi, Mussoorie, Darjeeling etc.

6. Various religious places are also the part of Himalayas e.g. Kailash, Amarnath, Kedarnath, Vaishno Devi, Jawala Ji, Chintpurni, Gangotri, Yamunotri, Hemkund Sahib etc. Large number of pilgrims visit these places every year.

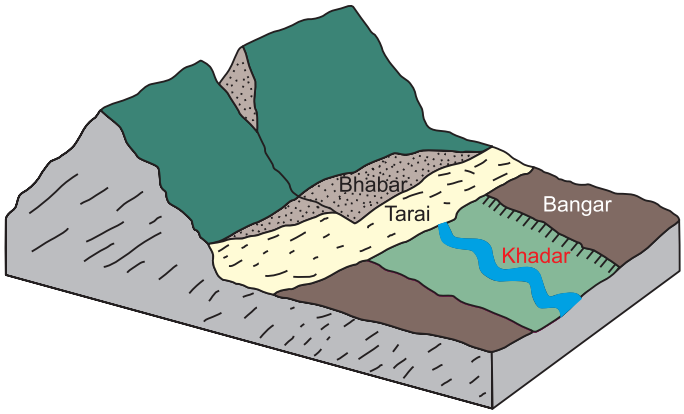
THE GREAT PLAINS OF INDIA

Plains of Indus-Ganga-Brahamaputra are one of the world's largest alluvial plains. In India their length is 2400 kilometer and while their breadth varies between 150 to 300 kilometer. These plains have been formed by the deposition of soil or alluvium brought down by the Himalayas rivers. Various physical features such as Alluvial fans, Alluvial cones, Meanders, Natural lavees and Flood plains etc. are found in these plains.

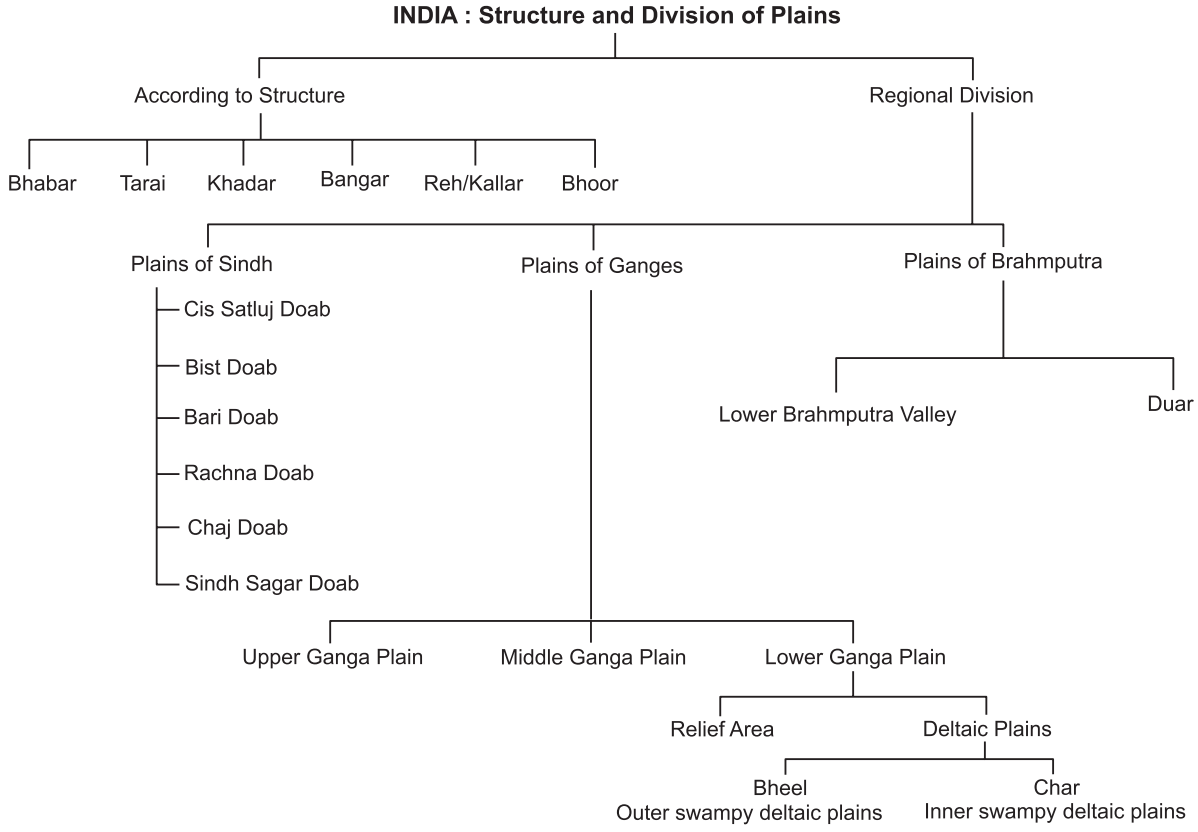
Geomorphology of Plains

Regional diversities are important aspect of Ganga-Brahampurta plains. These are as follows:

1. Bhabar : It is a 8-16 kilometer wide strip which runs from Indus river to Tista river along Shiwalik foothills. It is the gently-sloping coarse alluvial zone below the Siwalik Hills (outermost foothills of Himalaya) where streams disappear into permeable sediments. The rivers decending down from Shiwalik mountain range bring rocks, stones, conglomerates etc. with them and deposit it in this belt. These rocks and stones are highly porous, because of which many rivers start flowing beneath them. This belt/region is not beneficial for agriculture.



Geomorphology of Plains



2. Terai : This is 15 to 20 kilometer wide strip just south of the bhabar and runs parallel to it. The underground rivers, which disappear in the bhabar, resurface in this belt making it marshy and humid. This region receives heavy rainfall and because of this it is densly forested region. The large part of Terai in Punjab and Uttrakhand has been reclaimed for agriculture.

3. Bangar : This area is situated away from the rivers and flood waters do not reach upto this area. This is old Alluvium and contains large number of stones and infertile land.

4. Khadar : It is new alluviam close to the river,which remains under floods almost every year and the fertile alluvial soil deposited by floods in low lying areas. This is very fertile soil and in Punjab this is known as 'Bet', Naily, Bela, etc.

5. Reh or kallar : These are infertile plains and their soil are saline. These type of plains are found in Uttar pradesh and Haryana.

6. Bhoor : The high level plains of Ganga-Yamuna Doab situated along the river Ganga are known as Bhur. These are formed by the soil deposited by winds.

REGIONAL DIVISION OF PLAINS

(i) Pains of Punjab and Haryana
(ii) Plains of Rajasthan
(iii) Gangetic plains
(iv) Brahmaputra Plains

(i) Plains of Punjab and Haryana : These plains extend from North-West to South-East and are about 640 kilometers long. Their average width is 300 kilometers and area is about 1.75 lakh square kilometer. There have been formed by alluvial deposit by Indus, Satluj, Beas, Ravi. Chenab and Jehlum. These plains include five Doabs (Area between two rivers) namely Bist Doab (Area between Satluj and Beas), Bari Doab (Between Beas and Ravi), Rachna Doab (Between Ravi and Chenab), Chaj Doab (Between Chenab and Jehlum), Sind Sagar Doab (The central or middle part of Jehlum, Chenab and Indus)

(ii) Desert and Plains of Rajasthan : Plains of Rajasthan are actually extended part of Satluj plains, which were once a green plains of Ghaggar and Saraswati (The lost river) rivers, but now these are sandy Thar desert. This region extends 650 km long and 250 km broad, in the South-West of Punjab. Eastern part of Thar is known as Rajasthan Bangar .Sand dunes and salt water lakes are common here. Sambar, Chidwana, Degana, Sarmol are a few important among these lakes.

(iii) Gangetic plains: There plains are formed by the soil deposited by Ganga and its tributaries like Gandak, Yamuna, Ghagra, Kosi, Son, Ken, Betwa Chambal etc. There plains are 550 kilometer long and around 380 kilometer broad. These are divided into three parts:

(a) Upper Ganga Plains : This part of plains is known as Ganga-Yamuna doab and have been formed with the soil by Ganga, Yamuna, Ram Ganga, Sharda, Betwa, Gomati and Ghagra. These include Bhakar and Terai plains also.

(b) Middle Ganga Plains : These plains are found in eastern Uttar Pradesh and Bihar. These are also known as plains of Bihar and Mithila. These are 600 km long and 330 km wide. These are formed by the soil deposited by Ghagra, Gandak, Soin and Kosi rivers.

(e) Lower Ganga Plains : These plains extend from Kishanganj tehsil of Purulia district of Bihar to whole of West Bengal (excluding Darjeeling). These are 580 kilometer long and 200 kilometer broad. and have been formed by alluvium deposited by river Tista, Jaldhaka and Torsa. 1/3 part of these plains from Sundarban Delta, which is largest delta of the world. The name of the delta is based on the Mongroove type of tree found here i.e. 'Sundri'. Tidal forests and wet lands and found in this delta.

(iv) Brahamputra Plains: These are also known as plains of Assam. These extend from Dhubri in west to foot hills of eastern Himalayas. Plains are 720 kilometer long and 60-100 kilometer wide. These have been formed by the soil deposited by river Brahmaputra and its tributaries.

3. Peninsular plateau. This plateau is one of the oldest landforms of the world. Known to be formed 3600 million years prior to the rise of Himalayas, it was the part of Gondwana land during pre-Cambrian era (It is longest span of time earth is history). It is triangular in shape and Kanyakumari is the southernmost tip of this triangle.

Regional division of Peninsular plateau

(i) Marwar plateau : This is situated in eastern Rajasthan towards the east Aravali mountain range at the hight of 250-500 meters above sea level. The Central Highlands are situated towards east of Marwar plateau and is famous for its ravines. Bundekhand region is situated towards part of this plateau along the river Yamuna.

(ii) The Malwa Plateau : Aravallis mountain range is situated towards its west, Vindhyachal in south and Rajmahal mountain and Chhota Nagpur plateau its east. This plateau is of triangular shaped extends upto Shillong plateau. River Narmada and Mahi, which debouches in Arabian sea, flow through this plateau. The black soils of plateau region are of volcanic origin and very fertile for Cotton cultivation and are also called black **'regur soils'.** This soil is very rich for the cultivation of cotton and sugarcane. Hazari bagh, Gaya and Ranchi plateau and major mountain in Aravallis, Vindhyachal and Satpura are situated in this plateau.

Aravallis extend from Delhi to Palanpur in Gujarat and it is one of the oldest mountain ranges of the world. It is 800 kilometer long and its highest peak is Guru Shikhar (1722 meters). It also has a pass which in known as 'Goran Ghat' and it separates the Guru Shikhar and Mount Abu. The Satpura mountain range extends from Rajpipla mountain in the west and Makkal mountain in east upto 900 kilometer. Dhoopgarh (1350 meters) is the highest mountain peak of this range. Vindhyachal mountain extend from Jobat, Gujarat the Sasaram in Bihar, these are 1200 kilometer long.

(iii) The Deccan plateau : The total area is Five lakh square kilometer, it is the largest part of peninsular plateau. Its gradient is from west to east, towards Bay of Bengal, because of this reason the rivers flowing here namely Godavari, Krishna, Kaveri, Mahanadi, Indravati, Tungbhadra, Pennar etc. fall in the Bay of Bengal.

Because of seasonal rivers following geographical land masses may be differenciated are around in it.

(a) Plateau of Maharashtra

(b) Plateau of Karnataka or Myosre

(c) Plateau of Telangana

(d) Wester Ghats

(e) Eastern Ghats

(f) Dandakaranya

(g) Group of Southern mountains

Plateau of Maharashtra in made up of Basalt rocks made by cooling of basaltic lava. Karnataka plateau has two parts, Malnaad and plains. Its highest peak is Moolangiri (1013 meters) which falls in Baba Boodan mountains. Plateau of Telangana is spread in 148,000 square kilometer area in newly formed state of Telangana.

Western ghats are also known as Sehyadri. These spread along Western coastal plains from Tapi rivers mouth to Kanyakumari in South, about 1600 kilometer long. From north to south, four passes namely Thal Ghat, Bhor Ghat, Pal ghat and Shenkota passes are found in this range. Major peaks in Western ghats are Kalsubai (1046 meter), Mahanbaleshwar (1438 meter), Salher (1547 meter), Harishchander (1424 meter), Kudermukh (1892 meter), Pushapgiri (1714 meter) and Dodabaita (2637 meter) in Nilgiri mountains. eastern ghats run along eastern coast of India from Mahanadi to Nilgiri mountains. eastern ghats are wider than western ghats and more dissected too. Mahindergiri (1501 meter) is its highest peak in north while in central part, from

Karishna and Penaar to Nilgiri, Nalamalai, Palkonda, Velikonda and than Southward, Javedi, Shivroi, Kollimalai mountains are found.

Peninsular plateau is a store house of minerals and around 98% of India's Manganese, Iron, Coal, Copper, Bauxite, Mica and Gold are found in this plateau. Cultivation of Tea, Rubber, Sugarcane, Pulses, Coffee, Jawar-Bajra, Spices and Oilseeds is also important products of this region.

4. Coastal plains : These plains may be divided into two parts :

(i) Plains of Western Coast : These are 65 km wide and extend from desert of Kutchh to Kanyakumari and are further divided into four parts ; namely

Plains of Gujrat, Plains of Konkan, Plains of Malabar and Plains of Kerala. Plains of Gujarat are coastal plains extending from Kutchh to Khambat. There are formed by the alluvium deposited by rives Sabarmati, Mahi, Luni and Tapi, etc.

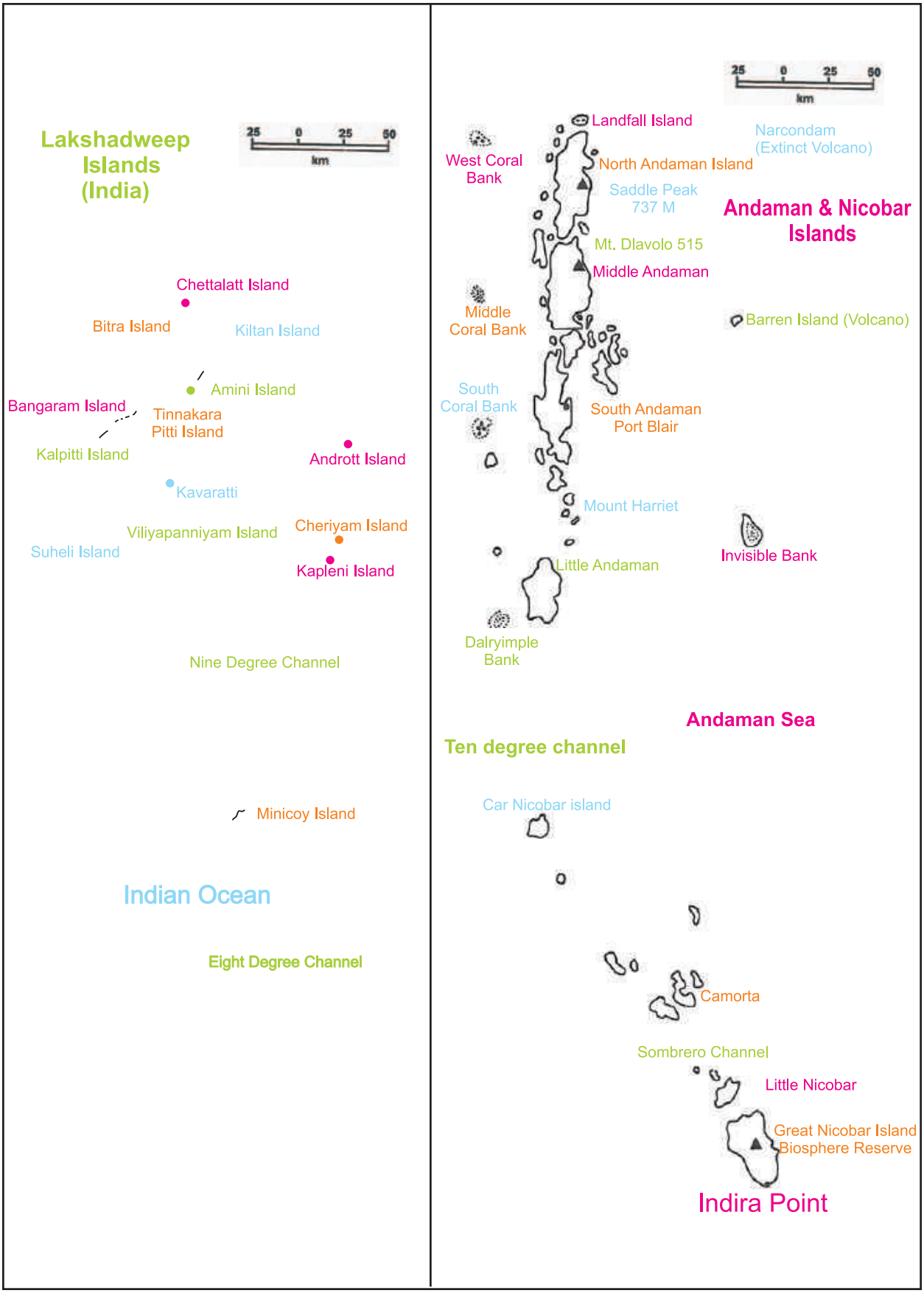
Plains of Konkan are 500 kilometer long, extend from Daman to Goa. Caves and Creeks are found in these plains. Mumbai is the major port situated on this coast Konkan coast is also known as 'Karavalli' and 'Kenara'.

Plains of Malabar are 845 kilometer long and extends from Mangalore to Kanyakumari. Number of lagoons and lakes are found here. Largest lake of these plains in Vembanad. In regional language these lakes are known as 'Kayals'.

(ii) Eastern Coastal Plains : These plains extend from West Bengal, Odisha to Kanyakumari along eastern coast. These plains are formed by the alluvium deposited by the rivers flowing towards east namely Mahanadi, Godavari, Krishna, Kaveri and their tributaries. In Odisha there are known as plains of 'Utkal'. From the delta of river Krishna to Kanyakumari these are known as Coromandal plains the Eastern coastal plains Pulikat lake is not famous lake. 'Chilka' lake of Odisha is the largest saline water lake of India.

5. Indian Archipelagos (The Island Groups) : There are total 267 Indian Islands spread in adjoining seas. Andaman and Nicobar island group in Bay of Bengal and Lakshdweeps in Arabian sea are major groups. Andaman islands are the extension of North Eastern mountain range Arakan Yoma of Mayanamar. There are total 204 islands in Andaman. Saddle peak (737 m) is the highest peak of Andaman. Nicobar has 19 Islands and Great Nicobar is the largest island among these.

Group of Lakshadweep island in situated in Arabian Sea. There are total 34 islands. Amindivi islands are situated towards its north and Mincoy Islands are situated towards its south.


Lakshadweep Islands (India)
25 0 25 50
km
Chettalatt Island
Bitra Island
Kiltan Island
Amini Island
Bangaram Island
Tinnakara
Pitti Island
Kalpitti Island
Andrott Island
Kavaratti
Viliyapanniyam Island
Cheriyam Island
Suheli Island
Kapleni Island
Nine Degree Channel
Minicoy Island
Indian Ocean
Eight Degree Channel
25 0 25 50
km
Landfall Island
Narcondam
(Extinct Volcano)
West Coral
Bank
North Andaman Island
Saddle Peak
737 M
Andaman & Nicobar Islands
Mt. Diavolo 515
Middle Andaman
Middle
Coral Bank
Barren Island (Volcano)
South
Coral Bank
South Andaman
Port Blair
Mount Harriet
Invisible Bank
Little Andaman
Dalryimple
Bank
Andaman Sea
Ten degree channel
Car Nicobar island
Camorta
Sombrero Channel
Little Nicobar
Great Nicobar Island
Biosphere Reserve
Indira Point

Information about Indian Islands is given in the following chart:

Bay of Bengal Andaman Nicobar Islands	**Arabian Sea** Lakashdweep Islands
1. Land fall Island	1. Minicoy Island
2. Northern Andaman	2. Kannor/Cherriyam Island
3. Sound dweep	3. Suheli
4. Middle Andaman	4. Kavaratti (Capital)
5. Richie Island	5. Amin Divi
6. South Andaman	6. Chantlatt Island
7. Little Andaman	7. Kaddamath Island
8. Car Nicobar Island	8. Aggati
9. Non cowery Island	9. Kalapati Island
10. Small Nicobar	10. Kiltaan
11. Great Nicobar	

CHAPTER AT A GLANCE

- Out of India's total geographical area, 43% are plains, 29% is mountaineous area and 27.7% is plateau region.
- We divide the total geographical area into 5 or 6 categories.
- Approximately 120 millions years ago there was Tethys sea instead of Himalyan mountains in the north of Gondwana land.
- The highest peak of the world is Mount Everest (8848 meters) and of India it is Godwin-Austen.
- The greater Himalayas is famous for its passes and middle Himalayas is famous for its tourist places.
- The types of plains are Bhabar, Terai, Bangar, Khadar, Reh, Bhur.

Contd.

- ☞ The Bist and Bari Doabs are in India and Rachna and Chaj Doabs are in Pakistan.
- ☞ Sunderban Delta means abundance of Sundari Tree.
- ☞ Central Plateau, Malwa Plateau and Deccan Plateau are the Plateau portions of India.
- ☞ The main passes in the western ghats are Thal Ghats, Bhor Ghat, Pal Ghat and Shenkhotha.
- ☞ The Eastern Ghat and plateau regions are store house of minerals.
- ☞ Kutch, Konkan, Malabar, Coromandal and Utkal plains are the part of coastal plains.
- ☞ The total 267 islands are there in the Indian Archipelagos.

A Map Work

Show on the outline map of India :

(*i*) Karakoram, Pir Panjal, Shivalik, Satpura, Patkai Bum, Khasi and Garo Mountain Ranges.

(*ii*) The Mountain Peaks of Kanchanjunga, Godwin-Austin, Dhulagiri, Guru Shikhar and Anaimudi.

(*iii*) Any five passes and three plateau regions.

B Objective Type Questions

Answer the following questions in a single word to one sentence length :

1. Name any two physiographic regions of India.
2. If you visit Gurushikhar, in which mountain range you shall be there.
3. What is the length and breadth of Northern Plains of India.

4. In how many categories the Indian archipelagos are divided in?
5. Which of the following is not a part of plains.

(*i*) Bhabar (*ii*) Bangar

(*iii*) Khayal (*iv*) Kallar

6. Which among the following is not a Lake

(*i*) Saddle (*ii*) Sambar

(*iii*) Chilka (*iv*) Vembanand

7. Which of the following is odd

(*i*) Sharda (*ii*) Kaveri

(*iii*) Gomati (*iv*) Yamuna

8. Which of the following is not a range of Himalayas.

(*i*) Rakashposhi (*ii*) Dafla

(*iii*) Zaskar (*iv*) Nilgiri

C Short Answer Questions

Give short answers for the following questions :

1. Write a note of on the origin of a Himalays.
2. Describe the Khadar Plains how they are different from the Bet areas.
3. Write a note on the central Himalayas.
4. What is the difference between eastern and western ghats.
5. Describe the Indian Archipelagos and write the name of Islands..
6. Differentiate between Bhabar and Terai.

D Long Answer Questions

Answer the following questions in detail :

1. Explain in detail mountain ranges of peninsular plateau.

2. Describe the formation of Ganga-Brahmputra plains and write there regional distribution..

3. Describe the Indian Coastal plains.

4. Write the note on the following

   (a) The plains and desert areas of Rajasthan.

   (b) Malwa Plateau.

   (c) Greater Himalayas

5. Differentiate betweeen the advantages of Himalayan Mountains and peninsular plateau.

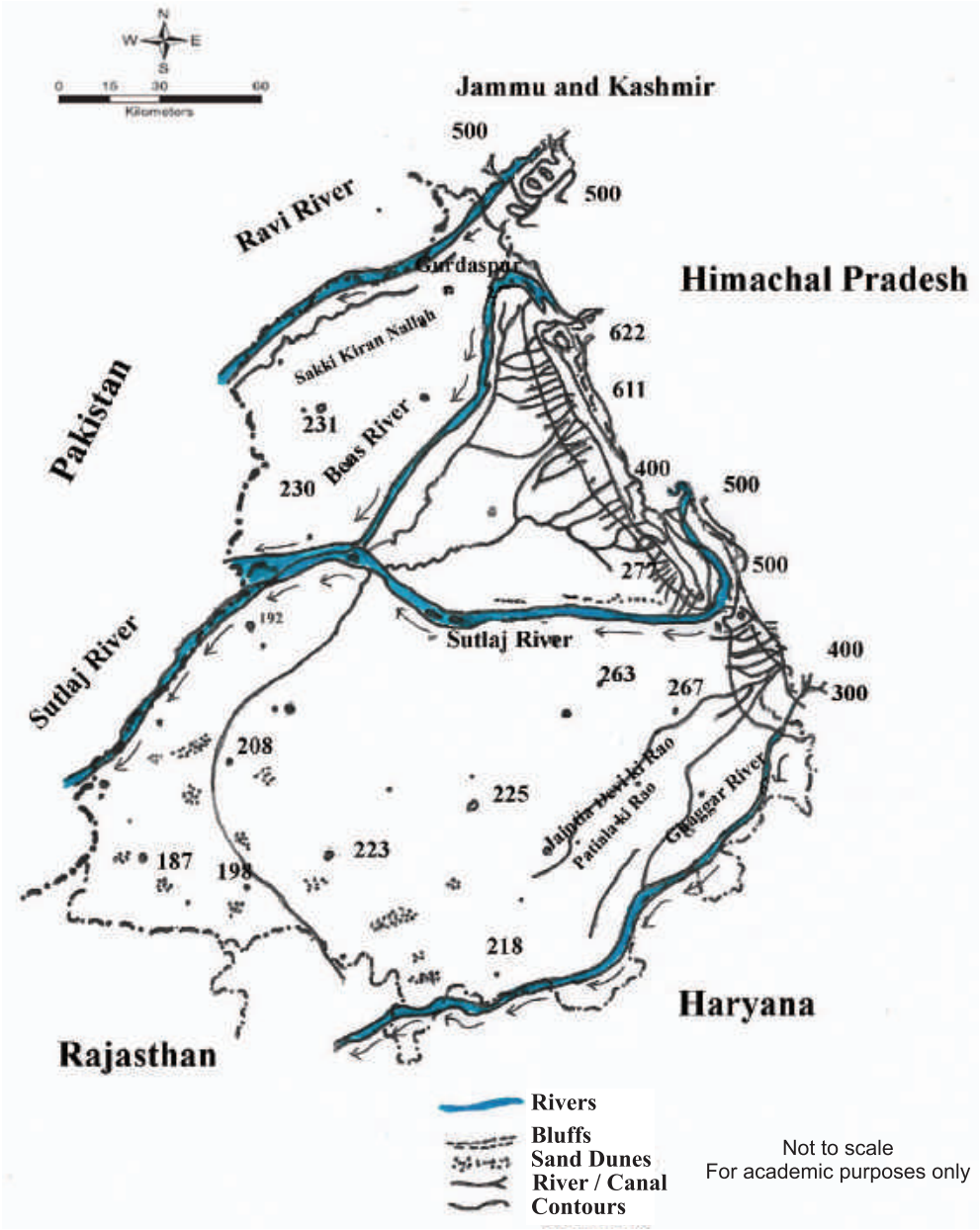
* * *

2 (b)

Punjab : Physical Features or Physiography

INTRODUCTION

Plains of Punjab are one of the most fertile plains of the world. If we look at geographical map of Punjab, most of its area seem to be plains. But from geographical view point and geological formations there are various differences and variations.



Map : Punjab Physical

TOPOGRAPHY

It is the arrangement of the natural and artificial physical feature of an area. Relief is vertical and horizontal dimension of land surface. It is the difference in height in a landscape; how flat or undulating the surface is.

In East and North-East of Punjab, Shiwalik mountains are situated like an arc and towards the South-West sand dunes are found. Relief of Punjab may be divided into following categories :

(1) The Shiwalik Hills : These hills are further divided into three parts :

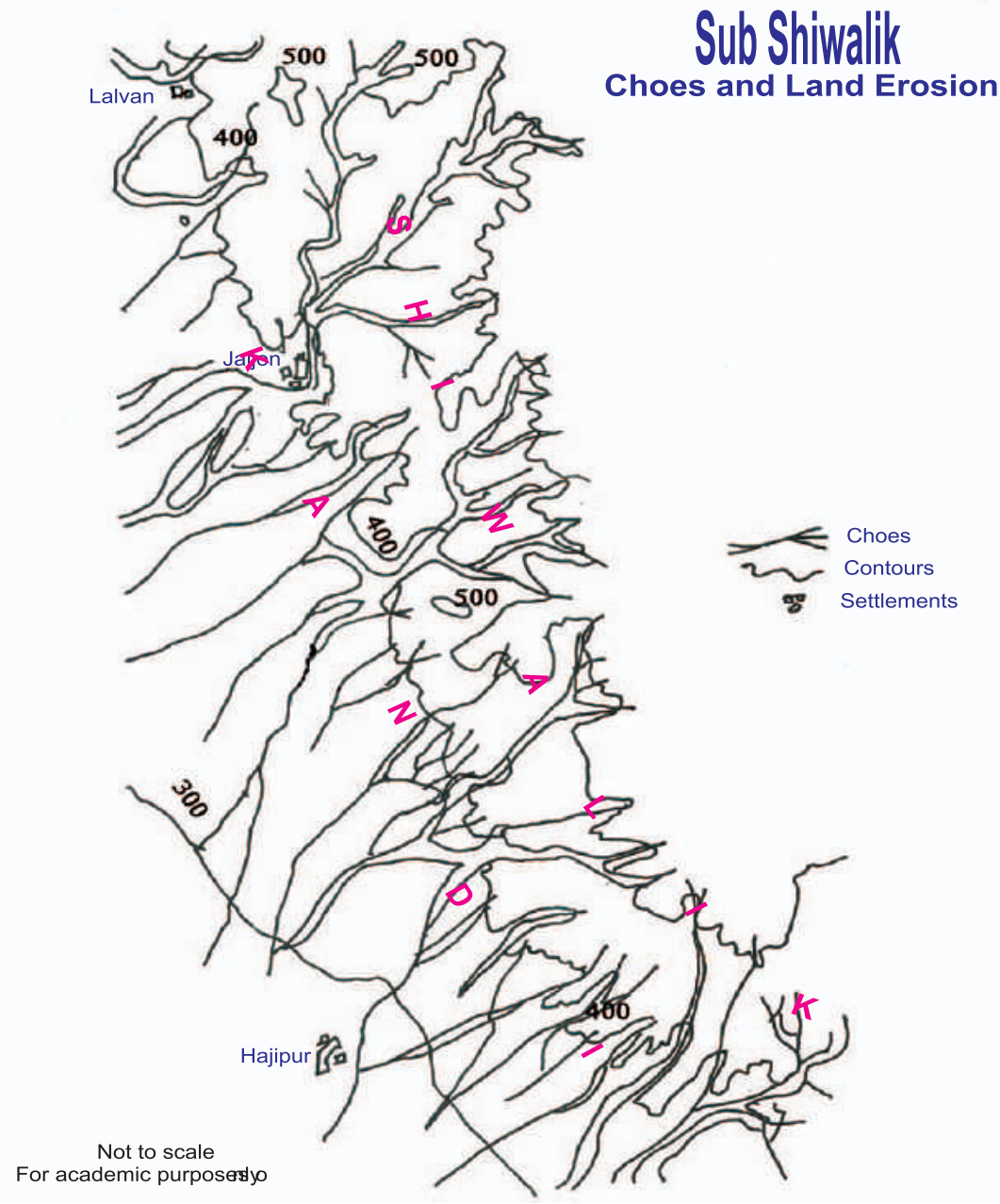
Pathankot Shiwalik (Portion between Ravi and Beas), Hoshiarpur Shiwalik (portion between Satluj and Beas), Ropar Shiwalik (Portion between Satluj and Ghaggar)

Shiwalik hills are the part of middle Himalayas. These hills run along the border of Himachal Pradesh in the east of Punjab. These are 280 kilometer long and their average width is 5 to 12 kilometer. Their average height from the sea level is 600 to 1500 meter.

The Origin of Shiwalik : During the formation of Himalayan range mud, clay soil, Conglomerate, Stones, rocks were deposited in Tethys a big Geosyncline. This deposition started rising and resulted in the formation Shiwalik hills. Another view is that in Middle Miocene period during the formation of Himalayas, a deep or shallow sea was formed in front of Himalayas. For many years soil, rocks were continuously deposited in this, when the Gondwana plate hit the Eurasian plate, this deposition started rising thus forming Shiwalik mountains.

(i) Gurdaspur-Pathankot Shiwalik : This mountain range extends between Gurdaspur and Pathankot districts. Dhar kalan block of district Pathankot is situated in this range. The average height of these hills is around 1000 meter. The slopes of hills became gullied because of fast flowing water. The seasonal river 'Chakki Khad' and its tributaries flowing in this area, fall in River Beas.

(ii) Hoshiarpur-Shiwalik Range : This range is between Beas and Satluj rivers. It is 130 km long and 5-8 kilometers wide and it is a part of district Hoshairpur, Shaheed Bhagat Singh Nagar (Nawanshahar) and Nurpur Bedi block of district Ropar. In North, these are wide and grow narrower as we move towards south. Talwara is the highest block in this range and it is high upto 744 meter. These hills have been also affected by gully erosion and are badly dissected. On average basis choes (seasonal drains) flow at the gap of every kilometer debouches on the plains in this range. In south Hoshiarpur this range is known as 'Katar Dhar'. Its central part is situated in the east of Garhshankar. Kot Mairaan, Dalley ki Khadd are major choes of the region.



Profile of Sub Shiwalik Region

(iii) Ropar Shiwalik : This range is situated between rivers Satluj and Ghaggar in district Roopnagar. It runs along the border of Himachal Pradesh from North-West to South-East. It extends from Nangal in north to Ghaggar in Chandigarh. It is 90 km long and river Sarsa (tributary of Satluj) breaks its continuity. Like other Shiwalik ranges, this range also has various choes (seasonal drain). In this range these are known as Rao or Ghar also.

The Kandi Area : The Shiwalik Hills on their west and to the east Nurpur Bedi block of Ropar district, degrade into a dissected, rolling and porous and coarse grained material formed upland plain called the Kandi. It extends in the form of a narrow and long belt along the entire length of the Shiwalik Hills under different names,

such as Kandl, Ghaarh, and Changar. On the whole these dissected plains lie roughly to the east of Pathankot- Hoshiarpur-Ropar-Chandigarh Road, with gaps formed by the floodplains.The total area is four lakh hectares, extend to five districts and 22 blocks of Punjab. It covers 10% area of the total land area of Punjab. Punjab government has notified the area of Bassi-Chandigarh, Ropar-Balachaur, Hoshiarpur-Mukerian as Kandi area. The soil of this area is porous and various choes flow in the area. It runs along Shiwalik hills as narrow belt and extends from 300 to 400 meter of contour height. Choe is found at every one kilometer in this area. Kandi area is formed as foothill plains which were formed by joining Alluvial fans in Shiwalik foothills. The level of underground water is very low in the area. Kandi area near Anandpur Sahib is known as 'Changar' and in the region near Sarsa river it is known as 'Ghar'.

(2) Alluvial Plains : Approximately 70% area of Punjab is covered by plains. These may be divided into three major geographical units.

Doab : Area between two rivers

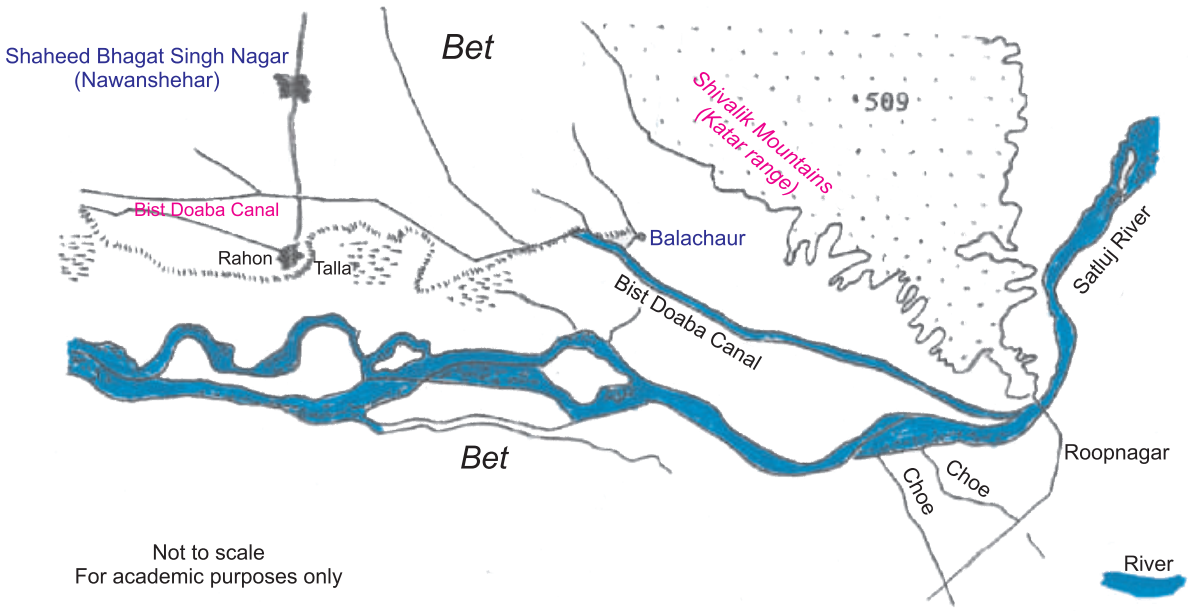
Alluvial plains of Punjab

BARI DOAD (Beas-Ravi)	**BIST DOAB** (Beas-Satluj)	**SUJ DOAB** (Satluj-Jamuna)
Ravi-Sakki	Western Doab	Kotkapura plateau
Kiran-Sakki	Manjki Doab	Nally
Kiran-Udiara	Dhak Doab	Poadh
Udiara-Kasoor	Bet/Khaddar	Flood plains
Kasoor-Patti		Sand dunes
Patti-Beas		

Plains of Punjab: The area between Ravi and Beas in known as 'Bari Doab'. This is known as area of 'Majha' consiting four districts namely; Pathankot, Gurdaspur, Amritsar,and Tarn Taran. Bist Doab is the area between Satluj and Beas. It includes Jalandhar, Kapurthala, Hoshiarpur and Shaheed Bhagat Singh Nagar (Nawanshahar) districts. Malwa is the largest region of Punjab. Ferozepur, Faridkot, Moga, Ludhiana, Barnala, Sangrur, Patiala, Roopnagar, Sahibzada Ajit Singh Nagar (Mohali), Fatehgarh Sahib districts are included in this.

The Origin of Punjab Plains : Plains of Punjab are the part of Indus-Ganga plains. These plains are formed by the alluvium deposited by the Indus and its tributaries (Ravi, Beas, Satluj and their tributaries) which they have brought down from Himalayas. The average height of these plains from sea level is 200 to 300 meters and their slope is towards west.

Bluffs along with the embankments of Satluj River



Bet and Khadar Plains : In plains, rivers change their route with the passage of time. Because of this Bluffs (Dhahais) are formed on the banks of river. Their height may vary from 1 to 6 meters. If we travel to Ludhiana from Jalandhar by road, before crossing the bridge on Satluj at Phillaur we can see a bluff still intact.

The area near the banks of rivers is called Bet or Khadar. Because of the floods in this area, new soil is deposited every year. These areas are known as Mand, Bet, Tilla, Changar and Ghaarh in Punjabi. Such area is known as 'Bela' near Anandpur Sahib. High areas which are situated far from rivers are known as 'Bangar'. These are made-up of old alluvial soil.

Geographically, plains of Punjab are divided into five parts :

Plains of area having choes

Flood plains

Nally

Alluvial plains

Sand dunes and high land alluvial plains

Plains of area having choes : These are situated in Shiwalik foothills. This area is full of choes and during rainy season this area usually has floods, which result in loss of property and life. Stones are found in the soil of these areas and the underground water level is also very low.

Flood plain : Flood plains of rivers Ravi, Beas and Satluj are included under/in it. These are also known as 'Plains of Bet'. In Punjab, Phillaur Bet, Anandpur Bet, Nakodar Bet, Ferozpur Bet are the examples of such bet plains.

Nally : Alluvial plains formed by Ghaggar river in the South-East of Punjab are known as '*Nally*'. These areas face floods during rainy reason. Ghuram, Samana and Mansa area are the examples of Nally.

Alluvial Plain : Areas of Bari and Bist Doab are made of alluvial soil. Both Khadar and Bangar soils are found in these areas.

Sand dunes in Alluvial plains : In Southern parts to river Satluj, the flow of water and gradient of land is towards river Ghaggar. At some places sand dunes have been formed by the flow of water during floods. Drains have been constructed in these areas as a precautionary measure. The sand dunes have been converted into agricultural land.

(3) South-Western sand dunes : In the south-west part of Punjab sand dunes are commonly found along the Rajasthan border. The climate of the region is semi-arid. Sand dunes are found in Bathinda, Mansa, Fazilka, Faridkot, Sangrur, Muktsar, Southern parts of dried Patiala and central portion of Ferozpur. The slope of the sand dunes is assymetrical. Hardwoking farmers of Punjab have converted these sand dunes into agricultural land by flattening them and with the help of irrigation system. However, the geographical trait has vanished.

CHAPTER AT A GLANCE

- Doab means land lying between two rivers.
- Shiwalik ranges is that part of Himalayas which touches Punjab.
- Gurdaspur-Pathankot, Hoshiarpur and Ropar Shiwaliks have been divided only to make its regional study easy.
- Kandi means the region with abundance of choes.
- Another name for Bari doab is Majha.
- Mand, Bet, Changar, Ghaarh, Bela etc. are local names for low-lying regions adjoining various rivers in Punjab.
- Alluvial plains of Ghaggar are known as Nally locally.
- Natural sandy highlands (Tibbas), found in south-west Punjab have been eliminated by farmers to bring the land under cultivation.

EXERCISES

A Map Work

Show in the outline map of Punjab :

(*i*) Hoshiarpur Shiwaliks and Ropar Shiwaliks

(*ii*) Bet region of river Satluj.

ACTIVITY

1. Prepare three lists of districts of semi-mountainous, plains and south-western sandy regions to display in your classroom.

B Objective Type Questions

Answer the following questions in a single word to one sentence length :

1. What are old alluvial plains known as?
2. What do you understand by Khadar or Bet?
3. In how many classifications can we divide Punjab plains?
4. In which direction sandy highlands fall in Punjab?
5. What is meant by Changar?
6. Which of the following is right and which is wrong :

(*i*) The outermost range of Himalayas is Shiwaliks. ☐

(*ii*) Kandi region falls in south of Roopnagar and Patiala. ☐

(*iii*) Hoshiarpur Shiwalik falls between Satluj and Beas. ☐

(*iv*) Alluvial plains of Ghaggar in South-east Punjab are known as Nally. ☐

C Short Answer Questions

Give short answers for the following questions :

1. Explain characteristics of Kandi region. In which districts of Punjab does it fall?
2. What are seasonal choes? Give examples of these rivelets.
3. Write a note on origin of alluvial plains of Punjab.
4. Write a note on Gurdaspur-Pathankot Shiwaliks.

* * *

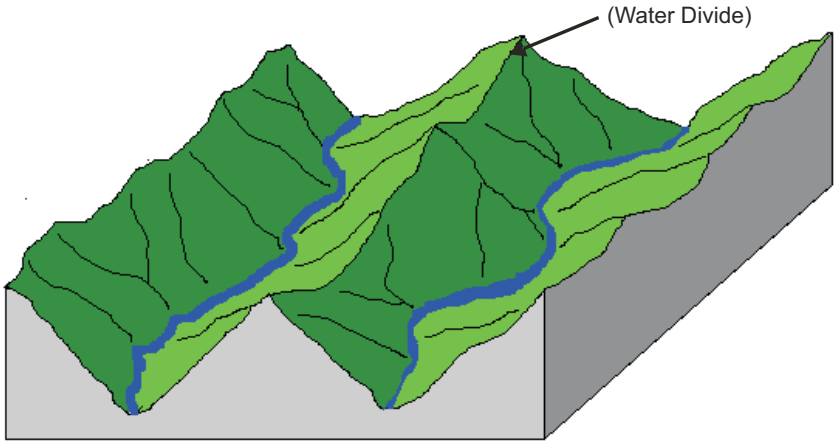
3 (a) India : Drainage

The network of rivers and canals flowing in an area is known as drainage. Nature has gifted with numerous small and large rivers to India. Some of drainage aspects which need special emphasis to understand the patterns the rivers are mentioned as follows :

Doab : is a term used in India for the tract of land lying between two converging, or confluent, rivers. It is similar to an interfluve.

Water Divide : A drainage divide, water divide, divide, ridgeline, watershed, or water parting is the line that separates neighbouring drainage basins. On rugged land, the divide lies along topographical ridges, and may be in the form of a single range of hills or mountains, known as a dividing range.

Drainage Basin : A drainage basin is an area of land drained by a river and its tributaries (river system). It includes water found in the water table and surface run-off. There is an imaginary line separating drainage basins called a watershed. Usually, this is a ridge of high land.



Drainage Divide

Drainage Patterns : Drainage systems, is the pattern formed by the streams, rivers, and lakes in a particular drainage basin. They are governed by the topography of the land, whether a particular region is dominated by hard or soft rocks, and the gradient of the land.

1. Dendritic Pattern (Pattern of Ganga Brahamputra river)

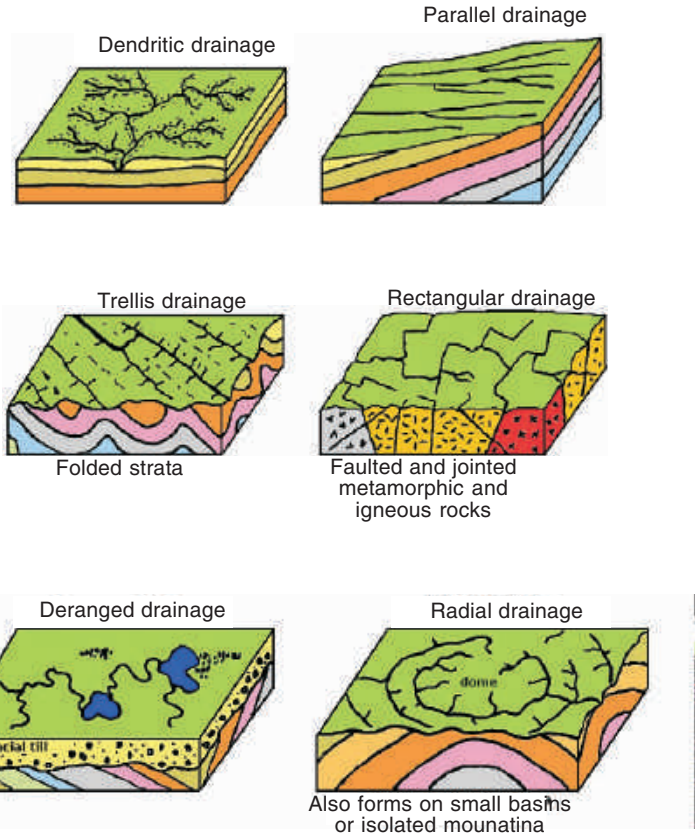
2. Parallel Pattern (Rivers of Western Ghats)

3. Trelleis Pattern (Pattern of rivers of (Chota Nagpur Plateau)

4. Radial Pattern (Pattern of Narmada, Sown, Mahanadi, and rivers from Amarkantak)

Stream drainage patterns associated with geological features

Stream drainage patterns



Indian River system is divided into four parts :

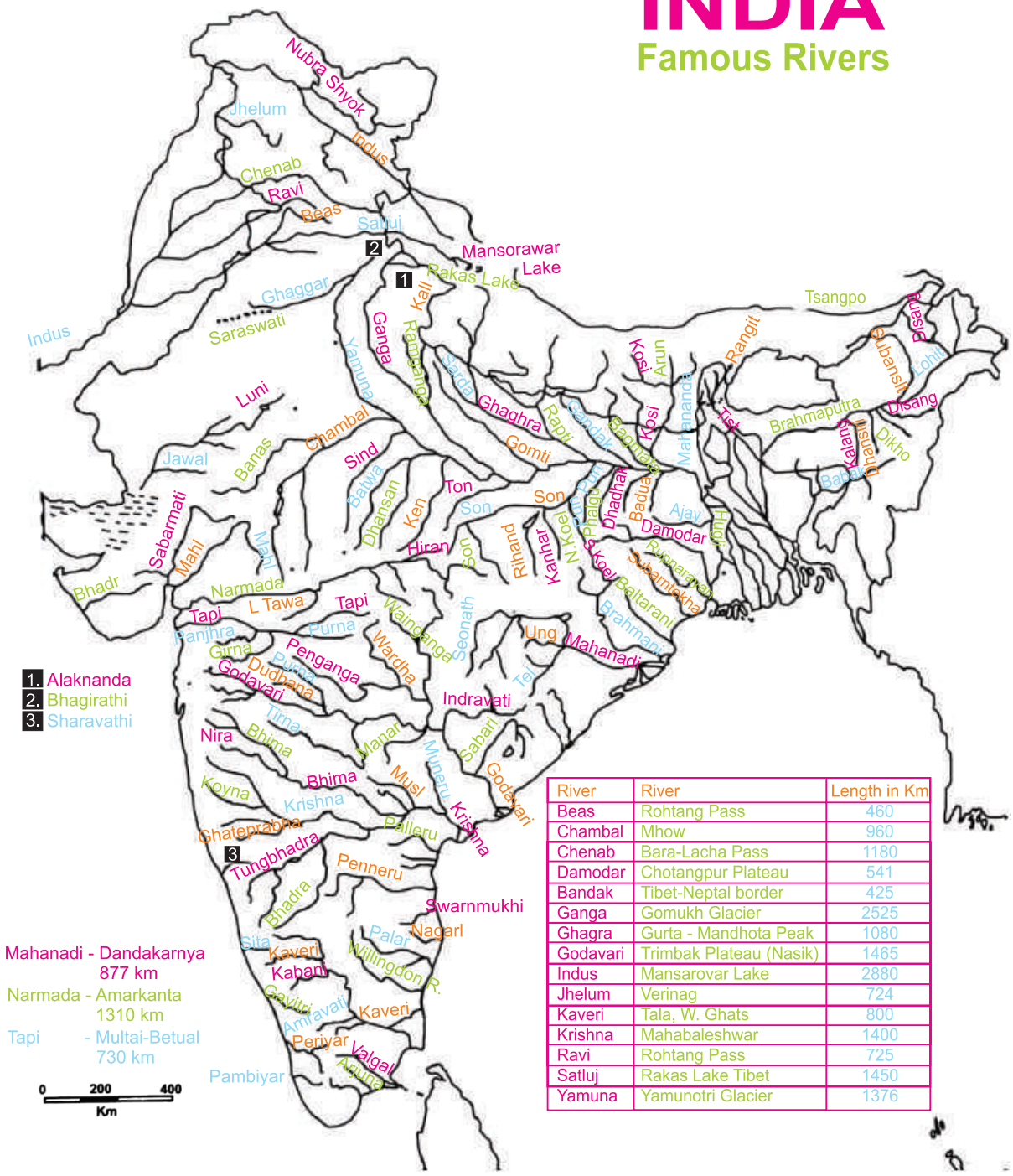
(a) Himalayan River System

(b) Peninsular River System

(c) Coastal Rivers

(d) Inland Drainage

Himalayan River System : Three major rivers Indus, Ganga, Brahamptura and their tributaries are included in this. Himalayan rivers were flowing in this area even before the origin of Himalayas. Gorges of Indus, Satluj, Alkanda, Gandak, Kosi and Brahamputra give strength/support to this thought/statement. These rivers are example of antecedent Drainage. These rivers are perennial rivers. Because of the melting of ice in the mountains these rivers remains full with water throughout the year.



River	River	Length in Km
Beas	Rohtang Pass	460
Chambal	Mhow	960
Chenab	Bara-Lacha Pass	1180
Damodar	Chotangpur Plateau	541
Bandak	Tibet-Neptal border	425
Ganga	Gomukh Glacier	2525
Ghagra	Gurta - Mandhota Peak	1080
Godavari	Trimbak Plateau (Nasik)	1465
Indus	Mansarovar Lake	2880
Jhelum	Verinag	724
Kaveri	Tala, W. Ghats	800
Krishna	Mahabaleshwar	1400
Ravi	Rohtang Pass	725
Satluj	Rakas Lake Tibet	1450
Yamuna	Yamunotri Glacier	1376

Map : Indian Rivers

Indus and its tributaries : Indus river starts from Bokhar-Chu Glacier of Tibet situated at 5,182 meters above the sea level. In Tibet, Indus is known as 'Singhi Khamban or Mouth of Lion. After entering India, it passes through Ladakh, Zaskar, Gilgit, Balistan and enters into Pakistan near Attok. The total length of this river is 2,880 kilometers and its length in India is 709 kilometers. The tributaries of its left side include Zaskar, Jehlum,Chenab, Satluj, Ravi, Beas, and tributaries of its right side are Shyok, Nubra, Gilgit, Kabul Sakardu, Shigo etc.

Indus and its Tributaries :

Chart 3.1

Name of river	Origin	Length (In kms.)	Tributaries
Indus	Bokhar Chu Glacier	2880 (709 in India)	Gilgit, Shyok, Sakardu, Shigo, Jehlum, Chenab, Ravi, Beas And Satluj
Jehlum	Pir Panjal, Vairinaag Glacier	400	Passing through Wullar lake in Kashmir valley
Chenab	Bara Lacha Pass Himachal Pradesh	1800 (In India)	Marosdar, Tawi
Ravi	Rohtang, Himachal Pradesh	725	Ujj, Badal, Syole
Satluj	Rakshtaal (Tibet) 4,555 meters above the sea level	1150 (In India)	Spiti, Soan, Baspa Ohal, Suketi, Parvati, Teetchakki, Baanganga
Beas	Rohtang (Kullu) Beas Kund Himachal Pradesh	470	It confluences with Satluj at Harike

Drainage System : Ganga is considered as sacred river of India. It originates from Gangotri (Gomukh) glacier in Uttrakhand. Its main stream is known as Bhagirathi which confluence with Alaknanda at Devpareag, and from this point it is known as Ganga. It enters, at the distance of 2,525 kilometers from its origin, into Bay of Bengal to make confluence with Barhamputra. It creates world's largest delta called Sundarban Delta

Information about Ganga and its tributaries

Chart 3.2

Name Nga	Origin	Length	Tributaries
Ganga	Gangortri, Glacier	2,525	Right Bank Ramganga, Gomti, Ghagra, (Gomukh) Gandak, Bhargirathi Gandak, Kosi Left Bank : Yamuna, Son, Kane, Betwa and Chambal
Yamuna	Yamnotri Glacier	1376	Chamba, Sindh, Betwa Kein (Upto Allahabad)
Sown	Amarkantak plateau	780	
Ramganga	Kumaoun Himalayas (Near Nainital)	690	
Ghagra	In east of Gangotri	1180	
Gandak	Nopal- China Border	425 (India)	
Kosi		730	
Damodar		541	

Brahamputra Drainage : Brahamputra origin in the Angsi glacier, located on the northern side of the Himalayas in Burang, Tibet near the place of origin of Satluj . In Tibet it is known as Tsangpo and in Chinese it is known as 'Yarlung Tsangpo'. Its length is 3,848 kilometers. After flowing for 1800km crossing Namcha Barwa mountain range it take hairpin turn towards south. After crossing Dihang (Himalayas) it enters

in Sadiya in Assam valley. Then it turns towards south and confluences with Ganga making a largest delta of the world, called Sundarban Delta. In Assam, 'Majuli Island' is situated in this river which is the world's largest Inter Reverine Island, Sabansiri, Kaimang, Dhansiri, Dihang, Torsa,Tista are its major tributaris.

Chart 3.3

Brahamputra and its Tributaries

Name of the river	Origin	Length	Tributaries
Brahamputra	In Kailash mountain range from Aangsi Glacier (Till 1990 it was assumed that it originate from Chemyungund Glacier in Tibet)	3,848 km	Sabansiri, Kamaing, Dhansiri, Dihang, Lohit, Torsa, Manas, Tista, Bhoori Dihang, etc.

Peninsular Drainage : Peninular Rivers are seasonal rivers. Most of the peninsular rivers which include Mahanadi, Kaveri, Godavari, Krishna, etc. flow towards east and also forms deltas. Narmada and Tapi flow towards west and form Estuaries.

Mahanadi : It originates from, Dandakaranya, (Chhattisgarh) and it is 858 kms long. It has mountains on three sides i.e. north, east and south, because of this various other rivers fall in it as tributaries including, Mand, Ong, Jab, Shonath etc.

Godavari : It is the second largest river of India after Ganga and is also known as old Ganga or southern Ganga. Its source is in Triambakeshwar, Maharashtra in Brahamgiri mountains.

Krishna : This is second largest river among the peninsular rivers. It originates from Mahableshwar in wastern Ghats. Total length is 1300 kilometer. Bhima, Dindi, Peddavagu, Musi, Paleru, Munner, Koyna, Panchganga, Dudhaganga, Ghataprabha, Malaprabha, Tungabhadra etc. are its major tributaries .

Kaveri River : It origantes from Talakaveri in western ghats, which is situated in Kodagu district of Karanatka. The length is 800 kilometer. Harangi, Hemavati, Shimsha, Arkavath, Lakshmana Tirtha, Kabini, Bhavani, are its main tributaries.

Narmada River : This is the longest river flowing towards west. Narmada rises from Amarkantak Plateau near Anuppur district, Madhya Pradesh. From its origin to the Gulf of Khambhat its total length is 1,312 km. Its drainage system extends in Madhya Pradesh, Maharashtra and parts of Gujarat. It makes a beautiful waterfall Dhuandhar fall, near Jabalpur (Madhya Pradesh) known as land of Mist. Burhner River, Banjar River, Sher River, Shakkar River, Dudhi River, Tawa River, Ganjal River, are its main tributaries.

Tapti River : It is also known as Tapi River. It starts from Moltai situated in Baitul district of Madhya Pradesh. It flows along with Narmada upto seven kilometers and falls in Gulf of Khambhat (Arabian Sea).

Sabarmati River: It is formed by the confluence of river Hearnev and Hathmati. It originates from Dhebar lake located in Aravalli mountain range of Udaipur district. Like Narmada and Tapi it falls In Gulf of Khambat in Arabian sea. Its length is 371 kilometers, Wakal river, Sei Nadi, Harnav River, Hathmati River, Watrak River, Madhumati Rivers are its tributries.

Mahi River : It rises in Madhya Pradesh and, after flowing through the Vagad region of Rajasthan, enters Gujarat and flows into the Arabian Sea.

River Luni : Luni is a river in Rajasthan. It originates in the Pushkar valley of the Aravalli Range, near Ajmer, passes through the southeastern portion of the Thar Desert, and ends in the marshy lands of Rann of Kutch in Gujarat, after travelling a distance of 495 km. It is first known as Sagarmati, then after passing Govindgarh, it meets its tributary Saraswati, which originates from Pushkar Lake, and from then on it gets its name Luni.

Peninsular Drainage

Rivers flowing towards East

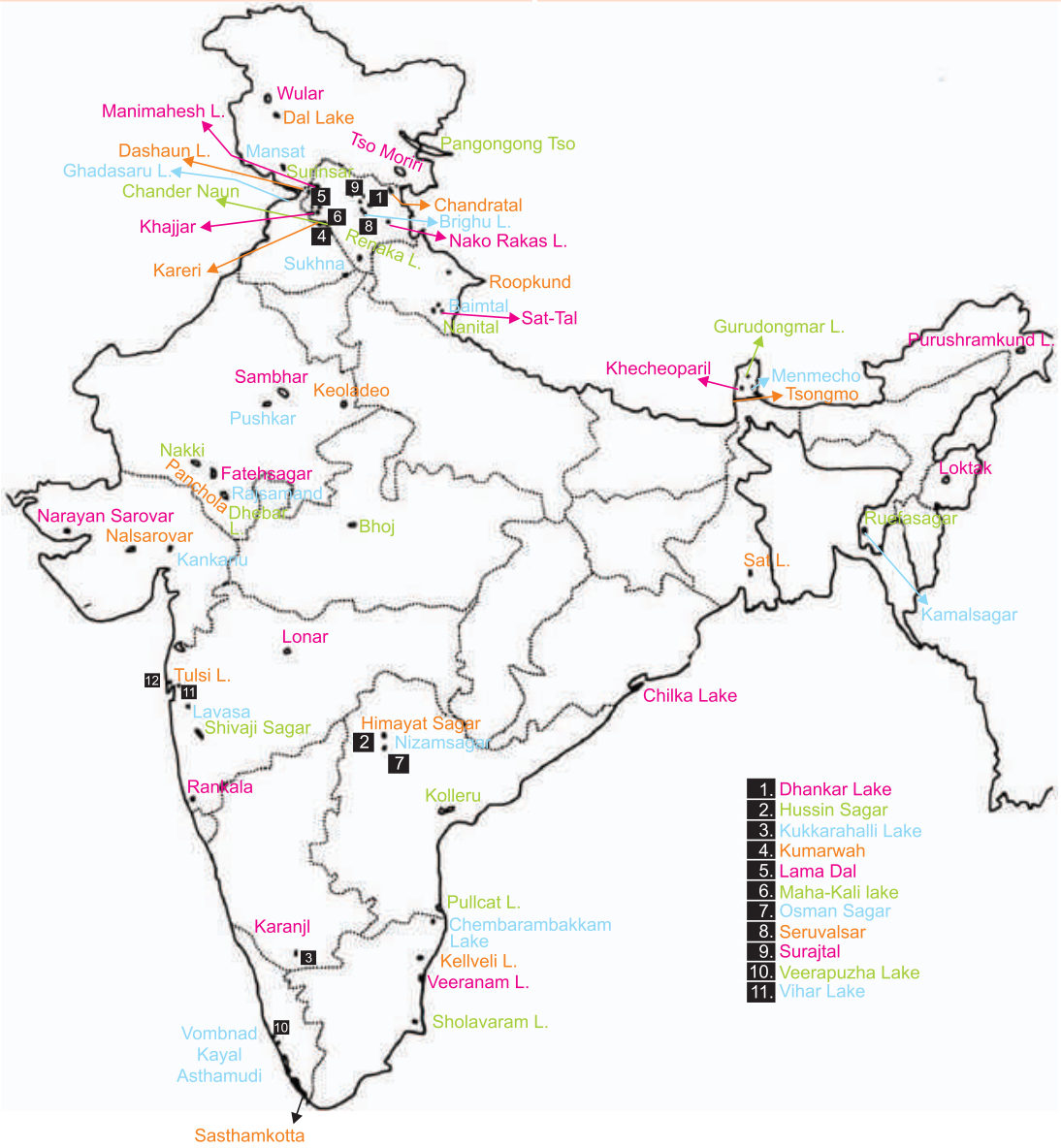
Name River	Origin place	Length (km)	Tributaries
Mahanadi	Dandakaranya, Chhattisgrah Near Raipur	858	Shionath, Mand, Ung, Jab etc
Godavri	Trimbkeshwar in Nasik (Maharashtra)	1465	Vainganga vardha, Indravati, Sabri Manjira etc

Karishna	Mahableshwar Western Ghats	1400	Bhima, Tungbhadra Ghat Prabha etc
Kaveri	Talakaveri Western' Ghats (Brahamgiri Range)	800	Hevanegi, Hemavati, Ankavati, Kabani, Bhavani Shishma etc
Rivers flowing towards West			
Sabarmati	Dhebar lake, Mewar Aravalli, Range Rajasthan	320	Hemavati, Sedhi, Watrak
Narmada	Amarkantak, Madhya Pradesh	1312	Twa, Bhoriar, Banjair Shakkar, Dodhi, Ganjali Hira, Barna etc.
Tapti or Tapi	From Moltai, Satpura	740	Poorna, Vegaar, Girna, Panjhara, Bhaitul, Gomai
Luni	Range in Madhya Pradesh Ani Rusikar Rajasthan	495	
Mahi	Vindhyachal mountains, Madhya Pradesh.	580	

Inland drainage : Some of the Indian rivers do not fall in sea and they go underground. 465 km long river Ghaggar is one of the major examples of these rivers. Similarly Luni river of Rajasthan and rivers flowing in Ladakh are also the important examples.

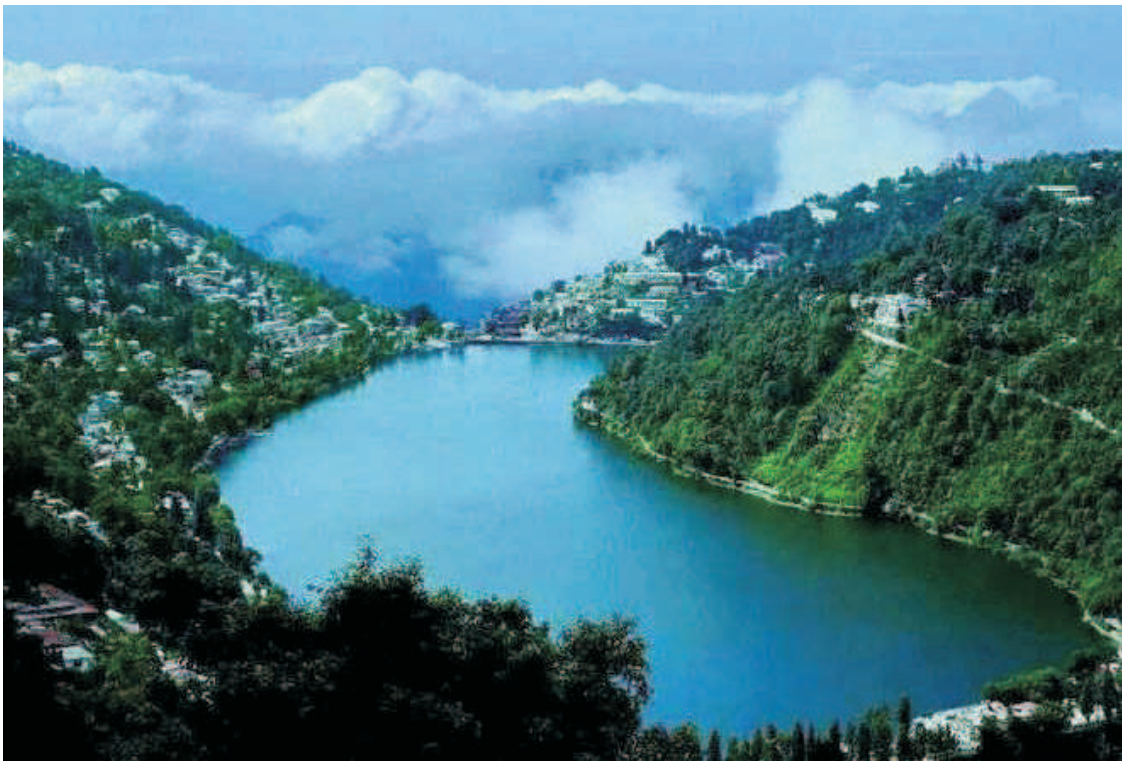
Difference between Himalayan and Peninsular Rivers

Himalayan Rivers	Peninsular Rivers
1. These rivers originate from Himalayan mountains	1. These originate from the mountain ranges of peninsular plateau.
2. The Himalayan rivers have large drainage basins	2. Drainage system of t hese rivers is small.
3. There are perennial rivers.	3. There are seasonal rivers
4. There flow through deep gorges.	4. These have attained mature stage.
5. There are at young stage.	5. Godavri, Krishna, Kaveri make deltas. Narmada and Tapi make esturies.
6. There rivers makes deltas. Ganga-Brahamputra , Sudarban delta is the largest delta of world.	



Map : Indian Lakes

Lakes : Ashtamundi,, Bhimtal, Chandartal, Chilka, Dall, Debar, Himaitsagar, Hussainsagar, Kali velhi, Khajjair, Loktak, Osmansagar, Pangong Tso, Pulikat, Pushkar, Renuka, Roopkhand, Sambar, Shashtamkota, Surajtal, Vembanand and, Wular lakes are the major lakes of India. Lakes get their water with help of rainfall and by melting of glaciers. Dall lake water of Jammu-Kashmir freeze in winter season. Some lakes are man made e.g. Gobind Sagar Lake of Bhakra Dam. Sambar lake in situated in Rajsthan has saline water lake. These lakes are important tourist places.



Beautiful rivew of Nanital Lake (Uttarakhand)

Coastal Rivers : There rivers flow in the coastal areas of Arabian Sea, Bay of Bengal and Indian Ocean. These rivers are small in length and seasonal. Water level in these rivers is high during rainy season. Veluma and Palar rivers of Maharashtra, Mandovi of Goa, Netrawati, Kalinadi, Sheravati, Kumardhar of Karanataka. Periyar, Ponani, of Kerala, Subarnrekha, Kharkai of west Bengal, Palar, Vaigai, Vashit, Shwata, of Tamil Nadu are major coastal rivers.

Role of Rivers in Indian Economy : Indus valley civilization which was the one the most ancient civilizations of the world , flourished on the banks of the Indus and its trubutaries. A river is the cradle of civilisations and shortage of water leads to displacement of civilisations also. Not only civilisations have moved with water, the floklores, traditions, dances have also got related with water. Rivers of India are

the life lines of Indian Economy. Water is the most important natural source. It is used for irrigation, Industries and for household activities. Electricity is produced by dams built on these rivers play an important role in functioning of Industries.

River Water Pollution and Prevention Measure : Excessive nutrients such as, nitrates and phosphates cause excessive growth of algae in water bodies which leads to depletion of dissolved oxygen by bacteria decomposing the algae and finally results in killing of fish & other aquatic organism due to lack of oxygen, This event is called eutrophication. Several disease causing organism like bacteria, protozoans, parasites and viruses pollute the water because of untreated or improperly treated sewage, tanneries releasing untreated animal wastes, etc.This includes polychlorinated biphenyls (PCBs) (Widely used in Plastic, electricals insulation & carbonless printing paper), phenbols and DDT etc. These all are non biodegradable and of carciogenic nature.

Inorganic Compounds found in water are acids, salts, metals. Acids may enter water from Acid precipitation, Chlorine, Nitrates, Industrial and Sewage effluents etc.

Prevention : Time to time governments have taken serious steps to prevent river water pollution . Ganga Action plan was started in 1986. In 2014 government has taken various steps for cleaning river Ganga. River pollution of Punjab is also included in this plan. Along with the efforts of the government, common people should judiciously use fertilizers and Insecticides. Efforts should be initiated at village level to prevent river water pollution.

We can save our water resources by the installation of water treatment plants. It should be made a legal neccessity so that industrial polluted water should be treated well before waste falls into the rivers. Because climatic changes and changing rainfall patterns/regime, the water level is decreasing fast in major rivers. Yellow river of China, Colorado river of America and Ganga are drying fastly. It is high time that thinkers and government should work together for saving the rivers and under ground water.

CHAPTER AT A GLANCE

- The pattern formed by flowing water is known as drainage pattern.
- Rivers of Western Ghats are example of parallel drainage.

- Plateau rivers of Chhota Nagpur are example of trelleis drainage pattern while rivers origionating from Amarkantak are example of radial drainage.
- Indian drainage may be divided in Himalayan, Peninsular, Coastal and Internal categories.
- Indus, Ganges and Brahmputra drainage systems are major drainage systems for Northern, Central and Eastern regions of India.
- Rivers of peninsular drainage system are seasonal.
- Mahanadi, Godavari, Krishna and Kaveri end up in Bay of Bengal.
- Narmada, Tapti and Sabarmati end up in Arabian Sea.
- Veluma, Mandovi, Sheravati, Periar, Subaranrekha Vashisht etc. are all coastal rivers.
- Ghaggar, Luni and Mahi dry up in deserts of Rajasthan and Katchh.
- Chandartal, Dall, Khajiyar, Pushkar, Sambar and Shashtamkota are natural lakes.
- Humans have polluted water by mixing chemicals in it, in the name of development.
- Yellow river of China, Colorado of U.S. and Ganges of India are big rivers, dying or drying up gradually.

A Map Work

1. Show in the outline map of India :
   (*i*) Ganga (*ii*) Brahmputra
   (*iii*) Wular and Sambhar lakes (*iv*) Gobind Sagar Lake
2. Show in the outline map of India :
   (*i*) Ganga with its tributries, three each on both sides.
   (*ii*) Two peninsular rivers flowing towards west.
   (*iii*) Three peninsular rivers flowing towards East and ending up in Bay of Bengal.

B Objective Type Questions

Answer the following questions in a single word to one sentence length :

1. Which among the following is not tributory of Ganga (Ganges) :

   (*i*) Yamuna (*ii*) Beas

   (*iii*) Gandak (*iv*) Son

2. Which of these lakes is not natural :

   (*i*) Renuka (*ii*) Chilka

   (*iii*) Dall (*iv*) Ranjit Sagar

3. Which drainage system is biggest in India :

   (*i*) Ganga (*ii*) Godavari

   (*iii*) Brahmputra (*iv*) Indus

4. Which is biggest delta of the world?
5. What is meant by Doab?
6. What is length of Indus and how much of its portion lies in India?
7. Name three peninsular rivers ending up in Bay of Bengal.
8. In how many parts can we divide drainage systems in India?
9. River Indus origionates from which glacier?
10. Name any two seasonal rivers.
11. Which is birth place of Mahanadi? Name its two tributories.
12. Name five natural lakes of India.

C Short Answer Questions

Give short answers for the following questions :

1. Pollution is increasing in Ganga. What is being done to check it?
2. Write a note on Internal drainage in India.
3. Which is 'Vridh Ganga'? Name its tributories.
4. On which river 'Dhuandhar falls' lies? Name its tributries also.

D Long Answer Questions

Answer the following questions in detail :

1. Which are Himalayan and Peninsular rivers? Differentiate between their characteristics.
2. Describe three drainage systems of India and explain any one of them in detail.
3. What are economic benefits of North Indian and South Indian rivers?

* * *

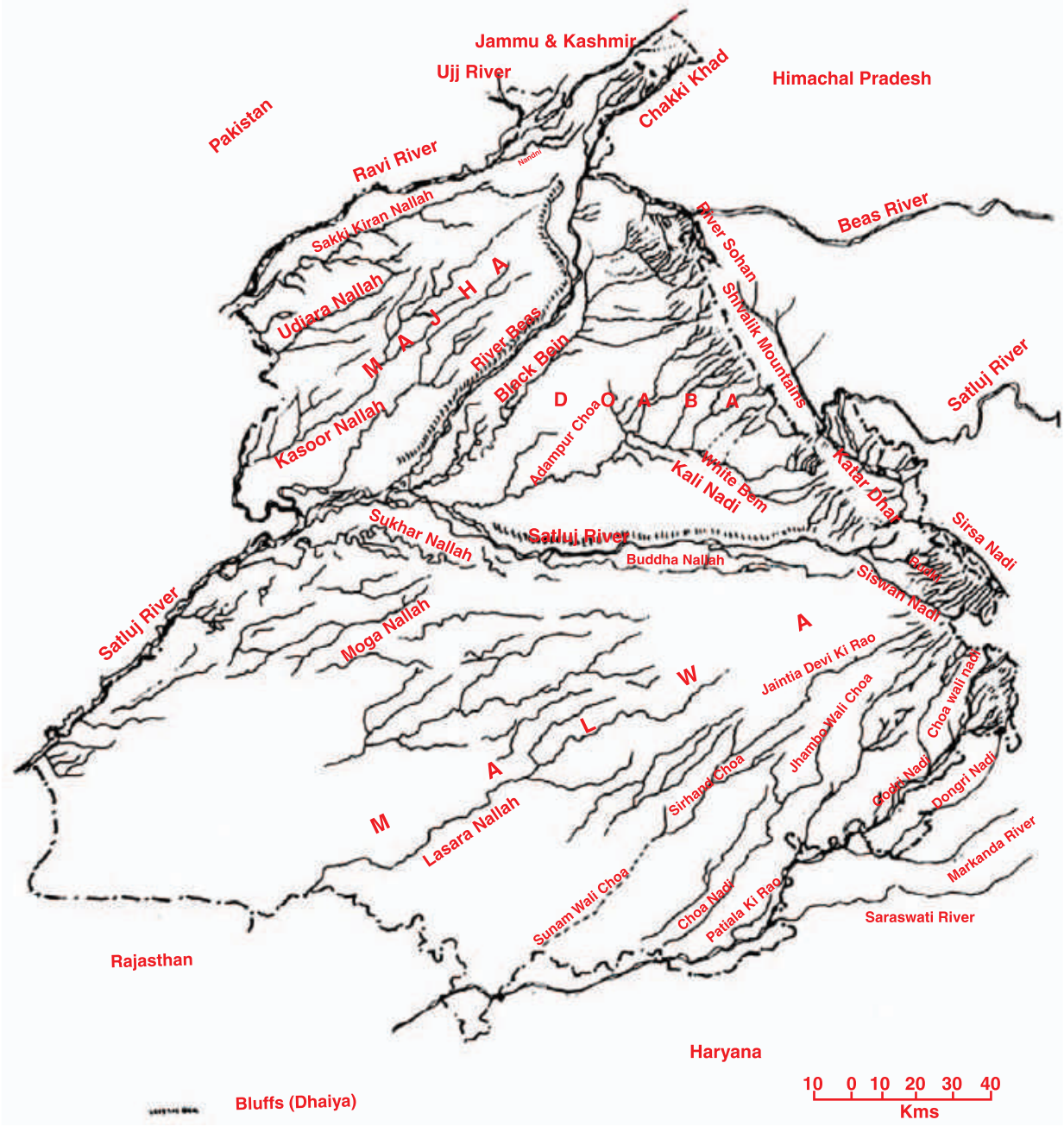
3 (b)

Punjab : Drainage

Word 'Punjab' is made with the combination of two persian words Punj (Five) + Aab (Water) which means land of five rivers. Punjab is the land which was most affected by Indian-Pakistan partition in 1947. After partition, east Punjab got three rivers i.e. Satluj. Beas and Ravi. Jhelum, Chenab, Indus and large canal network was left in Pakistan. The rivers. Ghaggar, Kali Bein Chitti Bein, Sakki Kiran are the seasonal rivers of Punjab.

PUNJAB DRAINAGE

(Perennial Rivers)	(Seasonal Rivers)	(Relict Rivers)
Ravi		Buddha Nallah
Beas		
Satluj	Ghaggar	
	• Chitti Bein	
	• Kali Bein	Sakki Kiran Nallah
	• Uajj (Ravi)	
	• Sowan (Satluj)	
	• Sohan River	
	• Anandpur Choe	
	• Balachour Choe	
	• Noorpur Bedi Choe	
	• Sukhna Choe	
	• Patiala ki rao	
	• Jaintia Devi ki Rao	



Punjab Drainage

DRAINAGE SYSTEM OF PUNJAB

Detailed information about major rivers of Punjab is given below :

Ravi : The Ravi River originates in the Himalayas in the Multhan tehsil of Kangra district of Himachal Pradesh, India. It follows a north-westerly course and is a perennial

river. It is the smallest of the five Punjab rivers that rises from glacier fields at an elevation of 14,000 feet (4,300 m), on the southern side of the Middle Himalayas. It flows through Barabhangal, Bara Bansu and Chamba districts. It flows in rapids in its initial reaches with boulders seen scattered in the bed of the river.

For the proper use of the river Madhopur, Headworks is constructed a in Pathankot district. After this Ravi river flows through Pathankot, Gurdapur and Amritsar districts and is acts as international border between India and Pakistan. It enters Pakistan at village Kakkar in Pakistan and confluences with Chenab at, Bahawalpur.

Tributaries of Ravi : The Ujjh river is most important river of Kathua district in the Indian state of Jammu and Kashmir. It rises from the Domal Structure of Seojdhar of the Middle Himalayan ranges. The length of the river in the district is 65 kilometres and the average width is about 1.2 kilometer near India-Pakistan border. Dhana or Basantpur, Madhopur headworks, Madhopur Beas link and Kathua Feeder are tributaries.

* Four headworks have been built on River Ravi.
* Dhana or Basantpur near Shahpur Kandi
* Katar Dhar
* Madhopur Headworks
* Madhopur Beas Link or Kathua Feeder

Ranjit Sagar Dam / Theen Dam : This Dam was approved in 1981 and it was completed in 2001. It is producing 600 Mega Watt electricity.

River Beas : This river originates from Beas kund which is at the height of 4,361 meter above sea level, near Rohtang pass in Himachal Pradesh. After passing through Mandi and Kullu districts, the river crosses a place, 'Larji' into Dhauladhar Range. It debouches into plains at Talwara in Hoshiarpur district.

In Himachal Pradesh Pandoh dam is built on this river and in Punjab, Pong dam is built at Talwara. In Punjab after flowing for 100 kilometers it confluences with Satluj at Harike at Tarn Taran–Ferozpur Border and from here, Rajasthan feeder canal has been built it is also known Indira Gandhi command canal.The water is used for irrigation and dirnking water purpose in Rajasthan.

Tributaries of Beas : Parbati, Sukantari, Uhl, Sohan and Kali Bein are the major tributaries of Beas. Kali Bein meets Beas at Harike after crowing Hoshiarpur and Kapurthala district.

Satluj: Satluj river originates at west of Lake Rakshastal in Tibet, as springs in an epherral stream channel descending from this lake, situated at the height 4,575 meters near Mansarokar Lake in Tibet. It makes gorges while crossing Himalayas. It entres into plains at Bhakra, where the famous Bhakra dam is built. It turns towards the south from Nangal and move towords Ropar. It enters Pakistan at distance of 60 km from Harike at Sullemanki. Ganguwal, Bhakra Dam, Nathpa-Jhakri, Nangal, are the major dams built on this river.

Soan, Beas and Chitti vain are the major tributries of Satluj. Chitti vain meets Satluj at Giddar Pinddi, which is situated near Makhu in Ferozpur district. Ropar and Harike Headworks are built on this river .

Ghaggar River : Ghaggar is remnant of ancient Saraswati river, which was once flowing through Punjab. Ghaggar is a seasonal stream. It starts from aim of Sirmaur district of Himachal pradesh.It enters into plains at Mubarakpur 1.6 kilometer from Manimajra. After passing through Patiala,Ghanour, and Haryana, it enters into Rajasthan and disappears in the desert.

Choes: Kandi area of Punjab is full of seasonal streams or channels called Choes. These choes orginate from Katardhar and Solasinghi hills. Government has plugged most of these choes. Their water is now collected and used for irrigation and other purpores.Around 93 choes which flow through south of Hoshiarpur district, fall in Chitti bein and Kali Bein. Bna Choe, Tosan Choe , Balachaur Choe, Gharshankar Choe, Nariala Choe, Nangal Choe, Malley Choe, Bahowal Choe, Bhangi Choe, Dasuhya Choe, Mahingrowal Choe, Gondpur Choe, are some of the major choes of Hoshairpur. In order to control the choes, the government has initiated 'Kandi area development project'. Apart from these choes, Jayintia Devi K Rao, Patiala Ki Rao, and Buddha Nallah are other seasonal streams.

Canal System of Punjab : Canal system of Punjab is good. It includes 5 headworks and 14500 kilometer long canals. Sirhind canal, Bist Doab canals, Bari Doab canal, Bhakra main line (BML), Firozepur / Sirhind Feeder system, Makkhu canal, Shahnehar Canal, Kashmir canal, Rajasthan feeder and Bikaner canal are major canals. Eight among ten canals are most important.

CANAL NETWROK OF PUNAJB

Sr. No.	Name of Canal	Length (in km)	Starting Point
1.	Sirhind	59.44	Ropar Headworks
2.	Bist Doab	43.00	Ropar Headworks
3.	Upper Bari Doab	42.35	Madhopur Headworks
4.	Sirhind Feeder II	136.53	Harike Headworks
5.	East Canal	8.02	Hussainiwala Headworks
6.	Bhakra Main Line	161.36	Nangal Barrage
7.	Shah Nehar	2.23	Mukerian Hydel Channel
8.	Rajasthan feeder	149.53	Harike Headworks (Tarn Taran)

Source (Pbirrigation.gov.in)

POLLUTION IN PUNJAB RIVERS

Almost all the rivers in Punjab are highly polluted. Punjab Pollution Control Board, Central Pollution Control Board, and Bhabha Atomic Research Centre have admitted that the water in rivers in Punjab and underground aquifers has become highly toxic, and these toxins are entering in our food chain and spreading deadly diseases like cancer, and many other diseases too. We need to save our future generations. We should protect the environment and judicious use of water is the need of the hour.

CHAPTER AT A GLANCE

- Three out of five rivers of Punjab flow in East Punjab, namely; Satluj, Ravi and Beas.
- Punjab has faced not only political divison but divison of its waters too, time to time.
- Seasonal water flows of Punjab are; Ghaggar, Chitti bein, Kaali bein, Chakki Khadd, Uuj, Siswan, Choes and Roes.

- ☞ Buddha Nala and Sakki Kiran are old drainage courses of rivers.
- ☞ Birth place of Ravi and Beas falls close to Rohtang Pass in Himachal Pardesh.
- ☞ Satluj finds its birth at Rakashtal, a lake in Tibet at Trans-Himalayan region.
- ☞ Ghaggar, now a seasonal riverlet was once a tributary of Sarswati.
- ☞ Kandi region has abundance of Choes.
- ☞ Major canals of Punjab are; Sirhind canal, Bist Doab, Upper Basi, Sirhind Feeder.
- ☞ Punjab has nearly lost its only natural resource, water by polluting water.

A Map Work

Show in the outline map of Punjab :

(*i*) Ravi, Beas, Satluj and Ghaggar.

(*ii*) Any four Zanals

(*iii*) Any four Choes

ACTIVITY

1. Discuss in class, how can we check pollution in rivers.
2. Inform your teacher and officials about polluting river or canal near you.

B Objective Type Questions

Answer the following questions in a single word to one sentence length :

1. Which river originates from Rakashtal near lake Mansarover :

   (*i*) Ghaggar (*ii*) Beas (*iii*) Satluj (*iv*) Brahmputtar

2. How many rivers are there in Punjab :

   (*i*) Three (*ii*) Four (*iii*) Five (*iv*) Eight

3. Ranjit Sagar or Thein dam has been built on which river :

   (*i*) Beas (*ii*) Ravi (*iii*) Satluj (*iv*) None of these

4. In which district do Bhangi and Basha choes fall :

   (*i*) Ferozepur (*ii*) Gurdaspur (*iii*) Hoshiarpur (*iv*) None of these

5. Which statement is right and which in wrong :

   (*i*) Ravi, Beas and Satluj are perennial rivers ☐

   (*ii*) Kaali bein and Parvati are tributories of Beas ☐

   (*iii*) Purest form of natural water is rain water ☐

   (*iv*) Punjab has 10 headworks and 20,786 km canals ☐

6. What does word 'bist' mean in term Bist doab?
7. Name two canals which take water to Rajsthan from Harike lake.
8. Which canal of Punjab provides water to Haryana?
9. What is the source of Upper Bari Doab canal?
10. On which river has Pong Dam been built ?

C Short Answer Questions

Give short answers for the following questions :

1. Enlist tributaries of Beas and Ravi.
2. What are choes ? Name any four choes.
3. Introduce with pollution of drainage systems of Punjab.

D Long Answer Questions

Answer the following questions in detail :

1. Enlist information about Satluj its tributories and dams built on them.
2. Give details of canal system of Punjab. How agriculture got benefitted by it?
3. Write a detailed note on Choes of Punjab.

* * *

4 Climate

Climate is an important aspect of atmosphere. Climate determines the distribution of flora and fauna. The attributes of weather and climate are same of any given place. The climate is the statistics of weather over long periods of time. As World Meteorological Organization describes climate as an arithmetic average of a climate element over a 30-year period. It is measured by assessing the patterns of variation in temperature, humidity, atmospheric pressure, wind, precipitation, atmospheric particle count and other meteorological variables in a given region over long periods of time. Climate differs from weather, in that weather only describes the short-term conditions of these variables in a given region for not less than a day or not more than a week. Climatology is the scientific study of climate, scientifically defined as weather conditions averaged over a period of time. This modern field of study is regarded as a branch of the atmospheric sciences and a subfield of physical geography.

FACTORS AFFECTING THE CLIMATE

The earth is diverse in nature. Some areas are extremely cold and some others have high temperatures even the countries situated at the same latitude may have different type of climate. For example the Himalayas Mountains in India effect the weather of north India. Followings are the main factors affecting climate of any region.

1. Distance from Equator

The sun rays remain perpendicular over equator throughout the year. Therefore countries situated on equator experience summer season almost throughout the year. The mainland of India extends roughly from 8°44'N to 37°6'N and the Tropic of Cancer of passes through the middle of the country. Areas south of the Tropic of Cancer are closer to the equator and experience high temperature throughout the year. The northern parts on the other hand lie in the warm temperature zone. Hence they experience comparatively low temperatures. Some places record considerably low temperatures particularly in winter.

2. Distance from the Sea

The places close the sea coast experience moderate climate and there is less diurnal range of temperature because of nearness of oceans. Therefore Mumbai experiences moderate climate throughout the year. On the contrary, the places situated in the interior parts of the country experience extreme climate. Amritsar is too cold in winter season and too hot in summer because of its distance from the sea.

In order to measure temperature of a human body, any commodity, or air the standard unit of Fahrenheit degree Celsius are used.

3. Height From Sea Level

The temperature decreases with height in the troposphere by the rate of 6.5 degree with every 1000 meters or 1 km. or in other words it may be said that the temperature decreases by 1 degree centigrade with every 165 Meter. This phenomenon is called adiabatic lapse rate or environmental lapse rate. This is why the Shimla is always cooler than Amritsar even in the scorching hot season. The air is denser close to the earth as we move above the ground the air become lighter and the temperature decreases.

4. Effect of Relief

Physiography impacts Climate. Mountains check the impact of bitterly cold and hot winds. Physiography of India has a great bearing on major elements of climate such temperature, atmospheric pressure, direction of winds and the amount of rainfall. The great Himalayas stops the very cold and dry winds coming from the Siberian areas to enter India, therefore the temperature in Northern plains always remain around 5 to 8 degree centigrade more than any place on same latitutes on same latitutes in the USA. Places located at higher altitude have cool climate even though they are located in the peninsular India. Northern India would have a desert area in the absence of Himalayan Mountains.

5. Effects of winds

Winds have prominent effect on climate. Moisture laden winds cause rainfall. The most dominating factor of the Indian climate is the 'monsoon winds' as a result of which it is often called the monsoon climate. The complete reversal of the monsoon winds brings about a sudden change in the seasons—the harsh summer season suddenly giving way to eagerly awaited monsoon or rainy season. The south-west summer monsoons from the Arabian Sea and the Bay of Bengal bring rainfall to the entire country. The north-eastern winter monsoon travel from land to

sea and do not cause much rainfall except along the Caromandel coast after getting moisture from the Bay of Bengal. Therefore Indian economy is often called the 'gamble of monsoons'.

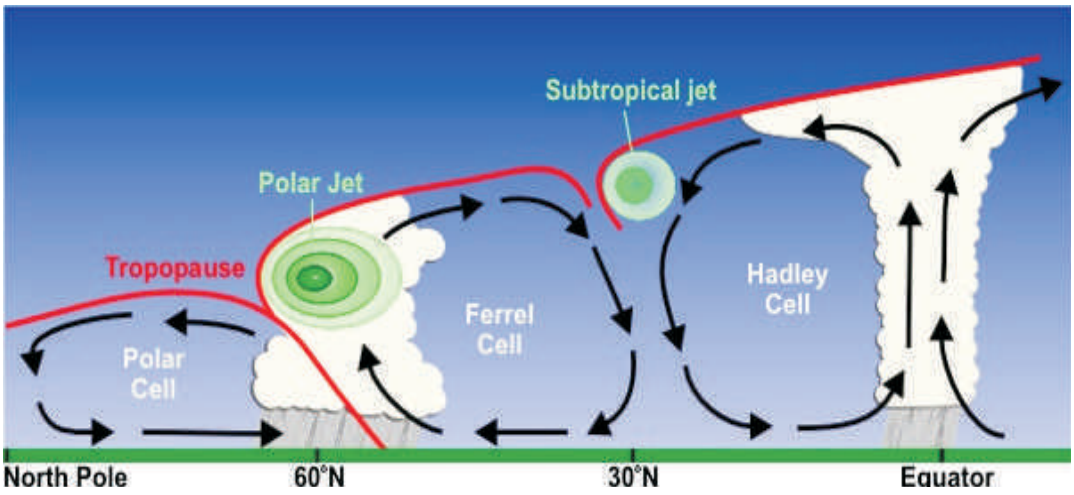
6. Jet stream

The changes in the upper air circulation over Indian landmass influence the climate of India to a great extent. Jet streams in the upper air system influence the Indian climate in the following ways:

(i) Westerly Jet Stream : Westerly jet stream blows at a very high speed during winter over the sub-tropical zone. This jet stream is bifurcated by the Himalayan ranges. The northern branch of this jet stream blows along the northern edge of this barrier. The southern branch blows eastwards south of the Himalayan ranges along 25° north latitude. Meteorologists believe that this branch of jet stream exercises a significant influence on the winter weather conditions in India. This jet stream is responsible for bringing western disturbances from the Mediterranean region in to the Indian sub-continent. Winter rain and heat storms in north-western plains and occasional heavy snowfall in hilly regions are caused by these disturbances. These are generally followed by cold waves in the whole of northern plains.

(ii) Easterly Jet : Reversal in upper air circulation takes place in summer due to the apparent shift of the sun's vertical rays in the northern hemisphere. The westerly jet stream as replaced by the easterly jet stream which owes its origin to the heating of the Tibet plateau. This leads to the development of an easterly cold jet stream centered around 15°N latitude and blowing over peninsular India. This helps in the sudden onset of the south-west monsoons.

The climate has a deep impact over the human beings the shelter, the clothing, food and the occupational structure of human beings all depends upon the climate. The people living in the cold climates always prefer warm eatables like tea, coffee, hot food they live in the warm houses use jackets, sweaters, quilts or the blankets to save themselves from the impact of cold climate. The houses in hot climates are always open and airy. The houses of mountainous areas are having slanting roofs. The Sugarcane, Cotton, Jute, Tea, Coffee are the major crops of the warm climates. On the contrary Apple, Almonds and Cherry etc., are grown in the cold climates. The countries of hot and humid climates always lead to diseases. The hot and humid climates lead to gastrointestinal diseases,skin disease, eye diseases etc. The body the remain the lethargic in the hot climates but the people remain active and energetic in the cooler climate, and the people can work in a better way.



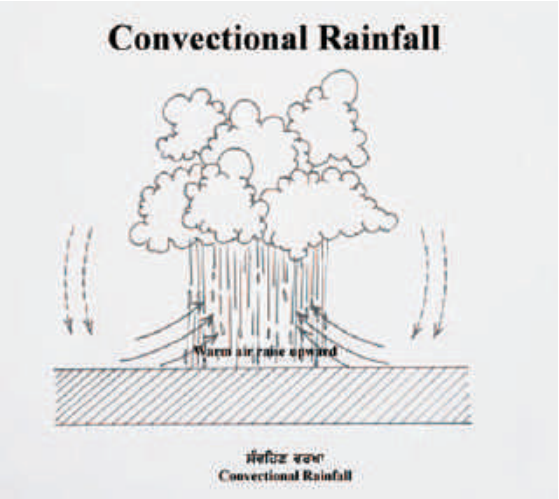
Cross section Jet stream

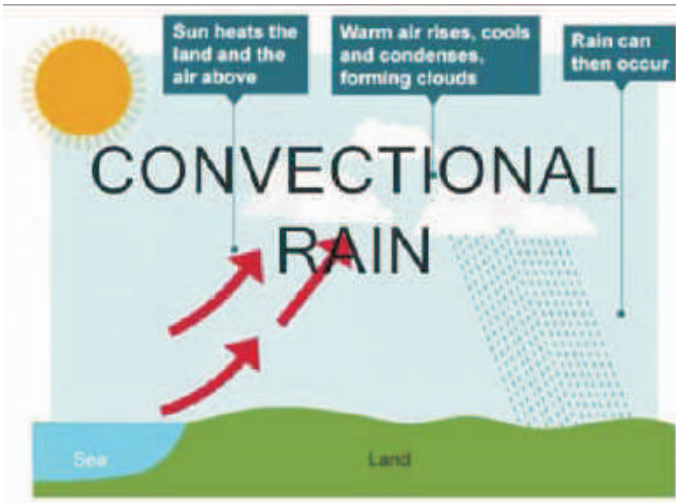
Rainfall : Rainfall is liquid water in the form of droplets that have condensed from atmospheric water vapor and then becomes heavy enough to fall under gravity. Rain is a major component of the water cycle and is responsible for depositing most of the fresh water on the Earth.

Rainfall can be divided into three types:

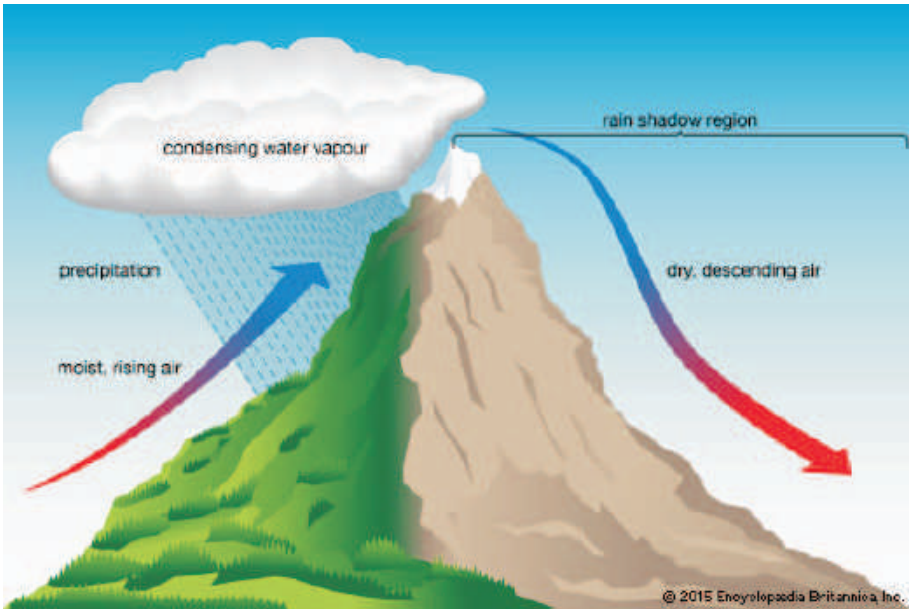
1. **Convectional rainfall**
2. **Orographic rainfall**
3. **Frontal or Cyclonic rainfall**

1. Convectional rainfall occurs when the Earth's surface, within a conditionally unstable or moist atmosphere, becomes heated more than its surroundings, leading to significant evaporation. Convective rain, or showery precipitation, occurs from convective clouds, e.g., cumulonimbus. It falls as showers with rapidly changing intensity. Convective precipitation falls over a certain area for a relatively short time, as convective clouds have limited horizontal extent. Most precipitation in the tropics appears to be convective.

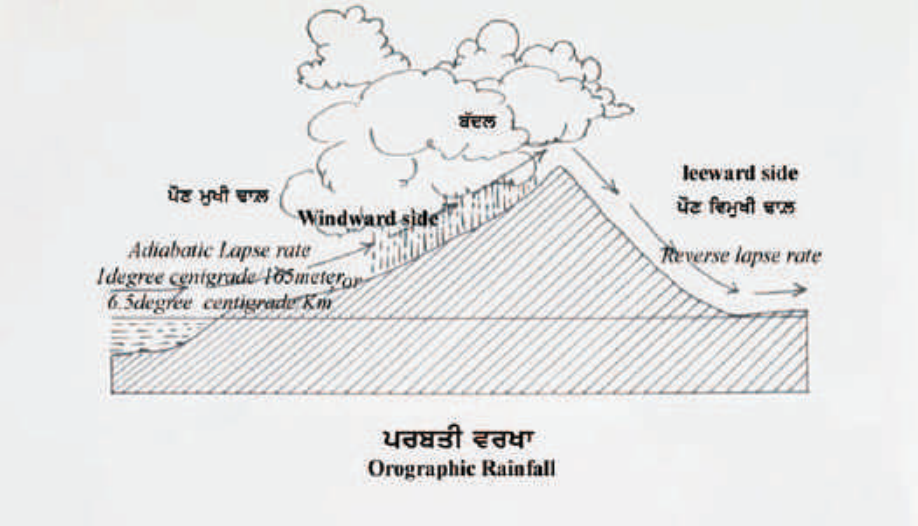




2. Orographic rainfall or relief rainfall is caused when masses of air pushed by wind are forced up the side of elevated land formations, such as large mountains. The lift of the air up the side of the mountain results in adiabatic cooling, and ultimately condensation and precipitation. In mountainous parts of the world subjected to relatively consistent winds (for example, the trade winds), a more moist climate usually prevails on the windward side of a mountain than on the leeward (downwind) side. Moisture is removed by orographic lift, leaving drier air on the descending (generally warming), leeward side where a rain shadow is observed. The Bay of Bengal and Arabian Sea branches of monsoon struck with the Himalayas and cause heavy rainfall in the northern Plains similarly the Western disturbances coming from the Mediterranean Sea cause cyclonic rainfall and snowfall when they struck with the Himalayas.



Orographic Rainfall

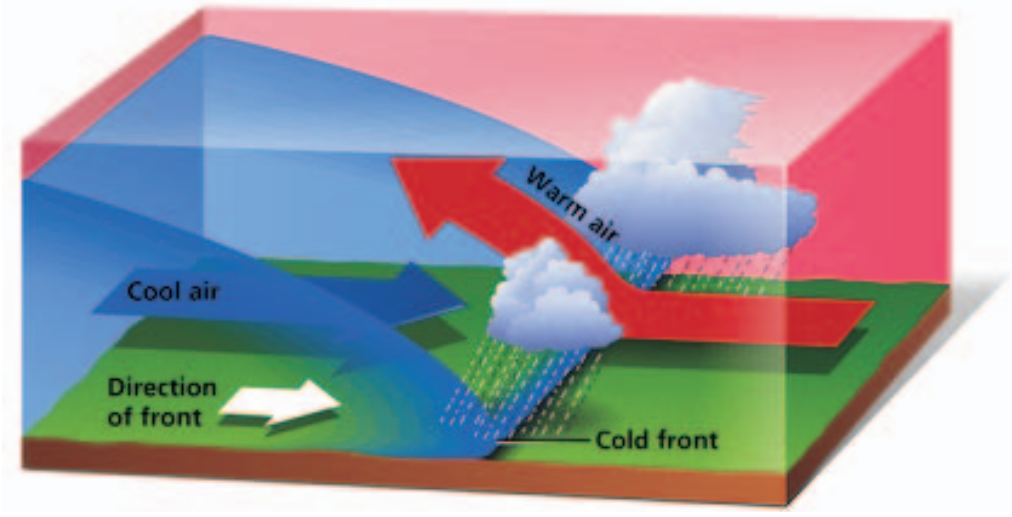


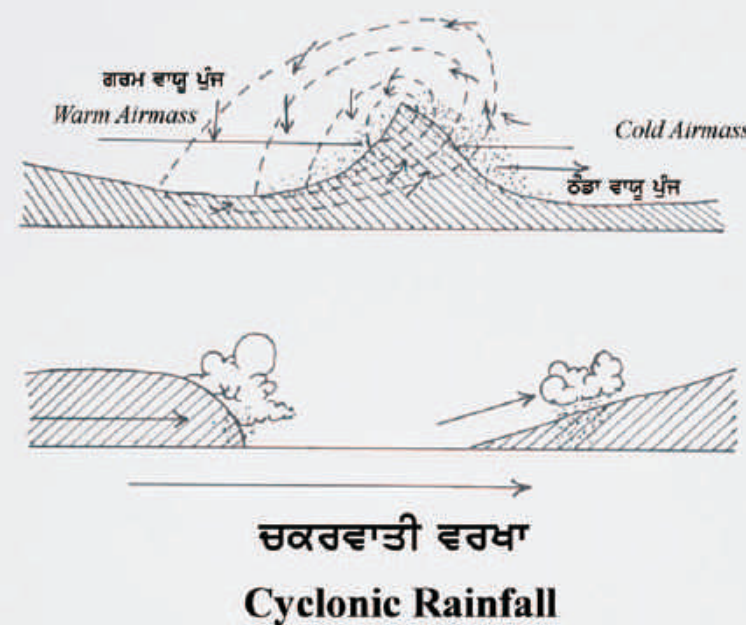
3. Cyclonic or frontal rainfall

A front is the boundary of two contrasting air masses. Frontal precipitation is caused by frontal systems surrounding extra tropical cyclones or lows, which form when warm and often tropical air meets cooler air. Frontal precipitation typically falls out of nimbostratus clouds.

When masses of air with different density (moisture and temperature characteristics) meet, less dense warmer air overrides colder air. The warmer air is forced to rise and if conditions are right becomes saturated, causing precipitation. In turn, precipitation can enhance the temperature and moisture contrast along a frontal boundary. Passing weather fronts cause sudden changes in general temperature, and in the humidity and pressure in the air at ground level. Warm occur where the warm air pushes out a previously lodged cold air mass. The warm air overrides the cooler air and moves upward. Warm fronts are followed by extended periods of light rain and drizzle, because, after the warm air rises above the cooler air (which remains on the ground), it gradually cools due to the air's expansion while being lifted, which forms clouds and leads to precipitation.

Cold fronts occur when a mass of cooler air dislodges a mass of warm air. This type of transition is sharper, since cold air is denser than warm air. The rain duration is shorter, and generally more intense, than that which occurs ahead of warm fronts. The winter in falls in North India in the Punjab in the winter season is because of the cyclonic rainfall originating from the Mediterranean Sea and Persian Gulf. The winter rainfall in northern plains is very beneficial for the Rabi crops specially wheat.





MONSOONS

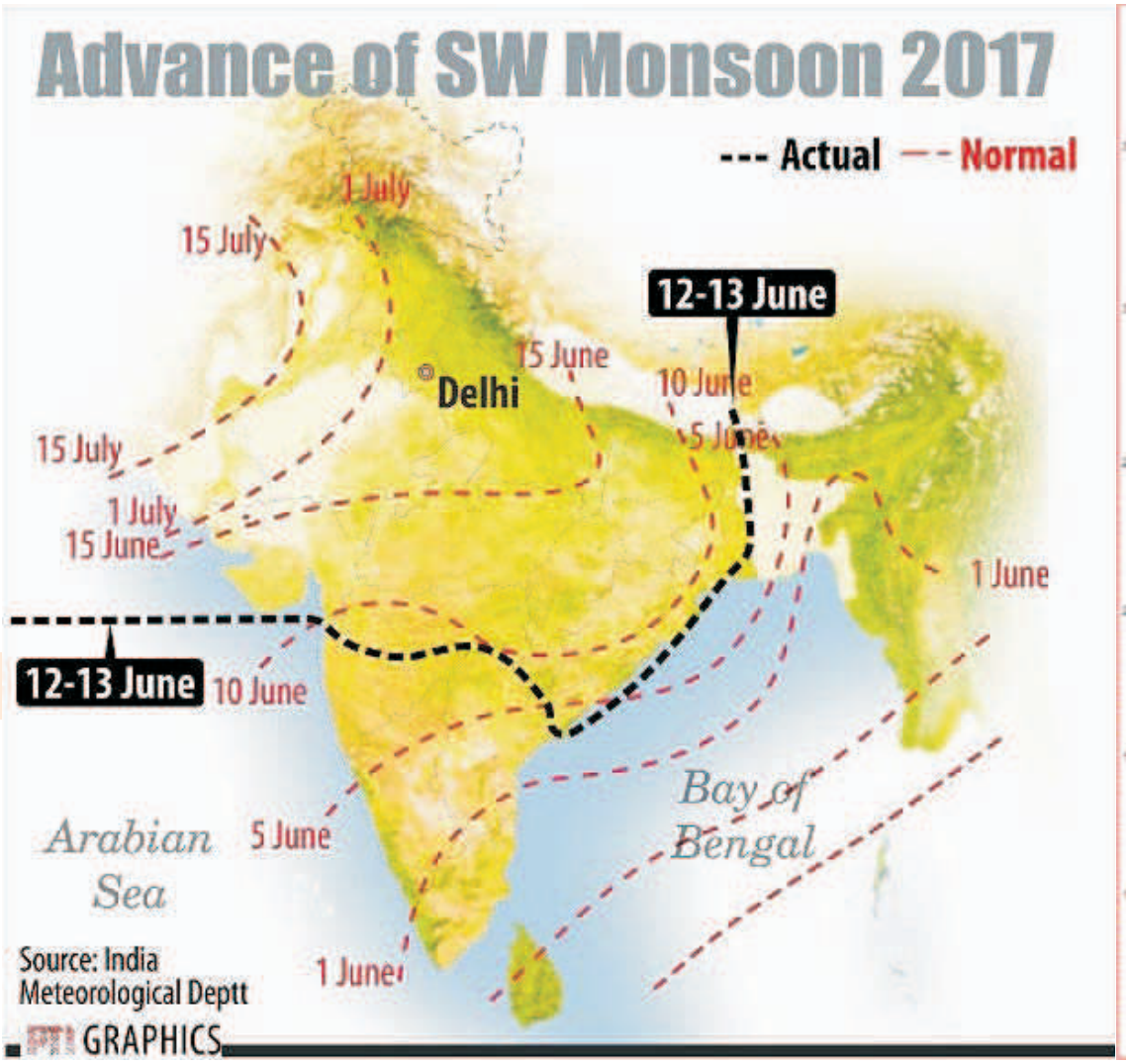
Monsoon is traditionally defined as a seasonal reversing wind accompanied by corresponding changes in precipitation, but is now used to describe seasonal changes in atmospheric circulation and precipitation associated with the asymmetric heating of land and sea.Monsoon rainfall has great impact over the climate of India hence the Indian climate is sometime termed as a monsoonal type of climate. The 90% of rainfall in India depends upon the Monsoon. The agriculture is a main occupation of peoples in India most of the agriculture depends upon the monsoonal rainfall for its irrigational requirements. In other words we can say the economy of the India is largely depends upon the monsoonal rainfall. The monsoon rainfall is mostly a phenomenon that occurs in 20 degree north and South latitudes.

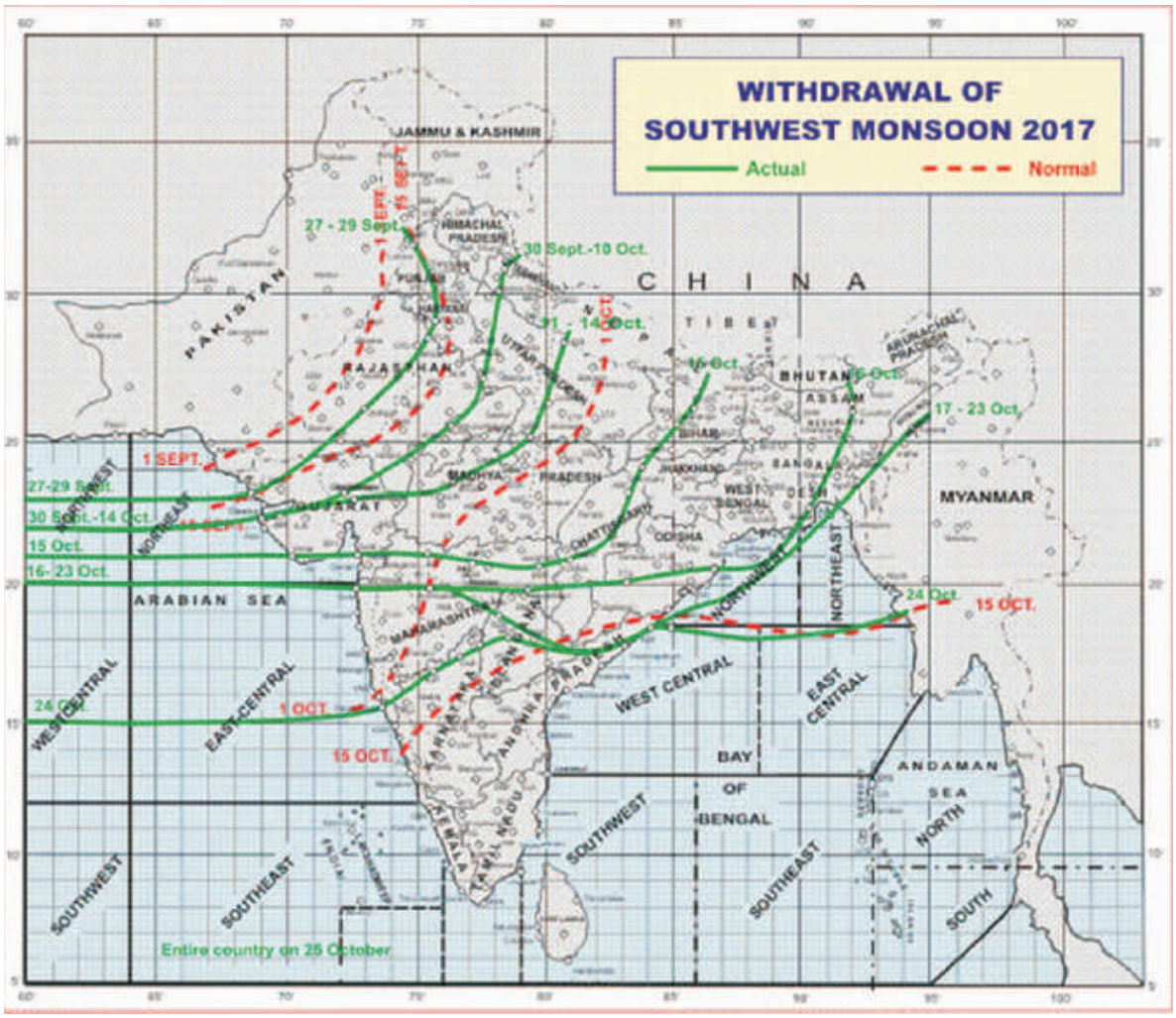
The mechanism of Indian Monsoon is still not clear But it is certain that multiple factors are responsible for the origin these winds. The following factors are responsible for the origin of Monsoon:

1. The phenomena of Indian Monsoon is generally occurs because of differential heating of land and water. In summers the sun rays are vertical over Tropic of Cancer and because of very high temperatures the air pressure becomes low in northwest part of India. On the contrary it is high pressure over the Bay of Bengal and Arabian Sea so the wind blows from sea to land. These are called Summer Monsoons.
2. Jet stream effects the Indian Monsoons, the onset of the southwest Monsoon is driven by the shift of the subtropical westerly jet north from over the plains of India toward the Tibetan Plateau. This shift is due to the intense heating of

the plateau during the summer months. The primary cause is believed to be the height of the Himalayas. As the Tibetan Plateau heats up, the low pressure created over it pulls the westerly jet towards north. Because of the lofty Himalayas, the westerly jet's movement is inhibited. But with continuous dropping pressure, sufficient force is created for the movement of the westerly jet across the Himalayas after a significant period. As such, the shift of the jet is sudden and abrupt, causing the bursting of southwest Monsoon rains onto the Indian plains. The reverse shift happens for the northeast Monsoon.

3. In summer months the sun is a vertical over Tropic of Cancer and pressure belts shifts northward because of this reason the air pressure becomes low over north India making the conditions favorable for advent of Monsoon
4. The vast Tibetan plateau, high up in the mountains, warmed during the summer months, it heated the air above, which then rose and created an area of low pressure, That belt of low pressure sucked in moisture from the oceans, thus initiating the Monsoon. The heating of the Tibetan plateau correlated well with rainfall over India.





Coriolis force is an effect whereby a mass moving in a rotating system experiences a force (the *Coriolis force*) acting perpendicular to the direction of motion and to the axis of rotation. On the earth, the effect tends to deflect moving objects to the right in the northern hemisphere and to the left in the southern and is important in the formation of cyclonic weather systems.

Summer Monsoons

The Phenomena of Indian monsoon is generally occurs between June to mid-September. It is because of Differential heating of land and water in summers the sun rays are vertical over Tropic of Cancer and because of very high temperatures the air pressure becomes low in Northwest part of India on the contrary it is high pressure over the Bay of Bengal and Arabian Sea so the wind-blown from sea to land. These are called summers monsoons 90% rainfall occurs because of summer monsoons.

Winter Monsoons

By early September, the monsoon starts to withdraw or retreat and is a more gradual process. By mid-October, it withdraws completely from the northern half of the peninsula. The withdrawal takes place progressively from north to south from the first week of December to the first week of January. This is the start of the winter season.

The retreating monsoon winds move over the Arabian Sea and the Bay of Bengal, and collect moisture on the way. These monsoon winds reach the southern states of India by October and are responsible for a second round of rainfall. These are called the winter monsoons. The winter monsoon is experienced in the states of Karnataka, Tamil Nadu, Kerala and Andhra Pradesh in the months of November to December.

Indian monsoon impacts Indian agriculture And industries like cotton textile, sugar industry and Vanaspati ghee industry etc, to the great extent.

SUMMER SEASON

Summer in northwestern India starts from April and ends in July while in the rest of the country from March to May. The temperatures in the north rise as the vertical rays of the Sun reach the Tropic of Cancer. The hottest month for the western and southern regions of the country is April while for most of North India, it is May. Temperatures of 50 °C (122 °F) and higher have been recorded in parts of India during this season like Alwar in Rajasthan. Another striking feature of summer is the Loo (wind). These are strong, gusty, hot, dry winds that blow during the day in India. Direct exposure to these winds may be fatal. In cooler regions of North India, immense pre-monsoon squall-like thunderstorms, known locally as “Norwesters”, commonly drop large hailstones. By May, most of the Indian interior experiences mean temperatures over 32 °C (90 °F), while maximum temperatures often exceed 40 °C (104 °F). In the hot months of April and May, western disturbances, with their cooling influence, may still arrive, but rapidly diminish in frequency as summer progresses. Notably, a higher frequency of such disturbances in April correlates with a delayed monsoon onset (thus extending summer) in northwest India. In eastern India, monsoon onset dates have been steadily advancing over the past several decades, resulting in shorter summers there.

WINTER SEASON

Once the monsoons subside, average temperatures gradually fall across India. As the Sun’s vertical rays move south of the equator, most of the country experiences

moderately cool weather; temperatures change by about per degree of latitude. December and January are the coldest months, with low mean temperatures of Indian Himalayas. Mean temperatures are higher in the east and south.

In northwestern India region, virtually cloudless conditions prevail in October and November, resulting in wide diurnal temperature swings; as in much of the Deccan Plateau, they register at 16–20 °C (61–68 °F). However, from January to February, "western disturbances" bring heavy bursts of rain and snow. These extra-tropical low-pressure systems originate in the eastern Mediterranean Sea. They are carried towards India by the subtropical westerlies, which are the prevailing winds blowing at North India's range of latitude. Once their passage is hindered by the Himalayas, they are unable to proceed further, and they release significant precipitation over the southern Himalayas.

Isotherms are the imaginary lines drawn on a map or chart of the Earth's surface connecting points having the same temperature at a given time or the same mean temperature for a given period.

Characteristics of the Monsoon climate of India are :

1. Monsoons are not certain. Their onset is sometimes very early and sometimes very late.
2. Secondly, there is great variation in the amount of rainfall from year to year.
3. Monsoons do not reach in equal amount all around the country. They vary from region to region.
4. Continuous heavy spell of rainfall is sometimes followed by dry spell.

SEASONS IN INDIA

Indian climate is monsoonal and therefore different types of climates. Changing seasons have more impact in the interior parts in the country that experience extreme climates but the coastal areas experience moderate climate throughout the year.

Summer season

The north summer in northwestern India starts from April and ends in July, and in the rest of the country from March to May. The temperatures in the north rise as the vertical rays of the Sun reach the Tropic of Cancer. The hottest month for the western and southern regions of the country is April; for most of North India, it is May. Temperatures of 50 °C in Alwar, Rajasthan (122 °F) and higher have been

recorded in parts of India during this season. Another striking feature of summer is the Loo (wind) These are strong, gusty, hot, dry winds that blow during the day in most parts of Punjab, Haryana Rajasthan. The coastal areas experience moderate climate.

Winter season

Winter season is from November to mid march. As we move northwards the temperatures decrease. On Chennai coast the temperature remains 24 degree centigrade, but it remains around 10 to 15 degree centigrade in the months of December and January. The night temperature decrease sometimes to below freezing point in North. The mountainous areas experience snowfall. The lowest temperatures are recorded at 'Dras' (Jammu & Kashmir) is -45 degree centigrade. The sky remains clear with no clouds. The coastal areas experiences moderate climate. Western disturbance (WD) is an extra-tropical storm which originates in the Mediterranean region, Western disturbance is associated with rainfall, snowfall and fog in northern India. Upon its arrival in northern India, clouds along with rain and snow also arrive. The moisture which Western disturbance carry with them comes from the Mediterranean Sea and/or from the Atlantic Ocean. This rainfall is very beneficial for rabi crop.

RAINY SEASON IN INDIA

Indians eagerly wait for rainy season, since it brings some relief from scorching heat and it remains till September. The weather conditions all over the country change with the onset of the Monsoon winds. High heat, high humidity, extensive clouding and several spells of moderate to heavy rain with strong surface winds are the chief characteristics of this season. The impact of Monsoon on the local weather is different from place to place. In some places there is just a likelihood of having a little more or less rain. In other places, quasi/semi-deserts turn into vivid green grasslands where all sorts of plants and crops can flourish. The moisture-laden winds on reaching the southernmost point of the Indian Peninsula, due to its topography, become divided into two parts: the Arabian Sea Branch and the Bay of Bengal Branch.

The Arabian Sea Branch of the Southwest Monsoon first hits the Western Ghats of the coastal state of Kerala (India) thus making this area the first state in India to receive rain from the Southwest Monsoon. This branch of the Monsoon moves northwards along the Western Ghats (Konkan and Goa) with precipitation on coastal

areas, west of the Western Ghats. The eastern areas of the Western Ghats do not receive much rain from this Monsoon as the winds do not cross the Western Ghats.

The Bay of Bengal Branch of Southwest Monsoon blows over the Bay of Bengal heading towards North-East India and Bengal, picking up more moisture from the Bay of Bengal. The winds arrive at the Eastern Himalayas with large volume of rain. Mawsynram situated on the southern slopes of the Khasi Hills in Meghalaya (India), is one of the wettest places on Earth, where 1221 cm of rainfall has been recorded in a single day. One more Centre in Khasi mountain Cherapunji has recorded 1102 cm rainfall. After the arrival over the Eastern Himalayas, the winds turns towards the west, travelling over the Indo-Gangetic Plain at a rate of roughly 1–2 weeks per state, pouring rain all along its way. June 1 is regarded as the date of onset of the Monsoon in India, as indicated by the arrival of the Monsoon in the southern/most state of Kerala.

RETREATING MONSOON

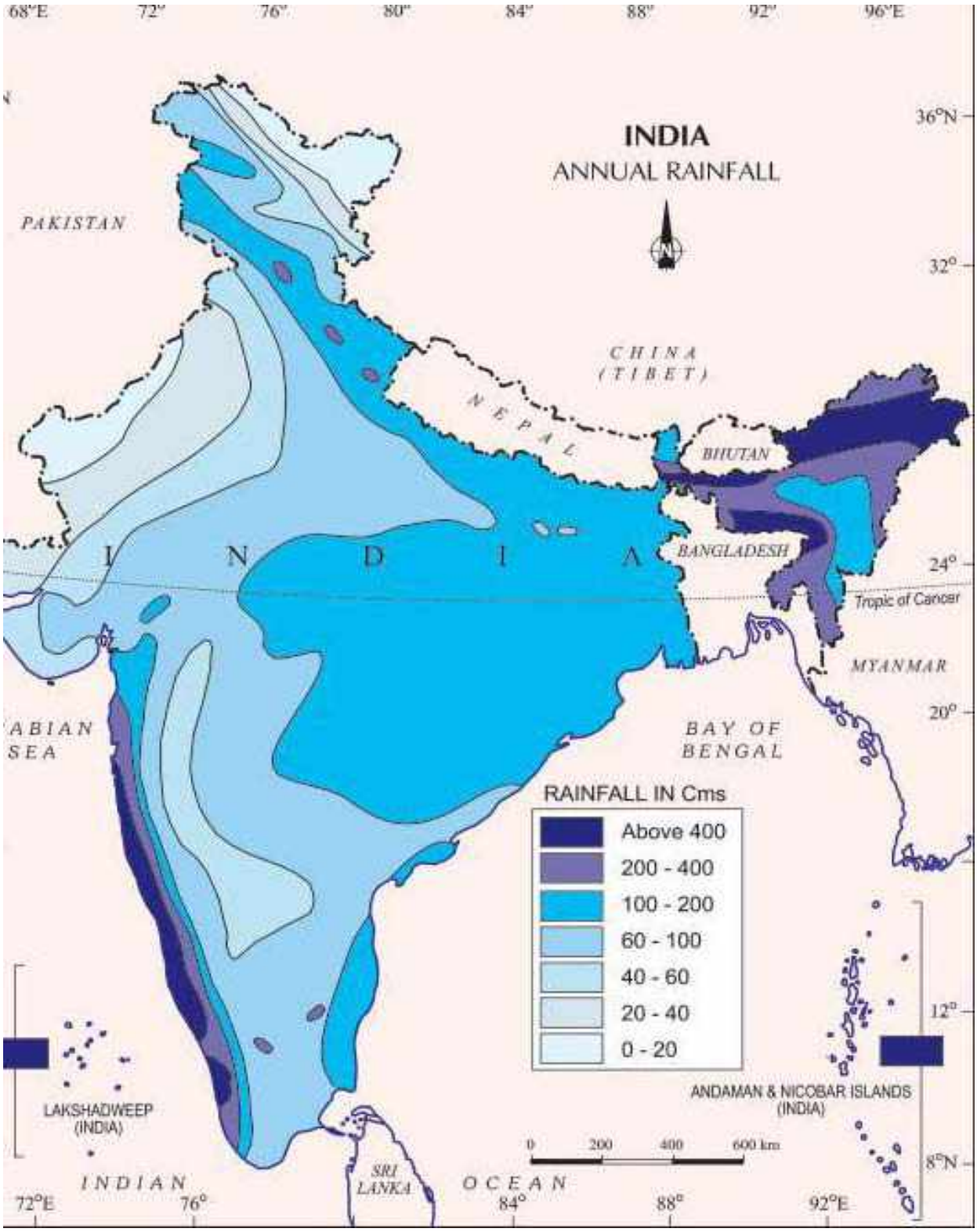
Retreating Monsoon season starts with the beginning of the withdrawal of southwest Monsoon (middle of September–November) and lasts till early January. It's a 3 month long process which starts from the peninsula in October and from the extreme south-eastern tip by December. The sky becomes clear as the south-west Monsoons withdraw from Coromandel Coast in the middle of December. In Punjab the south-west Monsoons withdraw from there in the second week of September. The temperature during this period falls steeply and the sky becomes clear. Most severe and devastating tropical cyclones originate in the Indian seas and in the Bay of Bengal during the retreating Monsoon season. The low pressure is created over Bay of Bengal and tropical cyclones create havoc with devastating cyclones.

Distribution of rainfall

The rainfall in India is very uneven. It is more than 1100 cm in Garo, Khasi, Jaintia mountains in Meghalaya and it is less than 15 cm in Ladakh and western Rajasthan

1. The areas of heavy rainfall

These are the areas where the average rainfall is more than 200 cm Assam, Meghalaya, Nagaland, Western Ghats receive maximum rainfall throughout the year.



2. The areas of moderate rainfall

These areas receive rainfall from 100 to 200 cm West Bengal, Northern part of Uttar Pradesh, Odisha, coastal areas of Tamilnadu some parts of Himalayas, Madhya Pradesh, Andhra Pradesh, and Bihar receive moderate rainfall.

Isohyet is a line drawn on a map connecting points having equal amount of precipitation during a given time period or for a particular storm

3. Regions with less rainfall

These areas receive rainfall from 50 to 100 cm Punjab, Southeast Rajasthan, Western Uttar Pradesh, Haryana, Maharashtra and Karnataka fall in this category.

4. Areas of very less rainfall

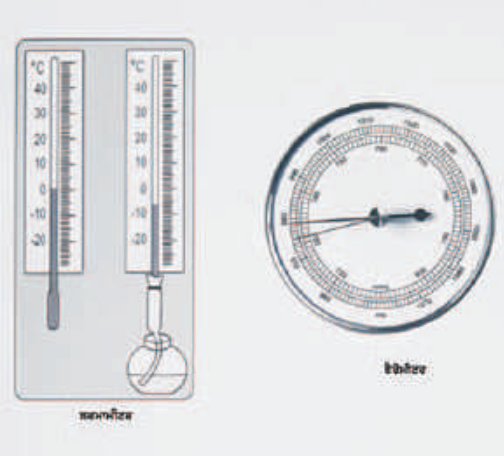
Some areas receive less than 50 cm of rainfall in western Rajasthan, Kutchh in Gujarat and Ladakh in J&K are some areas which receives very less rainfall throughout the year.

THE INSTRUMENTS USED FOR FORECASTING THE WEATHER

The climate of a country depends upon the rainfall, temperature, humidity, air pressure, direction of winds etc. The brief description of some weather forecasting instruments is given below:

The Maximum-Minimum Thermometer

The maximum-minimum thermometer consists of a U-shaped glass tube filled with alcohol on both ends of the tube. As the alcohol expands in response to temperature change, the metal index on both sides of the thermometer record the maximum and minimum temperatures. It shows the temperature in degree Celsius.



Aneroid Barometer

Aneroid barometer is an instrument for measuring air pressure. The aneroid barometer uses a small, flexible metal box called an aneroid cell (capsule), which is made from an alloy of beryllium and copper. The evacuated capsule (or usually several capsules, stacked to add up their movements) is prevented from collapsing by a strong spring. Small changes in external air pressure cause the cell to expand

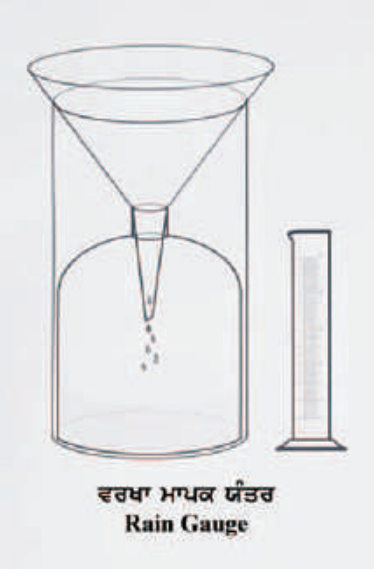
or contract. This expansion and contraction drives mechanical levers such that the tiny movements of the capsule are amplified and displayed on the face of the aneroid barometer. In addition, the mechanism is made deliberately "stiff" so that tapping the barometer reveals whether the pressure is rising or falling as the pointer moves. Air pressure is depicted in millibars.

Dry and wet bulb thermometer.

An instrument used to measure the relative humidity of the atmosphere. It consists of a thermometer with a bulb that is wet or moist and one that is kept dry. The relative humidity is calculated from the difference in readings of the thermometers when water evaporates from the wet bulb, decreasing its temperature.

Rain gauge

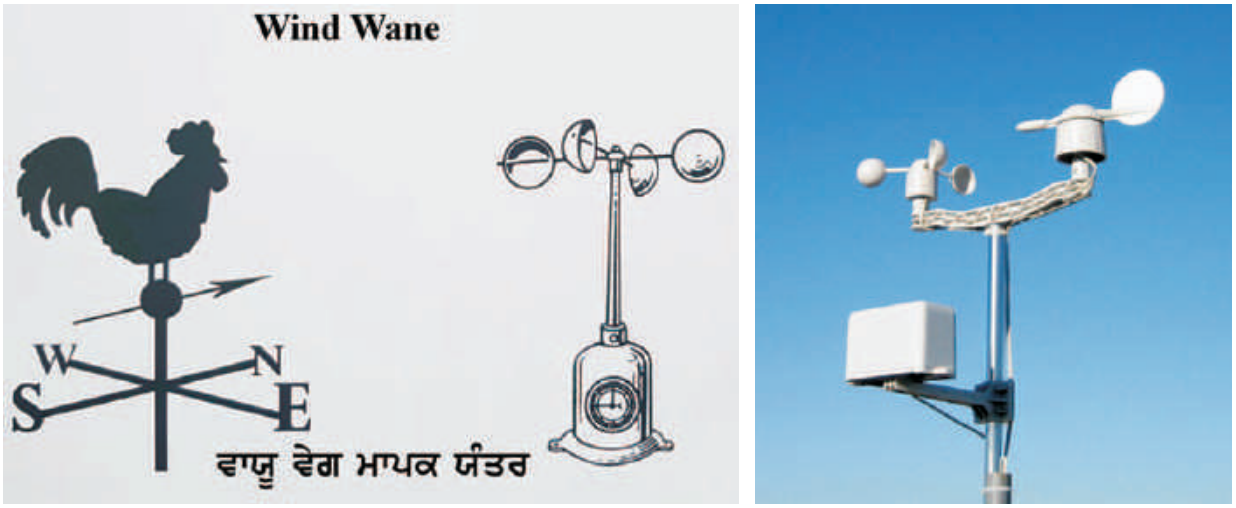
Rain gauge is an instrument used by meteorologists and hydrologists to gather and measure the amount of liquid precipitation over set period of time. The standard rain gauge, consists of a funnel emptying into a graduated cylinder, 2 cm in radius, which fits inside a larger container which is 20 cm in diameter and 50 cm tall. If the rainwater overflows the graduated inner cylinder, the larger outer container will catch it. When measurements are taken, the height of the water in the small graduated cylinder is measured, and the excess overflow in the large container is carefully poured into another graduated cylinder and measured to give the total rainfall. Sometimes a cone meter is used to prevent leakage that can result in alteration of the data. In locations using the metric system, the cylinder is usually marked in mm and will measure up to 250 millimeters of rainfall. Each horizontal line on the cylinder is 0.5 millimeters.



Wind vane

Wind vane is an instrument used to indicate wind direction. It consists of an asymmetrically shaped object, e.g., an arrow or a rooster, mounted at its center of gravity so it can move freely about a vertical axis. Regardless of the design, the portion of the object with greater surface area (usually the tail) offers greater resistance to the wind and thus positions the vane so that the forward part points in the direction from which the wind is blowing. The compass direction of the wind may then be determined by reference to an attached compass rose; alternatively, the orientation of the vane may be relayed to a remote calibrated dial.

An anemometer is a device used for measuring the speed of wind, and is also a common weather station instrument.



Wind Wane

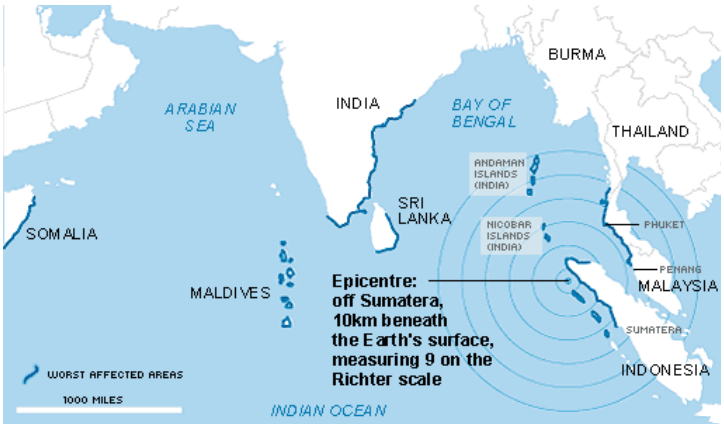
Natural Disasters are major adverse events resulting from natural processes on the Earth; examples include floods, hurricanes, tornadoes, volcanic eruptions, earthquakes, tsunamis, and other geologic processes. A natural disaster can cause loss of life or property damage and cause challenge to environment too.

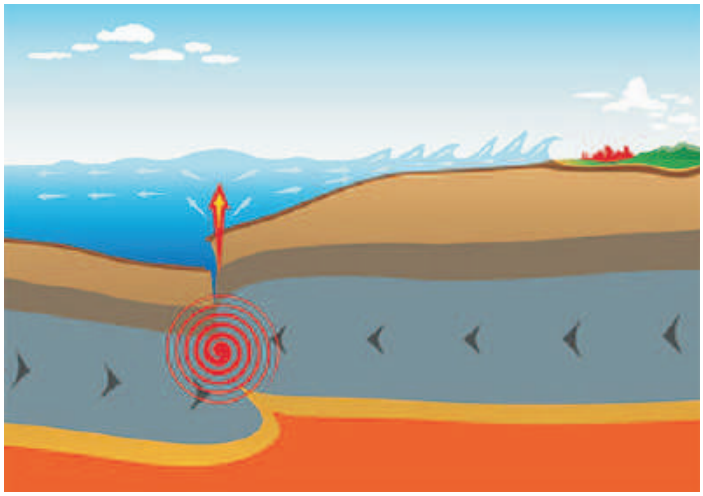
Tsunami The term “tsunami” is a borrowing from the Japanese word ‘tsunami’ meaning “harbour wave” or tidal wave, also known as a seismic sea wave. It is actually series of waves in a water body caused by the displacement of a large volume of water. The height of waves can be 10 to 30 meters. The velocity of tsunami waves from 400 to 1000 kilometers per hour. Major cause of Tsunami may be earthquake or volcanic eruptions.

December 2004 Tsunami was a devastating one that affected Indonesia Malaysia, Thailand, Sri Lanka, Maldives, and Bangladesh killing around 3 lakh people and their house devastated. Cattle and crops were destroyed The roads, Railways. Flyovers were destroyed.

Tsunami in India

This Tsunami devastated coastal areas of Andhra Pradesh, Tamil Nadu and Kerala. The metropolitan city of Chennai, Puducherry, Kanyakumari were badly affected. Around 10,500 people were killed, the Property worth rupees 10,000 crore was destroyed, the crops and cattles devastated.





Tsunami in Indian Ocean

Impacts of tsunami

1. Loss of life : Because of December 2004 Tsunami around 3 lacs people were killed.

2. Destruction of crops and domestic animals : The tsunami destroys lakhs of domestic animals, cattle, the destruction of trees caused loss of Habitat for birds also. This Tsunami caused a deadly epidemic during post disaster period.

3. Destruction of crops : The velocity of tsunami waves is always very high which cause destruction of standing crops and waves also erode the fertile soils in the coastal areas

4. Destruction of property : Tsunami waves destroy residential units roads, railways bridges, ships. Property worth millions was destroyed.

Facts to remember:

1. There is an inverse relationship between temperature and air pressure the high temperature creates low pressure and low temperature leads to high pressure.
2. Height from sea level, distance from equator and winds affect climate.
3. The humidity in the air cause condensation that ultimately lead to precipitation. India receives 90% of its rain through Monsoons.
4. Tropic of cancer passes through nearly centre of India

CHAPTER AT A GLANCE

- ☞ Climate is result of average weather reperts spanning around 30 years.
- ☞ Height from sea level, Distance from coast, and Equator and Winds are factors which make effect over climate of a place.
- ☞ Saturation of moisture in air results into cloud formation and rainfall or precipitation.
- ☞ Rainfall is generally of three types: Convectional, Orographic and Cyclonic.
- ☞ Monsoon means the winds which change direction with change in season.
- ☞ India receives rainfall in Summer due to Monsoon winds.
- ☞ Amount and period of rainfall by Monsoons is not specific.
- ☞ Punjab receives convectional rainfall with onset of Summers while in winter it experiences cyclonic rainfall.

- ☞ Lines drawn on a map which join the regions with equal temprature are called Isotherms while joining equal rainfall regions are called Isohyets.
- ☞ Moisture, Temprature, Air pressure, Direction, Speed and Rainfall may be measured with the help of various instruments.
- ☞ Basic reason for various natural clamities may be human errors.
- ☞ Valuing natural gifts may save humans from natural disasters.

A Map Work

1. Show on the outline map of India :

(*i*) Direction of Summer Monsoons.

(*ii*) Direction of Winter Monsoons.

(*iii*) Two regions receiving more than 200 cm. rainfall.

(*iv*) Two regions receiving rainfall between 100-200 cm.

(*v*) Two regions receiving rainfall between 50-100 cm.

ACTIVITY

2. Class Activity

(*i*) Check in the newspapers of March, which regions of Punjab got more than average rainfall. Discuss in your class, the effect of rainfall over underground water, with help of your teacher.

(*ii*) Note the timings of sunrise and sunset with the help of newspapers in the month of August and discuss 'Position of Sun and Earth' with the help of your teacher.

B Objective Type Questions

Answer the following questions in a single word to one sentence length :

1. What is the reason of winter rainfall in Tamilnau :

(*i*) South–West Monsoon (*ii*) North-East Monsoon

(*iii*) Local reasons (*iv*) None of these

2. Which city among the following gets maximum average rainfall :

(*i*) Mumbai (*ii*) Dharamshala

(*iii*) Mawsynram (*iv*) Kolkata

3. What among the following is reason for winter rainfall in Punjab :

(*i*) Trade winds (*ii*) Western cyclone

(*iii*) Polar winds (*iv*) Mountains

4. 'Tsunami' is a word from which language :

(*i*) French (*ii*) Japnese

(*iii*) Punjabi (*iv*) English

5. Lines joining places with equal rainfall in a map are known as :

(*i*) Isotherms (*ii*) Isohyets

(*iii*) Isobars (*iv*) None of these

6. What is 'Loo'?

7. What is climatology called in Punjabi?

8. What do you understand by the term 'Monsoon'?

9. What is the relationship of temperature and pressure?

10. Name the places with minimum and maximum rainfall in India.

C Short Answer Questions

Give short answers for the following questions :

1. Explain difference between weather and climate.

2. What do you understand by Farrel's law ?

3. Indian rainfall is neither systematic nor specific, explain.

4. What is difference between wind vane and Anemometer ?

5. Write a note on winter rainfall in India.

6. Orographic rainfall is a typically mountanious phenomenon. Explain.

7. Write a note on :

(*i*) Jet Stream (*ii*) Isotherms (*iii*) Dry and Wet bulb thermometer

8. Natural calamities bring 'ਜਾਨੀ-ਮਾਲੀ' harm; In this statement, what do you mean by 'ਜਾਨੀ-ਮਾਲੀ' ?

D Long Answer Questions

Answer the following questions in detail :

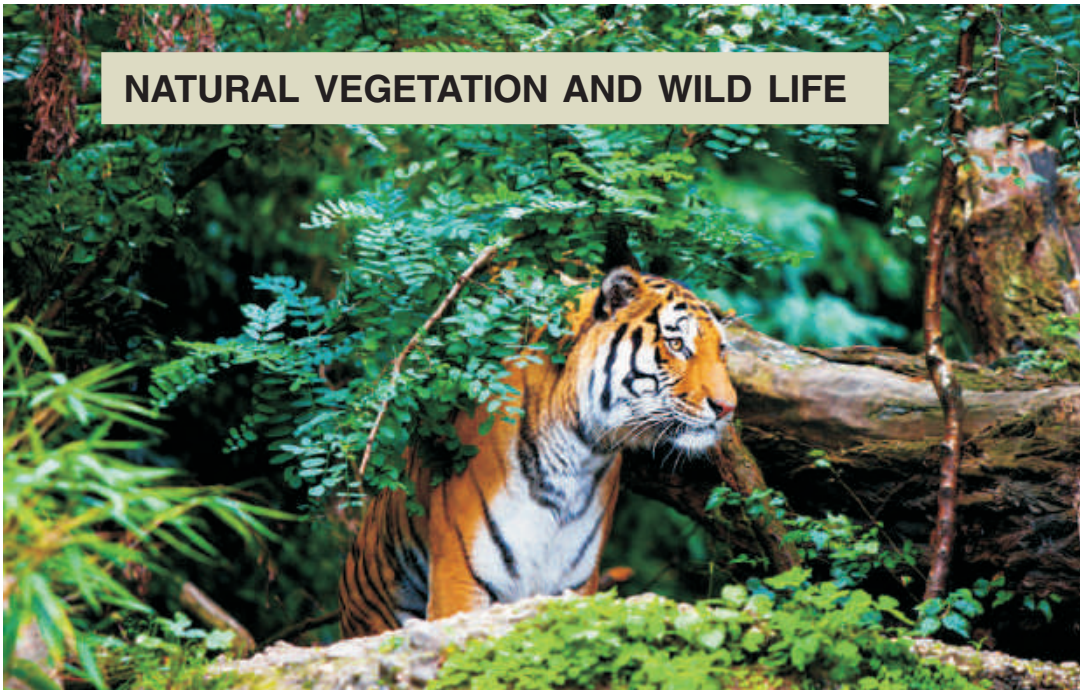
1. On what factors does climate of a place depend?
2. Explain the types of rainfall in details.
3. Describe Arabian Sea branch and Bay of Bengal branch of Monsoons.
4. Name the instruments used for collecting information about various aspects of climate, write in short about all of them?
5. What bad effects do natural disasters bring to human lives? Explain.

* * *

5 Natural Vegitation and Wild Life

Earth is strange and a unique planet which supports life. Only Earth has four spheres i.e. Lithosphere, Atmosphere, Hydrosphere and Biosphere. Biosphere is a small but complex sphere which supports life. The existence of Biosphere is between the three main spheres. Biosphere is very important to us. From the tiny bacteria to largest terrestrial animal like elephant, the Blue Whale and tall trees are found in the biosphere. All the animals are categorised into terrestrial life and aquatic life. All the animals in the region are called fauna and all the vegetation is called flora.

The flora and fauna of any region dwell in close proximity. They are inter related and inter dependent on each other, their separate existence is not possible. An ecosystem is a community of living organisms in conjunction with the non-living components of their environment (things like air, water and mineral soil), interacting as a system. These biotic and abiotic components are regarded as linked together through nutrient cycles and energy flows.



Flora is the plant life occurring in a particular region or time, generally the naturally occurring or indigenous—native plant life. Plants are grouped into floras based

on region (floristic regions), period, special environment, or climate. Regions can be distinct habitats like mountain vs. flat land.

FOREST SURVEY OF INDIA (FSI)

Forest Survey of India (FSI) has headquarteres at Dehradoon in Uttarakhand, is a unit of Government of India Ministry of Environment, Forest and Climate Change. This organisations for conducting forest surveys, studies and research to periodically monitor the changing situation of land and forest resources and present the data for national planning, conservation and sustainable management of environmental protection as well for the implementation of social forestry projects. Forest survey of India has four regional centres at Shimla, Kolkata, Nagpur and Bangalore.

Office of Forest Survey of India, Dehradun (Uttarakhand)

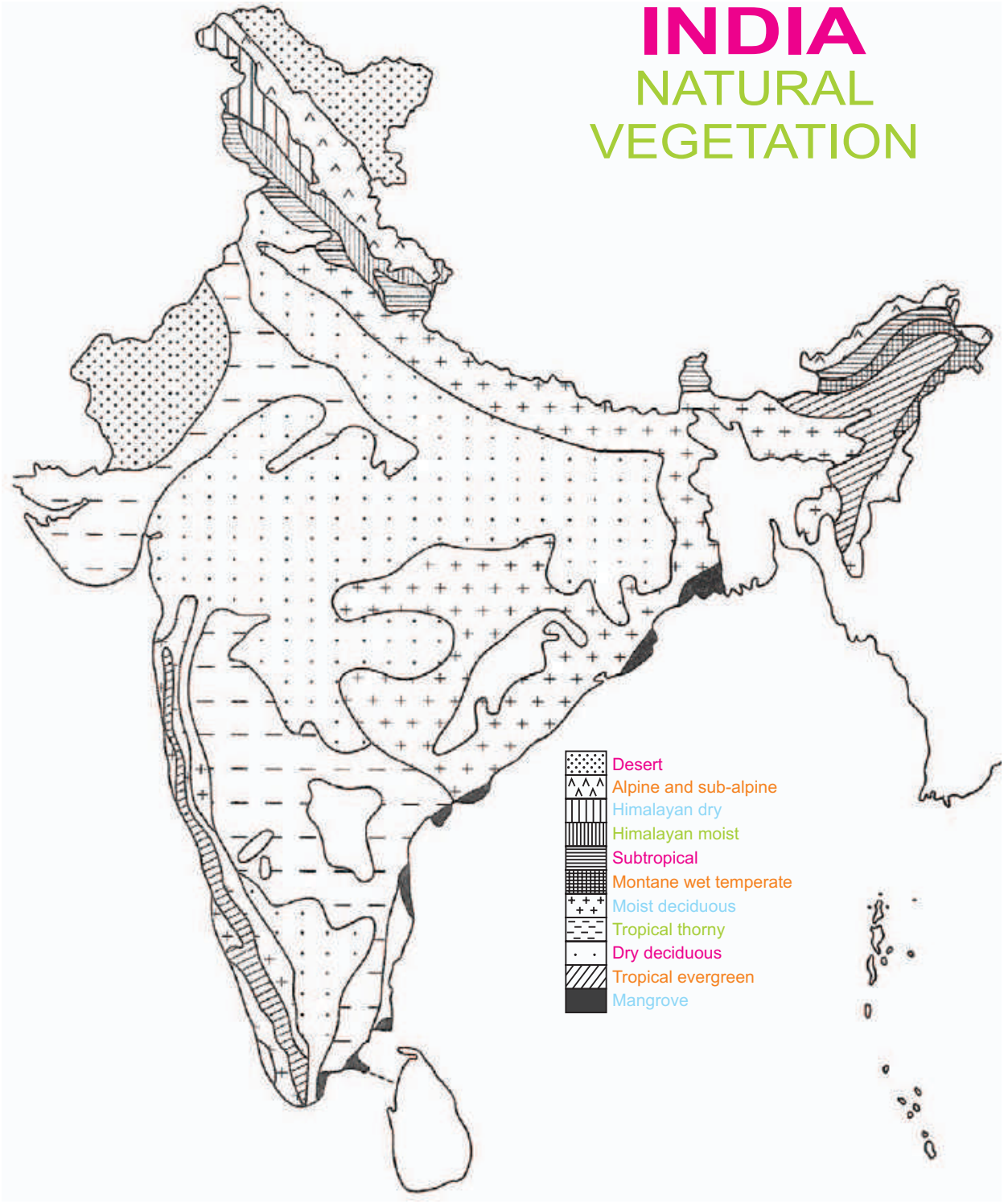
The natural vegetation is different in diverse regions since there are regional variations in it. For example the natural vegetation of the desert region is different from that of tropical vegetation. The geographical factors responsible for the differentiation in the natural vegetation has been mentioned below :

1. Land
2. Soils
3. Temperature
4. Duration of sunshine
5. Rainfall

1. Land or relief : The type of land is a determining factor for the vegetation type with the increasing height from mean sea level. The type of natural vegetation also changes. It varies from grass or deciduous forests in the plain areas to pine and spruce trees in the high altitude mountainous areas.

2. Soil : Soil is a mixture of organic matter, minerals, gases, liquids, and organisms that together support life. It is a medium for plant growth and is a habitat for organisms. The type of soil determines the type of natural vegetation for example in dry sandy soils, Cactus and Other xerophytic plants are grown and in deep well developed soils the varied type of vegetation grows. The fertile deltaic soils support dense vegetation. The soils rich in humus content also support dense vegetation.

3. Temperature : The temperature is also one of the important factors for the growth of natural vegetation. Extreme or very high and very low temperatures play a negative role in the growth of natural vegetation.



4. Duration of Sunlight : The duration of Sunlight is determining factor for the growth of vegetation Since the plants are autotrophs and make their own food in the

presence of Sunlight the process called photosynthesis. Longer the duration of Sunlight, shall support natural vegetation. The southern slopes of mountains witness growth of dense vegetation, but the northern slopes of the mountains are almost tree less.

ACTIVITY

Plant a tree of your choice and water it, fertilize it and note down the growth of the plant.

5. Rainfall : Availability of water is necessary for proper growth of a plant. Dense natural vegetation is found in heavy rainfall areas while in desert areas because of less rainfall, the growth of natural vegetation is less. Equatorial rainforest are dense because of high temperature and heavy rainfall throughout the year.

Types of Natural Vegetation : Natural vegetation may be categorised into the following five categories.

1. Tropical evergreen forests
2. Tropical deciduous or Monsoon forests
3. The scrubs and thorny forests
4. Tidal or mangrove forests
5. Mountainous forests

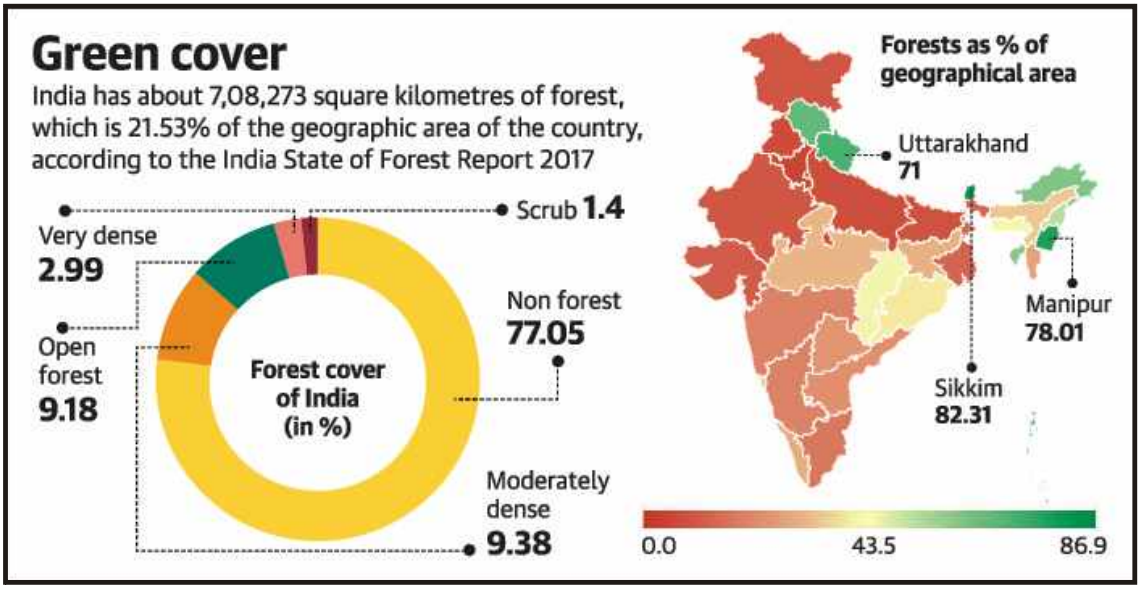
1. Tropical Evergreen forests : These forests never shed their leaves, and therefore they are called evergreen forests. These forests are found in the heavy rainfall areas of tropical and equatorial regions where annual rainfall is more than 200 to 300 cm. These forests are also called Rainforests. The height of trees goes up to 60 meters. They occupy about seven percent of the Earth's land surface and harbor more than half of the planet's terrestrial plants and animals. Tropical evergreen forests are dense, multi-layered, and harbor many types of plants and animals. The upper canopy of the tallest trees receives maximum sunlight whereas its amount decreases downward and it becomes minimum at the ground surface as there is complete darkness. This trend of progressively decreasing sunlight from the uppermost stratum to the ground stratum sets in keen competition among the various members of the vegetation community of the tropical evergreen rainforest biome for getting sunlight.

Major species of Tropical rainforest are mahogany, rosewood, sheesham, rubber, cinchona and magnolia etc. The bark of cinchona tree is used to make quinine. Because of density of the forest it is difficult to use the timber for the commercial purposes is the lumbering in such type of forest is very difficult. These forests are found on the Western slopes of the Western Ghats in South India, Coromandel Coast, North Eastern states of India, Odisha, West Bengal Lakshadweep and Andaman Nicobar Islands etc. These forests are the habitat of thousands of animal species like monkeys, Lemurs, deer, rhinoceros.

2. Tropical Deciduous or Monsoon forest : These forests are found in the regions receiving rainfall 70 to 200 cm. These trees shed their leaves in the summer season in order to retain their water content and to avoid evaporation. These forests are also dense but not as dense as evergreen forests. These forests are further divided into moist deciduous forests and dry deciduous forests. The moist deciduous forests are found in the areas of rainfall from 100 to 200 cm and they are generally found in North Eastern states, Western Ghats, Eastern Shiwaliks Mountains, Eastern Odisha and Chhattisgarh. The important tree species of these forests our Teak, Sandalwood, Sheesham, Khair, etc. these are commercially very important. The dry deciduous forests are found in the regions of rainfall from 70 to 100 cm. These forests are only found in Peninsular India, northern plains etc. Peepal, Neem, Teak, Eucalyptus, Saal etc., are species of tropical dry deciduous forest. Lion, leopard, deer, elephant, are certain animals found in these forests.

DO YOU KNOW

According to the India State of Forest Report (ISFR) 2017, the total forest cover is 7,08,273 sq. km, which is 21.54% of the total geographical area of the country. Forest and tree cover combined is 8,02,088 sq. km or 24.39% of the total geographical area.India is ranked 10th in the world, with 24.4% of land area under forest and tree cover.



3. The scrubs and thorny forests : These types of forests are found in the regions receiving rainfall less than 70 centimeters. In such areas the trees are small and not very dense the roots of such trees go deep into the soil to get the moisture, the leaves of such trees are small and of cactus type xerophytes vegetation to avoid evapotranspiration. Babul, date Palm, Khair are main trees found in such forest. These forests are found in Rajasthan, South Punjab, Haryana, Gujarat some

parts of Uttar Pradesh and Madhya Pradesh. The main animals of these forests are camel, lion, mouse, and rabbits etc.

4. Tidal or Mangrove forests : Tidal and Mangrove forests are found in the Deltaic areas close to the sea coast where the action of tides is prominent. These forests are salt bearing and are generally found in Ganga Brahmaputra delta, Mahanadi delta, Krishna, Godavari, and Kaveri deltas. The Ganga Brahmaputra delta is also called Sundarban delta because of abundance of Sundari tree over there. Sundari tree provides valuable timber for making boats. Coconut, Gewa, Palm etc. are other tree found here. The Royal Bengal Tiger is a prominent animal found in Sundarban delta.

5. Mountainous Forests : Increasing height from mean sea level and decreasing temprature change type of vegetation in mountainous regions swittly. Natural vegetation changes from tropical deciduous to Alpine type. Evergreen Walnut, Oak and Pine are found in mountainous type forests of Shiwaliks. While at the height of 1500 to 3200 metres from sea level, coniferous forests are found having varities like sprus, cedar, Deodar, Fir and pine among others. As higher we proceed, vegetation turns in to grass and shrubs gradually and finally leads to snow regions. Yak, bear, leopard, deer etc. are major forest animals while sheep and goat are domesticised animals in these regions.

DO YOU KNOW

The trees of coniferous forests have needled and long leaves so that they may survive in dry and below freezing point temperature conditions. Pine, Deodar, Spruce provide best quality soft wood which is used in furniture making and in Industries also. Coniferous forests are very valuable commercially.

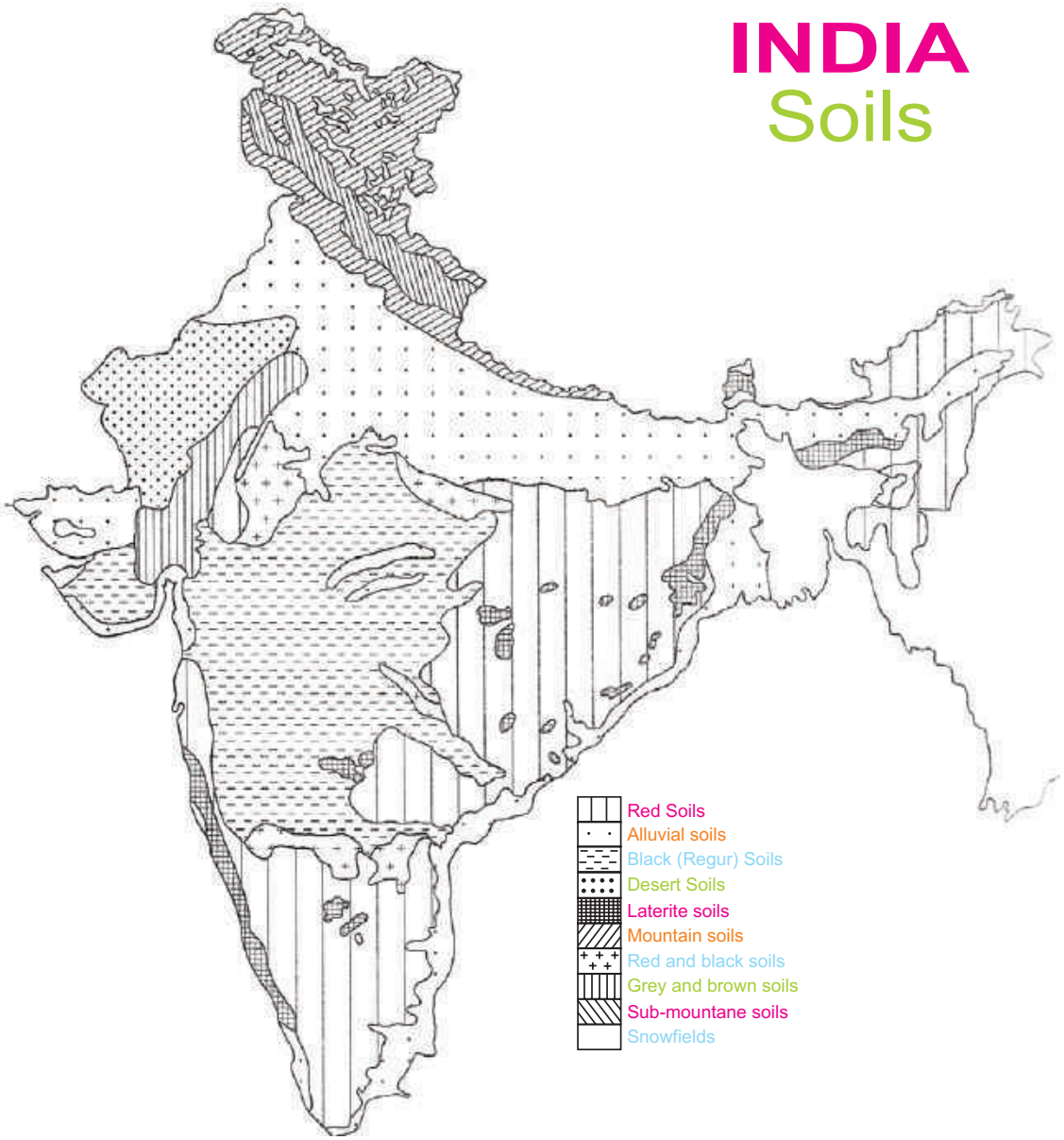
A LOOK AT THE VEGETATION IN PUNJAB

The type of vegetation of any region depends upon the relief, climate, and type of soils. The climate of Punjab is Continental Monsoonal type. The relief of Punjab is mainly plain with few areas in North Eastern Punjab having low Shiwalik Hills and sand dunes in Southwest Punjab. Major types of soils found in Punjab are mentioned below:

1. Alluvial or River soil
2. Sandy soil
3. Clavey soil
4. Loamy soil
5. Hilly or Kandi soil
6. Sodic or Saline soil

Different varieties of soils and climate give birth to different types of vegetation. These vegetation may be natural or human grown. Few decades back, Punjab had dense growth of natural vegetation and forested areas, but continuous deforestation overgrazing, and absence of strict laws against deforestation the area under forest has

decreased rapidly. The Britishers took some steps to save natural vegetation like forests were demarcated, the grazing were banned etc. After partition Punjab was divided into Western Punjab and Eastern Punjab and most of forests were cleared to turn land for agricultural purposes so that required food crops may be grown.



In 1966 after the reorganisation of Punjab, ountains and densely forested area went to newly created state of Himachal Pradesh and with the passage of time the growth of agriculture, urbanisation, industrialisation, and the human activities further decreased the area under forests in Punjab. At present only 6.07% area of Punjab is under natural vegetation of forests while most of grown by the humans only and not natural grown. Small areas under forests are under the government control rest is private. Because of the similarity in relief, the vegetation in entire Punjab is almost same but there are certain regional variations because of difference in climate and soils. The vegetation of Punjab may be categorised as per following.

1. Himalayan type Moist Temperate Vegetation : This type of vegetation is found in North Punjab in Dhar Kalan tehsil of district Pathankot. This area is at higher altitude and is heavy rainfall receiving area. Pine, Bamboo, Sheesham, Mango, Babul etc. are important trees of this region.

2. Subtropical Pine vegetation : Such type of vegetation is found in High slopes of Pathankot Tehsil of the district, Mukerian, Dasuhya, and Hoshiarpur tehsils of District Hoshiarpur. Pine, Sheesham, Sheh toot (Mulberry), are important trees of such areas. Although the pine found here is not of good quality.

3. Subtropical Scrub hill vegetation : This type of vegetation is found in rest of districts of Pathankot and Hoshiarpur, Eastern parts of district Rupnagar where mountaineers Shrubs are in abundance. This region was once densely forested, but due to deforestation, overgrazing and soil erosion it transformed into shrubs. Khair (Senegalia Catechu), Sheesham, Mulberry, Neem (Azadirachta indica), Bamboo, Semul (Simble – Golden Rain Tree), Amaltas (Cassia Fistula) are common trees found here. The long grass found here is used to make paper and ropes.

4. Tropical dry Deciduous vegetation : This type of vegetation is found in hot and dry areas of Punjab. The undulating plains and Kandi area of Punjab are home of this type of vegetation. This area had also been densely forested in past and the local population called dense forest tracts as Jhangi, Beed, or Jhirri. Such group of trees or small forested area is called 'Beerh' in S.A.S. Nagar (Mohali), and Patiala for example, Chhatt beerh, Beerh Bhadson, Beerh Moti Bagh, Beerh Bhunarheri, etc. Sheesham, Neem, Babul, Mango, and Citrus fruit trees are found in this region. The farmers are growing Eucalyptus and Popular to increase the area under social forestry.

5. Tropical Thorny vegetation : Such type of vegetation is found in the less rainfall receiving area of Punjab. In Mansa, Bathinda, Fazilka, and some parts of Ferozepur and Faridkot district, scrubs and cactus type of vegetation is found. Sheesham and Babul are main trees found in these districts.

Forest cover up, Hoshiarpur, Gurdaspur dists top gainers

AMAN SOOD

PATIALA, FEBRUARY 20

Though its forest cover is among the lowest in the country, Punjab has something to cheer about. The 2017 Forest Survey of India (FSI) assessment has shown an average 66 sq km increase in the state's forest cover.

The forest area in Punjab, which is even less than the desert state of Rajasthan, has increased marginally owing to government's sapling distribution scheme in the past few years.

Hoshiarpur and Gurdaspur have emerged as top districts in the increased cover, while Moga, Muktsar and Rupnagar witnesses a decline.

Hoshiarpur saw an increase of 34 sq km in the forest cover, followed by Gurdaspur 24 sq km and SBS Nagar 7 sq km. Other districts which saw a marginal increase in the forest area are Jalandhar, Patiala, Sangrur, SAS Nagar, Tarn Taran, Bathinda and Mansa.

The districts that lost some part of the forest cover are Ludhiana (8 sq km), Amritsar and Faridkot (1 sq km each), Moga, Muktsar and Rupnagar (2 sq km each).

"Our forest cover is the lowest in the country in terms of geographical area and percentage of land under green cover, but our efforts in past few years have shown positive results," said Principal Conservator of Forests (Wildlife) Kuldip Kumar, who was at the helm of affairs when the saplings were planted across the state.

The report states that Punjab has 8 sq km of very dense forest area, while there is 866 sq km of moderate dense forest while there is an open forest area of 1,023 sq km, with 1837 sq km in total. Punjab has only 3.65 per cent of its total area of 50,362 sq kms under forest cover, the lowest in the country.

"Our forest cover is the lowest in the country in terms of geographical area and percentage of land under green cover, but our efforts in past few years have shown positive results."

Kuldip Kumar, PRINCIPAL CONSERVATOR OF FORESTS (WILDLIFE)

Natural vegetation improves the environment of any region and it also makes economy stronger. Natural vegetation or forests are sometimes called the lungs of the Earth. To maintain the balance in the ecosystem one third area of any state or a country must be covered by the forest but unfortunately the situation of Punjab is not satisfactory in this regard. Punjab has only 3.65 % area under natural vegetation according to forests status report 2017, which is a matter of concern. Out of total 1,837 square kilometer area under forest in Punjab, only 1385 square kilometer area is under the government control while 453 square kilometer area is under private forests. Rupnagar district is maximum forested district in Punjab where 19.17 % area is under forest. Mansa district is least forested district in Punjab where only 1.26% area is under forest.

By organising afforestation programmes on large scale the area under forest may be increased. In the year 2011- 12, about 1 crore 35,000 plants were planted. In the same year we got a total of 50,000 cubic meter Timber, worth rupees 15 crore while Bamboo and Fodder, worth ₹ 3 lakh were sold. To maintain and conserve the forested areas, Punjab government has set up the forest department in Punjab, in which 6,500 employees are working at present.

Natural vegetation and forests are blessing for the humans and the economy. There remains an urgent requirement to save and develop the area under forests. We know that a present condition as far as forests are concerned is not satisfactory in Punjab because we have only 6 to 7 percent area under the forest and rest of the area is under agriculture, industries, roads and Railways and consumed by growth of villages and cities etc. The total geographical area of Punjab is also less as compared to the huge population pressure. The density of population in Punjab is also more than the national average and the population and pollution rate on are increasing continuously. So we need to increase the area under vegetation. There is urgent need to plant more and more trees. The students should understand the importance of trees and to conserve the vegetation. We need to adopt to social forestry. We need to plant trees at any vacant space along the roads railways canals, rivers, schools, offices, and other government institutions and wherever possible. This will not only to improve our environment and make it beautiful, but it may fulfill the timber requirements of the people also.

IMPORTANCE OF FORESTS

The forests are important for us. They help us in many ways. The following is the list of certain blessings of forests :–

1. Forests provide us timber which is used for different purposes for example, to make furniture, paper manufacturing, and as a fuel for some industries.
2. Forests helps in rainfall.

3. Forest control soil erosion and floods as roots of the trees bind the soil tightly.
4. The evapotranspiration from the forests makes the temperature drop.
5. Forests consume Carbondioxide and release Oxygen which is mandatory for human and animal survival.
6. Forests attract animals, give them habitat and food.
7. Forests control sunshine, sound pollution, and reduce the wind velocity.
8. Forests improve the level of underground aquifers.
9. Forests provide us many important medicinal plants and provide us valuable medicines for research purposes by our scientists.
10. The forests make our environment beautiful and healthy.

CONSERVATION OF FORESTS

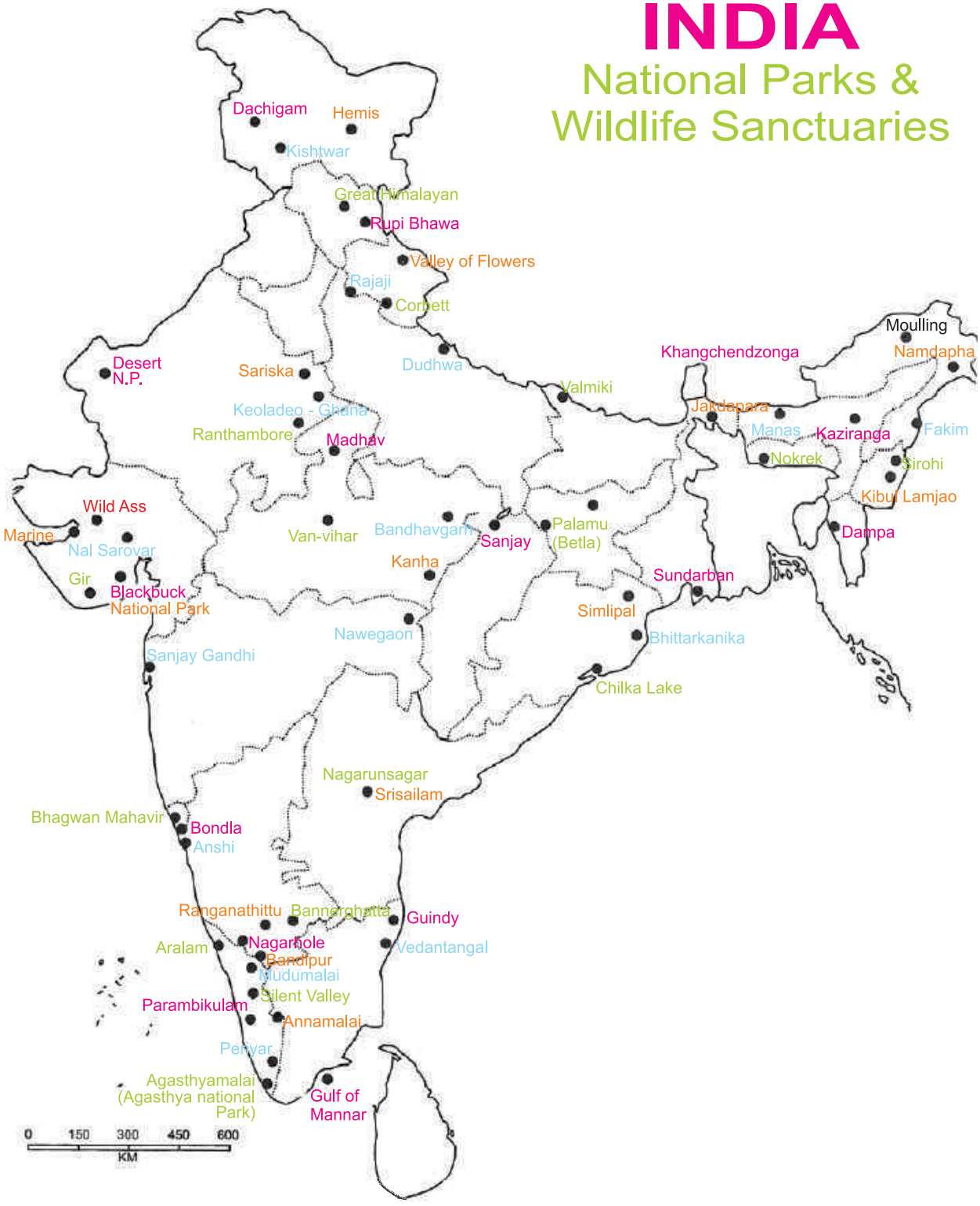
Forests play an important role in the lives of human beings but it is a matter of concern that the area under forests is decreasing rapidly in the world. Humans are depleting the forests to fulfill their unlimited requirements. This depletion is because of the greed of humans and their ignorence towards future generations.

If we wish to live a life of comfort for present and for future generations too, we need to preserve forests. We need to adopt social forestry, agriculture forestry, and commercial forestry. The public need to be made aware of and the government should take immediate steps in this regard. The laws to preserve forests need to be implement strictly so that nobody can cut the trees illegally.

WILDLIFE

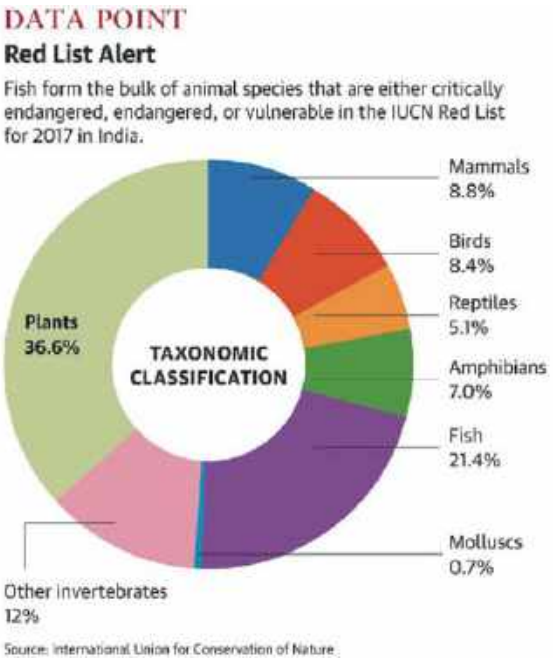
The animals, birds, and the insects living in the forests are wildlife. The rich diversity of forests, physiographic units, climate, and soils in India give natural habitat for thousands of species of wildlife. In our country more than 89,000 species of wildlife are found which is 6.5% of the total animal species of the world. We have 2,546 species of fish. More than 2,000 species of birds, 458 species of amphibians, and more than 60,000 species of insects. India is a home of largest mammal of the Earth, the elephant. Elephants are mostly found in Assam, West Bengal, Karnataka, Kerala, and forests of Madhya Pradesh. The number of one horned rhinoceros are decreasing day by day. Only 1500 rhinoceros left which are mainly found in Assam and West Bengal. Bubalus arneeor (wild buffalo) is found in Assam and Bastar district of Chhattisgarh. Gaur or wild oxen are found in Central Indian forests. India is a home of 3,000 tigers which are mainly found in Eastern Himalayan Mountains and Peninsular India. Yak is found in Ladakh region of Jammu and Kashmir used to pull the cart. Sheep and goats are found

in forests of Himalayas Similarly deer, swamp deer, are common in forests of India. 'Thaman' is a beautiful dear from which we get Musk, is found in the forests of Manipur. We have so many species of monkeys and Lemurs.



Indian Gazelle widely known as Chinkara, Black deer, Neelgae, Four horned deer, Wild dog, Fox, Jackal, Hyena, Mongoose, Bats, Squirrels, Crocodiles, Gharial, Turtles are the other animals found in India.

India has rich diversity of birds where more than 2000 species of birds are found. Mostly are of Indian origin like duck, Stork, (saaras) Ababil, Fly catchers etc., Birds migrate in Indian lakes and wetlands from central Asia in the winter season. Peacock is the national bird of India. The beautiful wings of peacock show symbol of colourful life and wealth for Indians.



Birds that migrate to India in Winter Season

- Ruff
- Osprey
- Common Teal
- Wood Sandpiper
- Peregrine Falcon
- Northern Shoveler
- Know Billed Duck
- Common Greenshank
- Black Tailed Godwit
- Gadwall
- Harrier
- Yellow Wagtail
- Northern Pintail
- Common Starling
- Eurasian Wigeon
- Spotted Redshank
- Long Billed Pipit
- Eurasian Sparrow hawk

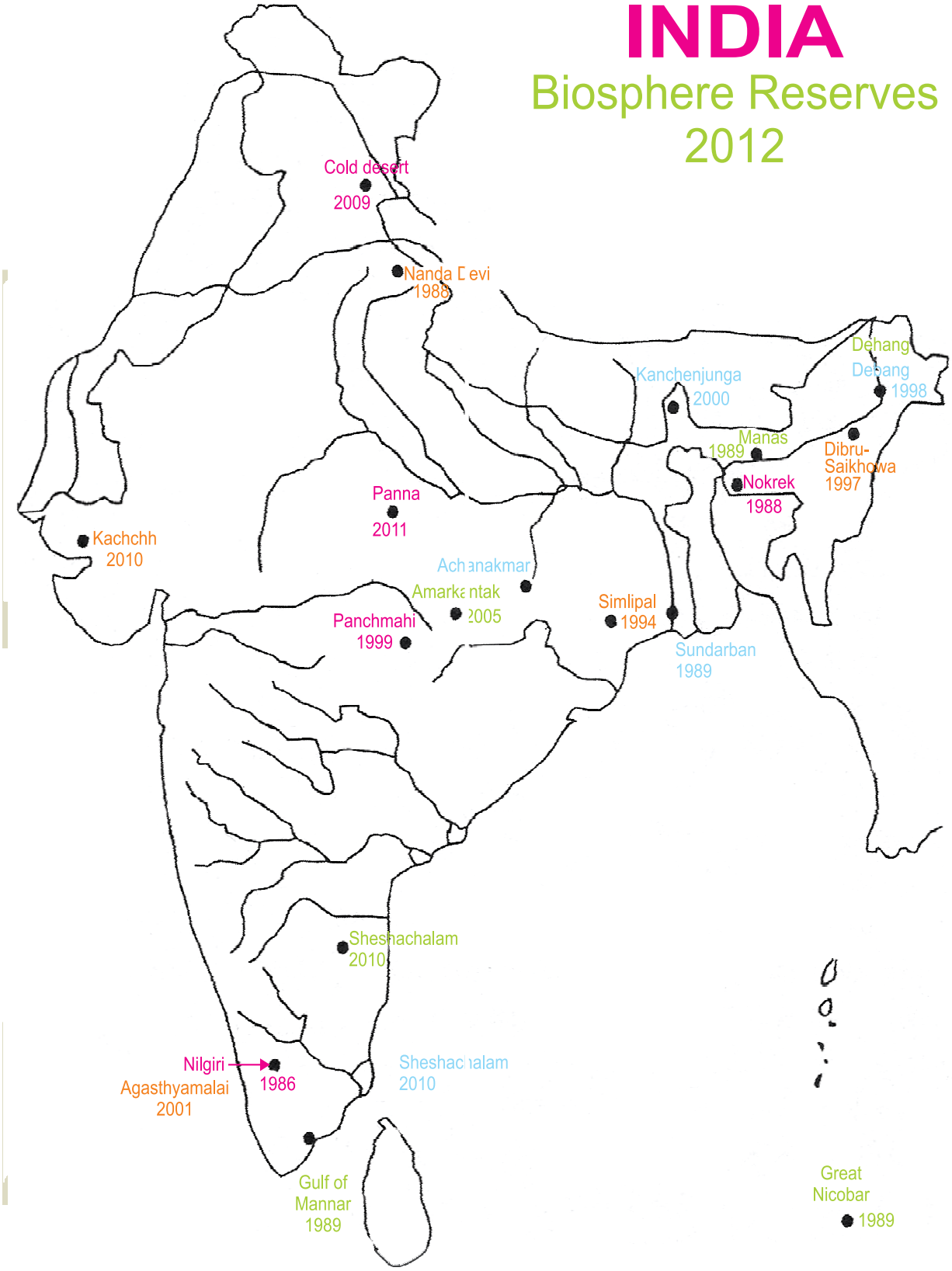
Sarus

Flamingos

Yellow Wagtail

Birds that migrate to India in Summer Season

- Comb Duck
- Kingfisher
- Blue Tailed Bee Eater
- Black Crowned Night Heron
- Asian Koel
- Jacobin Cuckoo
- Eurasian Golden Oriole



Wildlife Conservation is the practice of protecting wild plant and animal species and their habitat. Wildlife plays an important role in balancing the environment and

provides stability to different natural processes of nature. The goal of wildlife conservation is to ensure that nature will be around for future generations to enjoy and also to recognize the importance of wildlife and wilderness for humans and other species alike. Wildlife conservation has become an increasingly important practice due to the negative effects of human activity on wildlife. An endangered species is defined as a population of a living species that is in the danger of becoming extinct because the species has a very low or falling population, or because they are threatened by the varying environmental or prepositional parameters.

National Board for Wild Life is a "Statutory Organization" constituted under the Wildlife Protection Act, 1972. Theoretically, the board is "advisory" in nature and advises the Central Government on framing policies and measures for conservation of wildlife in the country. However, it is a very important body because it serves as apex body to review all wildlife-related matters and approve projects in and around national parks and sanctuaries. Primary function of the Board is to promote the conservation and development of wildlife and forests. It has power to review all wildlife-related matters and approve projects in and around national parks and sanctuaries. No alternation of boundaries in national parks and wildlife sanctuaries may be done without approval of the NBWL. The Wildlife Protection Act, 1972 is an Act of the Parliament of India enacted for protection of plants and animal species. Before 1972, India only had five designated national parks. Among other reforms, the Act established schedules of protected plant and animal species; hunting or harvesting these species was largely outlawed. The Act provides for the protection of wild animals, birds and plants; and for matters connected therewith or ancillary or incidental thereto. It extends to the whole of India. Mini projects like Project Tiger, project elephant, project rhinoceros, project crocodile, project Great Indian Bustard, etc, have been initiated by the Indian wildlife board.

BIOSPHERE RESERVES

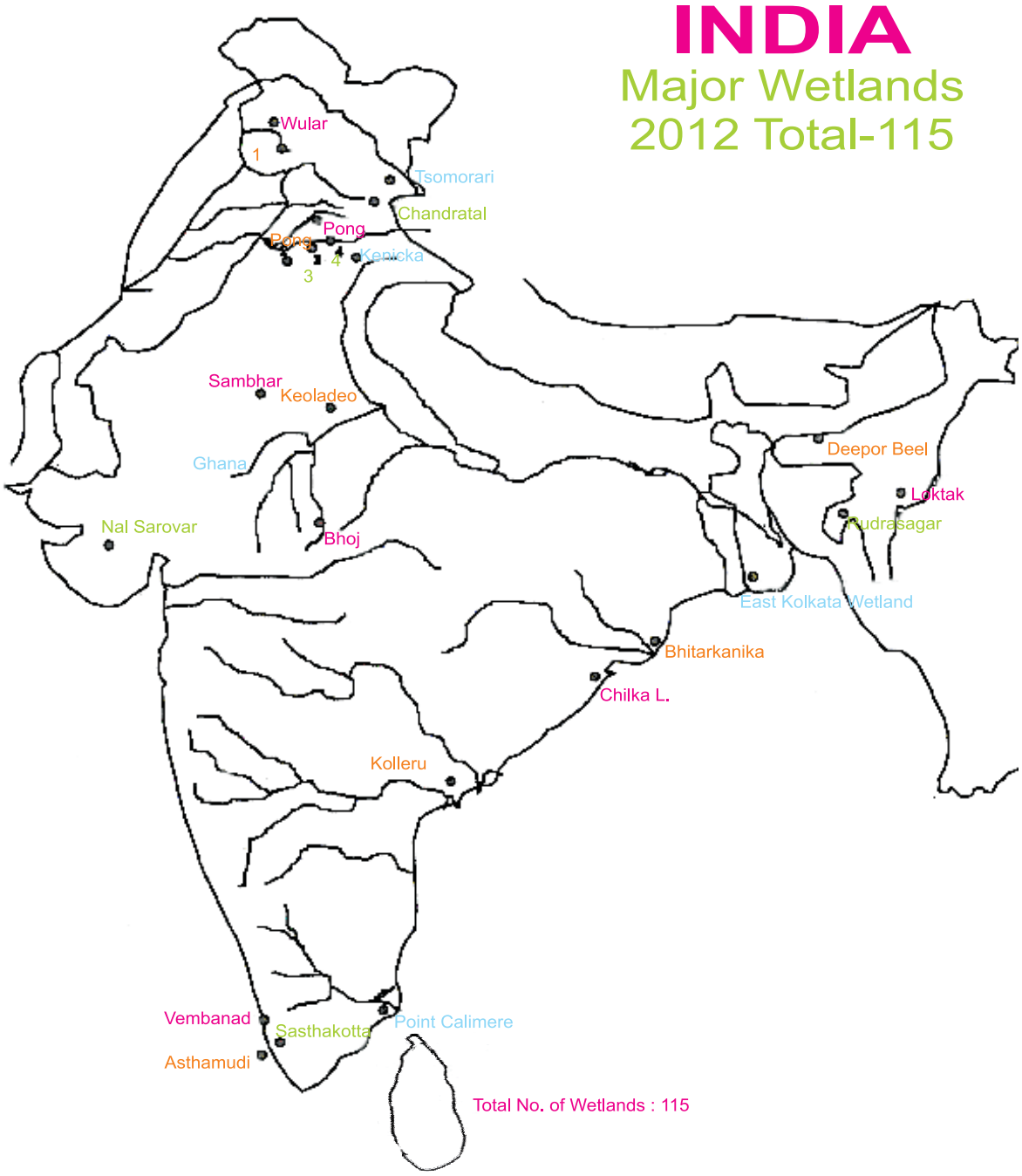
The government has established 18 Biosphere Reserves in India, which protect larger areas of natural habitat (than a National Park or Animal Sanctuary), Protection is granted not only to the flora and fauna of the protected region, but also to the human communities who inhabit these regions, and their ways of life. Animals are protected and saved here.

To protect the wildlife the government has establish 103 National Parks and 544 Wildlife sanctuaries. Wildlife is integral part of human life. It is our moral duty to protect and conserve the wildlife. Some wildlife conservation methods are given below:

Ways to conserve wildlife:

1. We should establish more national parks and wildlife sanctuaries.
2. Living conditions for wildlife in all the national parks and wildlife sanctuaries must be improve.
3. Wildlife Protection laws must be implemented strictly. Hunting must be strictly prohibited.
4. Hunters and nomads should not be allowed to enter in the forested areas.
5. Endangered species must be protected at any cost.
6. Administrative, technical and legal measures must be adopted to protect wildlife.
7. The required medical facilities must be provided for proper care and health of wildlife in national parks and wildlife sanctuaries.

8. Seminars, workshops and presentations should be conducted in order to aware the general public about the importance of wildlife.



THE MEDICINAL PLANTS USED IN INDIA

Ayurveda is a traditional therapy in India. Different plants, Fruits fruits and barks of plants are used to make Ayurvedic medicines. Some medicinal plants and their uses are given below :

1. **Amla :** Amla, can be partially attributed to its high vitamin C content. Amla enhances food absorption, balances stomach acids, fortifies the liver, nourishes

the brain and mental functioning and supports the heart. It also strengthens the lungs, regulates elimination of free radicals, enhances fertility, helps the urinary system, improves skin quality, and promotes healthier hair.

2. **Sarpagandha :** The plant has great mentions its history, which was used as a tranquilizer and is also used in treating high blood pressure and mental disorders.
3. **Neem :** The primary purpose of neem leaves is the treatment of vaata disorders or neuromuscular pains. Neem leaves have anti-bacterial properties which is why it works wonders on infections, burns and any kind of skin problems.
4. **Tulsi :** Tulsi is extremely beneficial for warding off some of the most common ailments, strengthening immunity, fighting bacterial & viral infections to combating and treating various hair and skin disorders.
5. **Bael :** The juice of the fruit gives comfort from constipation and dyspepsia. The fruits are used against viral and intestinal parasites.
6. **Sandalwood :** Sandalwood paste is also used for healing inflamed skin. Sandalwood oil is very helpful in curing scabies and even for the removal of pimples.
7. **Cinchona officinalis :** It is a South American tree. It is a medicinal plant, its bark is used for the production of quinine, which is an anti-fever agent.
8. **Jamun :** Jamum's ploypheno lic compounds are effective against cancer, heart diseases, diabetes, asthma and arthritis.

CHAPTER AT A GLANCE

- Life on Earth is possible due to four spheres, namely; Biosphere, Lithosphere, Hydrosphere and Atmosphere.
- Vegetation available on Earth is called 'Flora' while human world is called 'Fauna'.
- Dependence of human beings and four spheres on each other is known as Ecosystem.
- Factors responsible for diversity of vegetation are land, soil, temprature, sunlight and rainfall.
- Generally speaking, five types of vegetation is found in India.

- In Punjab we categories soil in six types while vegetation in five types.
- Punjab is in dire need to protect its natural resources.
- Planting new sepllings in known as Afforestation.
- Forestry is of three types; Social, Agricultural and Commercial.
- Wild life fully depends over forests.
- Migratory birds are invaluable guests for any part of Earth.
- India has fourteen reserve forests, eighty nine national parks and four hundred ninety sencturies.
- Nimm, Beal, Jaman, Chandan, Tulsi, Sinkona, Aawla are Indian medicinal plants.

A Map Work

1. Show in the outline map of India :

(*i*) Any three regions of different types of natural vegetation.

(*ii*) National parks situated in any five states.

(*iii*) Water reserves of Punjab (in outline map of Punjab)

ACTIVITY

2. Identify the trees shown below and specify type of vegetation.

(i) 

(ii) 

3. Make a chart of ten types of trees, five animals and five birds found around you.

B Objective Type Questions

Answer the following questions in a single word to one sentence length :

1. Plants prepare their food by way of ..... by receiving ..... from .....

2. Punjab's ..... area is under forests which comes to ..... percent of total area.
3. Vegetation belongs to ..... sphere and the types of ..... makes effect on ..... .
4. Which sphere of the Earth has living beings (Human beings) :
   (i) Atmosphere (ii) Lithosphere (iii) Hydrosphere (iv) Biosphere
5. Which of the following districts has maximum area under forests :
   (i) Mansa (ii) Roopnagar (iii) Amritsar (iv) Bathinda
6. 'Chinkara' is type of which animal ?
7. What is a 'Beerh'?
8. Name the grass found in semi tropical shrub vegetation.
9. What percentage of Punjab's total area is under forests?
10. Which animals are found in forests with throny vegetation?

C Short Answer Questions

Give short answers for the following questions :

1. Explain Flora and Fauna.
2. Why forests be protected? Write a note.
3. Describe characteristics of evergreen forests.
4. Introduce with natural vegetation of Punjab.
5. How Aawla, Tulsi and Sinkona may be beneficial for human beings?

D Long Answer Questions

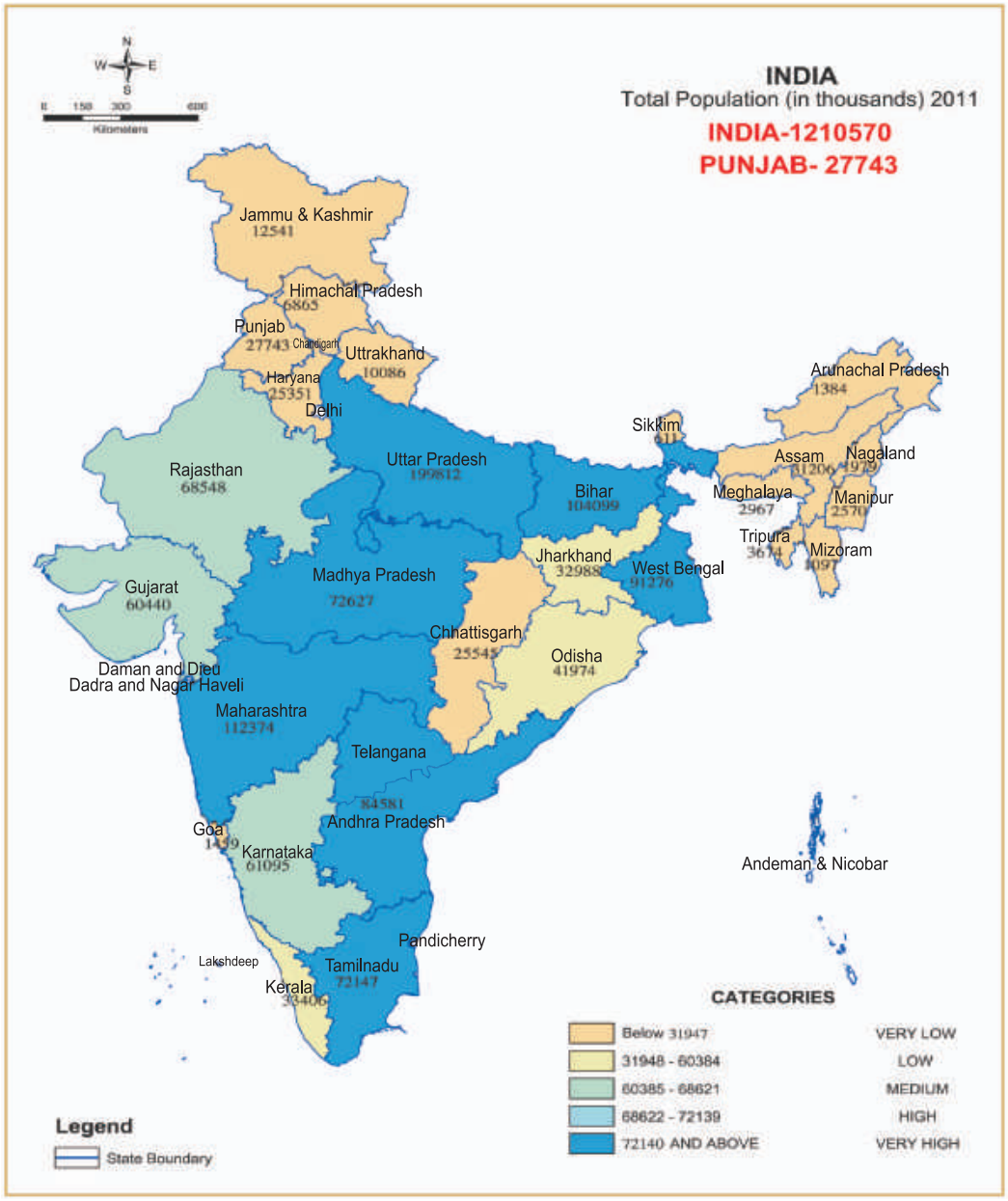
Answer the following questions in detail :

1. How natural vegitation is lungs of a society?
2. Which geographical factors put effect upon natural vegetation?
3. Classify Indian forests on basis of climate and name trees of each class.
4. Put light on classification of natural vegetation of Punjab.
5. Give detail of wildlife and ways of its protection.

* * *

6 Population

Humans are unique creature of this planet, who use the resources of this Earth to make his life comfortable. There is no use of any resource without the presence of human beings. The development of human resource is the axis of development. The population studies is a very important subject matter of geography. In present chapter we are to study the important aspects of population.



SIZE OF POPULATION

In the year 2016, the expected population of the world was 7 billion, 422 million. The population of India was 1 billion, 32 crore and 68 lakh. The distribution of world population is not even. Some countries are densely populated and some others are sparsely populated. The total geographical area of India is 3.287 (32 lakh and 87,000) million square kilometer. It is seventh largest country of the world. It is interesting fact that India has only 2.4% total geographical area of the world, and it is giving shelter to 16% population of the world. According to 2011 Census India is second most populated country of the world after China (1,21,05,69,573 persons). The total population of India in 2011 was 1,02,87,37436 persons. From the census year 2001 to 2011 the net increase in the population was 18,19,59458 persons, and percentage of decadal growth was 17.7%. The absolute growth in the decadal population of India is marginally less than the total population of Brazil, which is fifth largest populated country of the world. This time every 1 in 6 persons is Indian.

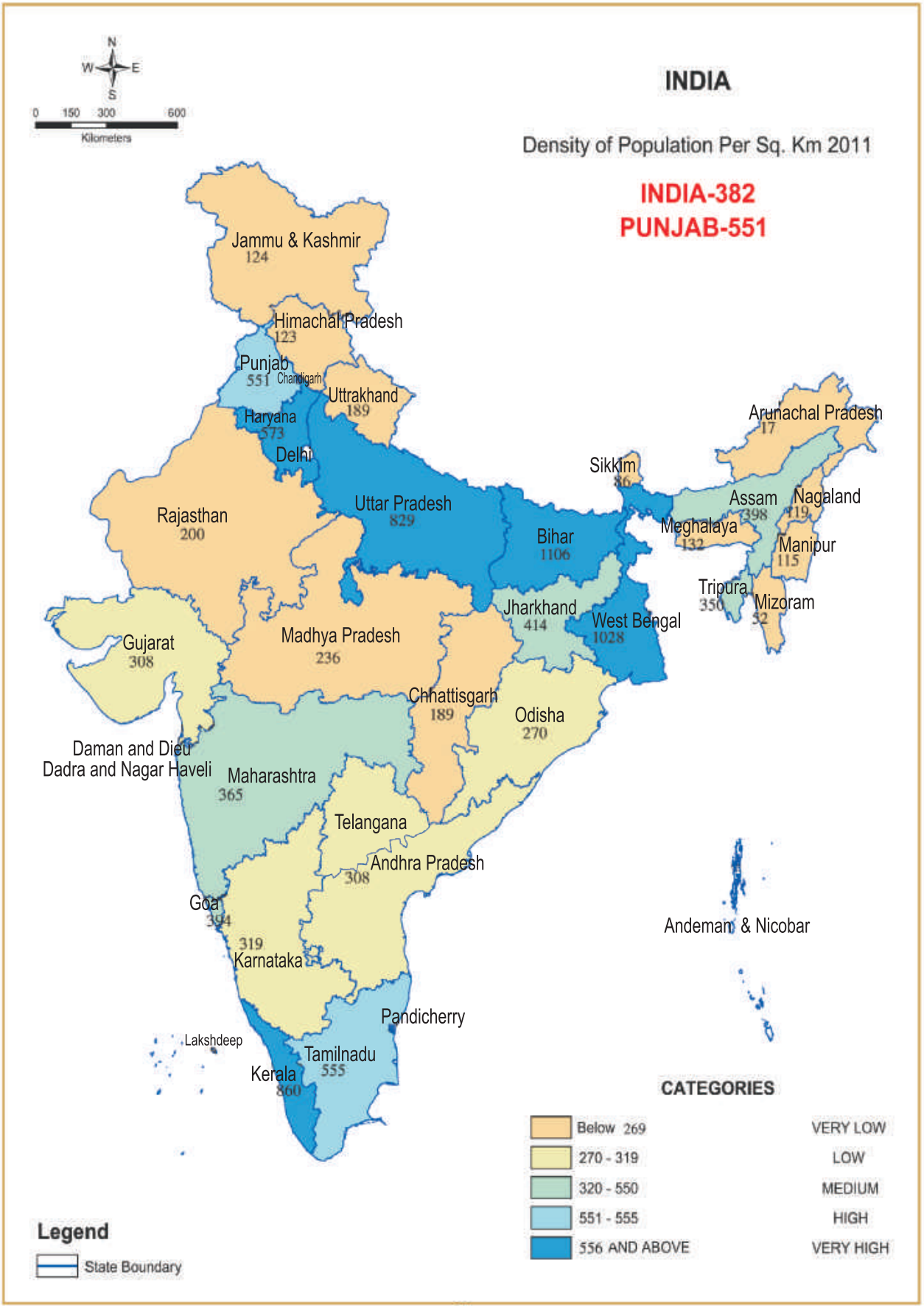
The total male population is 62,31,21,843 and total female population is 58,74,47,730 in our country.

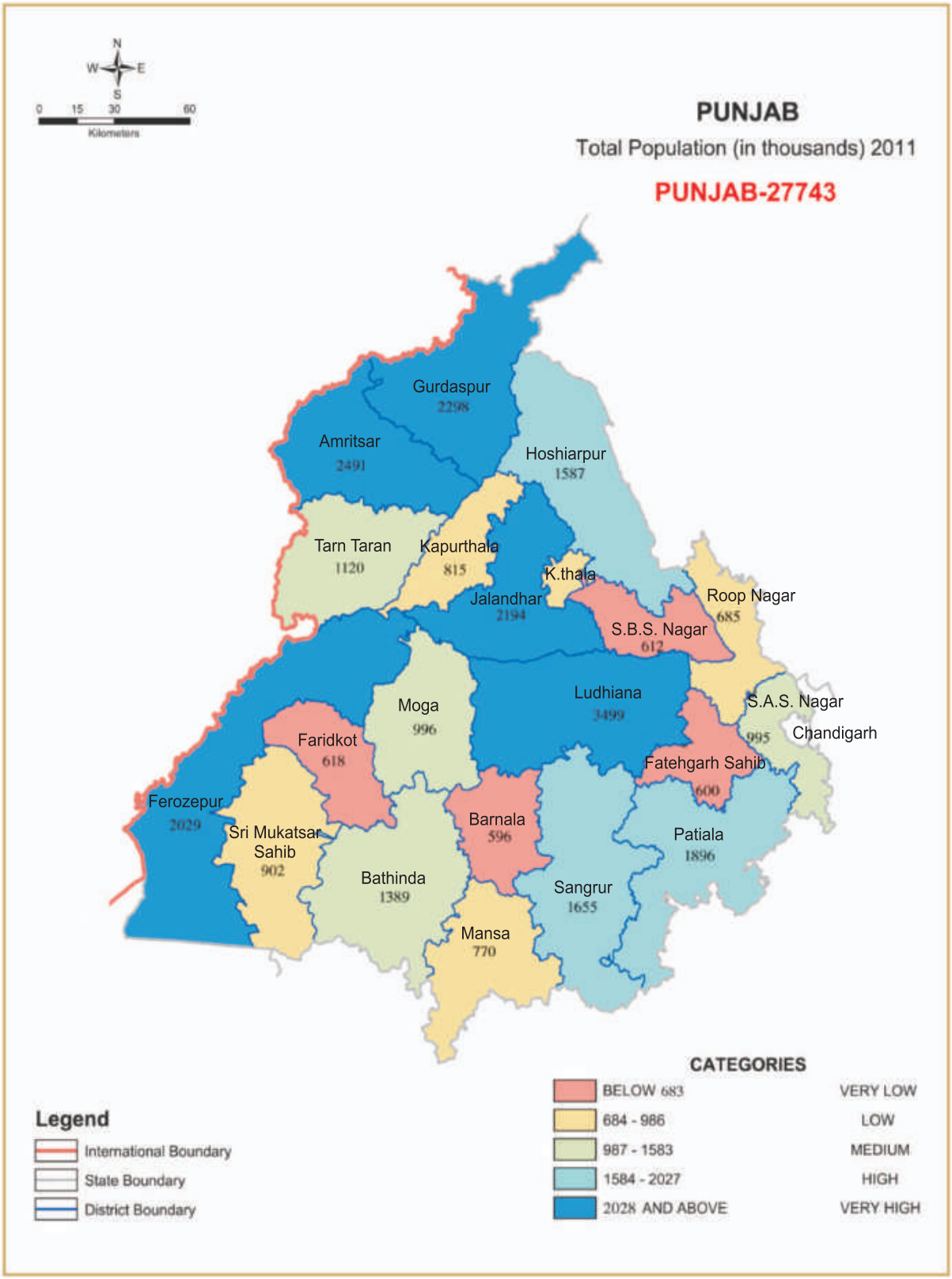
DO YOU KNOW

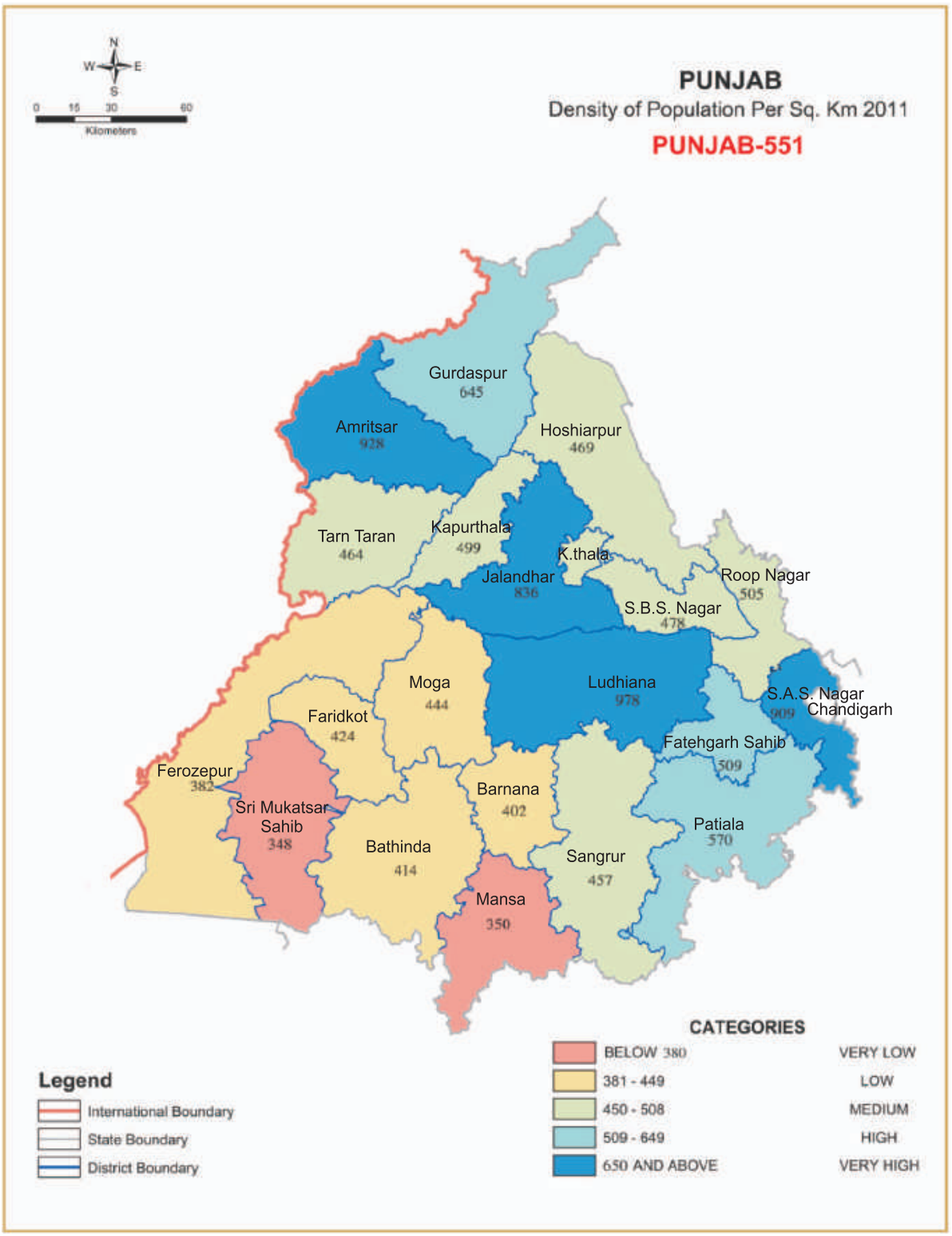
The government collection of population data is done after every decade, is called population census. The census not only count the total population but also collect the age composition, literacy, and sex ratio data. Indian census was started in 1872, the 2011 census were 15th in this series. Total 22,000 million (22 billion) rupees was spent on the census counting, 27 lakh officials worked on it and 8000 metric tonn paper was used. We can understand that how costly it is so we should be very careful that whenever census official comes at your doorstep we should corporate him/ her so that the valuable money of the country can be used in a correct manner.

DISTRIBUTION OF POPULATION

The population distribution in India is uneven. Some States are densely populated. Uttar Pradesh with the total population of 19,95,81,477 persons is at number one and most populated state. Maharashtra is at number two with the total population of 11,23,72,972 persons. The 5 states namely Uttar Pradesh, Maharashtra, Bihar, West Bengal, and Andhra Pradesh account for around 50% of total population. Sikkim, with the total population of 6,07,688 is least populated state of India. Among the union territories of India, Delhi with population of 1,67,53,235 person is most populated, while Lakshadweep with total population of 65,473 persons is least populated UT. Punjab is 16th state from population point view, with the total population in 2,77,43,338 persons in 2011.


INDIA
Density of Population Per Sq. Km 2011
INDIA-382
PUNJAB-551
N
W
E
S
0 150 300 600
Kilometers
Jammu & Kashmir
124
Himachal Pradesh
123
Punjab
551
Chandigarh
Uttrakhand
189
Haryana
573
Delhi
Rajasthan
200
Uttar Pradesh
829
Bihar
1106
Sikkim
86
Arunachal Pradesh
17
Assam
398
Nagaland
119
Meghalaya
132
Manipur
115
Tripura
350
Mizoram
52
Jharkhand
414
West Bengal
1028
Gujarat
308
Madhya Pradesh
236
Chhattisgarh
189
Odisha
270
Daman and Diu
Dadra and Nagar Haveli
Maharashtra
365
Telangana
Andhra Pradesh
308
Goa
394
319
Karnataka
Pandicherry
Lakshdeep
Tamilnadu
555
Kerala
860
Andeman & Nicobar
CATEGORIES
Below 269
VERY LOW
270 - 319
LOW
320 - 550
MEDIUM
551 - 555
HIGH
556 AND ABOVE
VERY HIGH
Legend
State Boundary


N
W
E
S
0 15 30 60
Kilometers
PUNJAB
Total Population (in thousands) 2011
PUNJAB-27743
Gurdaspur
2298
Amritsar
2491
Hoshiarpur
1587
Tarn Taran
1120
Kapurthala
815
K.thala
Jalandhar
2194
Roop Nagar
685
S.B.S. Nagar
612
Ludhiana
3499
S.A.S. Nagar
995
Chandigarh
Moga
996
Faridkot
618
Fatehgarh Sahib
600
Ferozepur
2029
Barnala
596
Patiala
1896
Sri Mukatsar Sahib
902
Bathinda
1389
Sangrur
1655
Mansa
770
Legend
International Boundary
State Boundary
District Boundary
CATEGORIES
BELOW 683 VERY LOW
684 - 986 LOW
987 - 1583 MEDIUM
1584 - 2027 HIGH
2028 AND ABOVE VERY HIGH

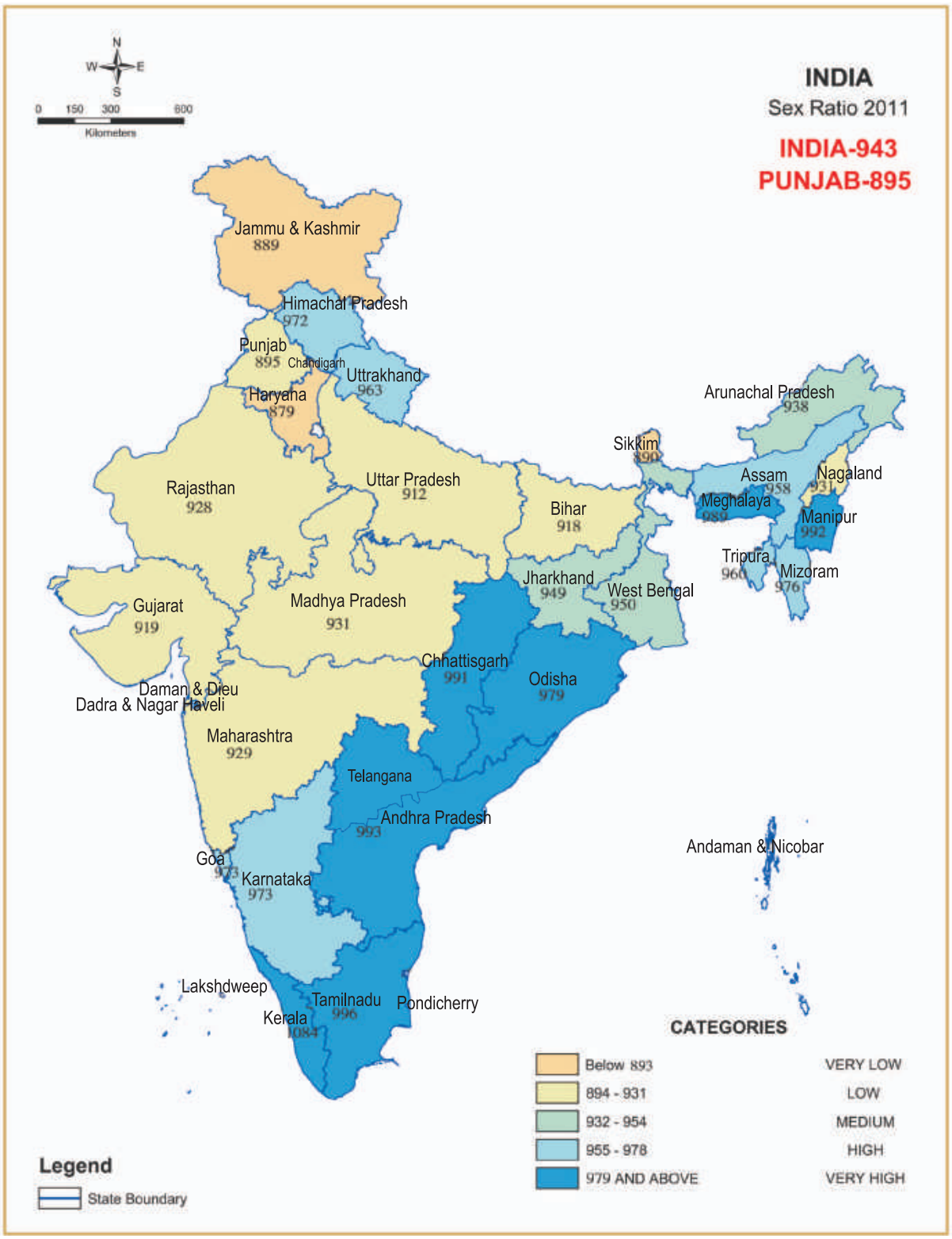

PUNJAB
Density of Population Per Sq. Km 2011
PUNJAB-551
N
W
E
S
0 15 30 60
Kilometers
Gurdaspur 645
Amritsar 928
Hoshiarpur 469
Tarn Taran 464
Kapurthala 499
K.thala
Jalandhar 836
Roop Nagar 505
S.B.S. Nagar 478
Moga 444
Ludhiana 978
S.A.S. Nagar 909
Chandigarh
Faridkot 424
Fatehgarh Sahib 509
Ferozepur 382
Barnana 402
Sri Mukatsar Sahib 348
Patiala 570
Bathinda 414
Sangrur 457
Mansa 350
Legend
International Boundary
State Boundary
District Boundary
CATEGORIES
BELOW 380 VERY LOW
381 - 449 LOW
450 - 508 MEDIUM
509 - 649 HIGH
650 AND ABOVE VERY HIGH

WORLD POPULATION DAY IS CELEBRATED ON 11TH OF JULY EVERY YEAR.

DENSITY OF POPULATION

The population density is the ratio between the land area and the people living over it. It is the number of people per unit of area, usually quoted 'population per square kilometer'. The records of population census 2011 of India state that the density in 2011 has increased from a figure of 325 in 2001 to that of 382 per square kilometer in 2011, which is considerably higher than the average population density of the world in 2011, which is only 46 per square kilometer. Records reveal that along with the wide difference with the population density of the world, there are also a lot of differences in the population density of the various states of India.

The density of population in Punjab has increased from 484 persons per square kilometer in 2001 to 551 persons per square kilometer in 2011. The density of population in Bihar (1106), West Bengal (1028), Kerala (860) and Uttar Pradesh (829) are densely populated States, while Arunachal Pradesh (17) persons per sq. kilometer, Mizoram (52), Nagaland (119), are the least densely populated states. Among the union territories, Delhi (with 11,297 persons per sq. kilometer) is having most densely populated while Andaman and Nicobar Islands (with 46 persons per square kilometer) is least population density union territory.



In Punjab, Ludhiana (population density of 978 persons per square kilometer) and Amritsar (928 persons per square kilometer) are most populated districts.

$$\text{Density of population} = \frac{\text{Total Population}}{\text{Total area}}$$

Census year	Density of Population (persons per square kilometer)
1951	117
1961	142
1971	177
1981	216
1991	267
2001	325
2011	382

District wise population in India, 2011 (some selected districts)

Name of district	Population	Name of district	Population
1. Thane (Maharashtra)	1, 10, 60,148	1. Dibang Valley (Arunachal Pradesh)	8,004 persons
2. North 24 Pargana (West Bengal)	1, 00, 09,781	2. Anjaw (Arunachal Pradesh)	21,167 persons

POPULATION GROWTH

Population never remains stable, it keeps on changing. The net change of population in a given period of time is called population growth. In other words, the Population growth is the increase in the number of individuals in a population. The reason of population change may take palce in the death rate or birth rate or even migration. The population change may be negative or positive. If there is net increase in population in a particular area it is positive population change and if there is population decrease in a particular area it is negative population change.

- The birth rate is the total number of live births per 1,000 of a population in a year or period.

- Mortality rate, or death rate, is a measure of the number of deaths (in general, or due to a specific cause) in a particular population, expressed in units of deaths per 1,000 individuals per year.
- Natural increase in population is the difference between the birth rate and the death rate of a country or place is called the natural increase.

Net change in population may be shown in the numbers or percentage for example in the year 2001, the population of India was, 1,02,87,37,436 person which increased to 1,21,05,69,537 persons in 2011 the net increase in 10 years is 18,19,59,00,537. This increase may be shown in percentage as shown below:

The net increase of population = 18,19,59,458/ 1,02,87,37,436 X 100= 17.68%. Therefore net decadal increase is 17.68 %.

In Punjab during a decade (2001-2011), the net increase in population is 13.9 percent. Before this decade (1991-2001) it was 20.10%. This is a good indication. There is negative decadal growth of population -0.47% in Nagaland. The following factors are responsible for the increase of population:

1. High birth rate and low death rate
2. Marriages all the way
3. Lower age of marriage among girls
4. Economic backwardness of a country
5. The climatic conditions

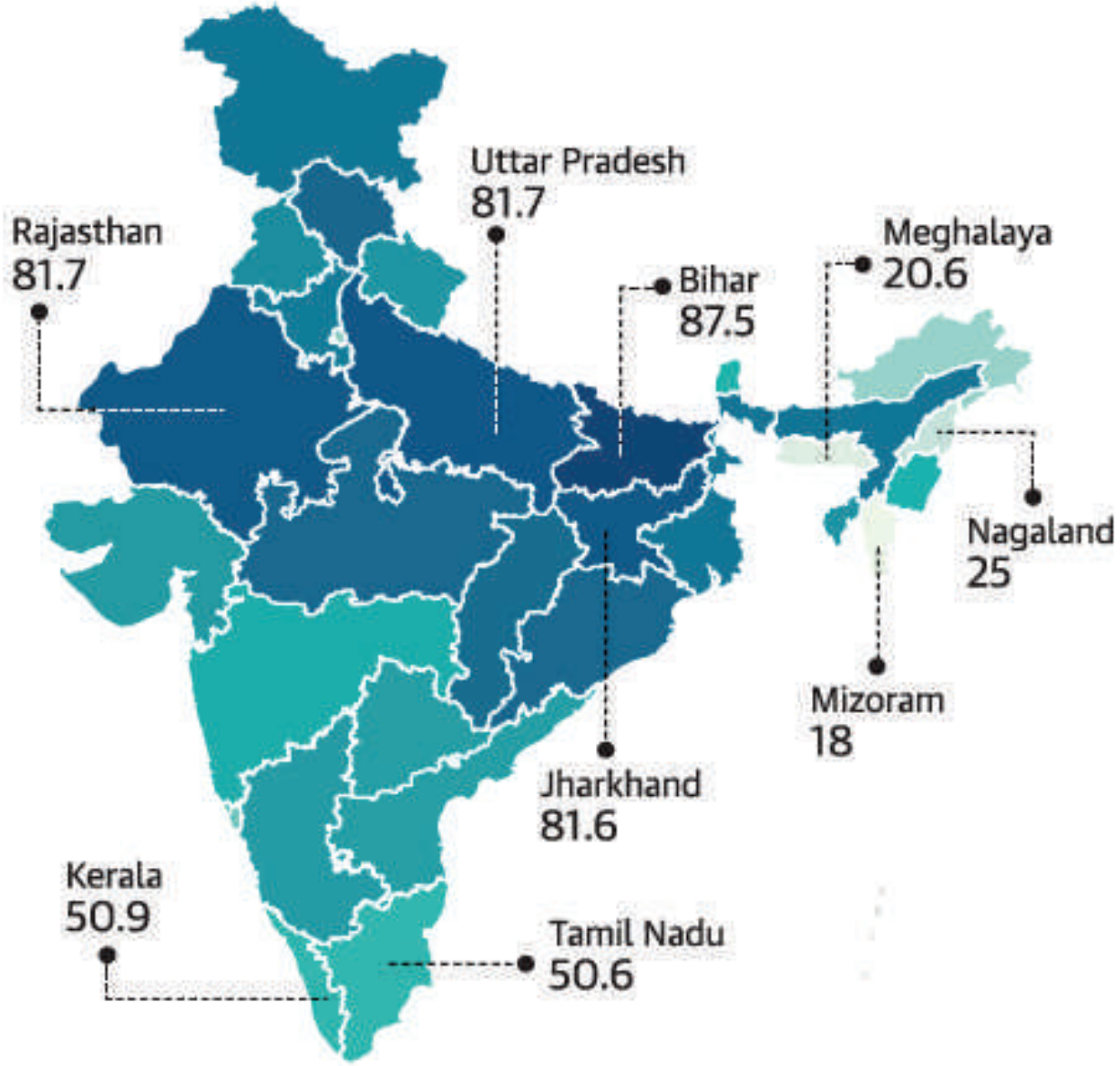
CENSUS 2011

The Administrative Divisions of The Country	
States / union territories	35
Districts	707(2016)
Sub Districts	5924
Towns / Cities	7933
Total villages	6,49,481

DATA POINT

Marriage leads to migration

For more than 80% of women who migrated from Bihar, Uttar Pradesh, Rajasthan and Jharkhand to other States, marriage was the sole reason. This trend was seen less in the southern and northeastern States

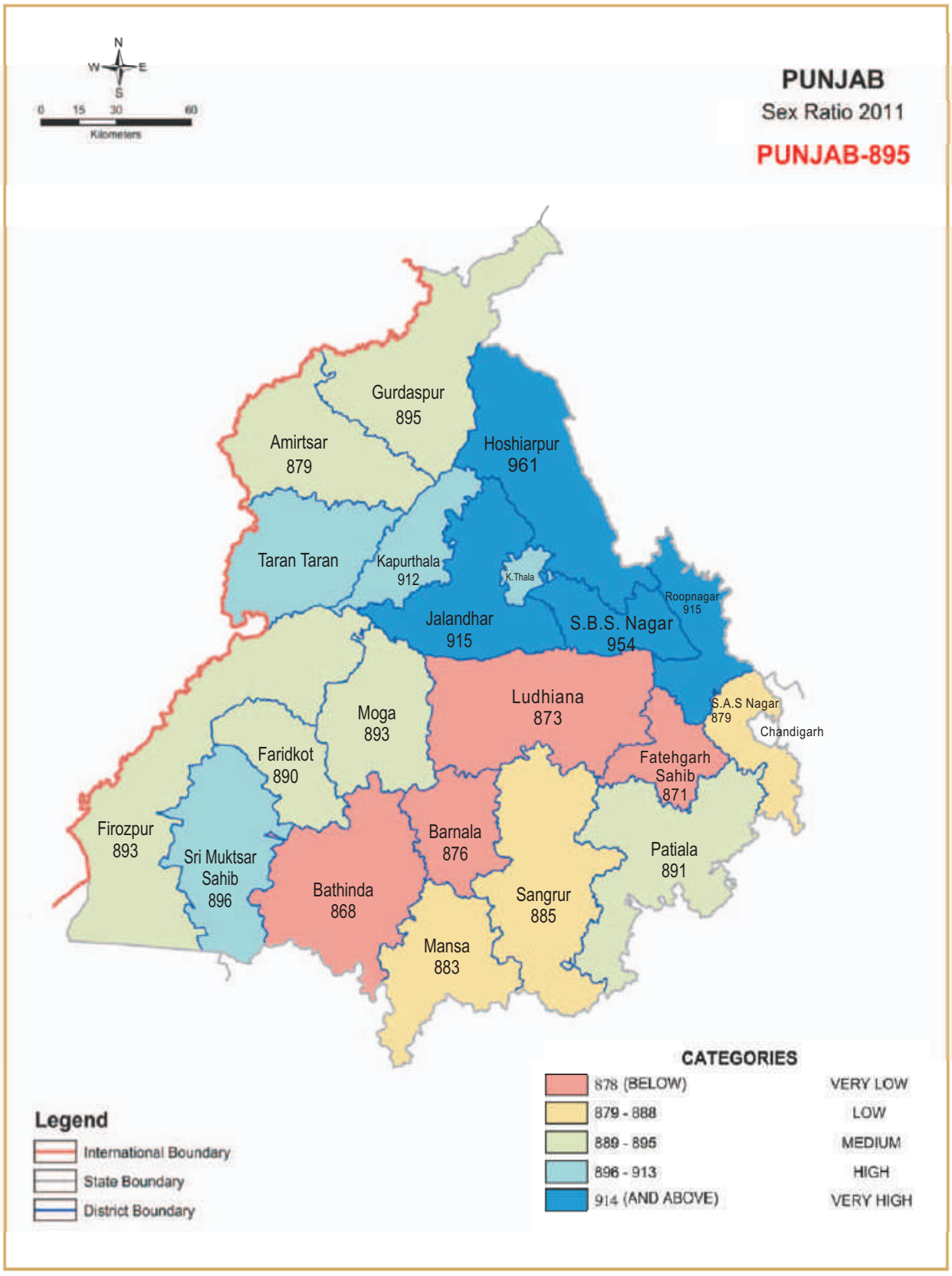


AGE AND GENDER COMPOSITION

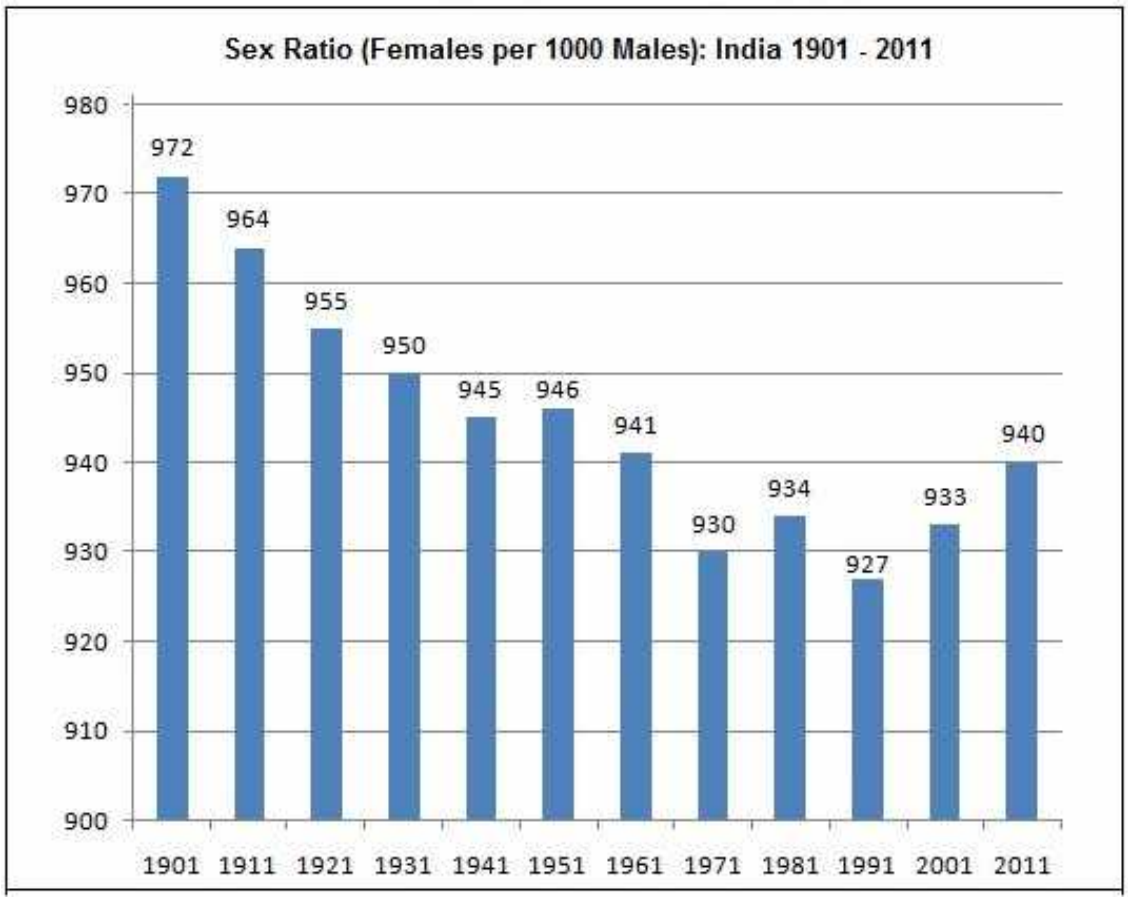
Age-sex structure is one of the most important characteristics of population composition. Almost all population characteristics vary significantly with age. Age statistics form an important component of population analysis, as most of the analysis is based on age-sex structure of the population. Apart from purely demographic concerns, the age-sex data structure is required for age specific analysis of data for planning, scientific, technical and commercial purposes. The dependency ratio, which is the ratio of economically active to economically inactive persons, is dependent on age composition. India is divided into broad age groups of children 0-14, young and working population 15-59 and old age people 60 plus for the year 2011. The age group of children (0-14) and old population (more than 60 years) is dependent population. In other words this age group is depend upon the economically working population for their requirements. To know the dependent population it is divided by total working population of a nation and x 100. The ratio of dependent and economically working population is indicator of interrelations of population. The study of age and gender composition is useful in future planning.

$$\text{Dependent group} = \frac{\text{Population of (0-14) group} + \text{old population}}{\text{Young and working population}} \times 100$$

Sex ratio is defined as the number of females per thousand males. As per Census 2011, Sex ratio of India is 943. In absolute terms, India has 48.53% female population compare to 51.47% male population. Among states, Kerala has highest sex ratio of 1084 females to 1000 males and Punjab (895) females and Haryana has the lowest sex ratio of 879 females per 1000 males. Among union territories, Puducherry has highest sex ratio of 1037 and Daman & Diu has lowest sex ratio of 618. As per the Census, 2011 the child sex ratio (0-6 years) has shown a decline from 927 females per thousand males in 2001 to 919 females per thousand males in 2011. In Punjab, The child sex ratio is 846 per 1000 males and has decreased as compared to 798 in the 2001 census. All the Punjab is state with one of the least sex ratio but it has considerably improved its status as compared to last decade.


N
W
E
S
0 15 30 60
Kilometers
PUNJAB
Sex Ratio 2011
PUNJAB-895
Gurdaspur
895
Amirtsar
879
Hoshiarpur
961
Taran Taran
Kapurthala
912
K.Thala
Roopnagar
915
Jalandhar
915
S.B.S. Nagar
954
Ludhiana
873
S.A.S Nagar
879
Chandigarh
Moga
893
Faridkot
890
Fatehgarh
Sahib
871
Firozpur
893
Sri Muktsar
Sahib
896
Barnala
876
Patiala
891
Bathinda
868
Sangrur
885
Mansa
883
Legend
International Boundary
State Boundary
District Boundary
CATEGORIES
878 (BELOW) VERY LOW
879 - 888 LOW
889 - 895 MEDIUM
896 - 913 HIGH
914 (AND ABOVE) VERY HIGH

Census Year	Gender Ratio (Females per 1000 Males)
1951	946
1961	941
1971	930
1981	934
1991	929
2001	933
2011	940



Population change: migration as important factor of population change

The population of an area never remains same, there may be net increase or decrease of population in a particular area. Three factors are responsible for the change of population. These are, birth rate, mortality or death rate, and migration.

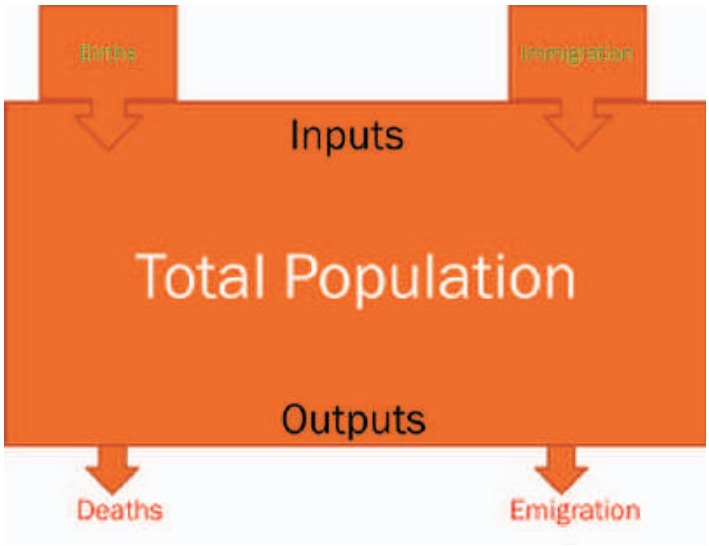
Human migration is the movement by people from one place to another with the intentions of settling, permanently or temporarily in a new location. The In-migration is to move into or come to live in a region or community especially as part of a large-scale and continuing movement of population, and the out-migration is to leave one region or community in order to settle in another especially as part of a large-scale and continuing movement of population.

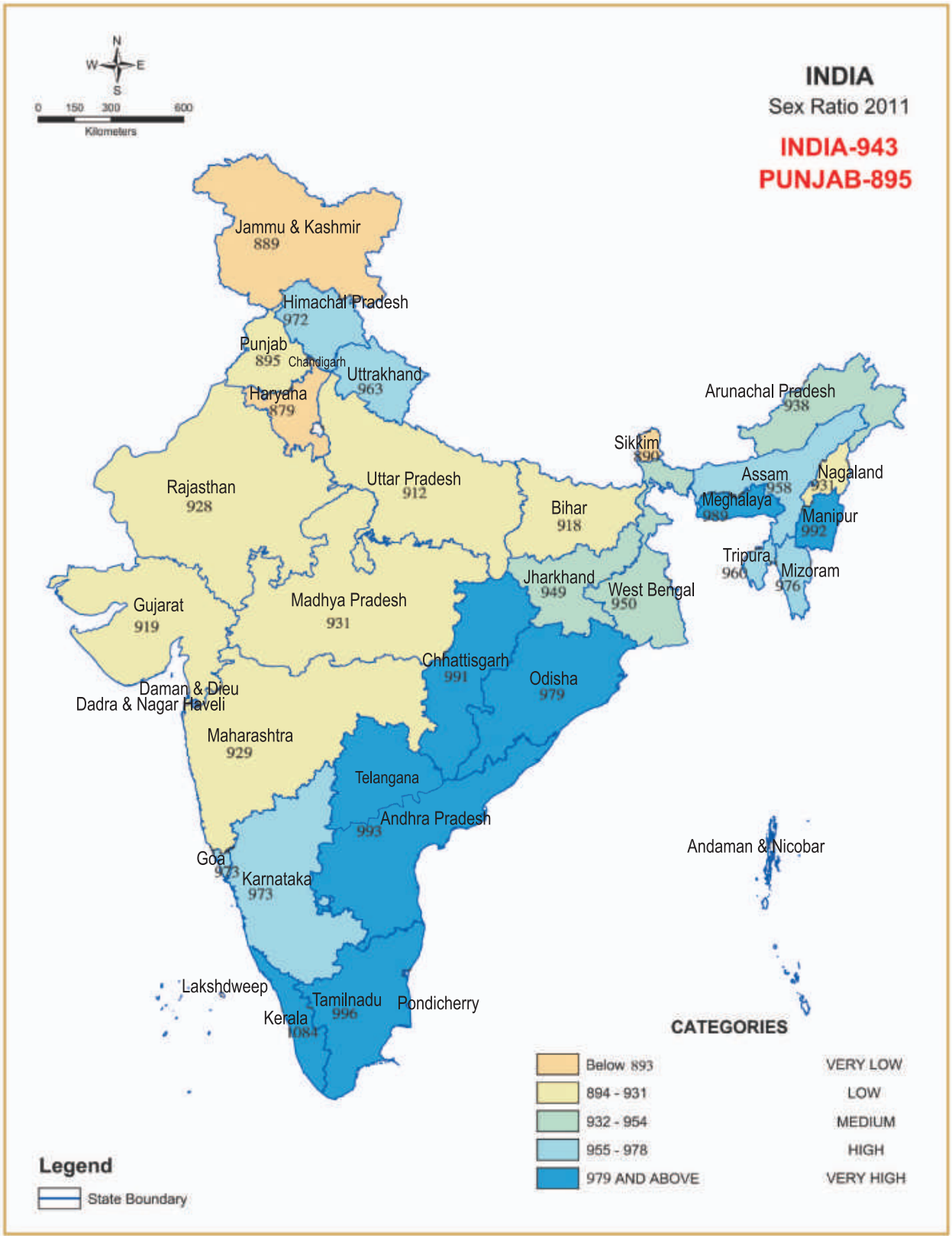
Status. International migration is when people migrate from one country to another country. For example, every year many Indians continue to migrate to USA, Australia, Canada, and other European Nations. Many people have migrated in India in the recent past from our neighboring countries like, Asia and European countries, Nepal, Pakistan, Afghanistan, and Sri Lanka. Internal migration occurs within the boundaries of a given country. Internal migration, therefore, is a type of geographic mobility.

Reasons of migration:

1. Search for better agricultural land
2. Search for employment
3. Expectation of earnings
4. Religious freedom
5. Political freedom
6. Forced migration
7. Urbanisation
8. Migration on the basis of marriage

If any person is counted at some other place of his birthplace is called migrant a person is counted at the place is living. It is an important determinant of population change.




INDIA
Sex Ratio 2011
INDIA-943
PUNJAB-895
N
W
E
S
0 150 300 600
Kilometers
Jammu & Kashmir
889
Himachal Pradesh
972
Punjab
895
Chandigarh
Uttrakhand
963
Haryana
879
Rajasthan
928
Uttar Pradesh
912
Bihar
918
Sikkim
890
Arunachal Pradesh
938
Assam
958
Nagaland
931
Meghalaya
989
Manipur
992
Tripura
960
Mizoram
976
Jharkhand
949
West Bengal
950
Gujarat
919
Madhya Pradesh
931
Chhattisgarh
991
Odisha
979
Daman & Dieu
Dadra & Nagar Haveli
Maharashtra
929
Telangana
Andhra Pradesh
993
Goa
973
Karnataka
973
Andaman & Nicobar
Lakshdweep
Tamilnadu
996
Pondicherry
Kerala
1084
CATEGORIES
Below 893
VERY LOW
894 - 931
LOW
932 - 954
MEDIUM
955 - 978
HIGH
979 AND ABOVE
VERY HIGH
Legend
State Boundary

MIGRANT LABOUR IN PUNJAB

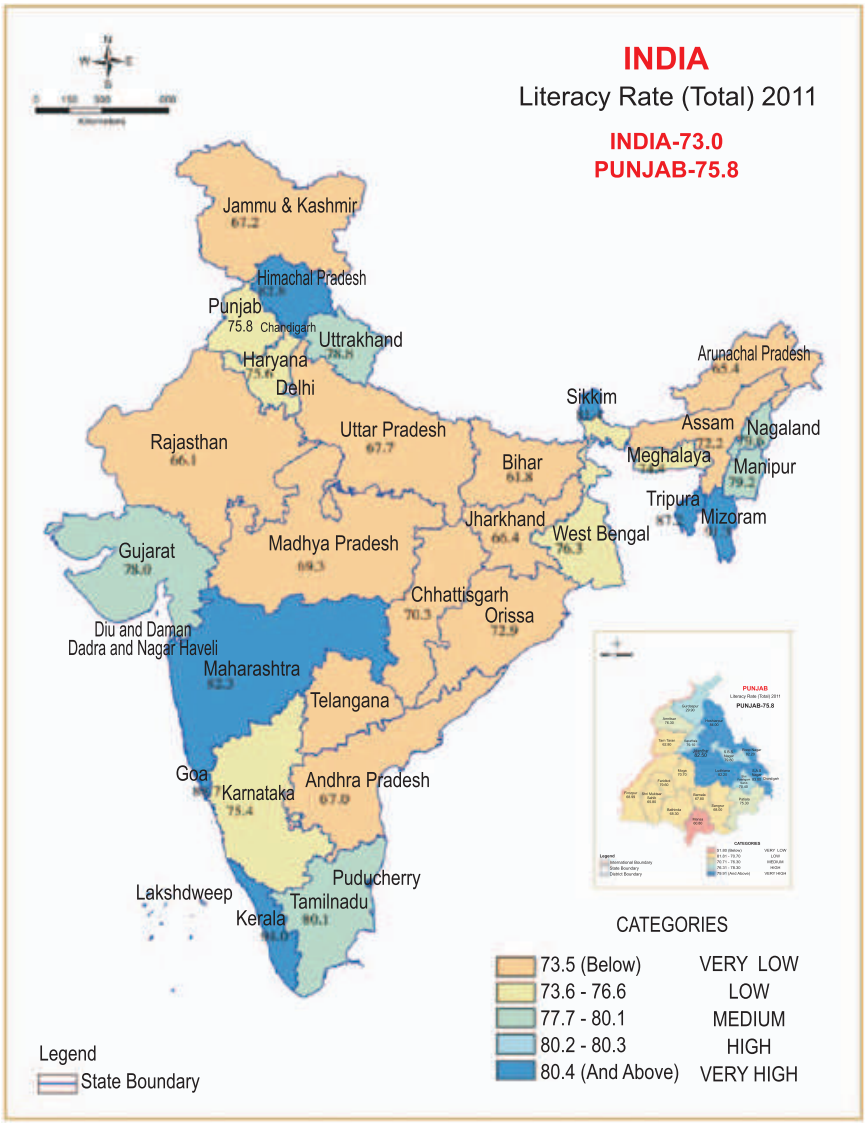
The total geographical area of Punjab is, 50,362 square kilometer. Punjab was one of the most developed states of India. With the exception of few industrial city is the main occupation of people is agriculture. Ludhiana, Amritsar, Jalandhar, Mandi Gobindgarh, And S.A.S Nagar (Mohali) are some of the industrial cities. To improve the economy of the state Punjab need labour. In order to develop the agriculture and industries, we require skilled and unskilled labour.

It is accepted fact get migration and economic development are interrelated to improve the economic development Punjab required skilled and unskilled labour at the same time the labour of poor States require employment. The Migrants of these States have been coming to the Punjab since green Revolution to get the employment. The total number of migrant labourers in Punjab in 1981 was 8,72,377 which was increased to 21,30,262 in the year 2011. Which is 8.7% of total population. The migrants are coming from Bihar, Uttar Pradesh, Haryana, Rajasthan, Madhya Pradesh, West Bengal, Odisha, and Jammu and Kashmir. In the year 2001 the 40% migrants work from Uttar Pradesh but this ratio has decreased in the year 2011. It is believed that if a migrant labourer is living in a state for less than 6 months. He or she is not counted in the census, therefore it is not easy to determine the exact number of migrant labourers in Punjab. Most of the migrant labourers are working in, Ludhiana, Amritsar, Mandi Gobindgarh, Jalandhar, and S.A.S Nagar Mohali. The number of migrant labourers as an indicator of economic development.

Religious group	Population 1951%	Population 1961%	Population 1971%	Population 1981%	Population 1991%	Population 2001%	Population 2011%
Hinduism	84.10%	83.45%	82.73%	82.30%	81.53%	80.46%	79.80%
Islam	9.80%	10.69%	11.21%	11.75%	12.61%	13.43%	14.23%
Christianity	2.30%	2.44%	2.60%	2.44%	2.32%	2.34%	2.30%
Sikhism	1.79%	1.79%	1.89%	1.92%	1.94%	1.87%	1.72%
Buddhism	0.74%	0.74%	0.70%	0.70%	0.77%	0.77%	0.70%
Jainism	0.46%	0.46%	0.48%	0.47%	0.40%	0.41%	0.37%
Zoroastrianism	0.13%	0.09%	0.09%	0.09%	0.08%	0.06%	n/a
Other religions / No religion	0.43%	0.43%	0.41%	0.42%	0.44%	0.72%	0.90%

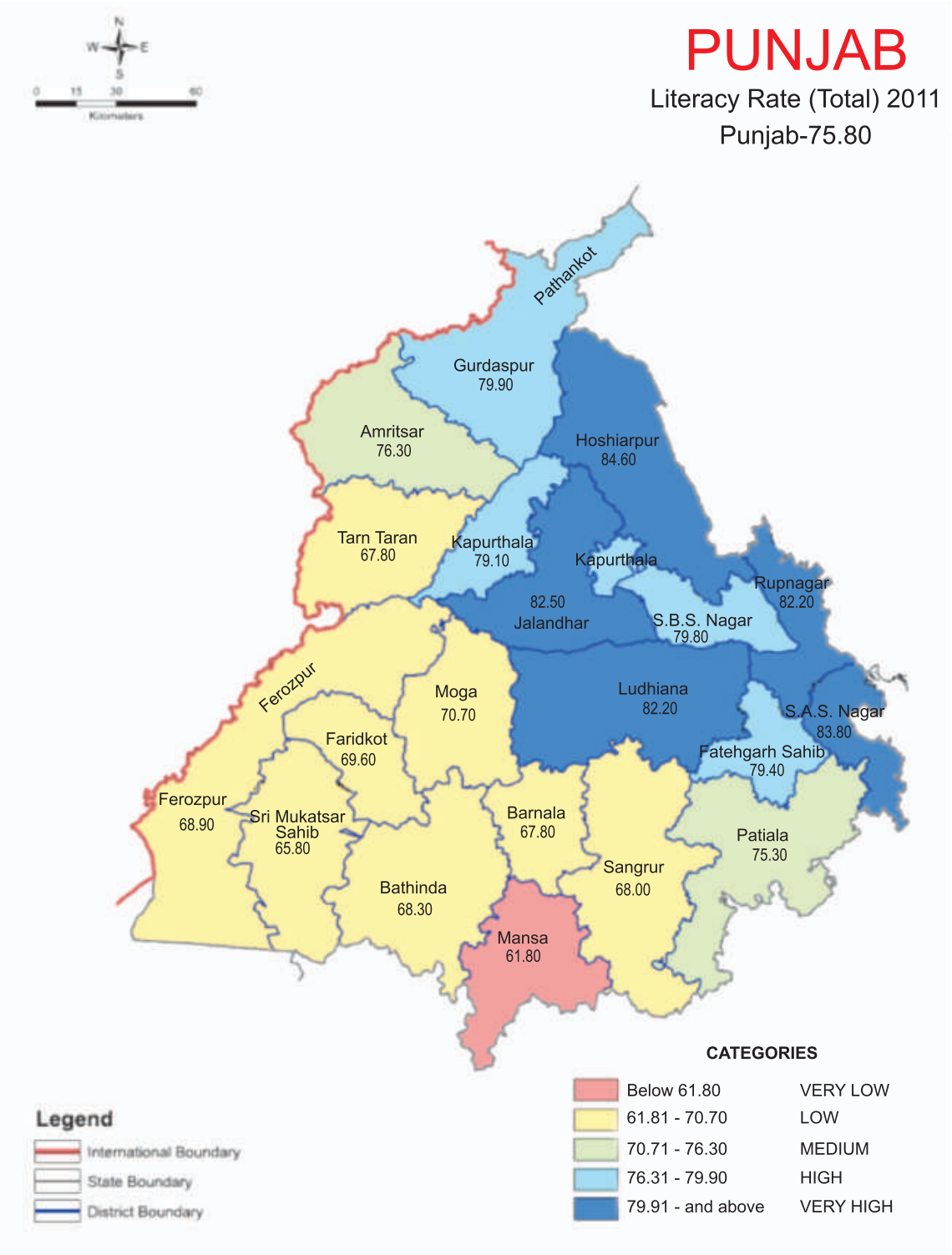
LITERACY

Literacy rate, is an important indicator of social and economic development of a country. Literacy rate has significant impact over fertility, mortality, and migration.Literacy improve the quality of life. It is important to literate than to be educated.



The working definition of literacy in the Indian census since 1991 is as follows: Literacy rate. Also called the "effective literacy rate"; the total percentage of the population of an area at a particular time aged seven years or above who can read and write with understanding. Calculated by the following formula:

$$\text{Crude literacy rate} = \frac{\text{Number of literate persons}}{\text{Total population}} \times 100$$



There is a wide gender disparity in the literacy rate in India: effective literacy rates (age 7 and above) in 2011 were 82.14% for men and 65.46% for women. The low female literacy rate has had a dramatically negative impact on family planning and population stabillisation efforts in India. According to 2011 census, the literacy rate of India is 73% as compared to 64.8% in 2001. Kerala is highest literate state (94%), followed by Mizoram (91.3), Goa (88.7%) and Tripura (87.2%). Among union territories of India Lakshadweep (91.8%) number one followed by Daman and Diu (87.1%). Punjab is at number 14th in literacy rate with 75.8%. Bihar 61.80% has lowest literacy rate. Hoshiarpur District in Punjab is number one in literacy and Mansa district will 61.8% is least literate district.

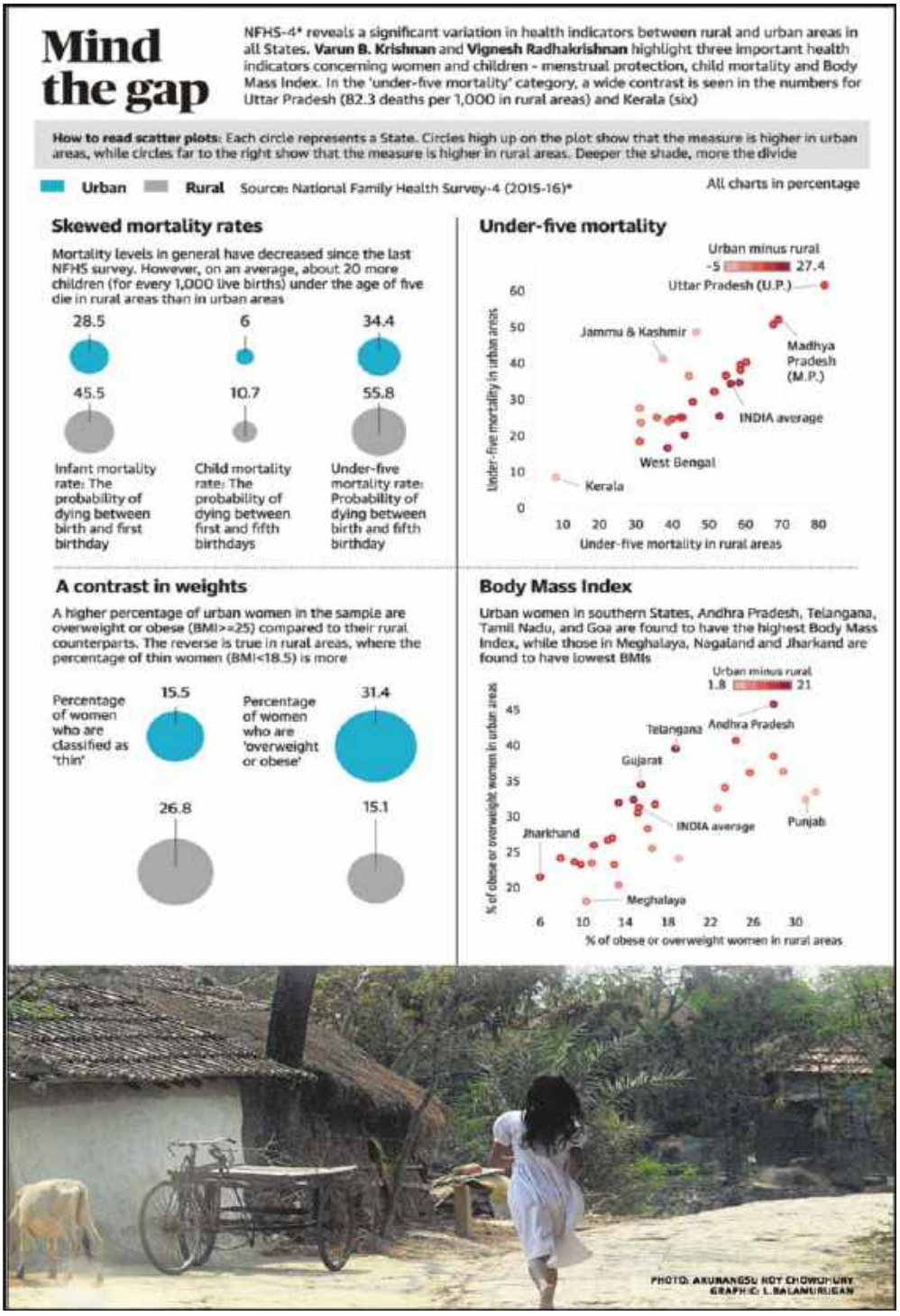
The female literacy rate in India is 65.46% in 2011 which was 53.7% in 2001. In Kerala 92.1% females are literate while it is only 52.1% in Rajasthan. In Odisha, Chhattisgarh, Madhya Pradesh, Jharkhand, Andhra Pradesh, Arunachal Pradesh, Uttar Pradesh, Jammu and Kashmir, Bihar and Rajasthan the female literacy rate is less than the national average 65.46%.

In the last decade (2001-2011) the number of literate women is more than the literate males. 10 states and union territories of Kerala, Lakshadweep, Mizoram, Goa, Daman and Diu, Puducherry, Chandigarh, Delhi, Andaman and Nicobar Islands have achieved 85% of literacy, the target fixed by the then planning commission of India (now Niti Aayog). It is achieved by the sincere efforts of the governments and the project like Sarav Shiksha Abhiyan.

HEALTH

Health is a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity". Good health is an indicator of development of a country and its important aspect of population.

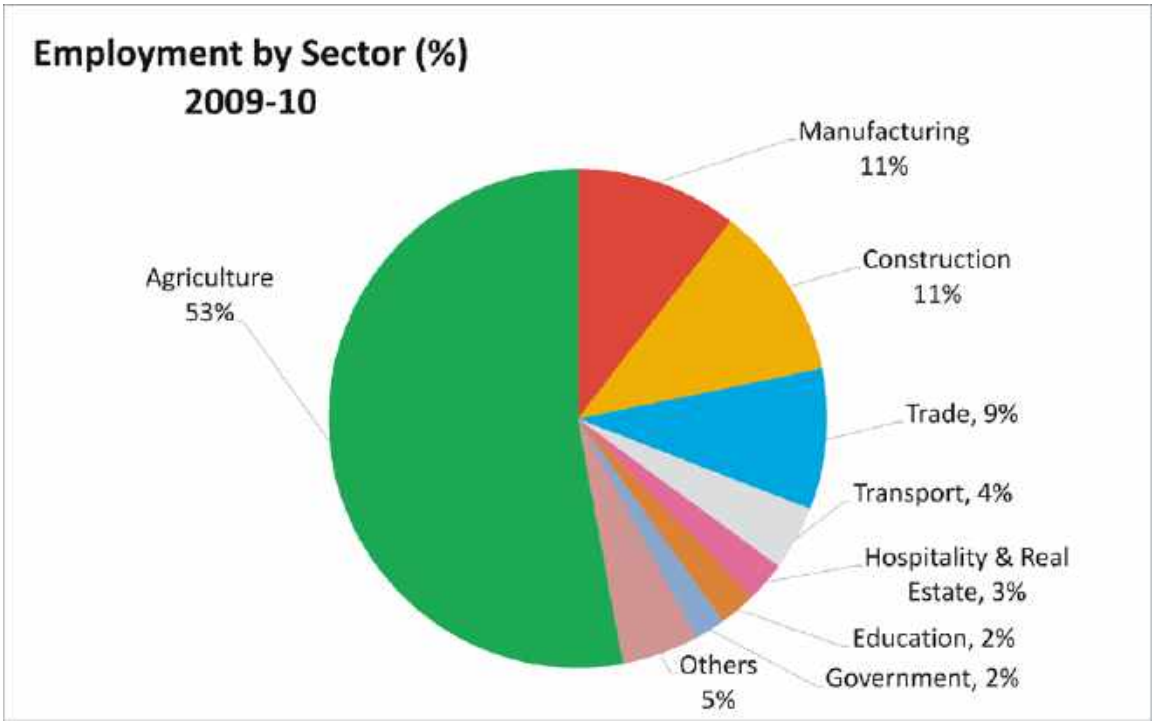
The health conditions in India have been improved as compared to the previous decades. It has become possible because of the sincere efforts of the governments. The number of Hospitals, dispensaries, Primary Health Care Centres, and doctors are increasing with the increasing population, the death rate of 25/1000 persons in 1951 have been decreased to 7.9/1000 in 2011. The life expectancy has been also improved from 36.7 years to 65.2 years in 2011. The health facilities at the time of birth have also improved a lot. The health of The Peoples of Punjab is comparatively better than the rest of the states. Still the large number of In India are malnourished. Many peoples are not getting nutritious diet and clean drinking water, so there is lot to be done.



OCCUPATIONAL STRUCTURE

Economic development creates various types of occupations in an economy. All these various occupations can be broadly classified into three categories, viz., and primary, secondary and tertiary. The primary occupations include all those essential activities related to agriculture and allied activities like animal husbandry, forestry, fishery, poultry farming etc.

Secondary activities include manufacturing industries composed of both large and small scale and mining. Tertiary activities include all other activities like transport, communication, banking, insurance, trade etc. The occupational structure indicated the distribution as well as absorption of population into these various types of occupations. The population of age group from 15 to 59 is included in the working population. Children and aged peoples are dependent population.



In India more than 49% of population is engaged in agriculture. More than 22% in secondary sector and more than 27% population is now engaged in tertiary sector. With the advancement in the technology the pressure of population on agriculture is decreasing. Industrialization and urbanization is leading to development of service sector and more labour is engaged in secondary and tertiary sectors.

Adolescence and underserved population group with special needs.

Adolescence is a transitional stage of physical and psychological development that generally occurs during the period from puberty to legal adulthood (age of majority) Adolescence is usually associated with the teenage years, but its physical, psychological or cultural expressions may begin earlier and end later. For example, puberty now typically begins during preadolescence, particularly in females. Physical growth (particularly in males), and cognitive development can extend into the early twenties. Age of adolescence is from 10 to 20 years. 22% of total population is of adolescents. This is very important to understand the reproductive system, the brain development and the emotional, social, and economic independence. The needs of adolescents is different among males and females in different socio-economic

conditions. It is the most neglected group of population. Adolescence can be defined biologically, as the physical transition marked by the onset of puberty and the termination of physical growth; cognitively, as changes in the ability to think abstractly and multi-dimensionally; or socially, as a period of preparation for adult roles. Major pubertal and biological changes include changes to the sex organs, height, weight, and muscle mass, as well as major changes in brain structure and organization. Cognitive advances encompass both increment in knowledge and in the ability to think abstractly and to reason more effectively.

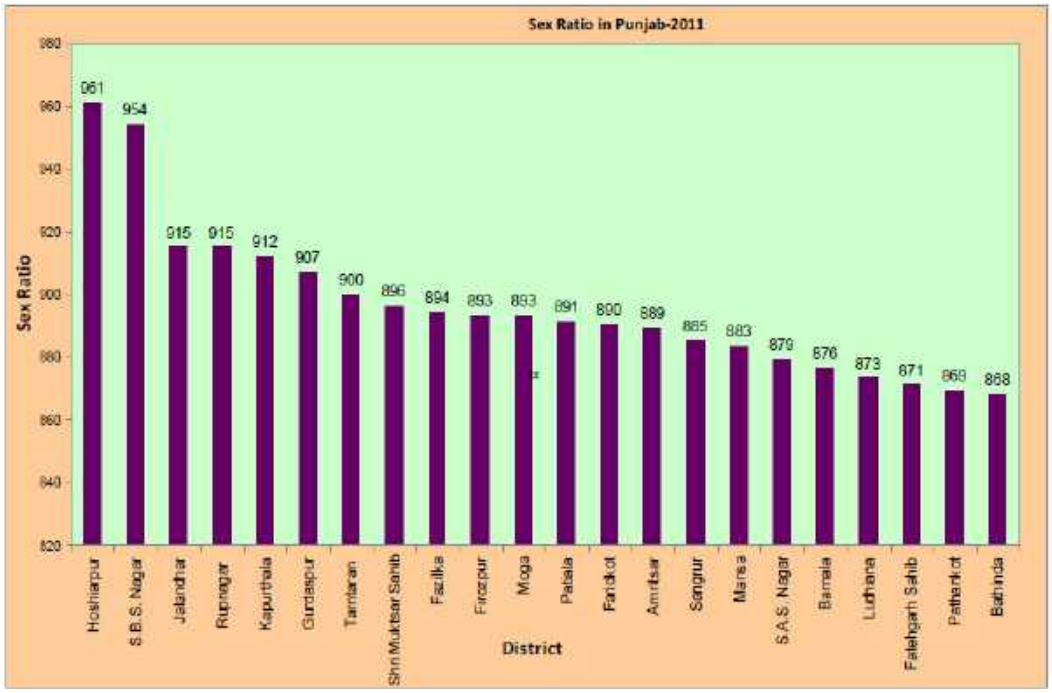
On the basis of physical changes the adolescent age is divided into Pre-adolescent (10-14), middle adolescent (15-17), Little adolescent (18-19 years). Adolescents in India facing a lot of problems, like malnourishment, anemia, undergrowth, child marriage, child labour, teenage pregnancies, school dropouts, drug addiction, violent behavior, depression, and suicidal tendencies. The requirements of adolescents can be categorised as per following:

1. Nutritious diet
2. Love and care from parent and Society
3. Good and quality education in the congenial environment
4. Awareness regarding health and physical development at different stages
5. Security from school dropout and drug addiction
6. Career guidance.

In the National Population Policy 2000 few target were fixed for the betterment of adolescents. The adolescence are real future of the nation. The love and care of the society is their right. The parents can help their children in a better way they can provide the congenial atmosphere for their growth, education, and better future. The teacher can guide the student to become the responsible and good citizen. The social, religious, and political leaders can also guide them for their future so that they can become civilized citizens of the country.

POPULATION OF PUNJAB

The total geographical area Punjab is 50,362 to square kilometer which is 1.5% of total geographical area of India but it Shelters 2.3 percent of total population. From the population point of view Punjab is at number 15th. According to 2011 Census, the total population of Punjab is 2,77,04,236. Ludhiana is at number one in population per square kilometer, followed by Amritsar, Gurdaspur, Jalandhar, and Ferozepur. The sex ratio of Punjab have been increased from 876 in 2001 To 895 in 2011. The literacy rate is 75.8%. Hoshiarpur is most literate district with literacy rate 84.16%. We shall study the more demographic aspects of Punjab in the following pages.



DISTRIBUTION OF POPULATION

Punjab has 12,581 villages, 217 small cities. The population distribution of Punjab is uneven. The urban areas are densely populated while rural areas are sparsely populated. Ludhiana and Amritsar are the most populated district with population of 16 lakhs and 11 lakhs consecutively. Some other cities population only in thousands. On the basis of density Punjab can be divided into four different regions.

1. Low population density regions
2. Moderate population density regions
3. High population density regions.
4. Very high population density regions

1. **Low population density regions :** in this category the districts of the population density less than 400 persons square kilometer are included. Ferozepur, Sri Muktsar Sahib, and Mansa falls in this category. Manasa with population density of 348 persons per square kilometer is a least density of population district in Punjab.

2. **Moderate population density reasons :** in this category, Hoshiarpur, Tarn Taran, Kapurthala, Shaheed Bhagat Singh Nagar (Nawashahar), Faridkot, Moga, Bathinda, Barnala, and are included. In these districts the population density is from 401 to 500 persons per square kilometer.

3. **High population density reasons :** Fatehgarh Sahib, Patiala, and Rupnagar district are included in this category. The population density is between 501 to 600 persons per square kilometer.

4. **Very high population density regions :** the districts with more than 600% per square kilometer are included in this category. Gurdaspur, Amritsar, Jalandhar, Ludhiana, and Sahibzada Ajit Singh Nagar Mohali Are the districts of very high population density. The density of population of Ludhiana is 978 persons per square kilometer is highest in Punjab. The total population of Ludhiana is 34, 98,739 persons according to 2011 Census. The density of population in Amritsar is 928, in Sahibzada Ajit Singh Nagar 909, and in Jalandhar it is at 915 per square kilometer.

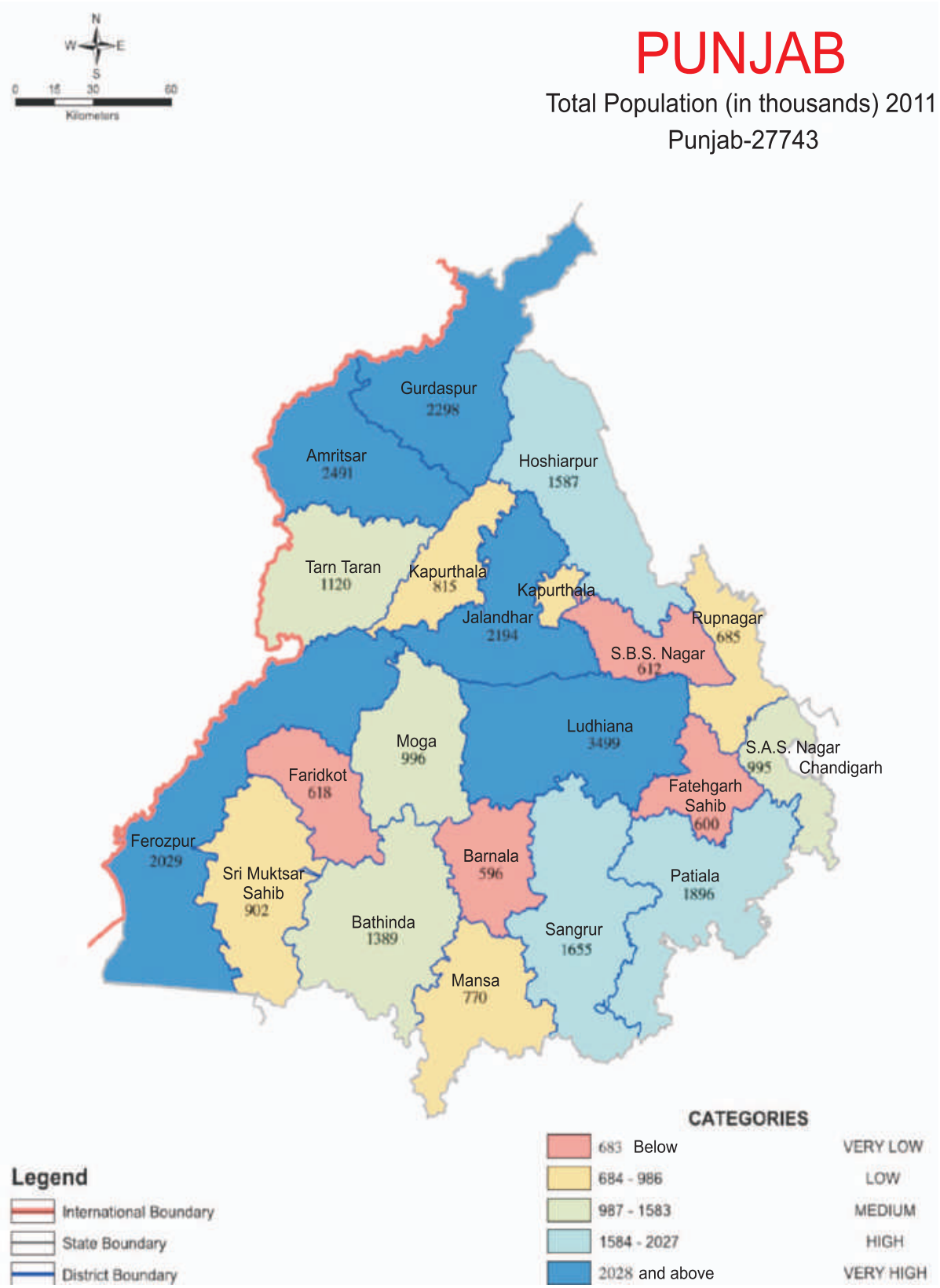
URBAN- RURAL POPULATION

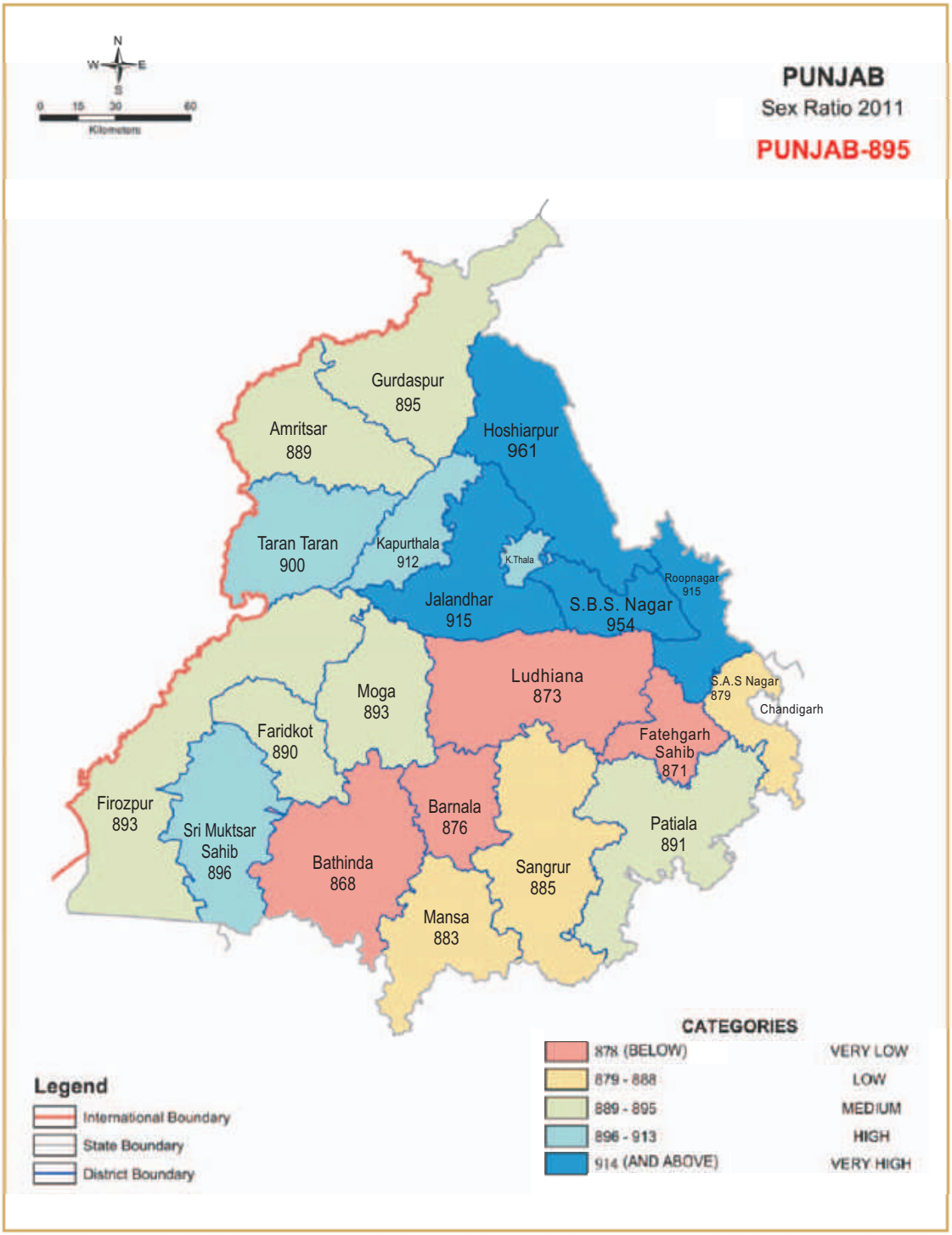
Among the total population of Punjab, 1,73,44,192 persons are living in rural areas, and 1,03,99,146 persons are living in urban areas which is 62.5% and 37.5% consecutively. The Urban population has been increased from 33.9% in 2001 to 37.5% in 2011. A better job prospects, education Facilities, better living conditions all the peoples towards the urban areas. In last decade Rapid urbanization has been taken place in Sahibzada Ajit Singh Nagar Mohali. Where the 54.8% peoples are living in urban areas in 2011, which was merely 38.3% in 2001. The Taran Taran district is least urbanized district in Punjab, in which, only 12.7% population is urban while 87.3% of people lives in rural areas.

GENDER BASED COMPOSITION OF POPULATION

In the total population of Punjab 1,46,39,465 are males and 1,310,3873 are females. The sex ratio in Punjab is 895 females per 1000 males. It is, 907 in villages, and 875 in urban areas. The sex ratio of Punjab was 876 in 2001, it is increase of 19 females per thousand males. We need to work increase in the number of females.

The sex ratio of Hoshiarpur is highest 961 which is highest in Punjab, followed by, Shaheed Bhagat Singh Nagar, 954 Jalandhar 915, Rupnagar 913, are having the highest sex ratio. Bathinda 865, Fatehgarh Sahib 871, Ludhiana 878, And Mansa are the least sex ratio districts. The sex ratio in Bhatinda has been decrease to 868. It is worth to be mentioned here that the child sex ratio in Punjab (in the age group of 0-6) has increased by 48 females. It is 846 in 2011, Which was 798 in 2001.


PUNJAB
Total Population (in thousands) 2011
Punjab-27743
N
W
E
S
0 15 30 60
Kilometers
Gurdaspur 2298
Amritsar 2491
Hoshiarpur 1587
Tarn Taran 1120
Kapurthala 815
Kapurthala
Jalandhar 2194
Rupnagar 685
S.B.S. Nagar 612
Ludhiana 3499
Moga 996
S.A.S. Nagar 995
Chandigarh
Faridkot 618
Fatehgarh Sahib 600
Ferozpur 2029
Barnala 596
Patiala 1896
Sri Muktsar Sahib 902
Bathinda 1389
Sangrur 1655
Mansa 770
Legend
International Boundary
State Boundary
District Boundary
CATEGORIES
683 Below VERY LOW
684 - 986 LOW
987 - 1583 MEDIUM
1584 - 2027 HIGH
2028 and above VERY HIGH



OCCUPATION STRUCTURE OF POPULATION IN PUNJAB

Punjab is a agricultural state. most of its population is engaged in agriculture according to 2011 Census, more than 35.5% population is engaged in agriculture or related activities. 3.9% persons are working in the cottage industries, the rest of 60 point 5% or working in other occupations. The maximum workforce in agriculture is in Muktsar 58.9%, Mansa 59.8%. On the other hand Sahibzada Ajit Singh Nagar

17.6%, and Ludhiana 18.7% at the lowest people working in agriculture sector or in other words most of the people in these districts are working in the private sector. Sahibzada Ajit Singh Nagar Mohali. Jalandhar And Ludhiana, are the main industrial cities of Punjab. Increase the number of employment opportunities for its population. Most young population is migrating to the foreign countries, for the better employment opportunities. The government need to look into this serious problem of unemployment and Brain drain from Punjab.

NATIONAL POPULATION POLICY 2000

The immediate objective of the NPP 2000 is to address the unmet needs for contraception, health care infrastructure, and health personnel and to provide integrated service delivery for basic reproductive and child health care. The medium term objective is to bring the total fertility rate (TFR) to replacement levels by 2010, through vigorous implementation of inter-sectoral operational strategies. The long-term objective is to achieve a stable population by 2070, at a level consistent with the requirements of sustainable economic growth, social development and environmental protection.

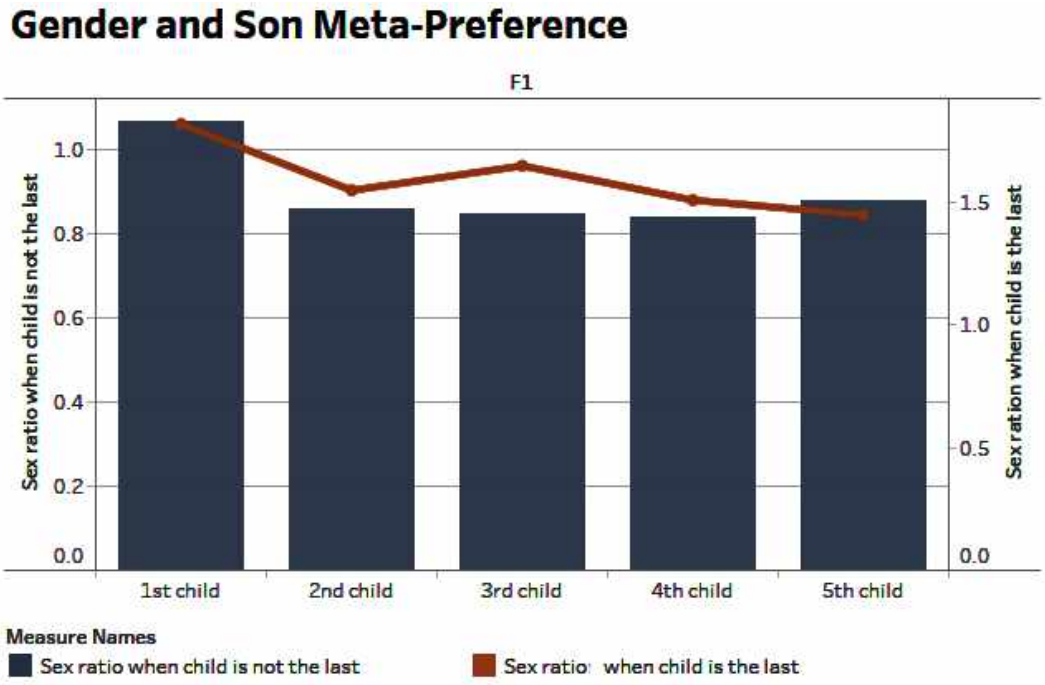
Address the unmet needs for basic reproductive and child health services, supplies and infrastructure.

- Address the unmet needs for basic reproductive and child health services, supplies and infrastructure.
- Make School Education up to the age of 14 free and compulsory, and reduce drop outs at primary and secondary School levels to below 20 percent for both boys and girls.
- Reduce infant mortality rate to below 30 per 1000 live births.
- Reduce maternal mortality rate to below 100 per 100,000 live births
- Achieve universal immunization of children against all vaccine preventable diseases.
- Promote delayed marriage for girls, not earlier then age 18 and preferably after 20 years of age.
- Achieve 80 percent institutional deliveries and 100 percent deliveries by trained persons.
- Achieve universal access to information/counselling and services for fertility regulation and contraception with a wide basket of choices.
- Achieve 100 percent registration of births, deaths, marriage and pregnancy.
- Contain the spread of Acquired Immunodeficiency syndrome (AIDS) and promote greater integration between the management of reproductive tract infection (RTI) and sexually transmitted infections (ST) and the National AIDS Control Organization.

- Prevent and control communicable diseases.
- Integrate Indian system of Medicine (ISM) in the provision of reproductive and child health services, and in reaching out to households.
- Promote vigorously the small family norm to achieve replacement levels of TFR.
- Bring about convergence in implementation of related social sector programmes so that family welfare becomes a people centred programmed.

FEMALE FOETICIDE- A WORRISOME SITUATION

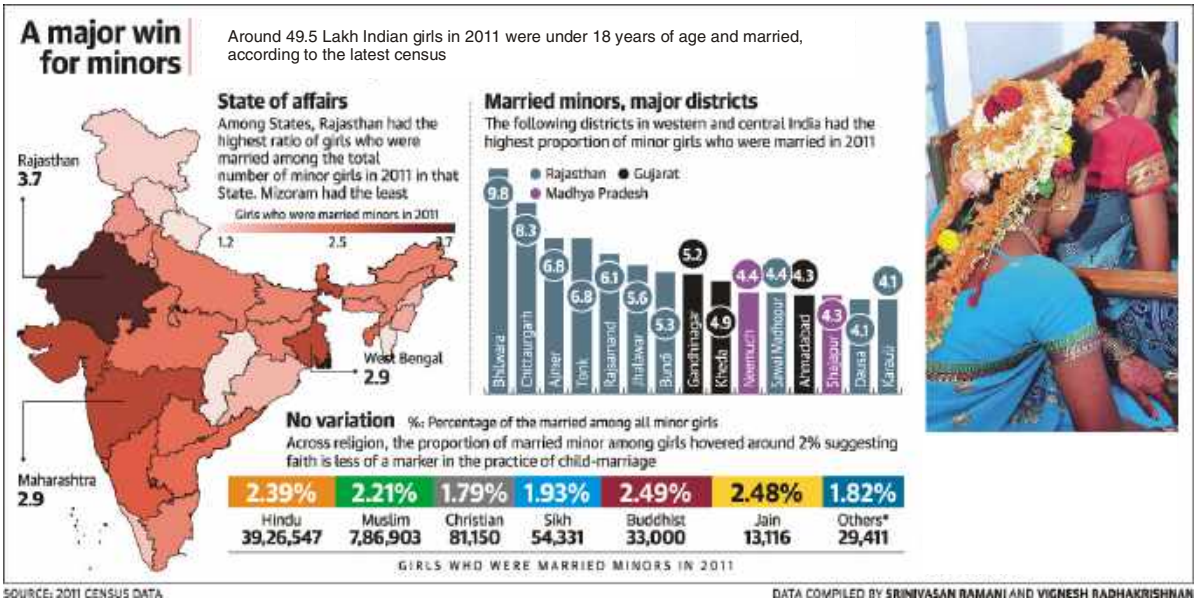
The sex ratio in India is 940 and in Punjab it is 895. The child sex ratio in the age group of (0-6) it is even lesser within 919 and 846 in India and Punjab consecutively, which is the alarming situation. Female Foeticide and infanticide is the ugly and earliest manifestation of discrimination against girl or female members of our society. Female foeticide refers to 'aborting the female in the mother's womb'; whereas female infanticide



is 'killing the girl child after her birth'. Active methods of killing girls through selective sex abortion and passive methods like discrimination in care and nutrition are used to eliminate the girl child. This malaise is reflected in the sex ratio indicators. Sex ratio in India stands at 940 in 2011 and child sex ratio has shown more continuous decline since 1961 but more alarmingly after 1991. Starting from 1991 the CSR has been constantly lower than overall sex ratio and has decreased by 21 points. The ultrasound machine are mostly used to determine the sex of the foetus. The reasons of this social evil are mentioned below:

1. The son preference over the daughter in the ancestral property.
2. Low literacy rate among women increase this social evil.

3. Extravagant marriages
4. Lack of social security for the girls, the parents feel unsafe in the absence of son.



5. Dowry demand
6. Misbehavior with the girls in a society.

Government, civil society and various other sections of society have taken serious note of the situation and a number of steps have been taken in this regard. Government has adopted a multipronged strategy to tackle the issue by adopting life cycle approach for ensuring survival, development and empowerment of girl child in a dignified way. The imbalance sex ratio will disturb the balance of males and females. And it may increase the other crimes like illicit relationship, sex related crimes, polyandry, prostitution. Some following steps may help the society to come out of this social evil.

1. Focus on implementation of laws. Implementation has been the big issue in India and many violators have been left scot-free. Laws like Dowry Prohibition Act, PCPNDT Act should be stringently implemented.
2. The doctors, nurses, responsible for female infanticide must be punished in an exemplary manner
3. The parents with only daughter should get incentive and social security, from the government
4. Religious, academic, and non-government organisations must aware the people regarding female foeticide, infanticides, and discrimination against females.

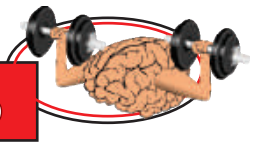
The governments have taken serious steps to fight with the social evil therefore the sex ratio(0-6) it's have been increased from 790 in 2001 to 895 in 2011.

CONCLUSION

On the one side, young girls are worshipped in our country, on the other hand we are snatching the right to life of them. Time has come to remove this gender disparity. The children are the gift of god. We cannot dream of society without women. So we need to implement the laws very strictly and should stop the female infanticide and forced abortions.

CHAPTER AT A GLANCE

- Approximate population of the world is more than 7,43,26,00,000 persons.
- Approximate population of India is more than 1,32,68,00,000 persons.
- Land area of India is about 2.4% of the world while population share is 16%.
- Uttar Pradesh, Maharashtra and Bihar are leading states from population view point.
- Population of Punjab is 2,77,43,000 approximately and it stands at 15th place among Indian states.
- As far densty of population is concerned, Ludhiana and Amritsar are front runners in Punjab while Mukatsar and Mansa leg behind.
- From literacy point Kerala and Mizoram are leading states, Punjab stands at 14th position.
- Punjab supports 12,581 villages and 217 urban units while district of Trantaran has least number of urban population.
- More population of Mukatsar and Mansa districts has adopted agriculture where as less people adopt it in Ludhiana, S.A.S. Nagar and Jalandhar districts.



EXERCISES

A Map Work

Show in the outline map of India :

1. (*i*) State and Union Territory with highest population.

(*ii*) State and Union Territory with lowest population.

(*iii*) State and UTs with population density more than 1,000 per square km.

(*iv*) State and UTs with population density less than 100 per square km.

ACTIVITY

2. (*i*) Prepare a chart of occupational structure of Punjab with the help of your teacher and put on the wall of your classroom.

(*ii*) Prepare a chart of sex ratio of Punjab (districtwise) and discuss with your subject teacher.

B Objective Type Questions

1. Which state has highest population as per census 2011 among the followings :

(*i*) Uttar Pradesh (*ii*) Bihar

(*iii*) Bengal (*iv*) Kerala

2. Shifting the place of residence is known as :

(*i*) Dwelling (*ii*) Independence

(*iii*) Urbanisation (*iv*) Migration

3. What percentage of population was agricultural workers in Punjab as per census 2011 :

(*i*) 35.5 (*ii*) 40.5

(*iii*) 30.5 (*iv*) 27.5

4. What is meant by female foeticide?

5. Which factors are necessary to find out the nations socio-economic development?

6. How percentage of increase in population is calculated?

7. When do we celebrate the World Population Day?

C Short Answer Questions

1. Write a note on the position of India in terms of population in the world?

2. The citizen of Punjab Shell be on what rank, in terms of density of population, literacy rate and sex ratio.

3. What are the main reasons of migration?

4. How do we calculate literacy rate. How Punjab is behind many states in India in terms of literacy rate?

5. Write a note on the distribution of rural-urban population in Punjab?
6. Describe the National Population Policy 2000?

D Long Answer Questions

Answer the following questions in detail :

1. What are the specific problems adolocents may face ?
2. Discuss situation of India and Punjab from migration point of view.
3. Describe the population density of India?
4. Discuss Indian population from health and population fronts.

* * *


भारतीय रिज़र्व बैंक
RESERVE BANK OF INDIA
एक सौ रुपये
THE UNITED STATES OF AMERICA
ONE DOLLAR
Bank of England
FIFTY
Pounds
REPÚBLICA FEDERATIVA DO BRASIL
100
100
REAIS

ECONOMICS

1 Story of a Village

The purpose of this chapter is to introduce economics as a subject with some of its basic concepts which have special meaning. Further, through an imaginary story of an Indian village we will learn about production activities being done in villages by combining various factors of production.

Dear Students, We know that we require a number of goods and services in our daily life. For example, we need food to satisfy our hunger, clothes to cover our body, house for shelter, vehicles for transportation, television or radio for our entertainment, services of a doctor for treatment etc. These goods and services and called **'means'** to satisfy our wants.

Economics is a Science concerned with the allocation of scarce means of resources in such a manner that consumers can maximize their satisfaction, producers can maximize their profits and society can maximize its social welfare.

Pic 1.1 : Goods and Services

When one of our wants is satisfied, there are other new wants which need to be satisfied. So our wants are unlimited and the means to satisfy these unlimited wants are limited and scarce. Man has to decide how to satisfy his maximum wants with available limited and scarce resources.

For example, quantity of milk purchased in our houses is limited. Besides milk we need many milk products like, paneer, lassi, butter, sweets etc. for our daily consumption. We have to decide how with limited quantity of milk we can satisfy our maximum needs for milk products. Throughout the day we make efforts to earn our livelihood and to satisfy these wants.

Thus, Economics is the study of unlimited human wants and the activities done to satisfy these unlimited wants with limited and scarce resources.

Before we proceed further, we should be familiar with some concepts which have special meaning in Economics.

1.0 BASIC CONCEPTS

i. **Goods :** Goods are those visible things which satisfy human wants. Otherwise speaking, anything capable of satisfying a want is called a good. For Example, radio, fan, mobile phone etc are goods.

ii. **Services :** In economics, besides goods, services such as teaching by teacher, treatment given by a doctor etc. also satisfy human wants. They don't have physical existence.

iii. **Utility :** Want satisfying power of a good is called Utility. In other words, utility is the ability of a good to satisfy a want. Power of water to satisfy thirst or power of food to satisfy your hunger are few examples of utility.

iv. **Price :** Price can be defined as the value of goods and services which can be expressed in terms of money. Hence, price value of goods and services is expressed in terms of money. For example, when we buy a watch for ₹ 500, then the price of watch is ₹ 500.

v. **Wealth :** All those goods and services for which we have to pay a price for their consumption are called wealth. For example; your book, pen, shirt, teaching by a teacher are called wealth as we have to pay for their consumption.

vi. Money : Everybody is familiar with money and uses it every day. For example, you spend a ₹ 10 note to buy your pen, you pay ₹ 3 for a cup of tea in the canteen or your father sends a cheque worth ₹ 200 as fees for your school. These notes, coins and cheques are different forms of money.

Pic 1.2 : Currencies of different countries

Money can be defined as anything that is recognised by the government and is widely accepted as a medium of exchange in the transfer of goods. For example, Rupee in India, Dollar in U.S.A. and Canada, Pound Sterling in United Kingdom etc. The basic features of money are :

a. It is accepted by all as a medium of exchange.

b. The government of the country recognises it.

c. Value of goods and services can be measured by the help of money.

d. Money can be transferred from one place to another.

e. It is the medium for making future payment.

vii. Demand : Demand refers to the quantities of a commodity that the consumers are able and willing to buy at each possible price during a given period of time, other things being equal. For example, when a person is willing to buy 5 chocolates at a price of ₹1, then the demand

will be 5 chocolates. When he is willing to buy 3 chocolates at a price of ₹2, then the demand will be 3 chocolates. So we see that when price of goods in the market is high then the demand for these goods is low and when the price of goods in low then the demand for these goods is high.

viii. **Supply :** Supply means, the quantities of a commodity which a seller is prepared to sell at given prices in a given period of time. For example, a seller has 50 chocolates in his stock. At a price of ₹5 per chocolate, he is not willing to sell any unit. But when price goes up to ₹10 per chocolate he sells 10 units of chocolate which means supply will be 10 units. When price rises to ₹20 per chocolate, he sells 30 units of chocolates. This shows supply will be 30 units of chocolates. This shows when the price of goods is high in the market, its supply will be high and when the price of goods is low then the supply of these goods will be low.

ix. **Market :** In ordinary language, market means a specific place where buyers and sellers meet each other to buy and sell commodities. In economics, market means an arrangement where buyers and sellers of a commodity are in close contact with each other to buy and sell goods. It is not necessary that buyers and sellers have to physically meet each other to buy and sell goods. For example, buyers and sellers can come in close contact through mobile phones, online etc. Now a days online shopping is very popular.

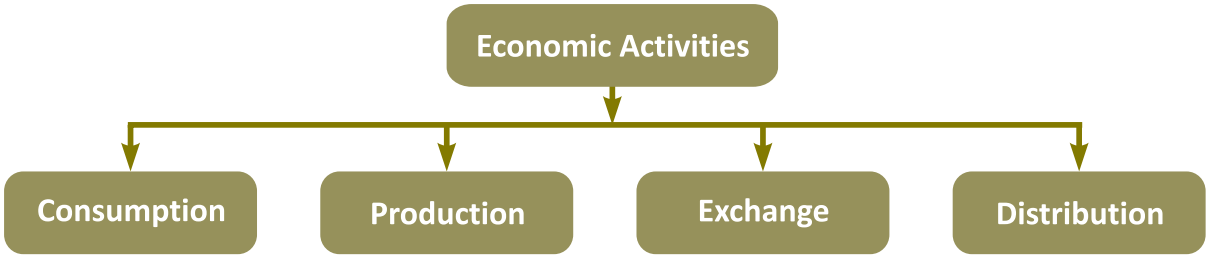
x. **Cost :** The amount spent in terms of money right from the production of goods till their sale is called cost. For example, right from the beginning of the process of production of goods till their sale the producer has to make many expenditures like purchasing raw materials, payments to the labourers, electricity bills ect. These expenditures borne by the producer are called costs.

xi. **Revenue :** Money earned by a person by selling a commodity or by offering services is called revenue. Otherwise speaking, the sale proceeds of a firm or the total amount that a firm gets by selling a commodity is called its revenue. For example, a firm produces 100 shirts daily. By selling these shirts at the rate of ₹100 per shirt the firm receives ₹10,000.

In economics, this amount of ₹10,000 is the revenue of the firm. After a whole day's work if a labourer gets ₹400 from his employer then ₹400 is the revenue of the labourer.

xii. Economic Activities : Every human being does some activities to satisfy his unlimited wants by using limited and scarce resources. These activities are called economic activities. These activities are undertaken to earn wealth. For example, a teacher teaching in school, doctor treating the patients etc. Both the doctor and the teacher are getting income for the services provided by them. Economic activities are those which are concerned with consumption, production, exchange and distribution of wealth.

Thus, Prof. Boulding divided economic activities into four parts;-



xiii. Non-Economic Activities : All those human activities which are not economically profitable are called non-economic activities. These activities are undertaken not for earning wealth. For example, a teacher teaching his son, a mason repairing his own house etc. These activities are undertaken for the welfare of the country, family well being, social cause, health, entertainment etc.

So children, after being familiar with the basic concepts of economics, we will study production as an important economic activity.

1.1 PRODUCTION

Production is that economic activity by which the utility or value of the goods and services is increased. The aim of production is to produce the goods and services which we need to satisfy our wants. For example, Carpenter makes a

table, chair, sofa set etc. from wood; Potter makes utensils from clay; Blacksmith makes equipments from iron; Sweet maker make varieties of sweets from milk, wheat flour, gram flour etc. In these activities the utility and prices of wood, clay, iron, milk, wheat flour and gram flour has increased and this whole process is called production.

1.2 FACTORS OF PRODUCTION

For the production of goods four factors or inputs of production are needed: Land, Labour, Capital and Entrepreneur. Land is a natural resource. Labour is a human factor. Capital as a factor of production is the outcome of land and labour. Entrepreneur is a human factor of production who combines the other three factors and bears the risk in production process.

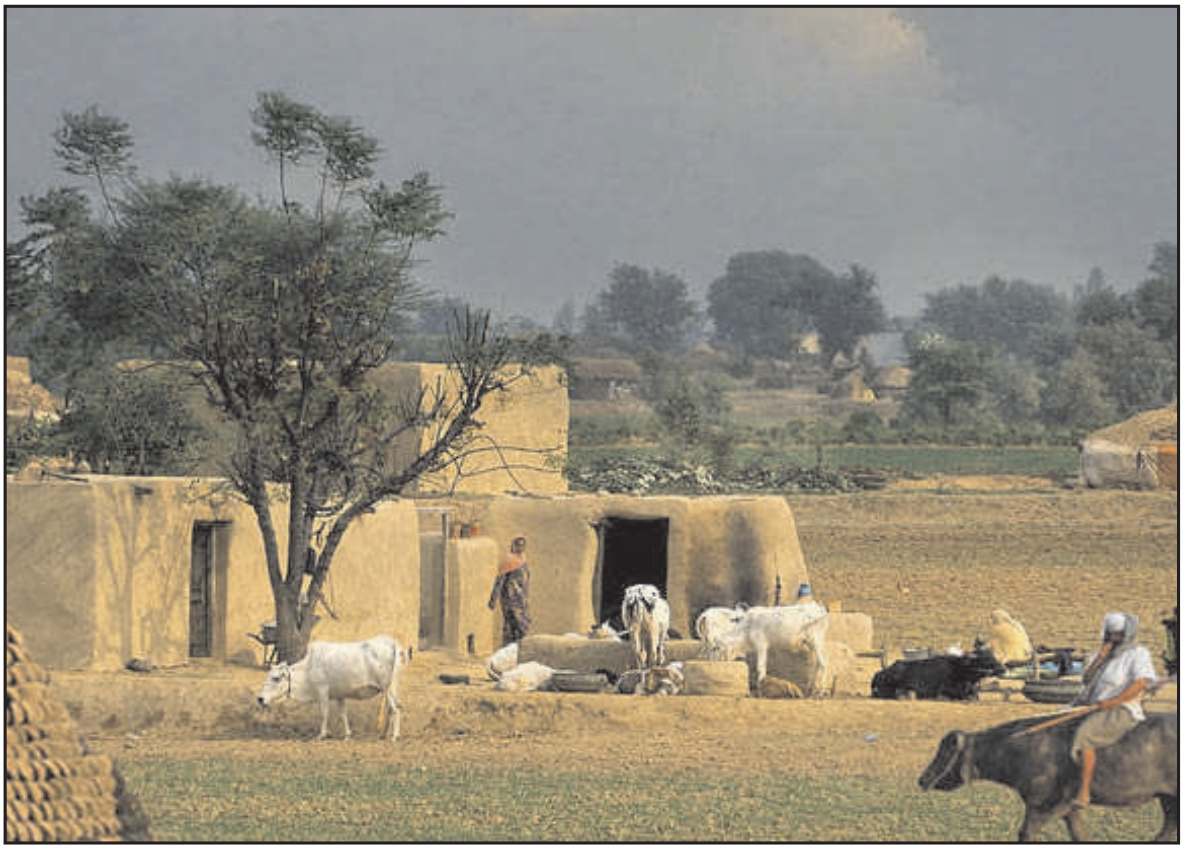
Pic 1.3 : Factors of Production

Students, now we will study production and its factors through an imaginary story of a common Indian village.

This village is situated in Punjab and is well connected with neighbouring

villages and towns by all weather roads. All most all kinds of transport, starting from bullock carts, tractors and trolleys loaded with sugarcane and "Toodi" (Left over of wheat crop) to buses, cars, motorcycles etc. are seen on these roads.

Around 400 families live in this village. Most of the houses in the village are pucca houses having electricity connections. There is a primary school in the village and also a big government dispensary with one doctor, a nurse and an attendant, is being run in the village. In the adjoining village, there is a high school as well as a Senior Secondary School.



Pic 1.4 : Scene of a Village

The story of this village will tell us about the different types of production activities that are carried on in any Indian village.

Farming is the main production activity in villages throughout India. It is also the main activity of this village. 80 percent of the working people in the village depend on farming for their livelihood.

Pic 1.5 Farming : The main activity in villages.

Just as, for any production activities four factors of production are needed, similarly for farming also, how these factors are needed will be studied.

1.2.1 Land

The cultivable land is the main source of farming production and it is a gift of nature. The land area under cultivation is limited and fixed but the population of the village increases every year. The land under cultivation cannot be expanded as the adjoining land belongs to the neighbouring villages. Though the land is fixed, different patches of land have different degrees of fertility.

Main features of land are :

i. Land is a free gift of nature.

ii. Supply of land is limited.

iii. Land is fixed.

DO YOU KNOW

In Punjab the standard unit of measuring land is hectare. One hectare is equal to the area of half acre. One acre is equal to 8 kanals, one kanal is equal to 20 Marlas and one marla is equal to 25 sq yards. In other Indian villages, local units such as bigha, guintha etc are also in use.

Ways of increasing productions on a given piece of land :

All cultivable land in the village is cultivated. No land is left idle. The farmers of this village are able to grow three crops in a year due to well developed irrigation system and good electricity supply. After the harvesting of wheat in April, farmers sow maize or sunflower that is harvested in about 60 days. After this, a crop of rice is sown which is harvested in September or October. In winter season, rabi crops such as wheat, barley, gram, mustard etc are sown. A part of the land is used for growing sugar cane or seasonal vegetables. To grow more than one crop on a piece of land during a year is known as **multiple cropping.** It is the most common way of increasing production on a given piece of land. This is possible by electric tube wells and continuous power supply being provided to the farmers. A small water canal also passes by the village which provides water for agriculture.

Not all villages in India have such high levels of irrigation. Coastal regions in our country are well irrigated due to heavy rains. Plateau regions have low levels of irrigation. Only 40% of the total cultivated area is irrigated in our country. Even today, farming is largely dependent on rainfall. Punjab, being a land of five rivers, irrigation through canals, tube wells and pumping sets is commonly being used.

Besides multiple cropping, the other way of increasing production from the same land is by using **modern farming methods.** If the farmers use high yielding varieties of seeds, adequate amount of chemical or bio-fertilizers, pesticides, improved agriculture implements (such as power tillers or tractors) etc., then yield of crops per hectare can be increased to a great extent.

The year 1966-67 was the initial year of Green Revolution when there was an extraordinary increase in agriculture production especially in wheat and rice. This was made possible due to the adoption of new techniques of HYV seeds, more use of chemical fertilizers, more irrigations facilities etc.

Farmers of Punjab, Haryana and Western Uttar Pradesh were the first states to try out the modern farming methods. Farmers of this village also increased the production of wheat and rice by adopting HYV seeds and improved agriculture implements.

ACTIVITY 

Visit your nearby fields, talk to some farmers and try to find out :

(i) The kind of farming methods that the farmers are using i.e. traditional or modern or both and the reason for using this method.

(ii) What are the main sources of irrigation being used in the village?

(iii) Kinds of crops sown by the farmers and also the time of sowing and harvesting of these crops.

(iv) Name the fertilizers and pesticides used by the farmers.

Indestructibility of Land

Land is a natural resource and so it cannot be destroyed. Man can change only the shape of a particular location. For example, as per need, a garden or a forest or an artificial lake can be made on a piece of land etc. But land being a natural resource, the modern farming methods have reduced its soil fertility. By the use of modern farming methods total crop yield may increase during the initial stage but it will gradually decrease with the increased use of chemical fertilizers.

The water table below the ground is reducing by the continuous use of water for irrigation by tubewells. Reducing underground water level is a serious problem in Punjab. Every year the farmers of Punjab have to dig their tubewells deeper. In these conditions there is a fear of complete loss of water in the next 20 years. In India, to irrigate 35 million hectares of land, almost 212 million mega litres of underground water is used every year by the farmers. In future, to ensure development of agriculture, we must take care of the environment.

Today, Punjab is the only state which contributes 60% wheat and 35% rice to the total crop production in the country and hence it is known as 'Food Basket' of country. Multiple Cropping method led to one major challenge ie 'the management of agriculture wastes'. When harvesting of a crop was done by using traditional methods the solid agricultural waste or residue known as 'stubble' was used in the form of fuel, fodder, husk and for other useful tasks. But now, farmers in a hurry to prepare the field for next crop, specially after harvesting rice crop and before sowing of wheat crop, the famers are forced to burn this stubble due to non-availability of any quick solution for the management of solid waste. Burning of stubble leads to serious environment pollution as well as

ecological imbalance. Due to increase in temperature of top soil, different kinds of bacteria, fungi, friendly pests die and important minerals of the soil are destroyed. Thus, the quality of our soil decreases every year. Instead of burning

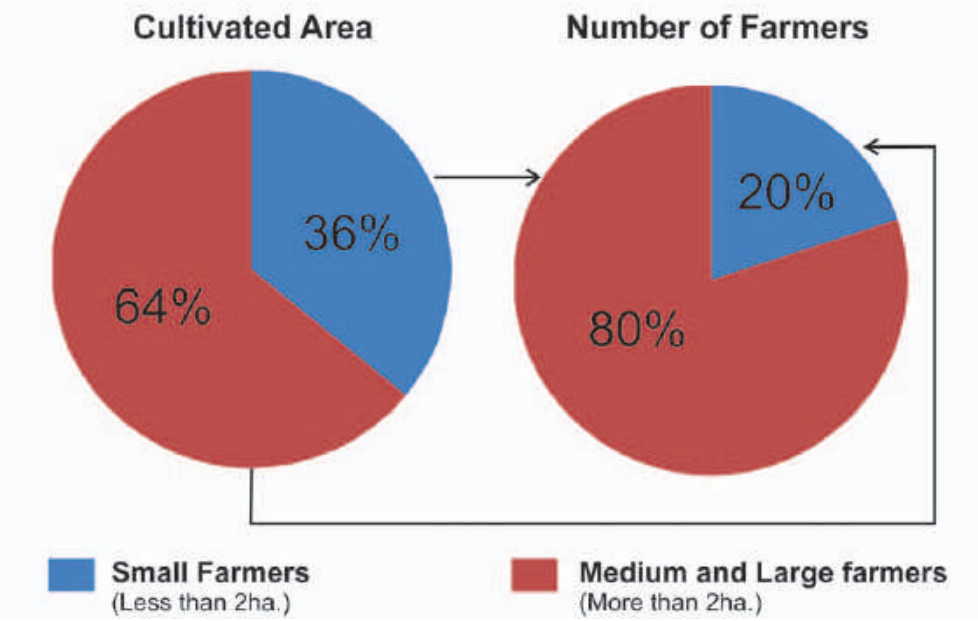
Pic 1.6 : Rotavator

stubble in the fields, the stubble can be mixed into the soil with the help of machines like 'rotavator'. As a result the nutrients present in the stubble are again mixed in the soil and help in growth of the next crop with less use of chemical fertilizers. In this way the farmers can manage the stubble within the fields by using modern machines and new techniques and thus save air from pollution and soil from deterioting.

ACTIVITY

Visit your village's or a near by village's field and find out whether the farmers are burning the stubble in the field and if they are doing so then explain to them about the bad consequences of doing so.

Distribution of land amongst the farmers of the village : In this village, unfortunately not all the people engaged in agriculture have sufficient land for cultivation. Only About 20 families own majority of the land in the village and 100 families own medium size agriculture fields. Some families own very small



Pie Chart 1.1

size fields while there are 50 such families who own no agriculture land at all. They earn their living by working in the fields of other families. These families who have no agriculture land are called landless families or families of field labours. These families do not earn adequate income from the farming.

Let's Discuss

Study the Pie Chart 1.1 and discuss whether the situation in the village in story is similar or is it different.

The fields of some farmers of this village are not only small in size but also scattered due to fragmentation. Due to this, the scientific ways of cultivation and means of irrigation cannot be used by them. On the other hand, farmers who own more than 10 hectares of land or even more are able to use improved irrigation system. Sowing and harvesting is done by using modern machines by these farmers.

Most of the farmers in India have very small land holdings for agriculture. The average size of their agriculture farms is 2-3 hectares. In Punjab, the average land holdings is of 3 hectares. In India, about 70% of the farms are even less than 2 hectares land in size whereas in America, the average holding is of 122

hectares. Due to the small size of farms, it is very difficult to adopt scientific methods of cultivation.

The farmers with small holdings are unable to bring together their scattered small units of land as land is immobile. Land cannot produce anything out of its own. Different capital inputs and human labour are required to be combined with land to produce anything on land, For example; a farmer uses his plough, labour power, machine or bullock power, seeds, fertitizers, water etc to grow food grains on a given piece of land.

1.2.2 Labour

We will now discuss 'Labour 'as the only active factor of production. In ordinary sense 'Labour' means any type of physical or mental work done for any purpose. **But in economics 'Labour' means all human efforts, physical as well as mental, done for the sake of monetary gain.** If a student plays a game for pleasure or a mother looks after her child out of affection, then these activities are not considered as labour because they have not done the work with an objective of earning money. But when a cricket coach or a football coach give, coaching to players or a nurse attends to a child in hospital, such efforts are called 'labour' because these have been done to gain monetary remuneration.

Main features of Labour are :

(i) It is the only active factor of production.

(ii) Supply of labour can be increased or decreased.

(iii) In India, labour is available in abundance.

(iv) Labour can be bought or sold.

(v) Labour is mobile.

Who will provide labour in farming :

In this village, some families are small farmers who along with their families use to cultivate their own fields. Thus, they themselves provide the labour required for farming. Besides this, some landless families work as labourers in the fields of big landlords to earn their living. Some farmers with very small land holdings have to give up their land to big landlords for the repayment of their loans taken

from the big landlords. These farmers become landless and have to work in the fields of big landlords. In this way, big landlords and farmers with average landholdings engage labours for the work in the fields. Some farm labourers of other states such as Bihar and Uttar Pradesh have also migrated to this village to work in the fields of landlords. These are called migrant labourers. They are paid wages by the big landlords for whom they work. Wages can be in cash or in kind, for example, rice, wheat etc. Wages vary widely from region to region, from crop to crop and from one farm activity to another. A farm labourer might be employed on a daily basis, or for one particular farm activity like harvesting, sowing etc. or for the whole year. Labourers get work in their own village during sowing and harvesting season. During the other seasons they move to the nearby villages and work as rickshaw puller, chowkidar, Hawkers or as a labourer with a mason in any construction work. This way many a times, seasonal unemployment takes place.

Let's Discuss

(i) Why do farmers with small land holdings have to work in the fields of big landlords as labourers?
(ii) Do the farm labourers get employment for the whole year?
(iii) In what form do the farm labourers get their wages?
(iv) Who are migrant labourers?
(v) Why do labourers migrate? Discuss with your teacher.

So labour is the most important factor of production. A nation having plenty of rich land but no labour force cannot achieve any economic development or prosperity. Agriculture, industries, mining, transport system, trade activities etc, all require sufficient and efficient workers for proper functioning. The land and capital do not play an active role in production. These factors become productive only with the cooperation of labour.

1.2.3. Capital

Capital means all those man-made goods which are used in further production of goods. It is the produced means of production or in other words, it is used as an input in producing others goods. A building is not capital if it is used for

private housing. But it is called capital if it is used for productive purposes. For example, a factory building, which is used for producing various goods is a capital. Money kept in the bank as deposits is capital because the bank lends the money to producers who use it as capital although the depositor also gets interest on it. A television set used in the reception of a company is capital but when used in a residential house is not capital.

Main features of Capital are :

(i) It is a man-made factor.

(ii) It is a secondary factor of production.

(iii) It is transferrable.

(iv) Capital involves depreciation.

Capital Needed in Farming

Much money is needed to implement the modern farming methods, for instance to buy seeds, chemical fertilizers, pesticides, machine equipments etc. for agriculture.

Now the question arises, who will provide the capital needed in farming?

Large and medium scale farmers earn more income as compared to the small scale farmers. So these farmers, out of their own savings from farming, arrange for the capital needed in farming. Small scale farmers have to take loans on high rates of interest from the large scale farmers or the village money lenders or the traders. Sometimes they have to mortgage their houses or small land holdings to repay the loans. If they are unable to repay the loans, their property is seized. Government has opened special institutions such as Regional Rural Banks, Cooperative Societies, Land Development Bank and National Bank for Agriculture and Rural Development (NABARD) to provide capital to the farmers. To fulfil the need of capital, farmers have to take loans from these institutions.

1.2.4 Entrepreneur

An entrepreneur is a human factor of production who takes economic decisions and bears risks. He takes decisions like what to produce and how much to produce etc. **Main features of entrepreneur are as follows :**

(i) He works with a profit motive.

(ii) He bears risks.

(iii) He combines the other three factors of production to produce goods.

In the villages, farmers play the role of entrepreneur in all the agriculture. production activities.

1.3 MARKETING OF FARM PRODUCTS

Middle and large scale farmers of the village keep a part of the crops for family consumption and sells the surplus produce in a nearby Mandi. Small scale farmers have no surplus of wheat because their production is small and it is used for their own family needs. So in this way, medium and large scale farmers supply crops to the market. They earn a lot by selling a part of these produce and use the savings for lending to small farmers who are in need of loan.

Pic 1.7 : Anaz Mandi (Grain Market)

They also use a part of the savings to arrange for working capital (like farming equipments, seeds etc.) for farming in the next season which increases their fixed capital.

1.4 NON-FARMING ACTIVITIES IN THE VILLAGE

Landless families in the village earn their livelihood by engaging themselves in activities other than agriculture. Dairy is one such common activity. The milk

collected in large quantities is sold in the village itself and also in the collection cum chilling centres set up in the nearby village from where the milk is transported to far away towns and cities. Some families are engaged in poultry farming and keeping of bees, some families work as carpenters, weavers and some are even running small general stores in their houses. There is also a chemist shop in the village. The third crop grown by the villagers being sugarcane, some families also produce jaggery and sell them to the traders. Some very poor families earn their livelihood by ferrying people and goods from one place to another through rickshaws, tongas, bullock carts etc.

Pic 1.8 : Different non-farming activities

At present, the non-farm sector in the village is not very large. Out of every 100 workers in the rural areas in India, only 24 are engaged in non-farm activities. Unlike farming, non farming activities require little land. People can set up non-farm activities either from their savings or by taking loans, As more villages get connected to towns and cities through good roads, transport and telecommunication, it is possible that the opportunities for non-farm activities in the village would increase in the coming years.

So, we have read, how the three factors of production -land, labour and capital are used in farming. It is very difficult to say as to which factor of production is more important. All factors are important, though the degree of importance may be different under different circumstances.

CHAPTER AT A GLANCE

- Economics is the study of unlimited human wants and the activities done to satisfy these wants through limited resources.
- Production, a type of economic activity, is the process of creating various goods and services which are consumed by the people in the country.
- Four factors of production are Land, Labour, Capital and Entrepreneur.
- Land is the free gift of nature and its supply is fixed.
- All human efforts made for the sake of monetary gain is called Labour. Labour is the most abundant factor of production though the use of labour on farms is limited.
- Capital is the produced means of production i.e it is used as an input in producing other goods.
- Large and medium scale farmers earn more capital as compared to the small scale farmers. Modern farming methods require a great deal of capital.
- Farming is the main production activity in the villages. Modern ways of farming have allowed the farmers to produce more crops from the same piece of land. This leads to the loss of soil fertility and reduction of water table below the ground.
- Unlike farming, non-farm activities require little land and capital. People with some amount of capital can set up nonfarm activities. For the expansion of non-farm activities, it is essential to have markets where the goods and services produced can be sold.

EXERCISES

A Objective Answer type Questions

1. Fill in the Blanks

(*i*) Human wants are.....

(*ii*) .....bears risk.

(*iii*) ..... is a natural factor of production.

(*iv*) To grow more than one crop on a piece of land during a year is known as.....

(*v*) Some labourers who migrate from one state to other state for work are called.....

(*vi*) Punjab is known as.....of country.

2. Multiple Choice Questions

(*i*) Which factor of production is immobile?

(a) Land (b) Labour

(c) Capital (d) Entrepreneur

(*ii*) Economic activity which is concerned with increasing utility or value of the goods and services is called :

(a) Production (b) Consumption

(c) Distribution (d) Labour

(*iii*) Extraordinary increase in agriculture production especially in wheat and rice is called .....

(a) Green Revolution (b) Wheat Revolution

(c) Rice Revolution (d) White Revolution

(*iv*) What is the currency of England known as?

(a) Rupees (b) Dollar

(c) Yen (d) Pound

3. True/False

(*i*) Supply of land is limited.

(*ii*) Limited wants of human beings are satisfied by unlimited resources.

(*iii*) Supply of labour cannot be increased or decreased.

(*iv*) Entrepreneur bears risks

(*v*) Work done by machines and animals is called labour.

(*vi*) When price of goods in the market is high then the demand for these goods is also high.

4. Very Short Answer type Questions

(*i*) What is the meaning of economics?

(*ii*) Which is the main productive activity of the villages of India?

(*iii*) Name two sources of irrigation in the villages?

(*iv*) What is the meaning of labour in Economics?

(*v*) The activity done by a mother while teaching her son is considered labour or not?

(*vi*) In what form do the labourers get their wages?

(*vii*) Give two non-farm activities done by the villagers of a village?

(*viii*) From where do the large and small scale farmers get capital needed for farming?

(*ix*) Write any one feature of land?

(*x*) Why do labourers migrate from one state to other state?

(*xi*) Why do farmers burn stubble?

B Short Answer type Questions

1. Why do we study Economics?

2. What is an economic activity? Give one example.

3. Explain the difference between economic and non-economic activities?

4. How does continuous use of water for irrigation by tubewells affects water level below the ground?

5. Explain two different ways of increasing production on the same piece of land.

6. What is Multiple Cropping? Explain it.
7. What is Green Revolution? How was it possible?
8. What are the adverse effects of modern farming methods and tube well irrigation on land?
9. Why do the quality of soil deteriorate due to furning of agricultural waste in the fields?
10. In what way is the land distributed amongst the farmers of a villages?
11. Give two sources of labour for farming in the village?
12. How do the large and medium scale farmers arrange capital needed for farming?
13. What are the main features of Labour?
14. How do the small farmers arrange capital needed for farming?
15. What do the large-scale farmers do with the surplus farm products?
16. What are the different non-farm activities being carried out in the rural areas of India?
17. What can be done so that more non-farm productions activities can be started in villages.

* * *

2 Human Resources

India stands second in the world, after China, as regards to size of population. According to Census 2011, India's population is 1210.19 million or 121 crore. For many decades, in India a large population has been considered as a liability rather than an asset. But it need not be considered as liability. Students, through this chapter we will read, how a country's large population is its asset.

Efforts made by a nation, an organization or any individual to raise their incomes are known as resources. Some resources like air, minerals, soil, water etc are natural. These are used to satisfy human needs and are called **'natural resources'.** The size of population of a country along with its efficiency, educational qualities, productivity etc. is known as **'human resources'** Human resource is the most important resource because it makes the natural resources more useful. A country with highly educated and trained people can efficiently increase its productivity. Most of the developing and backward countries of the world are economically backward not because they lack nature resources but due to lack of quality in human resources.

A country's working population, with their existing productive skills and abilities, contribute to the creation of the Gross National Product. This is referred to as human resources. So, when investment in the form of education, training and medical care is made in human resources, human capital is formed which

adds to the country's Gross National product which leads to the economic development of the country. Investment in human capital in the form of education and training yields higher incomes earned because of higher productivity by the more educated and better trained people.

Advantages of a more educated or a healthier population spreads to those also who themselves are not directly educated or given health care.

India's Green Revolution is an example of how the input of greater knowledge in the form of improved production technologies can rapidly increase the productivity of scarce land resources.

Let's Discuss

Pic 2.1 : Human Capital (doctor, engineer, teacher, tailor etc)

Study Pic 2.1 and discuss with your teacher how an engineer, a teacher and a doctor is an asset to the economy or in other words how an engineer, a teacher and a doctor helps people who are not educated them self or given health care.

Human capital is superior to other resources like land and physical capital which are not useful at their own. Human resources can make use of land and capital. So, a large population is not a liability. It can be turned into a productive

asset by investment in human capital For Example, by spending on education and health for all, training of industrial and agriculture workers in the use of modern technology etc. development of a country can be increased.

How people can try to become more productive resource can be studied by the following two cases :

Mandeep and Gurpreet live in a village. Mandeep's father works in the agriculture fields of Chaudhary Sant Singh. His mother looks after domestic chores and also take care of Mandeep and his younger sister, Harpreet. Mandeep's parents wanted him to gain higher education and pursue some career. They admitted him in the village school. Mandeep was intelligent and he passed Senior Secondary examinations with good results. He also persuaded his sister to join the school. Economic condition of Mandeep's father is not good. So he raised a loan for him to study a one year vocational course in computers. After completing the course, Mandeep got a good job in a private company. Out of the handsome salary that he received, he started repaying the loan taken by his father for his studies. He also gave financial help to his parents in educating his sister who is keen to become a doctor.

Gurpreet's father is also a farm labourer. He passed away when Gurpreet was only four years old. His mother started working in the fields to run the family. Gurpreet helps his mother by looking after the domestic chores and his younger brother Jeetu. Gurpreet never went to school because of his poor circumstances. He also does not keep good health due to low nutritious food. When his mother fell ill, there is no one in the family to look after and support them. Due to lack of medical facility, his mother died. So Gurpreet has to work in the fields to earn his livelihood.

In these two cases, we see that Mandeep got good education but Gurpreet did not get. Mandeep is physically strong and healthy but Gurpreet does not keep good health. A vocational course in computers helped Mandeep to earn high income whereas Gurpreet earned meagre income by working in the fields.

Education increased the quality of labour and hence total productivity of Mandeep. Increased total production in turn adds to the growth of economy. In return Mandeep gets high salary. But the uneducated Gurpreet draws the same salary of an unskilled labour as his mother and he could not earn too much in his life.

Being educated Mandeep got married to an educated girl. They both looked after their children's needs for education and good health. In this way, educated parents invest more heavily on the education and health of their children as they are aware of the importance of health and education. But parents, who themselves lack education and good health keep their children in a similar disadvantaged state due to their circumstances as compared to the educated parents.

So, investment in human resources in the form of education and medical care can give high rates of return in the future in the form of higher earnings and greater contribution to the society.

After the destruction done by the second world war, countries like Germany and Japan made rapid economic developments because they made investment in human resources, specially in the fields of education and health. Educated and healthy people made efficient use of land and capital to make these countries rich and developed. In contrast, countries like India, Bangla Desh, Pakistan etc. remained under-developed countries due to their vast uneducated, unhealthy and unskilled population. So, technically efficient population of a country make it rich and developed.

2.1 ACTIVITIES DONE BY HUMAN RESOURCES

i. **Economic Activities :** All those activities which are performed to earn money are called Economic Activities. In Mandeep's and Gurpreet's conditions of lives we saw many examples of economic activities, such as, Gurpreet working in the fields, Mandeep doing a job in a private company, a teacher teaching in a school etc. In this way, many more economic activities are done by human beings which adds value to the national income. All economic activities contribute to the flow of goods and services in an economy.

Economic Activities are classified into three main categories:

a. **Primary Sector:** Primary sector is that sector which produces goods by using natural resources. For example, agriculture, animal husbandry, dairy, poultry farming, fishing, mining, forestry, grazing, hunting etc.

b. **Secondary Sector:** In this sector, those activities are included which produce finished goods by using the products of primary

sector as raw materials. For example, manufacturing of jaggery (gur) from sugar cane, cotton cloth from raw cotton etc.

c. **Tertiary Sector:** This sector consists of all services and occupations which are needed to support the activities of primary and secondary sectors. For example, trade, transport, communication, banking, insurance, health, education, tourism etc. The activities of this sector help in the production of goods and services.

Pic 2.2 : Three Sectors of Economic Activities (Primary, Secondary & Tertiary)

ii. Non- Economic Activities

The activities which do not give income in return are non-economic activities. They do not contribute to the flow of goods and services in the economy. For example, a teacher teaching his son at home, house wives stitching their own suits, domestic work done by housewife etc.

Economic and Non- Economic Activities done by Women

During old time there was a division of labour between men and women in the family. Women used to look after the domestic chores and men used to work in the fields. Similarly Mandeep's mother stayed at home, did household work and also looked after her children. His father worked in the fields and earned income for the family. His mother is not paid for her services rendered in the house.

In contrast Gurpreet's mother is paid for her work done in the fields. This means women are paid for their work only when they enter the labour market. Like men, skill and capabilities of women can also be increased through education and proper health facilities. **In this way Education and skill are the major determinants of the earnings of an individual in the market.**

Women are not paid for their services delivered in the family. Their work is also not accounted in the national income which is a sum total of goods and services produced in the country during a year.

Pic 2.3 : Economic and Non-Economic activities done by women

In the government sector or private organisations, women are paid equally as compared to men for the same work. But in other sectors, specially in rural areas women are paid low as compared to men. Women with high education and skill formation are paid at par with the men. Nowadays, after getting education some women like Dr. Kiran Bedi have entered the administrative services while some have entered those services which need high levels of scientific and technological skill, for example, Kalpana Chawla and Sunita Williams, who reached space.

ACTIVITY

Visit your village or your colony and find out:-

(i) Whether the women in different houses work at home or go outside to work?

(ii) Their work is an economic or non economic activity?

(iii) Give two examples each of economic activity and non- economic activity.

(iv) Work done by your mother is an economic or non economic activity.

2.2 QUALITY OF POPULATION

Quality of population depends upon good education, health of people and skill formation acquired by the people of the country. The quality of population decides the growth rate of the country. **Illiterate and unhealthy population are a liability for the economy whereas literate and healthy population are an asset.** India's Five Year Plans give special attention to improve the quality of population.

2.2.1 Education

Education is an important input for the growth of man. It provides new aspirations and develops values of life. Education contributes towards the growth of not only of a single person but also towards the growth of society as a whole.

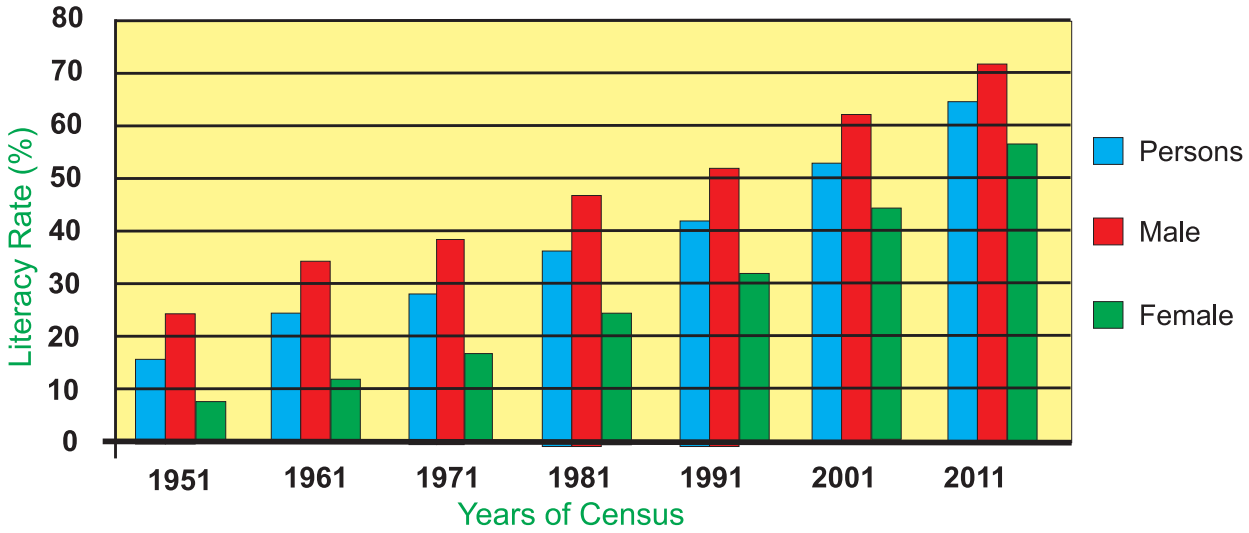
Pic 2.4 : School Students

We saw, Mandeep got an opportunity to study in a school which helped him to become a good citizen and earn a good salary in the future which in turn increased the national income and hence helped the country to develop.

Literacy Rates in India

There is a vast difference in literacy rates amongst different sections of population. According to Census 2011, total literacy rate in India is 74% out of which literacy among men is 82.14% and amongst females is 65.46%. Literacy rate among males is nearly 16.68% more than females and it is about 16.1% higher in urban areas as compared to rural areas. Kerala has the highest literacy rate of 93.9% whereas Bihar has the lowest literacy rate of 63.8%. Punjab has 75.84% literacy rate whereas in male literacy rate is 82.44% and female literacy rate is 70.73%.

Graph 2.1 : Literacy rates in India.



Study the graph 2.1 and answer the following questions:

i. Has literacy rate increased between year 1951 to year 2011?

ii. In which year India crossed the literacy rate of 50%?

iii. In which year India has the highest literacy rate?

iv. In which year the literacy rate among the women is the highest?

v. Why literacy rate is low among the women as compared to the men of India? Discuss with your teacher.

Literacy rates in India can also be shown in a table :

Table 2.1 : Literacy Rate in India (1951-2011)

Year	Person	Male	Female
1951	18.30	27.16	8.66
1961	28.30	40.40	15.35
1971	34.50	45.96	21.97
1981	43.65	56.38	29.76
1991	52.21	64.13	39.29
2001	64.83	75.26	53.67
2011	74.04	82.14	65.46

Source : Census of India, Office of Registrar General of India.

Graph 2.1 clearly shows that India has tremendously developed in the field of education. During the First Five Year Plans, ₹151 crore was spent on education whereas during the eleventh plan ₹3766.90 crore was earmarked for education. In between this period, number of educational institutions increased four-folds and number of students increased five-folds. The primary school system has expanded to over more than 5,00,000 villages in India. During the Eleventh Five Year Plan, "Sarva Shiksha Abhiyan" is a significant step towards providing compulsory elementary education to all children in the age group of six to fourteen years. Mid-day meal scheme has been implemented to increase the strength of the schools and to improve the nutritional status of the children. Navodaya Vidyalayas are being established in each district to impart good education to the rural students specially the girls. Vocational streams have been introduced to impart training to a large number of high school students for self employment.

Now, the focus is on vocationalisation and on the use of networking information technology. The Eleventh Five Year Plan aimed at distant education. Open School System is already operating successfully to impart education to the students who are unable to attend regular schools.

2.2.2 Health

A person's potentiality and ability to work depends upon his health. Good health is a condition in which a person is mentally and physically fit.

Pic 2.5 : Health Centre

Example :

Gaurav and Ravi are both working in the accounts department of a firm. Gaurav is physically strong and healthy but Ravi is a patient of arthritis. Ravi had to take leave from his firm to frequently visit the doctor. Ravi's poor health brought losses to the firm. Ravi's poor health decreased his capacity to work and he became a liability on the firm. Contrary to this, Gaurav used to work full day in reward of which he got a promotion. In this way, Gaurav's good health increased the total productivity of the firm which added to the growth of the economy.

From the example, it is clear that for the development of the economy, a country should have healthy population. Over the last five decades, India has built up a vast health infrastructure and has developed man power required in primary, secondary and tertiary sector in government as well as in the private sector.

In India in 1951, infant mortality rate decreased from 147 per thousand to 37 per thousand in 2015. Reduction in infant mortality involves the protection of children from infection ensuring nutrition along with mother and child care.

Table 2.2 : Health Services in India

Health Facilities	1951	2001	2010	2013
Sub-centers /Primary Health center/Community Health centre	725	1,63,181	1,75,277	1,81,319
Dispensary/Hospital	9,209	43,322	28,472	19,817
Bed	1,17,198	8,70,161	5,76,793	(only Hospitals)
Doctors (Alopathy)	61,800	5,03,900	8,16,629	9,18,000
Nurses	18,054	7,37,000	1,702,555	1,09,224

Source : National Health Profile, 2010:D/O Ayush, Ministry of Health and Family Welfare, National Health Profile, 2013.

Let's Discuss

Read the table 2.2 and answer the following questions:-

(i) Number of dispensaries and hospitals increased in 1951-2010.

(ii) Number of doctors increased in 2001-2013.

(iii) Number of beds qued in health institution 1951-2013

(iv) Visit your village or a nearby village dispensary and find out which facilities are provided and which are needed more.

2.3 UNEMPLOYMENT

Unemployment refers to a situation in which people are willing to work at the current wages but cannot find work. For example, Mandeep's mother looked after the household chores and her children. Mandeep's sister, Harpreet and Gurpreet's brother, Jeetu spend their time playing and roaming. Can we say Mandeep's mother, Harpreet and Jeetu are unemployed? The answer is definitely 'No' because Mandeep's mother is not interested in working outside her house. Harpreet and Jeetu are too small to be counted in the work force population. The work force population includes people from 15 years to 59 years. Harpreet and Jeetu do not fall within this age group. Old people beyond this age limit are also not to be called unemployed.

So, whenever a country's unemployment is determined, persons who are not able to work, for example, patients, old people, small children, students etc are not included. According to Statistics and Programme Implementation department of government of India's National Sample Survey Report, the state of Kerala has the highest rate of unemployment and the states of Rajasthan and Gujarat have the lowest rate of unemployment.

Average unemployment rate of India during the period of 1983 to 2011 remained at 9%. In Dec 2011, India's unemployment rate of was 3.80% which was the lowest. Unemployment is more in urban areas as compared to rural areas. Unemployment rate of women is more than men.

2.3.1 Causes of Unemployment

In India the problem of unemployment is due to the

i. Rapidly increasing population

ii. The decline of small scale and cottage industries

iii. Agriculture becoming a seasonal industry.

iv. Due to age of machines.

v. Fewer policies for employment.

2.3.2 Types of Unemployment

There are many types of unemployments. We have unemployment in rural and urban areas, though the nature of unemployment differs in both areas. In case of rural areas there is seasonal and disguised unemployment. Urban areas have educated unemployment.

Seasonal unemployment means when people find jobs during some months and during remaining months they are unemployed. In the agriculture sector people remain employed during the sowing and harvesting season but after this for nearly 5 to 7 months they remain unemployed.

Disguised unemployment means more number of people are engaged in a particular work than required. Even if some men are relieved from work the total productivity will not decline. In India, 30% of the total working rural population is disguised unemployed. For example, work in an agriculture plot requires the services of five persons but 8 people are engaged. Three people are extra and they are disguisedly unemployed because the contribution made by these three do not add to the total contribution made by the five people.

In case of urban areas the rapidly increasing number of schools and colleges lead to educated unemployment as the job opportunities have not increased in the same rate.

2.3.3 Effects of Unemployment

Unemployment leads to wastage of manpower resources. Unemployed people become a liability for the society rather than an asset. Unemployment increases poverty. There is a feeling of hopelessness and despair among the youth as they are unable to financially support their family. The dependency of the unemployed on the working population adversely affects the quality of life of a society. There is a general decline in its health status and rising withdrawal from the school system. Increase in unemployment is an indicator of a weak economy. So, unemployment is a serious problem because unemployed people

have become a liability on the society. It also wastes the resources which could have been gainfully employed.

The government of India has under taken many special programs to generate employment opportunities. Some of them are:-

i. Swarn Jayanti Gram Swarozgar Yojana (SJGRY)

ii. Sampoorna Gramin Rozgar Yojana (SGRY)

iii. Mahatma Gandhi National Rural Employment Guarantee Act. (MNREGA) 2005

So, in the end we can say that human resource is the most important productive force. Inputs like education and health helps in making people an asset for the economy rather than a liability.

CHAPTER AT A GLANCE

- The size of population of a country along with its efficiency, educational qualities, productivity etc. is termed as human resource.
- When the existing human resource is further developed by becoming more educated and healthy we call it human capital formation.
- Investment in human resource means to make the people skilled by investing on education and training.
- Activities done by man to earn wealth are called economic activities. Investment in human resources is an expenditure on education and training.
- Economic activities are those which are done human being for creating money. Economic Activities are classified into three sectors primary, secondary and territory.
- Quality of population depends upon good health and education.
- Unemployment is said to exit when people in the age group of 15 years to 59 years are willing to work at the current wages but cannot find jobs.

EXERCISES

A Objective Answer type Questions

1. Fill in the Blanks

(*i*) India stand ……. In the world as regards to the size of the population.

(*ii*) Uneducated people become a …… for the society rather than an asset.

(*iii*) The size of population of a country along with its efficiency, education qualification, productivity etc. is termed as……

(*iv*) In…….. sector production activities are done by using natural resources.

(*v*) ……activities helps in the production of goods and services

2. Multiple Choice Questions

(*i*) Agriculture economy is an example of which sector?

(a) Primary

(b) Tertiary

(c) Secondary

(*ii*) In agriculture sector there is unemployment for 5 to 7 months, Name this unemployment.

(a) Disguised unemployment

(b) Seasonal unemployment

(c) Educated unemployment

(*iii*) What is the working age for population in India?

(a) 15-59 years

(b) 18-58 years

(c) 6-60 years

(*iv*) How much is the population of India according to census 2011?

(a) 1210.19 million

(b) 130 million

(c) 121.19 million

3. True/False

(*i*) Working of a housewife in home is an economic activity.

(*ii*) There is more disguised unemployment in cities.

(*iii*) A country develops by Investing in human capital.

(*iv*) The population of a country should be healthy for its economic growth.

(*v*) In India literacy rate increased from 1951 to 2011.

4. Very Short Answer type Questions

(*i*) Name two natural resources?

(*ii*) How did countries like Germany and Japan made rapid economic development?

(*iii*) What are economic activities?

(*iv*) What are the two economic activities done by Gurpreet and Mandeep?

(*v*) Give two examples of secondary sector.

(*vi*) What are non-economic activities?

(*vii*) Give two determinants of the quality of population.

(*viii*) Name the state with the highest literacy rate.

(*ix*) Name the step taken to provide elementary education to all children in the age group of 6-14 yrs.

(*x*) What is the age limit of the work force population in India?

(*xi*) Name two programmes undertaken by the government of India to generate employment opportunities.

B Short Answer type Questions

1. What do you mean by human resources?

2. How human resource is superior to other resources like land and physical capital?

3. What is the difference between economic activities and non economic activities?
4. What is the role of education in human capital formation?
5. What are the steps taken by the Government of India to spread education?
6. Explain the term unemployment. Which groups of people are not included while determining a country's unemployment rate?
7. Give two reasons for unemployment in India.
8. Distinguish between disguised unemployment and seasonal unemployment.
9. Why is educated unemployment rapidly increasing in urban areas?
10. Unemployed people become a liability for the society rather than an asset. Explain it.
11. How does literate and ill health people affect the growth of the economy?

* * *

3 Poverty : Challenge Facing India

After so many years of independence, India is still fighting against the problem of poverty. Poverty influences person's ability to work, his health and income. Its definition keeps on changing with the economic conditions of the country. Through this chapter, we will discuss the concept of poverty line, causes of poverty and the anti-poverty measures taken by the government.

3.0 WHAT IS POVERTY?

Pic 3.1 : Poverty

Before discussing the problem of poverty we must first understand as to who are called poor? Poor may include landless labourers in the villages, daily wage workers repairing the city roads, inhabitants of overcrowded jhuggis, children working in the dhabas, beggars etc. According to the economic survey 2011-12,

270 million (27crore) people in India live in poverty. More than one fifth of the world's poor live in India.

Poverty is a situation in which a person is unable to get minimum basic necessities of life, like food, clothing, shelter, education and health facilities. Man struggles to fulfil these minimum basic needs. If the minimum basic needs are not fulfilled then there is loss of health and efficiency among those living in poverty and the country.

3.1 MEASUREMENTS OF POVERTY

Poverty has two measurements :

i. **Relative Poverty :** The economic conditions of different regions or countries is compared under **relative poverty.** Per-capita income and national income are the two indicators of relative poverty. **So relative poverty refers to the distribution of national income across different individuals and households in the country.**

ii. **Absolute poverty :** It refers to income and consumption levels in a country. If the daily intake of calories by a person is less than the required calories (2000-2500 calories per day) then the person is absolutely poor. **So absolute poverty refers to the measure of poverty, keeping in view the per capita in take of calories and minimum level of consumption.** On the basis of this definition, nearly 39% of India's population in absolutely poor.

We can learn more about poverty conditions by taking examples of Rural Poverty as well as Urban Poverty.

Rural Poverty

Bhola and his family live in a village in Punjab. He and his son started earning ₹60 daily after a day's hard work in the farm of a landlord. It was difficult for him to manage food and clothing for eight members of the family. So his wife started doing household chores in some houses and got some wheat or rice or vegetables and ₹100 per month in return. They lived in a hut in the farm. One of his sons worked as a helper in a cycle repair shop and the other son looked after the domestic animals of the landlord. This added another ₹300 to the family income.

Pic 3.2 : Rural Poverty

His elder daughter looked after the younger siblings at home. They all have old tattered clothes to wear. The children are undernourished and no one goes to school. Shoes, soap, oil etc are luxury items for the family.

Urban Poverty

Surinder Singh is a daily-wager in a factory in a city in Punjab. He earns around ₹1000 a month when he finds employment. His wife Jeeto and his elder daughter earn another ₹800 by working as maid in some houses. With this he manages two meals a day for the family. His family lives in a two-room rented

Pic 3.3 : Urban Poverty

house which is in very poor condition. He has his old mother whereas his father passed away due to lack of medication. His 10 year old daughter takes care of the younger siblings at home. None of the children go to school. Surinder Singh too never went to school as he started working along with his father from the age of 10 years itself.

From these two examples it is clear that poverty means

- hunger
- irregular jobs
- lack of good health
- unhygienic living conditions
- unable to send children to schools
- The sick people cannot afford treatment
- lack of shelter
- A sense of helplessness in the poor people \

Let's Discuss

i. Discuss under what conditions the poor families of your village or city are living.

ii. After reading the cases of rural and urban poverty, discuss the below mentioned reasons of poverty and find out whether these are the reasons of poverty in both mentioned cases or not.

- Land less family
- Unemployment
- Big family
- Illiteracy
- Poor health and under nourished

3.2 POVERTY LINE

Poverty line is the method to measure the minimum income required to satisfy the basic needs of life. It represents the capacity to satisfy the minimum level of human needs. People living below the poverty line are considered poor. A person is considered poor if his or her income or consumption level falls below a given minimum level necessary to fulfil basic needs.

On the basis of 2011-12 data, people below the consumption expenditure of ₹ 816 per person per month in rural areas and ₹ 1000 in urban areas, are called poor. The present formula for food requirement while estimating the Poverty line is based on the desired calorie requirement.

The accepted average caloric requirement in India is 2400 calories per person per day in rural areas and 2100 calories per person per day in urban areas, though the calorie needs vary depending on age, sex and the type of work that a person does. Due to the hard work done by the people living in rural areas, they require more calories than the urban people.

By conducting sample surveys, National Sample Survey Organisation (NSSO) estimates the poverty line periodically normally once every five years. The latest estimates of NSSO reveal that still 22% of Indian's population live below the poverty line.

Basic needs differ from country to country. Poverty line varies with time and place. For example, in United States, a person is considered poor if he does not have a car but in India owing a car is still considered a luxury.

Calorie is the energy given to a person by a full day's food.

3.3 INDICATORS OF POVERTY

Keeping in view the different aspects of poverty, social scientists are trying to use a variety of indicators to measure poverty. Usually the indicators used to measure poverty are related to the levels of **income** and **consumption.** But social scientists have also included social indicators like illiteracy level, malnutrition, lack of access to health care, lack of job opportunities, and lack of safe drinking water. Social exclusion is another common indicator on which the analysis of poverty is based. **Social exclusion** can be a cause as well as a consequence of poverty. Sometimes people under social exclusion are deprived of equal opportunities. **Lack feelings of security** in the backward classes in yet another indicator on which the analysis of poverty is based.

3.4 ESTIMATES OF POVERTY

Now we will study the estimates of poverty at three levels : Rural Urban Estimates, Inter State Disparities and Global Poverty Ratios.

i. Rural Urban Estimates : Percentage of people living below the poverty line has decreased in the last two decades. Though there is a decline in both rural and urban poverty but decline in rural poverty is less as compared to decline in urban poverty.

Table 3.1 : Estimates of Poverty in India

	Poverty ratio			Poor Population (Millions)		
Year	**Rural**	**Urban**	**Total**	**Rural**	**Urban**	**Total**
1993-94	50.1	31.8	44.3	328.6	74.5	403.7
2004-05	41.8	25.7	37.2	326.3	80.8	497.1
2011-12	25.7	13.7	21.92	216.6	53.1	269.3

Source : Economic Survey 2013-14, Finance Ministry, Government of India.

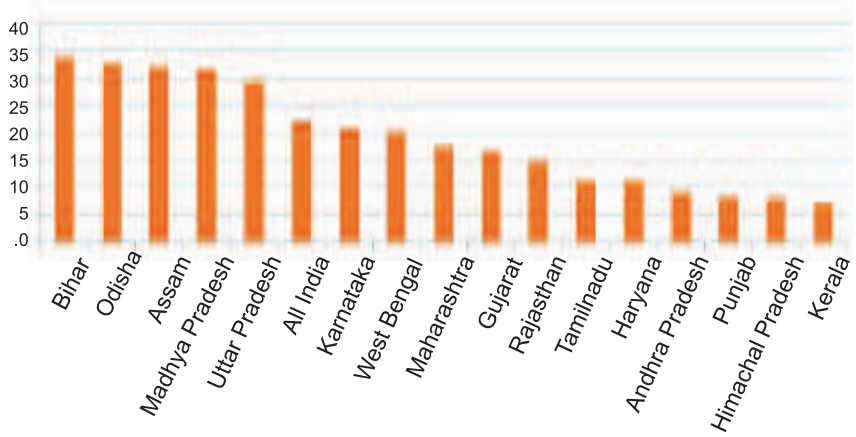
In 1993-94, 403.7 million of people or 44.3% of population was living below the poverty line. The proportion of people below poverty line came down to 37.2% in 2004-2005 and further to 21.7% in 2011-12.

Estimates shown in the table shows that both the percentage of rural and urban poverty has shown a decline during 1993-94 to 2011-12.

ii Inter-State Disparities :

The proportion of poor people is not the same in every state in India. This is because the poverty reducing reforms adopted by different states are different.

Graph 3.1 Poverty ratio in selected States:



Source : Economic survey 2013-14, Five Years

Punjab and Haryana have succeeded in reducing poverty with the help of high agricultural growth rates.

Recent estimates show that in 11 states the poverty ratio is less than the national average whereas it is still a serious problem in Odisha, Bihar, Assam, Madhya Pradesh and Uttar Pradesh. As the graph shows Odisha and Bihar continue to be the two poorest states with poverty ratio of 32.6% and 33.7% respectively. But states like Kerala, Himachal Pradesh Andhra Pradesh, Tamil Nadu, Gujarat, Punjab and Haryana have successfully reduced poverty. Kerala has focused more on human resource development Land reform measures have helped in reducing poverty in West-Bengal. Andhra Pradesh and Tamil Nadu have laid emphasis on food security through proper Public Distribution System (PDS). This helped in reducing poverty in these states.

Let's Discuss

i. Looking at the graph 3.1, name the five states with the highest percentage of poor people.

ii. Name the states where estimates of poverty are less than 22 % but more than 15%.

iii. Name the states with highest poverty percentage and with lowest poverty percentage

iii. Global Poverty Ratios :

Poverty is not only a challenge for India but also for the world, where more than 26 crore people are unable to meet their basic needs. The proportion ratio of poverty is different in different countries. As compared to developing countries the proportion of people living in extreme poverty is very low in developed countries. In general there has been a substantial reduction in global poverty. In China and South East Asian countries poverty ratio declined as a result of rapid economic growth and investments in human resource development. In South Asian countries like India, Pakistan, Sri Lanka, Nepal, Bangladesh, Bhutan etc the decline has not been as rapid. In Russia previously there was no poverty, but now there is poverty to some extent.

3.5 CAUSES OF POVERTY

There are a number of causes for the widespread poverty in India:

i. **Low economic growth :** India was under the British rule for more than 100 years. British policies discouraged the traditional textile industries and, small and cottage Industries which were flourishing in India. This resulted in less job opportunities and low growth rate of incomes. Due to this overall poverty rate could not be reduced.

ii. **Heavy Population Pressure :** Population has been rising in India at a rapid pace. High growth of population leads to low per capita income that ultimately leads to low savings. Heavy pressure of population adds to dependency burden implying much greater poverty than before.

iii. **Rural Economy :** Indian economy is basically a rural economy with 70 percent of the total population engaged in agriculture. But agriculture sector is backward as its contribution to the national income is only one-third. Then there is disguised unemployment in agriculture which reduces the incomes of this sector. Low incomes leads to poverty.

iv. **Unemployment :** With constant increase in population, a situation of chronic unemployment and underemployment has developed. Both the public and private sectors do not provide enough employment opportunities to the job seekers. Irregular small incomes, poor housing facilities increase poverty. In urban areas educated unemployment prevail whereas in rural areas disguised unemployment in agriculture prevail. Poverty is just the reflection of unemployment.

v. **Low Productivity in Agriculture :** Agricultural Production is very low due to subdivided and fragmented holdings, lack of capital, use of traditional methods of cultivation, illiteracy etc. It is the main cause of poverty in India.

vi. **High Prices :** Continuously rising prices have badly affected the poor. Rising prices take away major portion of their income and thus make them more poor.

vii. **Socio-cultural and Economic Factors :** People in India, including the poor spend a lot on religious ceremonies, weddings etc. Social factors

like illiteracy, large size of families and caste system are also responsible for high poverty rate. High level of indebtedness is both the cause and effect of poverty.

3.6 ANTI POVERTY MEASURES

One of the major objectives of the economic planning in India is the removal of poverty. The current anti poverty strategy of the government is broadly based on two grounds :

i. Promotion of Economic Growth :

Speeding up the pace of growth is an ultimate solution to the problem of poverty in India. When the pace of growth increases, employment both in farms and industries increases. Greater the employment lesser the poverty. Since the eighties India's economic growth has been one of the fastest in the world. Economic growth widens opportunities and provides the resources needed to invest in human development.

ii. Poverty Alleviation Programmes :

Direct advantage from the opportunities created by economic growth may not directly give advantage to the poor. So targeted anti-poverty programmes are needed to remove poverty. Some of them are mentioned here.

(i) To raise the standard of living of the poor **Minimum Needs Programme** was launched during the fifth plan. The programme covers Primary education, adult education, rural water supply, rural roads, rural electrification, housing improvements of the urban slums. This will improve the quality of life of poorer sections of the society.

(ii) Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) 2005 was launched with an objective to provide 100 days assured employment every year to every rural household. One third of the proposed jobs would be reserved for women. The central and state governments will establish Employment Guarantee Funds for the implementation of the scheme.

(iii) Sampoorna Gramin Rozgar Yojana (SGRY) was launched with an objective to provide employment opportunity to the surplus workers and to develop regional social and economic conditions.

(iv) Prime Minister Rozgar Yojana (PMRY) was started in 1993 with an objective to provide self employment opportunities for educated unemployed youth in rural areas and small towns.

(v) Pradhan Mantri Gramodya Yojana (PMGY) stared in 2000 aims at improving the health, primary education, drinking water, housing and roads of the rural areas with additional central assistance.

(vi) Antyodaya Anna Yojna (AAY)- AAY was launched in the year 2000. Under this scheme poor families were identified and twenty five kilograms of food grains were made available to each family at a very subsidised rate of ₹2 per Kg for wheat and ₹3 per kg for rice.

Though a lot has been spent on the implementation of these programmes, but the results are mixed. Lack of proper implementation and right targeting makes these programmes less effective. Still there is widespread poverty both in rural and urban areas of different states. Eradication of poverty leads to higher economic growth, higher literacy, upliftment of weaker sections of the society and declining population growth.

CHAPTER AT A GLANCE

- After so, many years of Independence, India is still fighting against poverty.
- More than one-fifth of the world's poor live in India.
- Poverty is a situation in which a person is unable to get minimum basic necessities of life.
- Poverty creates a sense of helplessness among the poor people.
- Poverty line is the method to measure the minimum income required to fulfil the basic needs of life.
- The accepted average caloric requirement in India is 2400 calories per person per day in rural areas and 2100 calories per person per day in urban areas.
- Rural poverty continues to have an edge over urban poverty.
- The proportion of poor people is not the same in every state in India and it is also different in different countries.

EXERCISES

A Objective Answer type Questions

1. Fill in the Blanks

(*i*) More than..... of the world's poor people live in India.

(*ii*) Poverty creates a feeling of ..... in the poor people.

(*iii*) ..... people require more calories than ..... people.

(*iv*) Punjab state has succeeded in reducing poverty with the help of high ..... growth rates.

(*v*) ..... is the method to measure the minimum income required to satisfy the basic needs of life.

(*vi*) ..... is a measurement of poverty.

2. Multiple Choice Questions

(*i*) What is the number of people living in poverty in India.

(a) 20 crores (b) 26 crores

(c) 25 crores (d) None of these

(*ii*) Poverty ratio in .....countries is less.

(a) Developed countries (b)Developing countries

(c) Less developed countries (d) None of these

(*iii*) In India which state is the poorest state.

(a) Punjab (b) Uttar Pradesh

(c) Odisha (d) Rajasthan

(*iv*) National Income is the indicator of .....

(a) Poverty line (b) Population

(c) Ralative Poverty (d) absolute poverty

3. True/False

(*i*) There is a rapid decrease in global poverty.

(*ii*) Disguised unemployment prevails in agriculture.

(*iii*) Educated Unemployment prevails more in villages.

(*iv*) National Sample Survey Organization (NSSO) estimates the increase in populations.

(*v*) Bihar and Odisha states are the most poor states.

4. Very Short Answer type Questions

(*i*) What is the meaning of relative poverty?

(*ii*) What is the meaning of absolute poverty?

(*iii*) Name two indicators of relative property?

(*iv*) What is the meaning of poverty line?

(*v*) Name the criteria adopted by the Planning Commission of India to determine the poverty line?

(*vi*) Name two indicators of poverty?

(*vii*) In poor families who suffers the most.

(*viii*) Name two poorest states of India.

(*ix*) How Kerala has reduced poverty in the state?

(*x*) What has helped West Bengal in reducing poverty?

(*xi*) Name two states which reduced poverty with the help of high agricultural growth rates

(*xii*) How China and South-East-Asian countries are able to reduce poverty?

(*xiii*) Give two causes of poverty.

(*xiv*) Name two poverty alleviation programmes.

(*xv*) Name the programme that provides free-food to the Govt. School children?

B Short Answer type Questions

1. What do you mean by poverty? Explain it.

2. Differentiate between Relative Poverty and Absolute Poverty?

3. What are the problems faced by the poor people?
4. Describe how the poverty line is estimated in India?
5. Describe the major indicators of Poverty?
6. Describe the poverty trends in India since 1993-94.
7. Briefly describe the inter-state disparities in poverty in India.
8. What are the three main causes of poverty in India.
9. Poverty is just the reflection of unemployment, explain.
10. Promotion of economic growth helps in reducing poverty. Explain.
11. What are the main features of National Rural Employment Guarantee Act (NREGA) 2005.
12. Explain any three poverty alleviation programmes undertaken by the Government of India.

* * *

4 Food Security in India

Dear students, through this chapter we will study about food security. Why is it necessary for a country to be food secured and the efforts made by the Indian government regarding food security in India, will be further studied in this chapter.

Literally speaking food security means that food is available to every individual, all people should have access to basic food and they can afford to buy the food.

Simply speaking food security means accessibility, availability and affordability of food to all the people at all times.

- Availability of food means there should be food production within the country.
- Accessibility of food means that sufficient quantity of food should be within the reach of people.
- Affordability of food means that a person has enough money to buy sufficient food. Sufficient stocks of food should be maintained by the government to meet the shortage of food during natural calamities like drought, floods etc.

Dr. Amartya Sen on Food Security

The famous economist and Nobel laureate, Dr. Amartya Sen has added a new term to food security. Instead of 'access' Dr. Amartya Sen has emphasized the term 'entitlement'. Entitlement would give a certain right to the citizens and place the state under obligation to meet the food needs of the hungry masses. The 1995 World Food Summit also emphasized food security at individual, household, regional, state, national and global levels. This liability not only includes availability of food grains but also to provide safe drinking water, basic sanitation, nutritional requirements of different age groups. It also takes into account the local food preferences and regards 'Poverty' eradication as essential for improving access to food.

4.0 NEED FOR FOOD SECURITY

Poor segment of the society need food security at all times as the low purchasing power of the poor people does not allow them to buy food as per their requirements. There is a need for food security due to continuous and rapid growth in population. Besides this, during natural calamity like drought etc, production of food grain decreases because Indian agriculture mostly depends upon monsoon. It creates a shortage of food in the affected areas due to which prices goes up. Many people are unable to buy food at high prices. If this situation continues for a long period, it may cause a situation of starvation. A massive starvation creates a situation of famine. Massive deaths due to starvation, lead to epidemics like cholera, diarrhoea etc caused by decaying bodies and use of contaminated water. Famine of Bengal, 1943 was the most devastating famine. The famine killed thirty lakh people in the province of Bengal.

Who were affected the most by the Bengal famine?
The agricultural workers, fishermen, transport workers were affected the most due to increasing price of rice.

In 1943, production of rice in Bengal was less due to the natural calamities. Due to less production the supply of rice was less than its demand which created a situation of famine.

Pic 4.1 : Bengal Famine

Let's Discuss

(i) What do you observe in picture 4.1

(ii) Can you say that the family shown in the picture is a poor family? If yes then why?

(iii) Discuss with your teacher about the source of livelihood of the people?

(iv) What type of help can be given to victims of calamity at relief camps?

Great famines like Bengal Famine never occurred again but famine like conditions occurred at places like Kalahandi and Kashipur in Odisha. Starvation deaths are also reported in some areas of Rajasthan and Jharkhand. So food security is required in the country to ensure availability of food at every moment.

4.1 WHO ARE FOOD INSECURE?

There is a large segment of people who suffer from food and nutritional insecurity in India but the following people are more food insecure than others:

(i) The landless people who depend on others for their food supplies.

(ii) Traditional artisans who provide traditional services.

(iii) Petty self employed workers and destitutes including beggars.

(iv) In urban areas, the food insecure persons are those who are employed in all paid occupation and casual labour market. These workers are largely engaged in seasonal activities and are paid very low wages that just ensure their bare survival.

(v) After a natural calamity people migrating from the affected area are the most food insecure people.

(vi) The malnutrition prevails more among women and children, and they constitute a significant segment of population affected by food insecurity.

4.1.1 Distribution of people affected by food insecurity

People affected by food insecurity are disproportionately large in some regions of the country such as those living in economically backward states with high incidence of poverty, tribal and remote areas, regions prone to national calamities etc. A few states like Uttar Pradesh, Odisha, West Bengal, Chattisgarh, parts of Madhya Pradesh account for the largest number of food insecure people in the country.

Hunger is another indicator of food insecurity. Many people suffer from it. Hunger has two dimensions i.e. chronic and seasonal. Chronic hunger is a consequence of persistently inadequate diets in terms of quantity or quality. Poor people suffer from chronic hunger because of their very low income and inability to buy food for their family even for survival. Seasonal hunger is related to cycles of food growing and harvesting. This is common in rural areas because of the seasonal nature of agricultural activities and in urban areas because of

the casual labouring. For example, there is less work for casual construction labour during the rainy season. This type of hunger exists when a person is unable to get work for the entire year. The elimination of hunger is priority in achieving food security.

Table 4.1: Percentage of Households with 'Hunger' in India.

Year	Rural		Urban		Total
	Seasonal	Chronic	Seasonal	Chronic	
1983	16.2	2.3	5.6	0.8	24.9
1993-94	4.2	0.9	1.1	0.5	6.7
1999-2000	2.6	0.7	0.6	0.3	4.2

Source : Sagar 2004

The percentage of seasonal as well as chronic hunger has decreased in India as shown in the 4.1 table.

4.2 SELF SUFFICIENCY IN FOOD GRAINS SINCE INDEPENDENCE

After independence, Indian policy planners adopted all measures to achieve self-sufficiency in good grains. India adopted new strategies in agriculture and increased its production in 1968. This increase resulted in 'Green Revolution'. A special stamp entitled 'Wheat Revolution' was also released. The highest rate of growth was achieved in Punjab and Haryana where food grain production jumped from 7.23 million tonnes in 1964-65 to 30.33 million tonnes during green revolution. Production in Maharashtra, Madhya Pradesh, Bihar and Odisha continued to fluctuate where as Tamil Nadu and Andhra Pradesh recorded marked increases in rice yield.

The National Food Security Act (NFSA), 2013 is an Act of the Parliament of India which aims to provide subsidized food grains to approximately two-thirds of India's people is 75% in rural areas and 50% in urban areas.

Graph 4.1 : Production of Foodgrains in India (Million Ton)

Source : Economic Survey, 2011-12, 2013-14 and Agriculture Estimates, a look-2004

Let's Discuss

Study the graph 4.1 and answer the following questions.

(i) In which year did India achieve the target of producing nearly 200 million tonnes of food grains?

(ii) In which year did India have highest production of food grains?

(iii) Has the production of food grains continuously increased during 2000-01 to 2016-17?

4.3 FOOD SECURITY IN INDIA

The country has avoided famine even during adverse weather conditions after the Green Revolution in the early'70s. India has become self sufficient in food grains during the last thirty years due to a variety of crops grown all over the country. The availability of foodgrains at the country level has been ensured with a carefully designed food security system by the government.

This system has two components

(1) Buffer Stock

(2) Public Distribution System

4.3.1 Buffer Stock by government of India

Buffer stock is the stock of food grains namely wheat and rice procured by the government through Food Corporation of India (FCI). Some states have surplus production of wheat and rice. FCI purchases this surplus production from the farmers of these states. The farmers are paid a pre announced price called **Minimum Support Price (MSP)** for their crops.

The MSP is declared by the Government every year before the sowing season to provide incentives to the farmers for raising the production of these crops. The purchased foodgrains are stored in granaries. Buffer stock is created by the government to distribute food grain in the deficit areas and among poorer sections of society at a price lower than the market price. This price is known as '**Issue Price**'. Buffer stock helps to resolve the problem of shortage of food during adverse weather conditions and during the periods of calamity.

4.3.2 Public Distribution System (PDS)

The food procured by the FCI is distributed through government regulated ration shops among the poorer section of the society. This is called the Public Distribution System (PDS). Ration shops are now present in most localities, villages, towns and cities. There are about 4.6 lakh ration shops all over the country. Ration shops are also known as **Fair Price Shops,** They keep stock of foodgrains, sugar, kerosene and oil for cooking etc. These items are sold to people at a price lower than the market price. Any family with a ration card can buy fixed amount of these items.

Pic 4.2 : Ration Shop

There are three kinds of ration cards:-

(i) Antyodaya Cards- These cards are issued for the poorest of the poor people.

(ii) BPL Cards- These cards are issued to those who live below poverty line.

(iii) APL Cards- These cards are for all others.

Rationing was introduced in India during Bengal Famine 1943. Due to rise in poverty level in mid 1970s, three important food intervention programmes were introduced : (i) Public Distribution System (PDS) for food grains,(ii) Integrated Child Development Services (ICDS) and (iii) Food for Work, FFW in 1977-78. At present there are many Poverty Alleviation Programmes (PAP's) mostly in rural areas which have food component also. Employment programmes greatly contribute to food security by increasing the income of the poor.

Present status of Public Distribution System

To ensure food security, Public Distribution System was an important step taken by government of India. The coverage of PDS was universal in the beginning .It made no discrimination between the poor and the rich. Feeling the low success of PDS, Targeted Public Distribution System (TPDS) was introduced in June 1997. Under this scheme, cards were issued to the families below poverty line which enabled them to purchase ration at low prices. Further in 2000 two special schemes were launched, namely, Antyodaya Anna Yojna (AAY) and the Annapurna Scheme (APS). The main objective of these schemes was to provide food grains specially to "Poorest of the poor" and "poor senior citizens" group respectively.

The functioning of these two schemes was linked with the existing network of PDS.

Main features of Public Distribution System

The PDS has proved to be the most effective instrument of government policy over the years in stabilizing prices and making food available to consumers at affordable prices. By supplying food from regions with surplus production to the deficit ones in the country through PDS scheme, we have successfully fought against hunger and famine like situations. In addition, prices have been revised in favour of poor families. The Minimum Support Price and procurement has contributed to an increase in food grains production and also provided income security to farmers. Important features of PDS are summarised in table 4.2.

Table 4.2 Some Important Features of PDS

Name of scheme	Year of Introduction	Coverage targeted group	Latest volume	Issue Price (Rs per Kg)
PDS	Upto 1992	Universal	—	W-2.34 R-2.89
RPDS	1992	Backward blocks	20 kg of food grains	W-2.80 R-3.77
TPDS	1997	Poor and non-poor	35 kg of food grains	BPL-W-2.50 R-3.50 APL-W-4.50 R-7.00
AAY	2000	Poorest of the poor	35 kg of food grains	W-2.00 R-3.00
APS	2000	Indigent Senior Citizens	10 kg of food grains	Free
National Food Security Act	2013	Families	5kg	W-2.00 R-3.00 Pulses-1.00

Note :

W- Wheat, R-Rice, BPL- Below Poverty Line, APL- Above Poverty Line

Source: Economic Survey

However, the Public Distribution System has faced criticism on several grounds. Despite of having overflowing granaries still poor people in our country are dying every year because of hunger. One main reason for this is that though FCI godowns are overflowing with grains, some grains are rotting away and some are being eaten by rats due to lack of proper storage.

In July 2002, the stock of wheat and rice with FCI was 63 million tonnes which was much more than the minimum buffer norms of 24.3 million tonnes. Due to failure of monsoon the year 2002-03 was declared as drought year after which the stock of foodgrains decreased due to relief operations undertaken by the government. The decline in stocks continued in the subsequent years, but this remained consistently higher than the buffer norms. The situation improved with the distribution of food grains under various schemes launched by the government. The storage of massive food stocks ie more than the minimum buffer norms of 24.3 million tonnes has been responsible for high carrying costs along with the wastage and deterioration in grain quality. Freezing of MSP for a few years should be considered seriously.

Due to increased MSP the storage costs of the foodgrains purchased through government has increased. Storage and transportation costs of FCI has further increased the MSP. It is obvious that the average consumption of PDS grains at the all India level is only 1 kg per person per month. The average consumption figure is as low as less than 300 gm per person per month in the states of Bihar, Odisha and Uttar Pradesh. In contrast, the average consumption in most of the southern states like Kerala, Karnataka, Tamil Nadu and Himachal Pradesh is in the range of 3-4 kgs per person per month. As a result the poor have to depend on markets rather than the ration shops for their food needs. In Madhya Pradesh only 5% of wheat and rice consumption of the poor are met through the ration shops. In U.P. and Bihar the percentage is still lower.

PDS dealers sometimes resort to malpractices like diverting the grains to open market to get better margin, selling poor quality grains at ration shops,

irregular opening of the shops etc. It is common to find that ration shop regularly have unsold stocks of poor quality grains left. This has proved to be a big problem because when ration shops are unable to sell, then a large stock of food grains piles up with the FCI.

There is another factor that has led to the decline of the PDS. Earlier every family, poor and non-poor had a ration card with a fixed quota of items such as rice, wheat, sugar etc. These were sold at the same low price to every family. The three types of cards and the range of prices that you see today did not exist. A large number of families could buy food grains from the ration shop subject to a fixed quota. These included low income families whose incomes were marginally higher than the below poverty line families. Now with TPDS of three different prices any family above the poverty line gets very little discount at the ration shop. The price for APL family is almost as high as open market price. So there is little incentive for them to buy these items from the ration shop.

4.4 FOOD RELATED PROGRAMMES

(i) National Food for Work Programme (NFWP): National Food for Work Programme (NFWP) was started on Nov 14, 2004 in 150 most backward districts of the country with an aim of generating employment. Under this scheme the labour is engaged for development works and in return get food grains as part of their wages. The programme is open to all rural poor who are in need of employment.

(ii) Antyodaya Anna Yojana (AAY): AAY was launched in Dec 2000. Under the scheme one crore of the poorest among the BPL families covered under the Targeted Public Distribution System were identified as poor families. Twenty five kilograms of food grains were made available to each eligible family at a highly subsidized rate of ₹2 per kg for wheat and ₹3 per kg for rice. This quantity has been increased from 25 to 30 kg

Subsidy is a payment that a government makes to a producer to supplement the market price of a commodity. Subsidies can keep consumer prices low while maintaining a higher income for domestic producers.

with effect from April 2002. The scheme has been further expanded twice by additional 50 Lakh BPL families in June 2003 and in August 2004. With this increase 2 crore families have been covered under the AAY.

4.5 ROLE OF COOPERATIVES IN FOOD SECURITY

A cooperative is a form of business organization in which members voluntarily form a society for producing, procuring or marketing goods and services on no profit no loss basis to their members. The cooperative societies set up shops to sell goods at low prices to the poor people. For example, in Tamil Nadu, around 94 percent of total fair price shops are being run by the cooperatives. In Delhi, Mother Dairy is making commendable contribution to the consumers by providing milk products at controlled rate decided by government of Delhi. Amul is another success story of cooperative in milk and milk products from Gujarat. It has brought about the white revolution in the country. The Punjab State Cooperative Milk Producers Fedaration limited popularly known as MILKFED Punjab, under which the brand VERKA is well known for milk production and manufacturing of fresh milk products in punjab. These are a few examples among many more cooperatives running in different parts of the country ensuring food security of different sections of society.

Similarly in Maharashtra, Academy of Development Sciences (ADS) has facilitated a network of NGOs for setting up grain banks in different regions. ADS organizes training and capacity building programmes on food security for NGOs.

4.6 FOOD STORING ORGANIZATIONS IN PUNJAB

(i) Markfed - A study.

Markfed, Punjab is India's largest marketing cooperative. Markfed was registered in 1954. Main objectives of Markfed are :-

(a) Procurement of Wheat, Paddy and Cotton.

(b) Marketing, trading and manufacturing of agricultural products within the country as well as outside the country.

(c) Storage of grains.

Activities of Markfed:-

(a) Domestic Operations:-

- **Procuring and Distribution Operations**

Markfed is state government procuring agency which is engaged in procurement of agricultural produce like wheat, paddy, cotton, oil seeds, such as mustard, sunflower etc. on behalf of Government of India through FCI/NAFED. During the year 2013-14 Markfed has procured 24.18 lac MT of wheat and 29.15 lac MT of Paddy on behalf of Government of India. It has been appointed as a nodal agency for procurement and distribution of fertilizers through cooperatives since last 3 years.

- **Manufacturing Operations**

Markfed has its own Agro based processing units for manufacturing SOHNA brand vanaspati, refined oil, processed & canned foods and rice besides cattlefeed.

(b) International Operations

Markfed help farmers by procuring their produce and organizing exports. A vast range of Markfed products have found markets in the Middle East, UK, USA, Canada, Australia, New ect.

(ii) Punjab State Civil Supplies Corporation Limited (PUNSUP)- A case study

Punjab State Civil Supplies Corporation Limited popularly, know as PUNSUP, came into being on Feb 14, 1974. It main aim is to uplift the farming community by procuring their produce on Minimum Support Price (MSP) fixed by the Government of India. It also provides food grains and other essential commodities to the weaker section of the society on subsidized rates under PDS including items of daily use and LPG to the consumers of the states on lesser rates than prevailing in the market.

ACTIVITIES OF PUNSUP

Activities of PUNSUP:- The main activity of PUNSUP is procurement of wheat and paddy from central pool under MSP scheme of Government of India.

Other activities of PUNSUP are :

a. Procurement of food grains : PUNSUP procures food grains from farmers and stores it until it is moved out to FCI as and when demanded. It has its own covered and open storages to the extent of about 1.57 Lac MT.

b. Distribution : It distributes sugar, wheat, rice etc. at about 14000 fair price shops in the state of Punjab. It has 8 retail sales outlets/Apna bazaars in Punjab. It has a chain of 8 numbers of LPG distributions agencies. PUNSUP is a nodal agency for distributions of foodgrains under Mid-day- Meal scheme of Goverment of India vide which the stock of foodgrains are taken from FCI godowns and distributed amongst thousands of schools scattered throughout the state of Punjab.

CHAPTER AT A GLANCE

- Food security means Accessibility, availability and affordability of food to all people at all times.
- Need for food security is due to poverty and higher prices, qualitative factor and quantitative factor.
- The poorest segment of Indian population are food insecure most of the time.
- During natural calamity there is food shortage in affected areas.
- Dr. Amartya Sen emphasised the term 'Entitlement' instead of access.
- Famine like conditions occured at places like Kalahandi and Kashipur in Odisha.
- Landless people with no land, traditional artisans providing traditional services, petty self employed workers are food insecure people.
- Uttar Pradesh, Odisha, West Bengal, Chhattisgarh, parts of Madhya Pradesh and Maharashtra have largest number of food insecure people.
- Poor people suffer from chronic hunger due to their low income.

- Seasonal hunger is related to cycles of food growing and harvesting.
- Green Revolution has made India self sufficient in wheat and rice.
- Buffer stock is the stock of food grain namely wheat and rice produced by the government through Food Corporation of India.
- Minimum Support Price is the price announced by the government before the sowing season.
- A Cooperative is a form of business organisation in which members voluntarily form a society for producing, procuring and marketing goods and services at no profit no loss basis to their members.

A Objective Answer type Questions

1. Fill in the Blanks

(*i*) To make available food at affordable prices to the poorer section government has started .....system.

(*ii*) A big famine occurred in 1943 in.....state of India.

(*iii*) The malnutrition prevails more among.....and.....

(*iv*) .....card is issued to the very poor people.

(*v*) .....is the price announced by the government for agricultural products.

2. Multiple Choice Questions

(*i*) Which card is issued to the people living below poverty line?

(a) Antyodaya Card (b) BPL Card

(b) APL Card (d) CPL Card

(*ii*) …….is an indicator of food security.

(a) Milk (b) water

(c) Hunger (d) Air

(*iii*) What is the price announced by the government for agricultural products known as?

(a) Minimum Support Price (b) Issue Price

(b) Minimum Price (d) Fair Price

(*iv*) Besides Bengal Famine in which other states did famine occur?

(a) Karnataka (b) Punjab

(c) Odisha (d) Madhya Pradesh

(*v*) Which Cooperative provides milk and milk producteds in Gujarat?

(a) Amul (b) Verka

(c) Mother Dairy (d) Sudha

3. True/False

(*i*) Availability of food means there is no food production within the country.

(*ii*) Hunger is an Indicator of food security.

(*iii*) Ration shops are also known as Fair Price shops.

(*iv*) Mark fed, Punjab is India's largest marketing cooperative.

4. Very Short Answer type Questions

(*i*) What do you mean by food security?

(*ii*) Explain the need for food security?

(*iii*) What do you mean by Famine?

(*iv*) Give two examples of epidemics.

(*v*) In which year Famine of Bengal occurred?

(*vi*) How many people were killed during the Famine of Bengal?

(*vii*) Who were the main sufferers during famine.

(*viii*) Who gave the term 'entitlement'.

(*ix*) Who are food insecure people?

(*x*) Name the states where food insecure people exist in large number.

B Short Answer type Questions

1. What do you mean by Green Revolution?
2. What do you mean by Buffer Stock?
3. What do you mean by Public Distribution System?
4. What is Minimum Support Price?
5. What do you mean by seasonal hunger and chronic hunger?
6. Why buffer stock is created by the government?
7. What do you mean by issue price?
8. Explain the problems of the functioning of ration shops.
9. Explain the role of cooperatives in providing food.

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