Social Science

Resources and Development

Textbook in
Geography for Class VIII

© NCERT not to be republished

राष्ट्रीय शैक्षिक अनुसंधान और प्रशिक्षण परिषद्
NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING

2020-21

ISBN 978-81-7450-816-4

First Edition
February 2008 *Magha 1929*

Reprinted
February 2009 *Magha 1930*
January 2010 *Pausa 1931*
January 2011 *Magha 1932*
January 2012 *Magha 1933*
November 2012 *Kartika 1934*
November 2013 *Kartika 1935*
November 2014 *Agrahayana 1936*
December 2015 *Pausa 1937*
December 2016 *Pausa 1938*
December 2017 *Agrahayana 1939*
January 2019 *Pausa 1940*
September 2019 *Bhadrapada 1941*

PD 570T RPS

© National Council of Educational Research and Training, 2008

ALL RIGHTS RESERVED

- No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior permission of the publisher.
- This book is sold subject to the condition that it shall not, by way of trade, be lent, re-sold, hired out or otherwise disposed of without the publisher's consent, in any form of binding or cover other than that in which it is published.
- The correct price of this publication is the price printed on this page, Any revised price indicated by a rubber stamp or by a sticker or by any other means is incorrect and should be unacceptable.

OFFICES OF THE PUBLICATION DIVISION, NCERT

NCERT Campus
Sri Aurobindo Marg
New Delhi 110 016 **Phone : 011-26562708**

108, 100 Feet Road
Hosdakere Halli Extension
Banashankari III Stage
Bangaluru 560 085 **Phone : 080-26725740**

Navjivan Trust Building
P.O.Navjivan
Ahmedabad 380 014 **Phone : 079-27541446**

CWC Campus
Opp. Dhankal Bus Stop
Panihati
Kolkata 700 114 **Phone : 033-25530454**

CWC Complex
Maligaon
Guwahati 781 021 **Phone : 0361-2674869**

₹ 60.00

Printed on 80 GSM paper with NCERT watermark

Published at the Publication Division by the Secretary, National Council of Educational Research and Training, Sri Aurobindo Marg, New Delhi 110 016 and printed at Raj Printers, A-9, Sector B-2, Tronica City Industrial Area, Loni, District Ghaziabad - 201 102 (U.P.)

Publication Team

Head, Publication Division : *M. Siraj Anwar*

Chief Editor : *Shveta Uppal*

Chief Production Officer : *Arun Chitkara*

Chief Business Manager : *Bibash Kumar Das*

Editor : *R.N. Bhardwaj*

Assistant Production Officer : *Deepak Jaiswal*

Cover, Layout and Illustrations
Blue Fish

Cartography
Cartographic Designs Agency

© NCERT not to be republished

FOREWORD

The National Curriculum Framework (NCF), 2005, recommends that children's life at school must be linked to their life outside the school. This principle marks a departure from the legacy of bookish learning which continues to shape our system and causes a gap between the school, home and community. The syllabi and textbooks developed on the basis of NCF signify an attempt to implement this basic idea. They also attempt to discourage rote learning and the maintenance of sharp boundaries between different subject areas. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy on Education (1986).

The success of this effort depends on the steps that school principals and teachers will take to encourage children to reflect on their own learning and to pursue imaginative activities and questions. We must recognise that, given space, time and freedom, children generate new knowledge by engaging with the information passed on to them by adults. Treating the prescribed textbook as the sole basis of examination is one of the key reasons why other resources and sites of learning are ignored. Inculcating creativity and initiative is possible if we perceive and treat children as participants in learning, not as receivers of a fixed body of knowledge.

These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table is as necessary as rigour in implementing the annual calendar so that the required number of teaching days are actually devoted to teaching. The methods used for teaching and evaluation will also determine how effective this textbook proves for making children's life at school a happy experience, rather than a source of stress or boredom. Syllabus designers have tried to address the problem of curricular burden by restructuring and reorienting knowledge at different stages with greater consideration for child psychology and the time available for teaching. The textbook attempts to enhance this endeavour by giving higher priority and space to opportunities for contemplation and wondering, discussion in small groups, and activities requiring hands-on experience.

The National Council of Educational Research and Training (NCERT) appreciates the hard work done by the textbook development committee responsible for this book. We wish to thank the Chairperson of the advisory committee for textbooks in Social Sciences, at the upper primary level, Professor Hari Vasudevan and the Chief Advisor for this book, Vibha Parthasarathi, for guiding the work of this committee. Several teachers

© NCERT not to be republished

contributed to the development of this textbook; we are grateful to their principals for making this possible. We are indebted to the institutions and organisations which have generously permitted us to draw upon their resources, material and personnel. We are especially grateful to the members of the National Monitoring Committee, appointed by the Department of Secondary and Higher Education, Ministry of Human Resource Development under the Chairpersonship of Professor Mrinal Miri and Professor G.P. Deshpande, for their valuable time and contribution. As an organisation committed to systemic reform and continuous improvement in the quality of its products, NCERT welcomes comments and suggestions which will enable us to undertake further revision and refinement.

Director
National Council of Educational
Research and Training

New Delhi
30 November 2007

© NCERT not to be republished

TEXTBOOK DEVELOPMENT COMMITTEE

Chairperson, Advisory Committee for Textbooks in Social Sciences at the Upper Primary Level

Hari Vasudevan, Professor, Department of History, University of Calcutta, Kolkata

Chief Advisor

Vibha Parthasarathi, Principal (Retd.), Sardar Patel Vidyalaya, New Delhi

Members

Anindita Datta, Lecturer, Delhi School of Economics, University of Delhi, Delhi

Anshu, Reader, Kirorimal College, University of Delhi, Delhi

Aparna Pandey, Lecturer, DESSH, NCERT, New Delhi

Bhagirathy Jhingran, TGT, Pathways World School, Gurgaon

Meera Hoon, TGT, Modern School, Barakhamba Road, New Delhi

Punam Behari, Vice Principal, Miranda House, University of Delhi, Delhi

Samita Dasgupta, PGT, Anandalaya, Anand, Gujarat

Srinivasan K., TGT, Mallya Aditi International School, Bangalore

Syamala Srivatsa, TGT, Sardar Patel Vidyalaya, New Delhi

Member-coordinator

Tannu Malik, Lecturer, Department of Education in Social Sciences and Humanities, NCERT, New Delhi

© NCERT not to be republished

ACKNOWLEDGEMENTS

The National Council of Educational Research and Training acknowledges the contributions of Pramila Kumar, Professor (Retd), Bhopal and Shipra Nair, Darjiling in the development of this textbook.

Acknowledgements are also due to Savita Sinha, Professor and Head, Department of Education in Social Sciences and Humanities, NCERT, for her valuable support at every stage of preparation of this textbook.

The Council is also grateful to the individuals and organisations as listed below for providing various photographs, illustrations and activities used in this textbook: Anshu, Reader, Kirorimal College, Delhi for Figs. 2.5, 2.15 and 4.14; Srinivasan K., TGT, Mallya Aditi International School, Bangalore for picture of varieties of maize on page 45; Krishan Sheoran from Austria for Fig. 2.1; Mohammad Aslam, Learning Touch, New Delhi for Fig. 4.4; R.C. Das, CIET, NCERT for Figs. 2.8, 2.10 and picture of bamboo on page 50; Nimisha Kapoor for the photographs of the windmill, children and the potter on the cover; Blue Fish for Fig. 1.1 and a picture of a notebook on page 50; National Disaster Management Division, Ministry of Home Affairs for pictures of retention wall, Union Carbide Factory and rescue operation in Gao Qiao on page 12, 53 and 54 respectively; Department of Industry, Government of Bihar for Figs. 4.5, 4.6, 4.13 and 5.1; Directorate of Extension, Ministry of Agriculture, I.A.R.I Campus, New Pusa, New Delhi for Figs. 2.9, 4.9, 4.10, 4.11 and 4.14; Ministry of Environment and Forests, Government of India for Figs. 2.11, 2.12, 2.13, 2.14, 2.16, 2.17, 2.18 and 2.19 and a picture of a vulture on page 18; Ministry of Coal, Government of India for Figs. 3.1 and 3.10; Ministry of New and Renewable Energy, Government of India for Fig. 3.15; COMFED, Patna for Fig. 5.2; Directorate of Advertising and Visual Publicity, Ministry of Information and Broadcasting for Figs. 3.7, 3.13 and 3.16; Oil and Natural Gas Corporation Limited for Figs. 3.4 and 3.11; ITDC/Ministry of Tourism, Government of India for Fig. 3.9; Social Science Textbook for Class VIII, Part II (NCERT, 2005) for Figs. 2.6, 2.7, 4.7, 4.8, 4.12, 4.16, 4.17, 4.18 and a picture of landslide on page 12; The Times of India, Hindustan Times and Indian Express for news in a collage on page 20; Arvind Gupta, IUCAA, Pune for an activity of solar worker on page 34 and Kushal Sharma, Reader, Kirorimal College, New Delhi for a case study of landslide on page12.

The Council also gratefully acknowledges the contribution of Uttam Kumar, Anil Sharma and Moqaddas Azam, DTP Operators; Ajay Singh, Satish Jha, Copy Editors and Dinesh Kumar, Incharge, Computer Station who have helped in giving a final shape to this textbook. The contribution of the Publication Department, NCERT is also duly acknowledged.

© NCERT not to be republished

CONTENTS

Foreword iii

Chapter 1 **1 – 6**
Resources

Chapter 2 **7 – 21**
Land, Soil, Water, Natural Vegetation and Wildlife Resources

Chapter 3 **22 – 37**
Mineral and Power Resources

Chapter 4 **38 – 47**
Agriculture

Chapter 5 **48 – 61**
Industries

Chapter 6 **62 – 71**
Human Resources

© NCERT not to be republished

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a [1]**[SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC]** and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the [2][unity and integrity of the Nation];

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949 do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

---

1. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
2. Subs. by the Constitution (Forty-second Amendment) Act, 1976, Sec.2, for "Unity of the Nation" (w.e.f. 3.1.1977)

© NCERT not to be republished

1 Resources

0858CH01

Mona and Raju were helping Amma to clean their house. "Look at all these things…. clothes, utensils, foodgrains, combs, this bottle of honey, books…..Each of these has a use," said Mona. "That is why they are important," said Amma. "These are resources…..". "What is a resource?" was Raju's question to Amma. "Anything that can be used to satisfy a need is a resource", replied amma. "Look around you and observe, you will be able to identify many types of resources. The water you drink when you are thirsty, the electricity you use in your house, the rickshaw you use to get home from school, the textbook you use to study are all resources. Your father has prepared a tasty snack for you. The fresh vegetables he has used are also a resource".

Water, electricity, rickshaw, vegetable and textbook have something in common. They have all been used by you, so they have **utility**. Utility or usability is what makes an object or substance a resource.

*"How does something become a resource?" Raju now wanted to know. Amma told the children that things become resources only when they have a value. "Its use or utility gives it a value. All resources have some **value**." said Amma.*

Value means worth. Some resources have economic value, some do not. For example, metals may have an economic value, a beautiful landscape may not. But both are important and satisfy human needs.

Some resources can become economically valuable with time. Your grandmother's home remedies have no commercial value today. But if they are patented and sold by a medical firm tomorrow, they could become economically valuable.

Let's do

List out five resources you use in your home and five you use in your classroom.

Glossary

Patent: It means the exclusive right over any idea or invention.

© NCERT not to be republished

Glossary

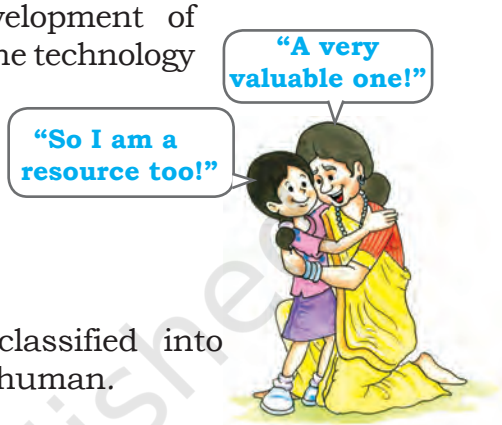
Technology: It is the application of latest knowledge and skill in doing or making things.

Activity

Circle those resources from Amma's list that are regarded as having no commercial value.

Amma's List
Cotton cloth
Iron ore
Intelligence
Medicinal plants
Medical knowledge
Coal deposits
Beautiful scenery
Agricultural land
Clean environment
Old folk songs
Good weather
Resourcefulness
A good singing voice
Grandmother's home remedies
Affection from friends and family

Time and technology are two important factors that can change substances into resources. Both are related to the needs of the people. People themselves are the most important resource. It is their ideas, knowledge, inventions and discoveries that lead to the creation of more resources. Each discovery or invention leads to many others. The discovery of fire led to the practice of cooking and other processes while the invention of the wheel ultimately resulted in development of newer modes of transport. The technology to create hydroelectricity has turned energy in fast flowing water into an important resource.



Types of Resources

Resources are generally classified into natural, human made and human.

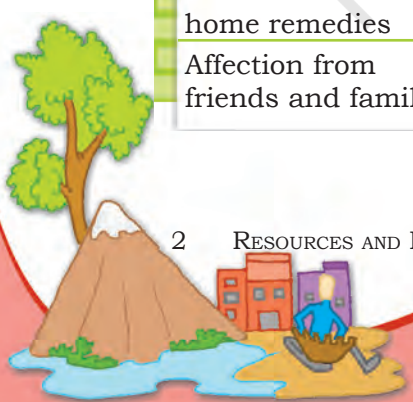
Natural Resources

Resources that are drawn from Nature and used without much modification are called **natural resources**. The air we breathe, the water in our rivers and lakes, the soils, minerals are all natural resources. Many of these resources are free gifts of nature and can be used directly. In some cases tools and technology may be needed to use a natural resource in the best possible way.

Natural resources can be broadly categorised into **renewable** and **non-renewable** resources.

Renewable resources are those which get renewed or replenished quickly. Some of these are unlimited and are not affected by human activities, such as solar and wind energy. Yet careless use of certain renewable resources like water, soil and forest can affect their stock. Water seems to be an unlimited renewable resource. But shortage and drying up of natural water sources is a major problem in many parts of the world today.

Non-renewable resources are those which have a limited stock. Once the stocks are exhausted it may take thousands of years to be renewed or replenished. Since this period is much more than human life spans,



© NCERT not to be republished

such resources are considered non-renewable. Coal, petroleum and natural gas are some examples.

The distribution of natural resources depends upon number of physical factors like terrain, climate and altitude. The distribution of resources is unequal because these factors differ so much over the earth.

Human Made Resources

Sometimes, natural substances become resources only when their original form has been changed. Iron ore was not a resource until people learnt to extract iron from it. People use natural resources to make buildings, bridges, roads, machinery and vehicles, which are known as **human made resources**. Technology is also a human made resource.

"So people like us use natural resources to make human made resources," said Mona nodding in understanding. "Yes," said Raju.

Human Resources

People can make the best use of nature to create more resources when they have the knowledge, skill and the

Read and Ponder: Humans are interdependent on each other. Farmers provide food grains for every one. Scientists suggest various means to combat problems related to agriculture and improve farm production.

Glossary

Stock of Resource It is the amount of resources available for use.

Let's do

Think of a few renewable resources and mention how their stock may get affected by overuse.

Let's do

Make a list of five human made resources that you can observe around you.

Do you know?

Human Resource refers to the number (quantity) and abilities (mental and physical) of the people. Though, there are differing views regarding treatment of humans as a resource, one cannot deny the fact that it is the skills of human that help in transfering the physical material into a valuable resource.

© NCERT not to be republished

technology to do so. That is why human beings are a special resource. **People are human resources**. Education and health help in making people a valuable resource. Improving the quality of people's skills so that they are able to create more resources is known as **human resource development**.

Conserving Resources

Mona had a nightmare. She dreamt that all the water on the earth had dried up and all the trees cut down. There was no shade and nothing to eat or drink. People were suffering and roaming around desperately looking for food and shade.

She told her mother about the dream. "Amma can this really happen?" she asked.

Glossary

Sustainable Development
Carefully utilising resources so that besides meeting the requirements of the present, also takes care of future generations.

"Yes," Amma replied. "If we are not careful then even renewable resources can become very scarce and the non-renewable ones can definitely get exhausted". "What can we do about it," Raju asked. "Lots," replied Amma.

Using resources carefully and giving them time to get renewed is called **resource conservation**. Balancing the need to use resources and also conserve them for the future is called **sustainable development**. There are many ways of conserving resources. Each person can contribute by reducing consumption, recycling and reusing thing. Ultimately it makes a difference because all our lives are linked.

That evening the children and their friends made packets and shopping bags out of old newspapers, discarded clothes and baskets from bamboo sticks. "We will give a few to every family we know," said Mona. "After all it is for a very good cause," said Mustafa, "To save our resources and to keep our earth alive".

"I am going to be very careful not to waste paper," said Jessy. "Many trees are cut down to make paper," she explained.

"I will see that electricity is not wasted in my house," shouted Mustafa. "Electricity comes from water and coal."

© NCERT not to be republished

"I will make sure that water is not wasted at home," said Asha. "Every drop of water is precious"

"Together we can make a difference!" chorused the children.

These are some of the things Mona, Raju and their friends did. What about you? How are you going to help in conserving resources?

The future of our planet and its people is linked with our ability to maintain and preserve the life support system that nature provides. Therefore it is our duty to ensure that :

- all uses of renewable resources are sustainable
- the diversity of life on the earth is conserved
- the damage to natural environmental system is minimised.

Some Principles of Sustainable Development

- Respect and care for all forms of life
- Improve the quality of human life
- Conserve the earth's vitality and diversity
- Minimise the depletion of natural resources
- Change personal attitude and practices towards the environment
- Enable communities to care for their own environment.

Exercises

1. Answer the following questions.

(i) Why are resources distributed unequally over the earth?

(ii) What is resource conservation?

(iii) Why are human resources important?

(iv) What is sustainable development?

2. Tick the correct answer.

(i) Which one of the following does NOT make substance a resource?

(a) utility (b) value (c) quantity

(ii) Which one of the following is a human made resource?

(a) medicines to treat cancer

(b) spring water

(c) tropical forests

(iii) Complete the statement.

Non-renewable resources are

(a) those which have limited stock

(b) made by human beings

(c) derived from non-living things

3. Activity

"*Rahiman paani raakhiye,*
Bin paani sab soon.

© NCERT not to be republished

Paani gaye na ubere
Moti, manus, choon…"

[Says Rahim, keep water, as without water there is nothing. Without water pearl, swan and dough cannot exist.]

These lines were written by the poet Abdur Rahim Khankhana, one of the nine gems of Akbar's court. What kind of resource is the poet referring to? Write in 100 words what would happen if this resource disappeared?

For Fun

1. Pretend that you live in the prehistoric times on a high windy plateau. What are the uses you and your friends could put the fast winds to? Can you call the wind a resource?

   Now imagine that you are living in the same place in the year 2138. Can you put the winds to any use? How? Can you explain why the wind is an important resource now?

2. Pick up a stone, a leaf, a paper straw and a twig. Think of how you can use these as resources. See the example given below and get creative!

You can use a stone...	**Use/Utility**
To play *stapu*	toy
As a paper-weight	tool
To crush spices	tool
To decorate your garden/room	decoration piece
To open a bottle	tool
In a catapult	weapon

You can use a leaf...	**Use/Utility**

© NCERT not to be republished

2

0558CH02

Land,Soil, Water, Natural Vegetation and Wildlife Resources

In a small village in Tanzania, Africa, Mamba gets up very early in the morning to fetch water. She has to walk a long way and returns after a few hours. She then helps her mother in the house and joins her brothers in taking care of their goats. All her family owns is a piece of rocky land around their small hut. Mamba's father can barely grow some maize and beans on it after toiling hard. This is not enough to feed their family for the whole year.

Peter lives in the heart of the sheep rearing region in New Zealand where his family runs a wool processing factory. Everyday when he returns from school, Peter watches his uncle taking care of their sheep. Their sheep yard is situated on a wide grassy plain with hills in the far distance. It is managed in a scientific way using the latest technology. Peter's family also grows vegetables through organic farming.

Mamba and Peter stay in two different parts of the world and lead very different lives. This difference is because of the differences in the quality of land, soil, water, natural vegetation, animals and the usage of technology. The availability of such resources is the main reason places differ from each other.

Let's do

Observe the land, type of soil and water availability in the region you live. Discuss in your class, how it has influenced the lifestyle of people there.

Do you know?

Ninety per cent of the world population occupies only thirty per cent of land area. The remaining seventy per cent of the land is either sparsely populated or uninhabited.

Land

Land is among the most important natural resources. It covers only about thirty per cent of the total area of the earth's surface and all parts of this small percentage are not habitable.

The uneven distribution of population in different parts of the world is mainly due to varied characteristics of land and climate. The rugged topography, steep slopes of the mountains, low-lying areas susceptible to water

© NCERT not to be republished

Fig. 2.1: *Salzburg in Austria*
Notice in how many ways the land has been used in the above picture.

logging, desert areas, thick forested areas are normally sparsely populated or uninhabited. Plains and river valleys offer suitable land for agriculture. Hence, these are the densely populated areas of the world.

Land Use

Land is used for different purposes such as agriculture, forestry, mining, building houses, roads and setting up of industries. This is commonly termed as **Land use**. Can you list out the different ways in which Mamba's and Peter's family use their land?

The use of land is determined by physical factors such as topography, soil, climate, minerals and availability of water. Human factors such as population and technology are also important determinants of land use pattern.

Land can also be classified on the basis of ownership as – private land and community land. Private land is owned by individuals whereas, community land is owned by the community for common uses like collection of fodder, fruits, nuts or medicinal herbs. These community lands are also called **common property resources**.

People and their demands are ever growing but the availability of land is limited. The quality of land also differs from place to place. People started encroaching the common lands to build up commercial areas, housing complexes in the urban areas and to expand the agricultural land in the rural areas. Today the vast changes in the land use pattern also reflect the cultural changes in our society. Land degradation, landslides, soil erosion, desertification are the major threats to the environment because of the expansion of agriculture and construction activities.

Let's do

Talk to some elderly person in your family or neighbourhood and collect information about changes in the land use over the years, in the place where you live. Display your findings on a bulletin board in your classroom.

© NCERT not to be republished

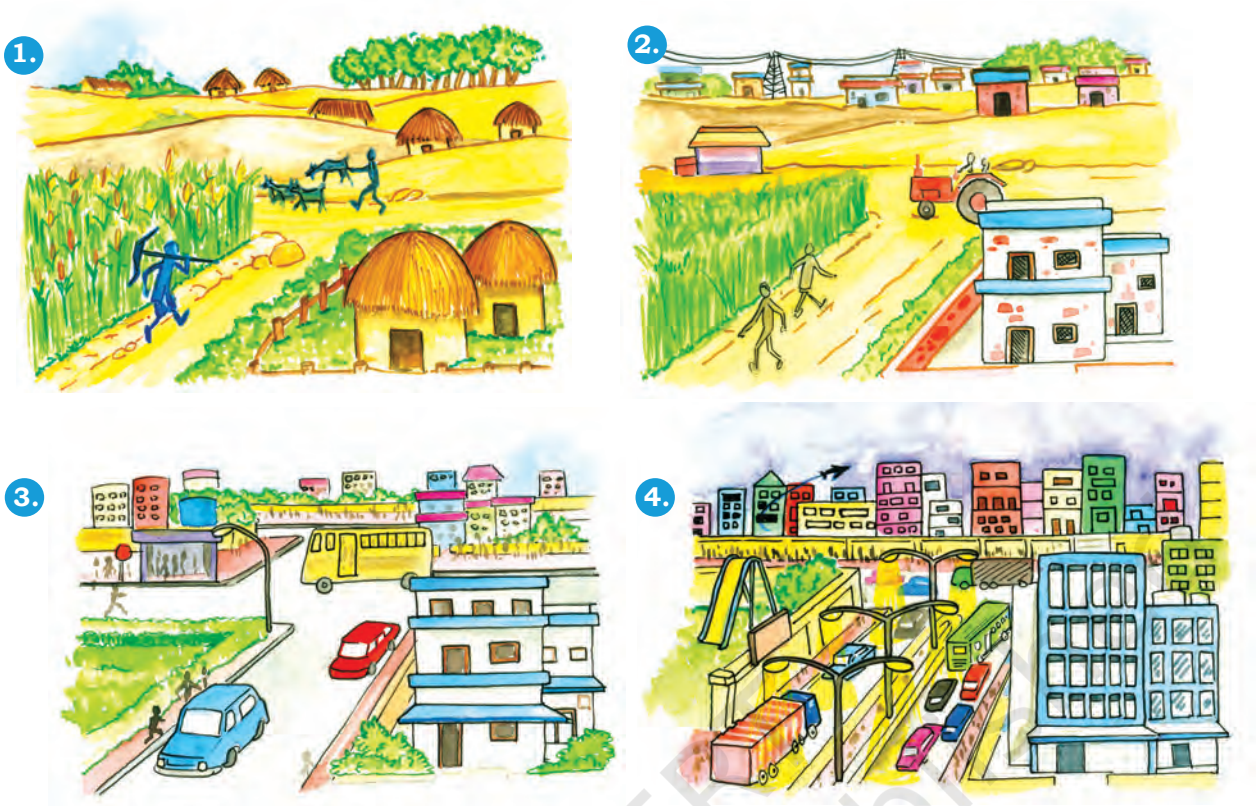


Fig. 2.2: Change in land use over time

Conservation of Land Resource

Growing population and their ever growing demand has led to a large scale destruction of forest cover and arable land and has created a fear of losing this natural resource. Therefore, the present rate of degradation of land must be checked. Afforestation, land reclamation, regulated use of chemical pesticide and fertilisers and checks on overgrazing are some of the common methods used to conserve land resources.

Glossary

Weathering The breaking up and decay of exposed rocks, by temperature changes, frost action, plants, animals and human activity.

Soil

The thin layer of grainy substance covering the surface of the earth is called soil. It is closely linked to land. Landforms determine the type of soil. Soil is made up of organic matter, minerals and weathered rocks found on the earth. This happens through the process of weathering. The right mix of minerals and organic matter make the soil fertile.

© NCERT not to be republished

Landslides

Landslides are simply defined as the mass movement of rock, debris or earth down a slope. They often take place in conjunction with earthquakes, floods and volcanoes. A prolonged spell of rainfall can cause heavy landslide that can block the flow of river for quite some time. The formation of river blocks can cause havoc to the settlements downstream on its bursting. In the hilly terrain landslides have been a major and widely spread natural disaster that often strike life and property and occupy a position of major concern.

A Landslide

A Case Study

A massive landslide hit Pangi village near Reckong Peo in Kinnaur district of Himachal Pradesh and damaged a 200-meter stretch of old Hindustan-Tibet road, National Highway - 22. This landslide was triggered by intense blasting at Pangi village. Due to the blasting this weak zone of slope collapsed and caused intense damage to the road and nearby villages. The Pangi village was completely vacated to avoid any possible loss of life.

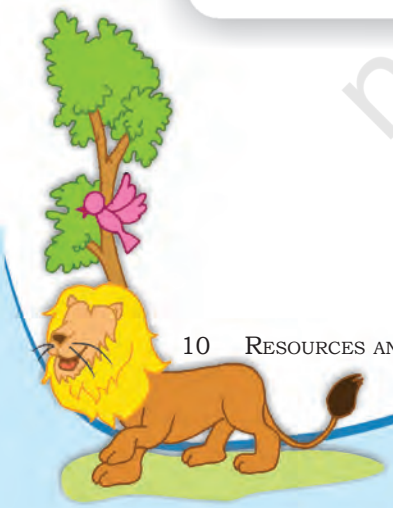
Mitigation Mechanism

Advancement in scientific techniques has empowered us to understand what factors cause landslides and how to manage them. Some broad mitigation techniques of landslide are as follows:

- Hazard mapping to locate areas prone to landslides. Hence, such areas can be avoided for building settlements.
- Construction of retention wall to stop land from slipping.
- Increase in the vegetation cover to arrest landslide.
- The surface drainage control works to control the movement of landslide along with rain water and spring flows.

Retention Wall

© NCERT not to be republished



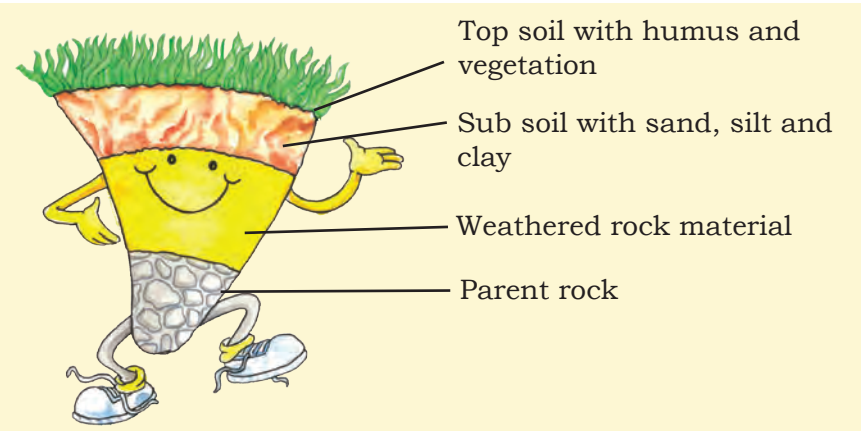


Fig. 2.3: Soil Profile

Do you know?
It takes hundreds of years to make just one centimetre of **soil**.

Factors of Soil Formation

The major factors of **soil formation** are the nature of the parent rock and climatic factors. Other factors are the topography, role of organic material and time taken for the composition of soil formation. All these differ from place to place.

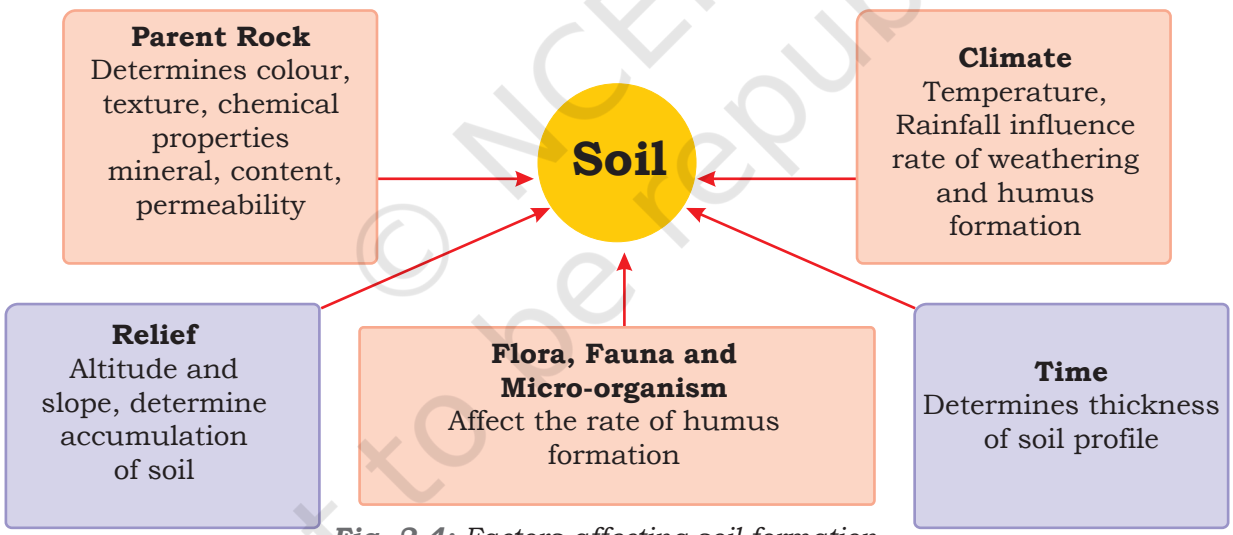


Fig. 2.4: Factors affecting soil formation

© NCERT not to be republished

Activity

In India soils could be alluvial, black, red, laterite, desertic and mountain soil. Collect a handful of different types of soil and observe. How are they different?

Degradation of Soil and Conservation Measures

Soil erosion and depletion are the major threats to soil as a resource. Both human and natural factors can lead to degradation of soils. Factors which lead to soil degradation are deforestation, overgrazing, overuse of chemical feritilisers or pesticides, rain wash, landslides and floods.

Some methods of soil conservation are listed below:

Mulching: The bare ground between plants is covered with a layer of organic matter like straw. It helps to retain soil moisture.

Contour barriers: Stones, grass, soil are used to build barriers along contours. Trenches are made in front of the barriers to collect water.

Rock dam: Rocks are piled up to slow down the flow of water. This prevents gullies and further soil loss.

Fig 2.5: *Terrace Farming*

Fig 2.6: *Contour Ploughing*

Fig 2.7: *Shelter Belts*

Terrace farming: Broad flat steps or terraces are made on the steep slopes so that flat surfaces are available to grow crops. They reduce surface run-off and soil erosion (Fig. 2.5).

Intercropping: Different crops are grown in alternate rows and are sown at different times to protect the soil from rain wash.

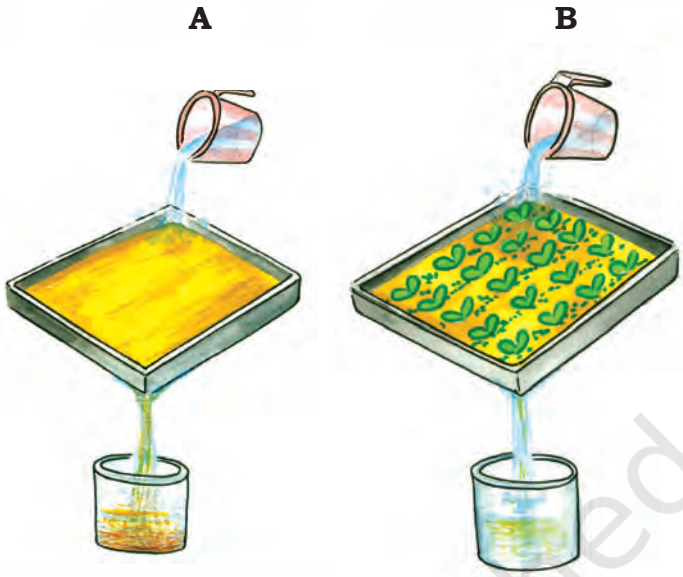
Contour ploughing: Ploughing parallel to the contours of a hill slope to form a natural barrier for water to flow down the slope (Fig. 2.6).

Shelter belts: In the coastal and dry regions, rows of trees are planted to check the wind movement to protect soil cover (Fig. 2.7).

© NCERT not to be republished

Activity

Take two trays A and B of same size. Make six holes at one end of these trays and then fill them with the same amount of soil. Leave the soil in tray A bare while sow wheat or rice grains in tray B. When the grain in tray B has grown a few centimetres high, place both the trays in such a way that they are on a slope. Pour one mug of water from the same height into each tray. Collect the muddy water that trickles down the holes of both trays in two separate containers and compare how much soil is washed out of each tray?



Water

Water is a vital renewable natural resource. Three-fourth's of the earth's surface is covered with water. It is therefore appropriately called the 'water planet'. It was in the primitive oceans that life began almost 3.5 billion years back. Even today, the oceans cover two-thirds of the earth's surface and support a rich variety of plant and animal life. The ocean water is however saline and not fit for human consumption. Fresh water accounts for only about 2.7 per cent. Nearly 70 per cent of this occurs as ice sheets and glaciers in Antarctica, Greenland and mountain regions. Due to their location they are inaccessible. Only 1 per cent of freshwater is available and fit for human use. It is found as ground water, as surface water in rivers and lakes and as water vapour in the atmosphere.

Fresh water is therefore, the most precious substance on earth. Water can neither be added nor subtracted from the earth. Its total volume remains constant. Its abundance only seems to vary because it is in constant motion, cycling through the oceans, the air, the land and back again, through the processes of evaporation, precipitation and run-off. This as you already know is referred to as the 'water cycle'.

Do you know?

In 1975, the consumption of water for human use was 3850cu km/year. It soared to more than 6000 cu km/year in the year 2000.

Do you know?

A dripping tap wastes1200 litres of water in a year.

© NCERT not to be republished

Humans use huge amounts of water not only for drinking and washing but also in the process of production. Water for agriculture, industries, generating electricity through reservoirs of dams are the other usages. Increasing population, rising demands for food and cash crops, increasing urbanisation and rising standards of living are the major factors leading to shortages in supply of fresh water either due to drying up of water sources or water pollution.

Activity

An average urban Indian uses about 150 litres of water every day.

Use	Litres per person per day
Drinking	3
Cooking	4
Bathing	20
Flushing	40
Washing clothes	40
Washing utensils	20
Gardening	23
Total	**150**

Can you suggest some ways to bring down this amount?

Do you know?

Have you ever heard about a water market? Amreli city in Saurastra region with a population of 1.25 lakhs is completely dependent on purchasing water from the nearby talukas.

Problems of Water Availability

There is scarcity of water in many regions of the world. Most of Africa, West Asia, South Asia, parts of western USA, north-west Mexico, parts of South America and entire Australia are facing shortages in fresh water supply. Countries located in climatic zones most susceptible to droughts face great problems of water scarcity. Thus, water shortage may be a consequence of variation in seasonal or annual precipitation or the scarcity is caused by over-exploitation and contamination of water sources.

Fig 2.8: River Yamuna is getting polluted due to sewage, industrial effluents and garbage

Conservation of Water Resources

Access to clean and adequate water sources is a major problem facing the world today. Steps have to be taken to conserve this dwindling resource. Even though water is a renewable resource, its overuse and pollution make it unfit for use. Discharge of untreated or partially treated sewage, agricultural chemicals and industrial effluents in water bodies are major contaminants. They pollute water with nitrates, metals and pesticides.

© NCERT not to be republished

Most of these chemicals are non-biodegradable and reach human bodies through water. Water pollution can be controlled by treating these effluents suitably before releasing them in water bodies.

Forest and other vegetation cover slow the surface runoff and replenish underground water. Water harvesting is another method to save surface runoff. The canals used for irrigating field should be properly lined to minimise losses by water seepage. Sprinklers effectively irrigate the area by checking water losses through seepage and evaporation. In dry regions with high rates of evaporation, drip or trickle irrigation is very useful. The valuable water resource can therefore be conserved by adopting these means of irrigation.

Fig 2.9: A Water Sprinkler

Do you know?

Rain water harvesting is the process of collecting rain water from roof tops and directing it to an appropriate location where it is stored for future use. On an average, one spell of rain for two hours is enough to save 8,000 litres of water.

Natural Vegetation and Wildlife

Some school children were visiting an exhibition on handicrafts. The articles in the exhibition were collected from different parts of the country. Mona picked up a bag and exclaimed, "This is a beautiful handbag!" "Yes, it is made from Jute," the teacher said. "Do you see those baskets, lamp shades and chairs? Those are made of canes and bamboos. In the eastern and north eastern humid regions of India, bamboo grows in plenty." Jassy was excited to see a silk scarf. "See this beautiful scarf". The teacher explained that silk is obtained from silk worms that are bred on Mulberry trees. The children understood that plants provide us with many different products that we use in our day-to-day life.

Natural vegetation and wildlife exist only in the narrow zone of contact between the lithosphere, hydrosphere and atmosphere that we call **biosphere**. In the biosphere living beings are inter-related and interdependent on each other for survival. This life supporting system is known as the **ecosystem**. Vegetation and wildlife are valuable resources. Plants provide us with timber, give shelter to animals, produce oxygen we breathe, protects soils so

Fig 2.10: Silk Worms

© NCERT not to be republished

essential for growing crops, act as shelter belts, help in storage of underground water, give us fruits, nuts, latex, turpentine oil, gum, medicinal plants and also the paper that is so essential for your studies. There are innumerable uses of plants and you can add some more.

Wildlife includes animals, birds, insects as well as the aquatic life forms. They provide us milk, meat, hides and wool. Insects like bees provide us honey, help in pollination of flowers and have an important role to play as decomposers in the ecosystem. The birds feed on insects and act as decomposers as well. Vulture due to its ability to feed on dead livestock is a scavenger and considered a vital cleanser of the environment. So animals big or small, all are integral to maintaining balance in the ecosystem.

Fig 2.11: Brahma Kamal a Medicinal Herb

Fig 2.12: A Blue Kingfisher

Do you know?

Vultures in the Indian subcontinent were dying of kidney failure shortly after scavenging livestock treated with diclofenac, a painkiller that is similar to aspirin or ibuprofen. Efforts are on to ban the drug for livestock use and breed vultures in captivity.

Distribution of Natural Vegetation

The growth of vegetation depends primarily on temperature and moisture. The major vegetation types of the world are grouped as forests, grasslands, scrubs and tundra.

In areas of heavy rainfall, huge trees may thrive. The forests are thus associated with areas having abundant water supply. As the amount of moisture decreases the size of trees and their density reduces. Short stunted trees and grasses grow in the regions of moderate rainfall forming the grasslands of the world. Thorny shrubs and

Fig. 2.13: Grassland and Forest

© NCERT not to be republished

scrubs grow in dry areas of low rainfall. In such areas plants have deep roots and leaves with thorny and waxy surface reduce loss of moisture through transpiration. Tundra vegetation of cold Polar Regions comprise of mosses and lichens.

Today there are many more people in the world than there were two centuries back. To feed the growing numbers, large areas of forests have been cleared to grow crops. Forest cover all over the world is vanishing rapidly. There is an urgent need to conserve this valuable resource.

Fig. 2.14: *A Python in a forest*

Fig. 2.15: *A collage of a forest made by school students*

Conservation of Natural Vegetation and Wildlife

Forests are our wealth. Plants give shelter to the animals and together they maintain the ecosystem. Changes of climate and human interferences can cause the loss of natural habitats for the plants and animals. Many species have become vulnerable or endangered and some are on the verge of extinction. Deforestation, soil erosion, constructional activities, forest fires, tsunami and landslides are some of the human and natural factors which accelerate the process of extinction of these resources. One of the major concerns is the poaching which result in a sharp decline in the number of particular species. The animals are poached for collection and illegal trade of hides, skins, nails, teeth, horns as well as feathers. Some of these animals are tiger, lion, elephant, deer, black buck, crocodile, rhinoceros, snow

Fig. 2.16: *Loss of rainforest in Great Nicobar after Tsunami*

Fig. 2.17: Black buck also needs protection

leopard, ostrich and peacock. These can be conserved by increasing awareness.

National parks, wildlife sanctuaries, biosphere reserves are made to protect our natural vegetation and wildlife. Conservation of creeks, lakes, and wetlands is necessary to save the precious resource from depletion

There is a balance in the environment if the relative number of species is not disturbed. Human activities in several parts of the world have disturbed the natural

Forest Fire

Activity

Read the news item and find out how fire started in California ? Could it be avoided?

Know More

Forest fire is a threat to the entire region of fauna and flora. It occurs mainly due to three reasons :

1. Natural fire due to lightening etc.
2. Fire due to heat generated in the litter due to carelessness of people.
3. Fire purposely caused by local inhabitants, mischief makers, miscreants etc.

Some Control Measures

1. Prevention of fires through education.
2. Prompt detection of fires through well co-ordinated network of observation points, efficient ground patroling and communication network.

2020-21

habitats of many species. Due to indiscriminate killings, several birds and animals have either become extinct or are on the verge of extinction.

Awareness programmes like social forestry and *Vanamohatasava* should be encouraged at the regional and community level. School children should be encouraged to bird watch and visit nature camps so that they appreciate the habitat of varied species.

Many countries have passed laws against the trade as well as killing of birds and animals. In India, killing lions, tigers, deers, great Indian bustards and peacocks is illegal.

An international convention CITES has been established that lists several species of animals and birds in which trade is prohibited. Conservation of plants and animals is an ethical duty of every citizen.

Glossary

National Park
A natural area designated to protect the ecological integrity of one or more ecosystems for the present and the future generations

Fig. 2:18: *A Herd of Cheetals*

Fig. 2:19: *A herd of Elephants in Kaziranga National Park*

Glossary

Biosphere reserves
Series of protected areas linked through a global network, intended to demonstrate the relationship between conservation and development.

Do you know?

CITES (the Convention on International Trade in Endangered Species of Wild Fauna and Flora) is an international agreement between governments. It aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Roughly 5,000 species of animals and 28,000 species of plants are protected. Bears, dolphins, cacti, corals, orchids and aloes are some examples.

© NCERT not to be republished

Exercises

1. Answer the following questions.

(i) Which are the two main climatic factors responsible for soil formation?

(ii) Write any two reasons for land degradation today.

(iii) Why is land considered an important resource?

(iv) Name any two steps that government has taken to conserve plants and animals.

(v) Suggest three ways to conserve water.

2. Tick the correct answer.

(i) Which one of the following is NOT a factor of soil formation?

(a) time (b) soil texture (c) organic matter

(ii) Which one of the following methods is most appropriate to check soil erosion on steep slopes?

(a) shelter belts (b) mulching (c) terrace cultivation

(iii) Which one of the following is NOT in favour of the conservation of nature?

(a) switch off the bulb when not in use

(b) close the tap immediately after using

(c) dispose polypacks after shopping

3. Match the followings :

(i) Land use	(a) prevent soil erosion
(ii) Humus	(b) narrow zone of contact between the lithosphere, hydrosphere and atmosphere
(iii) Rock dams	(c) productive use of land
(iv) Biosphere	(d) organic matter deposited on top soil
	(e) contour ploughing

4. State whether the given statement is true or false. If true, write the reasons.

(i) Ganga–Brahmaputra plain of India is an overpopulated region.

(ii) Water availability per person in India is declining.

(iii) Rows of trees planted in the coastal areas to check the wind movement is called intercropping.

(iv) Human interference and changes of climate can maintain the ecosystem.

5. Activity

Discuss some more reasons which are responsible for changes of land use pattern. Has your place undergone any change in the land use pattern in recent years?

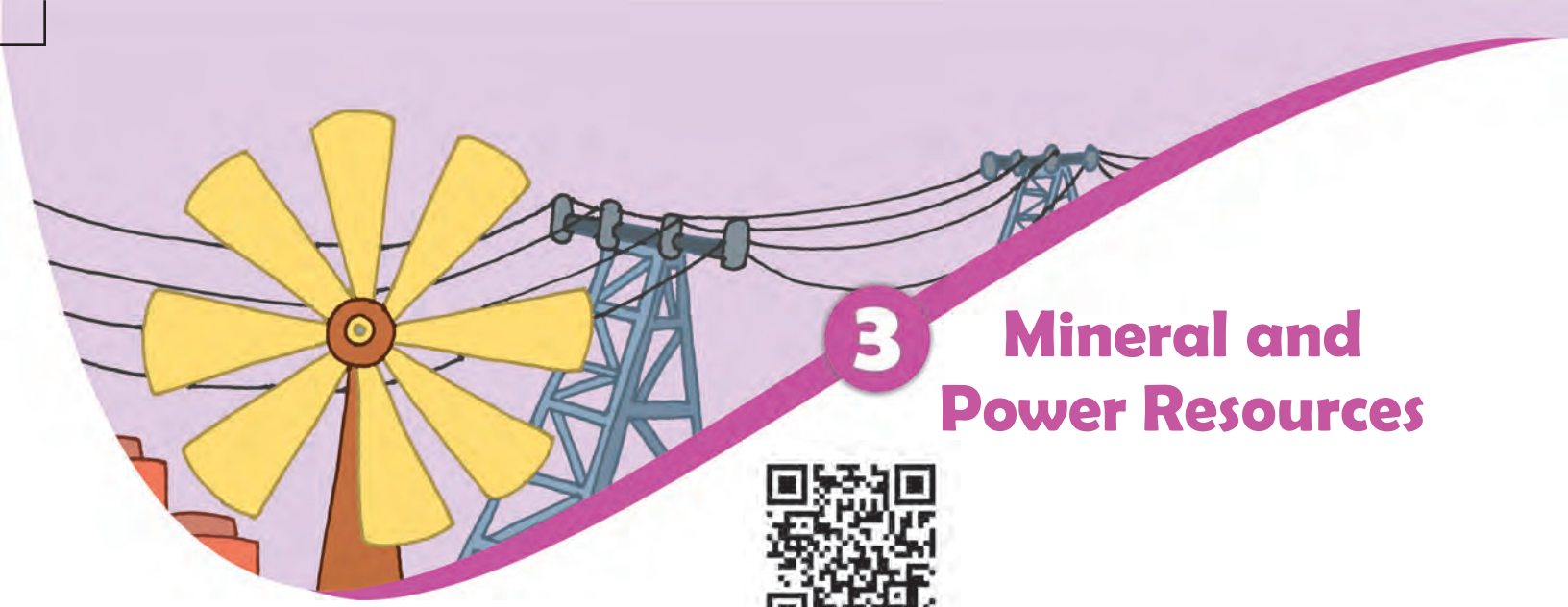
© NCERT not to be republished

Find out from your parents and elderly people. You can conduct an interview by asking the following questions.

Place	When your grand parent's were in their 30's	When your parents were in their 30's	Why do you think this is happening?	Are common areas and open spaces disappearing?
Rural				
Number of cattle and poultry owned				
Number of trees and ponds in the village				
Main occupation of the head of the family				
Urban				
Number of cars owned				
Number of rooms in the house				
Number of metalled roads				
Number of flyovers in the city				
Number of parks and playgrounds				

Based on the table you have just completed, draw a picture of land use patterns that you foresee in your neighbourhood after 20 years. Why do you think that land use patterns change over the years?

© NCERT not to be republished



3 Mineral and Power Resources

0858CH03

Fig. 3.1: Loading of a truck in a coal mine

Kiri was visiting Sukant in his native place near Dhanbad. Kiri was amazed to see that large areas were black. "Sukant, why is this place so black and dusty?" she asked. "This is because of the coal mines nearby. Do you see the trucks? They are carrying the mineral coal", replied Sukant.

"What are minerals?," asked Kiri. Sukant replied, "Have you ever seen a baker baking biscuits? The flour, milk, sugar and sometimes eggs are mixed together. While eating the baked biscuits can you see these ingredients separately? Just as in the biscuits, there are a number of things that you cannot see, rocks on this earth have several materials called minerals mixed in them. These minerals are scattered throughout the earth's rocky crust".

A naturally occurring substance that has a definite chemical composition is a **mineral**. Minerals are not evenly distributed over space. They are concentrated in a particular area or rock formations. Some minerals are found in areas which are not easily accessible such as the Arctic ocean bed and Antarctica.

Do you know?
The salt in your food and graphite in your pencil are also minerals.

Minerals are formed in different types of geological environments, under varying conditions. They are created by natural processes without any human interference. They can be identified on the basis of their physical properties such as colour, density, hardness and chemical property such as solubility.

© NCERT not to be republished

Types of Minerals

There are over three thousand different minerals. On the basis of composition, minerals are classified mainly as metallic and non-metallic minerals (Fig. 3.2).

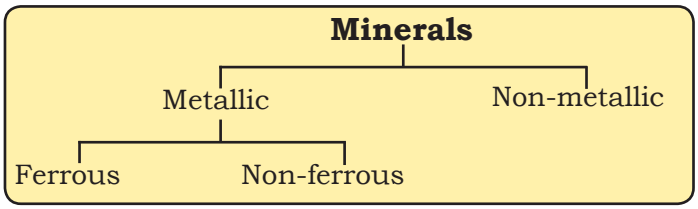


Fig. 3.2: Classification of Minerals

Metallic minerals contain metal in raw form. Metals are hard substances that conduct heat and electricity and have a characteristic lustre or shine. Iron ore, bauxite, manganese ore are some examples. Metallic minerals may be fer rous or non-ferrous. **Ferrous** minerals like iron ore, manganese and chromites contain iron. A **non-ferrous** mineral does not contain iron but may contain some other metal such as gold, silver, copper or lead.

Non-metallic minerals do not contain metals. Limestone, mica and gypsum are examples of such minerals. The mineral fuels like coal and petroleum are also non-metallic minerals.

Minerals can be extracted by mining, drilling or quarrying (Fig 3.3).

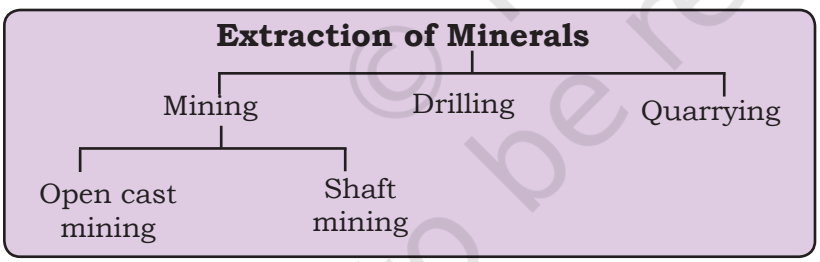


Fig. 3.3: Extraction of Minerals

The process of taking out minerals from rocks buried under the earth's surface is called **mining**. Minerals that lie at shallow depths are taken out by removing the surface layer; this is known as **open-cast mining**. Deep bores, called **shafts**, have to be made to reach mineral deposits that lie at great depths. This is called **shaft mining**. Petroleum and natural gas occur far below the earth's surface. Deep wells are bored to take them out, this is called **drilling** (Fig 3.4). Minerals that lie near the surface are simply dug out, by the process known as **quarrying**.

Do you know?

A **rock** is an aggregate of one or more minerals but without definite composition of constituent of mineral. Rocks from which minerals are mined are known as **ores**. Although more than 2,800 types of minerals have been identified, only about 100 are considered **ore** minerals.

Fig. 3.4: Off shore drilling of oil

© NCERT not to be republished

Distribution of Minerals

Minerals occur in different types of rocks. Some are found in igneous rocks, some in metamorphic rocks while others occur in sedimentary rocks. Generally, metallic minerals are found in igneous and metamorphic rock formations that form large plateaus. Iron-ore in north Sweden, copper and nickel deposits in Ontario, Canada, iron, nickel, chromites and platinum in South Africa are examples of minerals found in igneous and metamorphic rocks. Sedimentary rock formations of plains and young fold mountains contain non-metallic minerals like limestone. Limestone deposits of Caucasus region of France, manganese deposits of Georgia and Ukraine and phosphate beds of Algeria are some examples. Mineral fuels such as coal and petroleum are also found in the sedimentary strata.

Do you know?

You can always tell if a rock contains copper because then the rock looks blue in colour.

Asia

China and India have large iron ore deposits. The continent produces more than half of the world's tin.

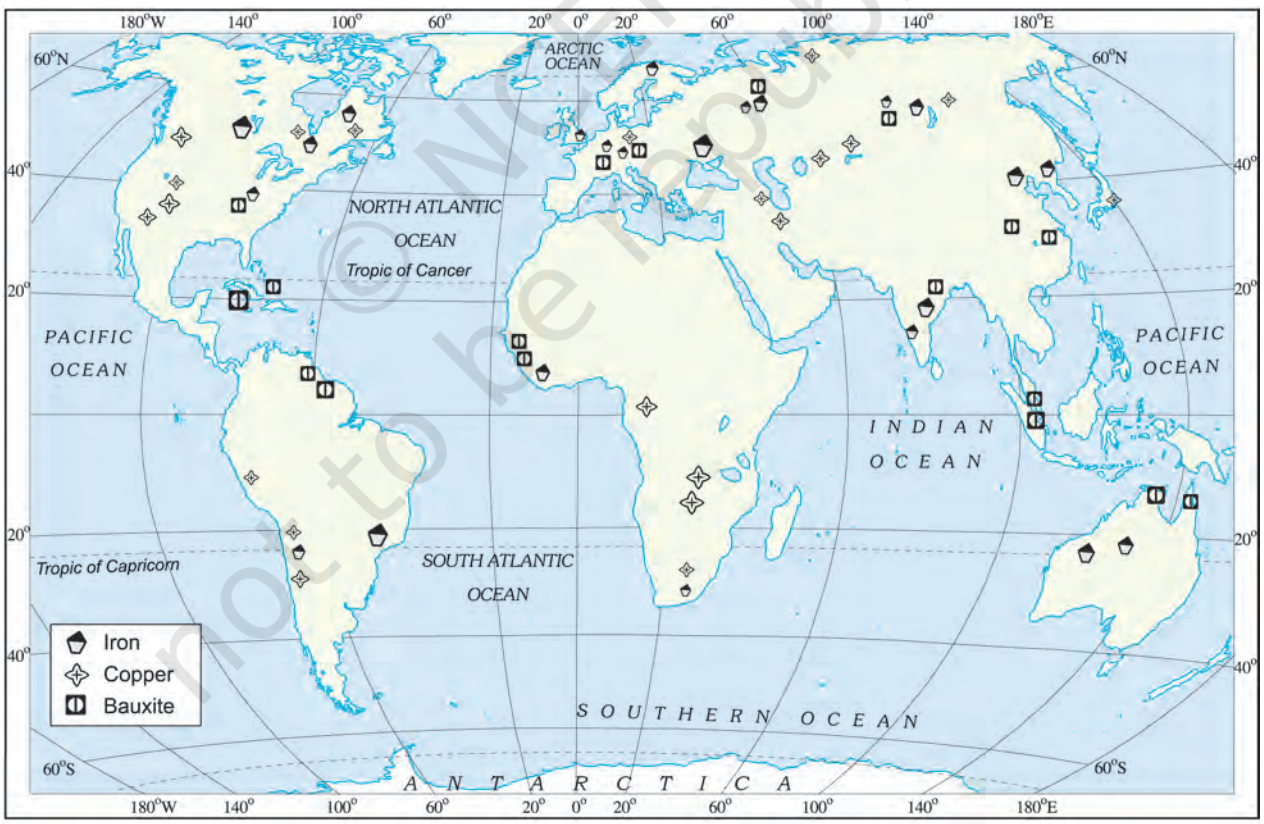


Fig. 3.5: World: Distribution of Iron, Copper and Bauxite

© NCERT not to be republished

China, Malaysia and Indonesia are among the world's leading tin producers. China also leads in production of lead, antimony and tungsten. Asia also has deposits of manganese, bauxite, nickel, zinc and copper.

Europe

Europe is the leading producer of iron-ore in the world. The countries with large deposits of iron ore are Russia, Ukraine, Sweden and France. Minerals deposits of copper, lead, zinc, manganese and nickel are found in eastern Europe and European Russia.

Do you know?
Switzerland has no known mineral deposit in it.

North America

The mineral deposits in North America are located in three zones: the Canadian region north of the Great Lakes, the Appalachian region and the mountain ranges of the west. Iron ore, nickel, gold, uranium and copper are mined in the Canadian Shield Region, coal in the Appalachians region. Western Cordilleras have vast deposits of copper, lead, zinc, gold and silver.

Let's do
Identify the Canadian Shield, the Appalachians, Western Cordilleras and Lake Superior with the help of an atlas.

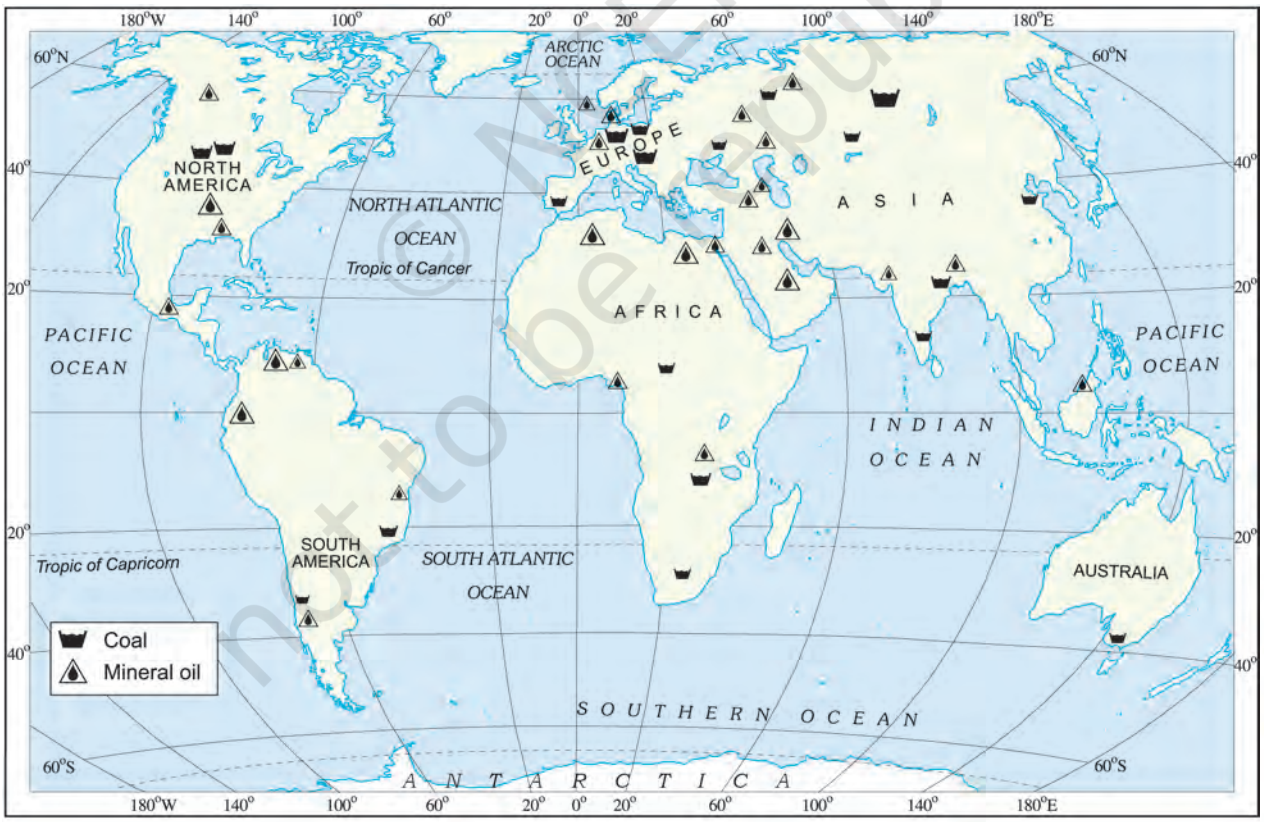


Fig 3.6: World: Distribution of Mineral Oil and Coal

© NCERT not to be republished

South America

Brazil is the largest producer of high grade iron-ore in the world. Chile and Peru are leading producers of copper. Brazil and Bolivia are among the world's largest producers of tin. South America also has large deposits of gold, silver, zinc, chromium, manganese, bauxite, mica, platinum, asbestos and diamond. Mineral oil is found in Venezuela, Argentina, Chile, Peru and Columbia.

Do you know?

- A green diamond is the rarest diamond.
- The oldest rocks in the world are in Western Australia. They date from 4,300 million years ago, only 300 million years after the earth was formed.

Africa

Africa is rich in mineral resources. It is the world's largest producer of diamonds, gold and platinum. South Africa, Zimbabwe and Zaire produce a large portion of the world's gold. The other minerals found in Africa are copper, iron ore, chromium, uranium, cobalt and bauxite. Oil is found in Nigeria, Libya and Angola.

Australia

Australia is the largest producer of bauxite in the world. It is a leading producer of gold, diamond, iron ore, tin and nickel. It is also rich in copper, lead, zinc and manganese. Kalgoorlie and Coolgardie areas of western Australia have the largest deposits of gold.

Antarctica

The geology of Antarctica is sufficiently well known to predict the existence of a variety of mineral deposits, some probably large. Significant size of deposits of coal in the Transantarctic Mountains and iron near the Prince Charles Mountains of East Antarctica is forecasted. Iron ore, gold, silver and oil are also present in commercial quantities.

Uses of Minerals

Minerals are used in many industries. Minerals which are used for gems are usually hard. These are then set in various styles for jewellery. Copper is another metal used in everything from coins to pipes. Silicon, used in the computer industry is obtained from quartz. Aluminum obtained from its ore bauxite is used in automobiles and airplanes, bottling industry, buildings and even in kitchen cookware.

Let's do

List uses of any five minerals.

© NCERT not to be republished

Conservation of Minerals

Minerals are a non-renewable resource. It takes thousands of years for the formation and concentration of minerals. The rate of formation is much smaller than the rate at which the humans consume these minerals. It is necessary to reduce wastage in the process of mining. Recycling of metals is another way in which the mineral resources can be conserved.

Think and Act

Power Resources

Sunny's mother begins her day by switching on the geyser. She irons Sunny's school uniform before waking him up. She then rushes to the kitchen to prepare a glass of orange juice for him in the blender.

"Sunny, have you finished taking bath? Come and have your breakfast", calls out mother while preparing breakfast on the gas stove for Sunny.

While going to school Sunny forgets to switch off lights and fans. When mother switches them off she thinks that life in the cities may be more comfortable, but its dependency on more and more gadgets all of which consume energy has led to a wide gap between the demand and the supply. With the advent of science and technology the life styles are changing very fast.

Fig. 3.7: *National Power Grid to supply Electricity*

Power or energy plays a vital role in our lives. We also need power for industry, agriculture, transport, communication and defense. Power resources may be broadly categorised as conventional and non-conventional resources.

Conventional Sources

Conventional sources of energy are those which have been in common use for a long time. Firewood and fossil fuels are the two main conventional energy sources.

Firewood

It is widely used for cooking and heating. In our country more than fifty per cent of the energy used by villagers comes from fire wood.

Remains of plants and animals which were buried under the earth for millions of years got converted by the heat and pressure into fossil fuels. **Fossil fuel** such as coal, petroleum and natural gas are the main sources of

© NCERT not to be republished

Oil

Advantage	Disadvantage
• Easier to transport (tankers) • Basis of petro-chemical industry	• Depletion of oxygen due to oil spillage and gas leakage • Pollutants released caused acid rain • Exploration of new fuel is not easy

Natural Gas

Advantage
• Easier to transport (Pipelines) • Cleaner than oil and coal • Cheaper than oil

CONVENTIONAL SOURCES OF ENERGY

Fire Wood

Advantage	Disadvantage
• Easy access • Provides energy to a large number of people	• Collection is time consuming • Polluting • Promoting green house effect • Deforestation

Coal

Advantage	Disadvantage
• Extensively available • Efficient conversion to electricity	• Polluting source • Bulky to transport

Hydel Power

Advantage	Disadvantage
• Non-polluting • Promotes irrigation and fishing • Cheap	• Displacement of local community • Inundates low lying regions • Expensive to setup

Fig 3.8: Conventional Sources of Energy

Fig 3.9: A woman carrying firewood in North East India

conventional energy. The reserves of these minerals are limited. The rate at which the growing world population is consuming them is far greater than the rate of their formation. So, these are likely to be exhausted soon.

Coal

This is the most abundantly found fossil fuel. It is used as a domestic fuel, in industries such as iron and steel, steam engines and to generate electricity. Electricity from coal is called **thermal power**. The coal which we are using today was formed millions of years ago when giant ferns and swamps got buried under the layers of earth. Coal is therefore referred to as **Buried Sunshine**.

The leading coal producers of the world are China, USA, Germany, Russia, South Africa and France. The coal producing areas of India are Raniganj, Jharia, Dhanbad and Bokaro in Jharkhand.

Fig 3.10: A view of a Thermal Power Station

© NCERT not to be republished

Petroleum

The petrol that keeps your car running as well as the oil that keeps your cycle from squeaking, both began as a thick black liquid called Petroleum. It is found between the layers of rocks and is drilled from oil fields located in off-shore and coastal areas. This is then sent to refineries which process the crude oil and produce a variety of products like diesel, petrol, kerosene, wax, plastics and lubricants. Petroleum and its derivatives are called **Black Gold** as they are very valuable. The chief petroleum producing countries are Iran, Iraq, Saudi Arabia and Qatar. The other major producers are USA, Russia, Venezuela, and Algeria. The leading producers in India are Digboi in Assam, Bombay High in Mumbai and the deltas of Krishna and Godavari rivers.

Fig 3.11: Crude Oil

Word Origin

The word petroleum is derived from Latin words –*Petra* meaning rock, *oleum* meaning oil. So, petroleum means rock oil.

Natural Gas

Natural gas is found with petroleum deposits and is released when crude oil is brought to the surface. It can be used as a domestic and industrial fuel. Russia, Norway, UK and the Netherlands are the major producers of natural gas.

In India Jaisalmer, Krishna Godavari delta, Tripura and some areas off shore in Mumbai have natural gas resources. Very few countries in the world have sufficient natural gas reserves of their own.

The sharp increase in our consumption of fossil fuels has led to their depletion at an alarming rate. The toxic pollutants released from burning these fuels are also a cause for concern. Unchecked burning of fossil fuel is like an unchecked dripping tap which will eventually run dry. This has led to the tapping of various non-conventional sources of energy that are cleaner alternatives to fossil fuels.

Do you know?

Compressed natural gas (CNG) is a popular eco-friendly automobile fuel as it causes less pollution than petroleum and diesel.

© NCERT not to be republished

Do you know?

Norway was the first country in the world to devlop hydroelectricity.

Hydel Power

Rain water or river water stored in dams is made to fall from heights. The falling water flows through pipes inside the dam over turbine blades placed at the bottom of the dam. The moving blades then turn the generator to produce electricity. This is called hydro electricity. The water discharged after the generation of electricity is used for irrigation. One fourth of the world's electricity is produced by hydel power. The leading producers of hydel power in the world are Paraguay, Norway, Brazil, and China. Some important hydel power stations in India are Bhakra Nangal, Gandhi Sagar, Nagarjunsagar and Damodar valley projects.

Do you know?

The site of the world's first solar and wind powered bus shelter is in Scotland.

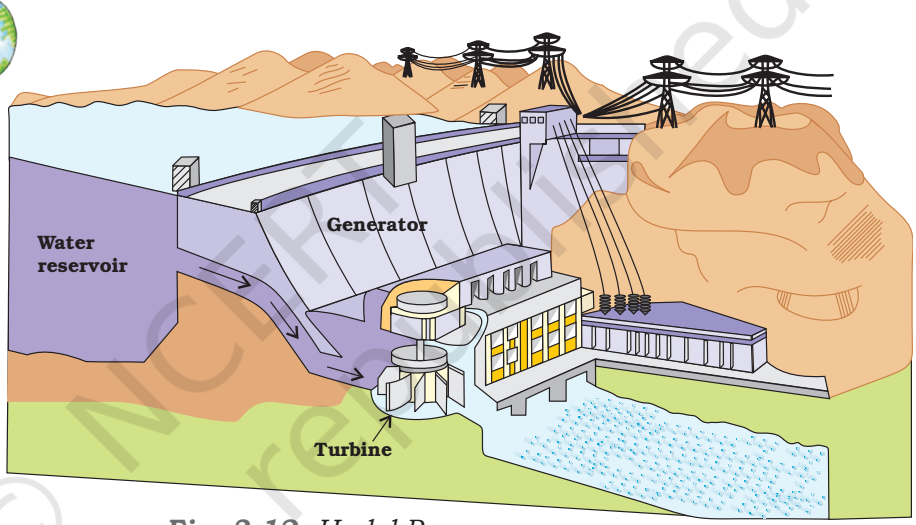


Fig. 3.12: *Hydel Power*

Non-conventional Sources of Energy

The increasing use of fossil fuels is leading to its shortage. It is estimated that if the present rate of consumption continues, the reserves of these fuel will get exhausted. Moreover, their use also causes environmental pollution. Therefore, there is need for using non-conventional sources such as solar energy, wind energy, tidal energy which are renewable.

Fig. 3.13: *Salal Hydroelectric Project Jammu and Kashmir*

Solar energy

Sun's heat and light energy can be felt by us every day. Solar energy trapped from the sun can be used in solar cells to produce electricity. Many of these cells are joined into solar panels to generate

© NCERT not to be republished

Wind Energy

Advantages	Disadvantages
• Non-polluting • Low cost production of electricity once setup • Safe and clean	• Noise pollution • Windmills costly to setup • Disturbs radio and T.V. reception • Harmful to birds

Solar Energy

Advantages	Disadvantages
• Inexhaustible • Non polluting	• Expensive • Diffuse source, so gets wasted

Tidal Energy

Advantage	Disadvantage
• Non-polluting • Inexhaustible	• Destroys wildlife habitat • Difficult to harness

NON- CONVENTIONAL SOURCES OF ENERGY

Nuclear Energy

Advantages	Disadvantages
• Emits large amount of energy	• Generates radioactive wastes • Expensive

Bio Gas

Advantages	Disadvantages
• Low Cost • Easy to operate • Makes use of bio waste	• Causes green house effect

Geothermal Energy

Advantages	Disadvantages
• Clean ecofriendly and always available	• Located far away from cities and so costly to transport the electricity

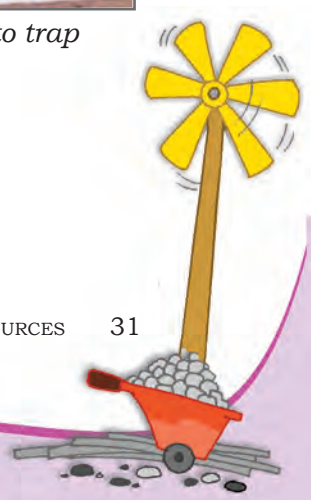
Fig 3.14: *Non-conventional Sources of Energy*

power for heating and lighting purpose. The technology of utilising solar energy benefits a lot of tropical countries that are blessed with abundant sun shine. Solar energy is also used in solar heaters, solar cookers, solar dryers besides being used for community lighting and traffic signals.

Fig 3.15: *Solar Panels to trap solar energy*

Wind Energy

Wind is an inexhaustible source of energy. Wind mills have been used for grinding grain and lifting water since times immemorial. In modern time wind mills, the high speed winds rotate the wind mill which is connected to a generator to produce electricity. Wind farms having clusters of such wind mills are located in coastal regions and in mountain passes where strong and steady



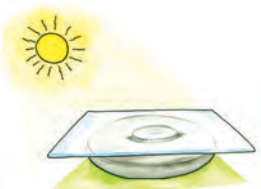
© NCERT not to be republished

winds blow. Windfarms are found in Netherlands, Germany, Denmark, UK, USA and Spain are noted for their wind energy production.

Activity

Solar Cooker

Take an old car tube. Inflate it and keep it on a wooden platform. Paint an aluminium vessel black from outside and add 1 cup rice with 2 cups of water to it. Close the vessel with a lid and place the vessel in the inner circle of the tube. Now place a glass frame over the tube and keep the set out in the sun. After the glass frame is placed, air can neither come in nor go out but the sun rays coming into the closed cavity enclosed by the tube, get trapped and cannot escape. The temperature increases slowly cooking the rice over a few hours.



Nuclear Power

Fig. 3.16 : Nuclear power station , Kalpakkam

Nuclear power is obtained from energy stored in the nuclei of atoms of naturally occurring radio active elements like uranium and thorium. These fuels undergo nuclear fission in nuclear reactors and emit power. The greatest producers of nuclear power are USA and Europe. In India Rajasthan and Jharkhand have large deposits of Uranium. Thorium is found in large quantities in the Monozite sands of Kerala. The nuclear power stations in India are located in Kalpakkam in Tamilnadu, Tarapur in Maharastra, Ranapratap Sagar near Kota in Rajasthan, Narora in Uttar Pradesh and Kaiga in Karnataka.

Geothermal Energy

Heat energy obtained from the earth is called **geothermal energy**. The temperature in the interior of the earth rises steadily as we go deeper. Some times this heat energy may surface itself in the form of hot springs. This heat energy can be used to generate power.

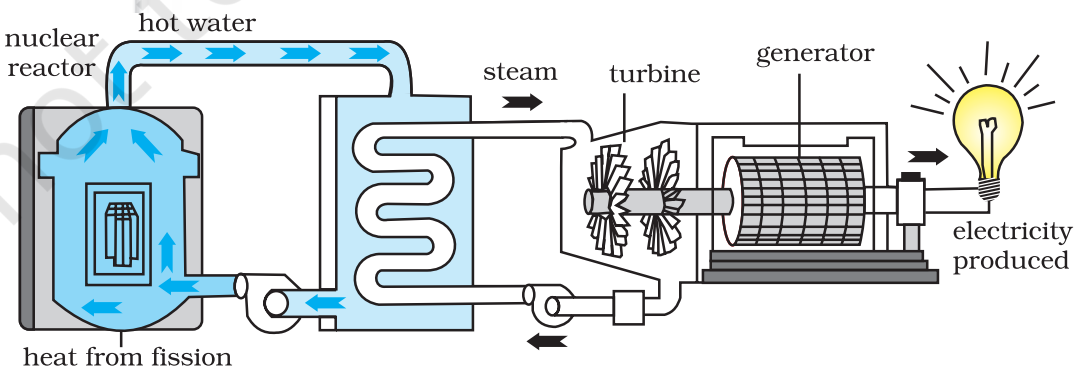


Fig. 3.17 : Nuclear Energy

© NCERT not to be republished

Geothermal energy in the form of hot springs has been used for cooking, heating and bathing for several years. USA has the world's largest geothermal power plants followed by New Zealand, Iceland, Philippines and Central America. In India, geothermal plants are located in Manikaran in Himachal Pradesh and Puga Valley in Ladakh.

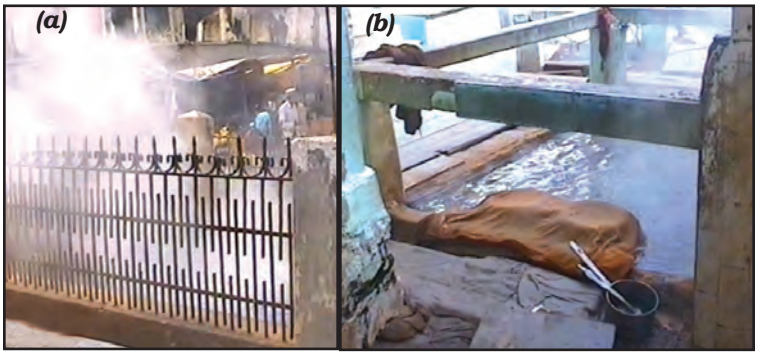


*Fig. 3.18 : **(a)** Geothermal Energy in Manikaran*
***(b)** Cooking food with the help of Geothermal Energy*

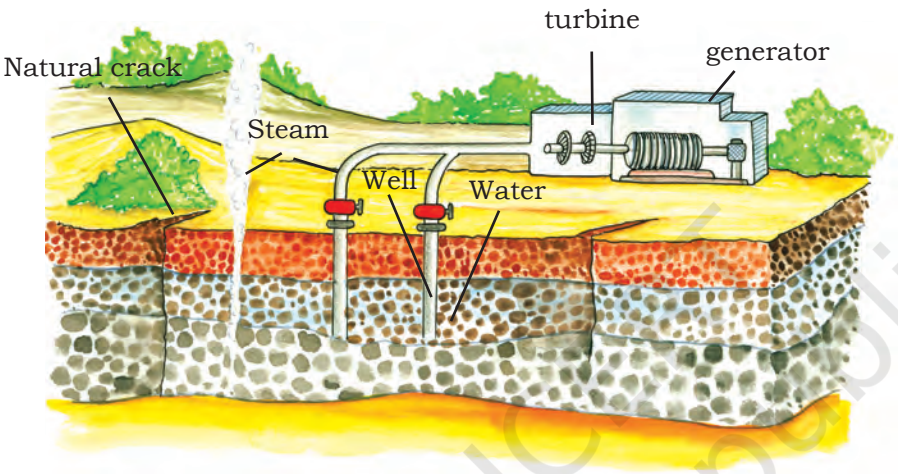


Fig. 3.19 : Geothermal Energy

Tidal Energy

Energy generated from tides is called **tidal energy**. Tidal energy can be harnessed by building dams at narrow

Do you know?
The first tidal energy station was built in France.

Low tidal energy is used to produce electricity

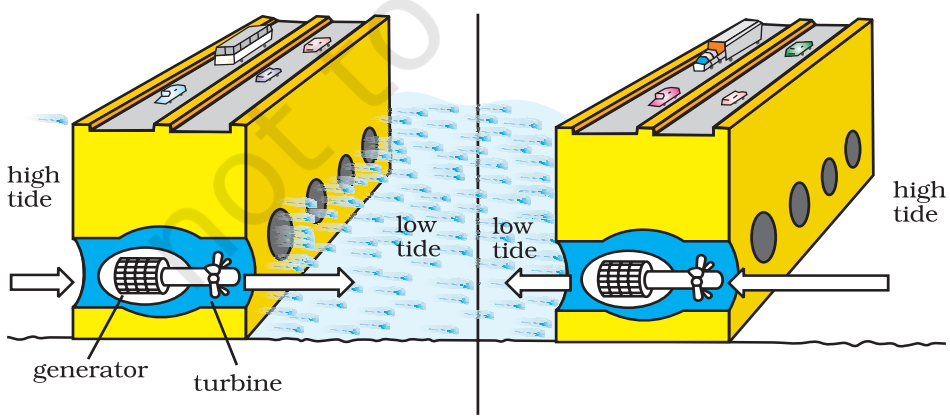


Fig. 3.20: Tidal Energy

© NCERT not to be republished

openings of the sea. During high tide the energy of the tides is used to turn the turbine installed in the dam to produce electricity. Russia, France and the Gulf of Kachchh in India have huge tidal mill farms.

Biogas

Organic waste such as dead plant and animal material, animal dung and kitchen waste can be converted into a gaseous fuel called biogas. The organic waste is decomposed by bacteria in biogas digesters to emit biogas which is essentially a mixture of methane and carbon dioxide. Biogas is an excellent fuel for cooking and lighting and produces huge amount of organic manure each year.

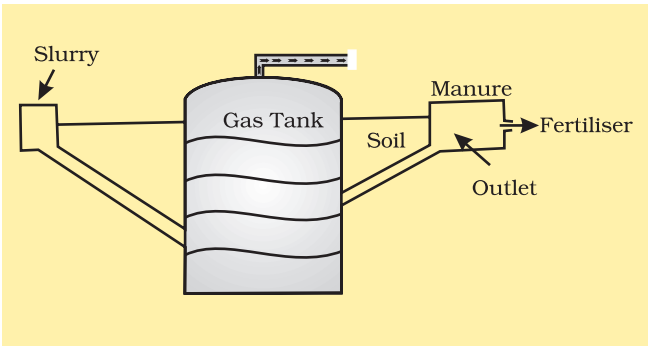


Fig. 3.21 : Biogas

Energy is everywhere but we can see that harnessing this energy is both difficult as well as costly. Each one of us can make a difference by not wasting energy. Energy saved is energy generated. Act now and make brighter energy future.

Exercises

1. Answer the following questions.

(i) Name any three common minerals used by you every day.

(ii) What is an ore? Where are the ores of metallic minerals generally located?

(iii) Name two regions rich in natural gas resources.

(iv) Which sources of energy would you suggest for

(a) rural areas (b) coastal areas (c) Arid regions

(v) Give five ways in which you can save energy at home.

© NCERT not to be republished

2. Tick the correct answer.

(i) Which one of the following is NOT a characteristic of minerals?

(a) They are created by natural processes.

(b) They have a definite chemical composition.

(c) They are inexhaustible.

(d) Their distribution is uneven.

(ii) Which one of the following is a leading producer of copper in the world?

(a) Bolivia (c) Chile

(b) Ghana (d) Zimbabwe

(iii) Which one of the following practices will NOT conserve LPG in your kitchen.

(a) Soaking the dal for some time before cooking it.

(b) Cooking food in a pressure cooker.

(c) Keeping the vegetables chopped before lighting the gas for cooking.

(d) Cooking food in an open pan kept on low flame.

3. Give reasons.

(i) Environmental aspects must be carefully looked into before building huge dams.

(ii) Most industries are concentrated around coal mines.

(iii) Petroleum is referred to as "black gold".

(iv) Quarrying can become a major environmental concern.

4. Distinguish between the followings.

(i) Conventional and non conventional sources of energy

(ii) Biogas and natural gas

(iii) Ferrous and nonferrous minerals

(iv) Metallic and nonmetallic minerals

5. Activity

(i) Use pictures from old magazines to show different kinds of fuels used by us in our lives and display them on your bulletin board.

(ii) Design a poster highlighting energy conservation tips you would take for your school.

(iii) Salma's class took up an action campaign to do an energy audit of their school by surveying electricity consumption.They prepared survey sheets for the students of the school.

© NCERT not to be republished

Electricity Audit

S. No.	Appliance	Quantity (No. being used)	Usage Time (Approx. No. of working hours)	Quantity (No. actually needed)	Is it switched on even when not in use? (Yes or No)
1.	Fluorescent Tube light 40 W				
2.	Incandescent Bulb 40 W / 60 W				
3.	Co-impact fluorescent lamps				
4.	Fans				
5.	Exhaust Fans				
6.	Electric Bell / Buzzer				
7.	TV				
8.	Computers				
9.	Air Conditioners				
10.	Refrigerators				
11.	Oven / Hot Case				
12.	Public Address System				
13.	Water Pump / Water Cooler				
14.	Overhead Projector				
15.	Photostat Machine				
16.	Any other				

Using the data collected during the survey, students calculated the units consumed for one month and the approximate expenditure and compared it with the electricity bill of the previous month. They also calculated the approximate cost of electricity consumed by fans, lights and other appliances not switched off. Thus, they highlighted the amount that could be saved and suggested simple energy conservation habits like

- Switching off the appliances when not in use.
- Minimal usage as per requirement.

© NCERT not to be republished

- Maximising the use of natural breeze and light by keeping the windows open.
- Keeping the lights dust free.
- The appropriate maintenance and usage of appliances as per the given instructions.

Can you add some more tips to this list?

You could conduct a similar survey at home and then extend it to your appartment and make your neighbours also energy wise.

© NCERT not to be republished

4 Agriculture

0858CH04

Gurpreet, Madho and Tina were walking through the village where they saw a farmer tilling land. The farmer told them that he was growing wheat and had just added manure to the soil to make it more fertile. He told the children that the wheat would fetch a good price in the mandi from where it would be taken to factories to make bread and biscuits from flour.

This transformation from a plant to a finished product involves three types of economic activities. These are primary, secondary and tertiary activities.

Primary activities include all those connected with extraction and production of natural resources. Agriculture, fishing and gathering are good examples. Secondary activities are concerned with the processing of these resources. Manufacturing of steel, baking of bread and weaving of cloth are examples of this activity. Tertiary activities provide support to the primary and secondary sectors through services. Transport, trade, banking, insurance and advertising are examples of tertiary activities.

Word Origin

The word agriculture is derived from Latin words *ager* or *agri* meaning soil and *culture* meaning, cultivation.

Agriculture is a primary activity. It includes growing crops, fruits, vegetables, flowers and rearing of livestock. In the world, 50 per cent of persons are engaged in agricultural activity. Two-thirds of India's population is still dependent on agriculture.

Favourable topography of soil and climate are vital for agricultural activity. The land on which the crops are grown is known as arable land (Fig. 4.1). In the map you can see that agricultural activity is concentrated in those regions of the world where suitable factors for the growing of crops exist.

© NCERT not to be republished

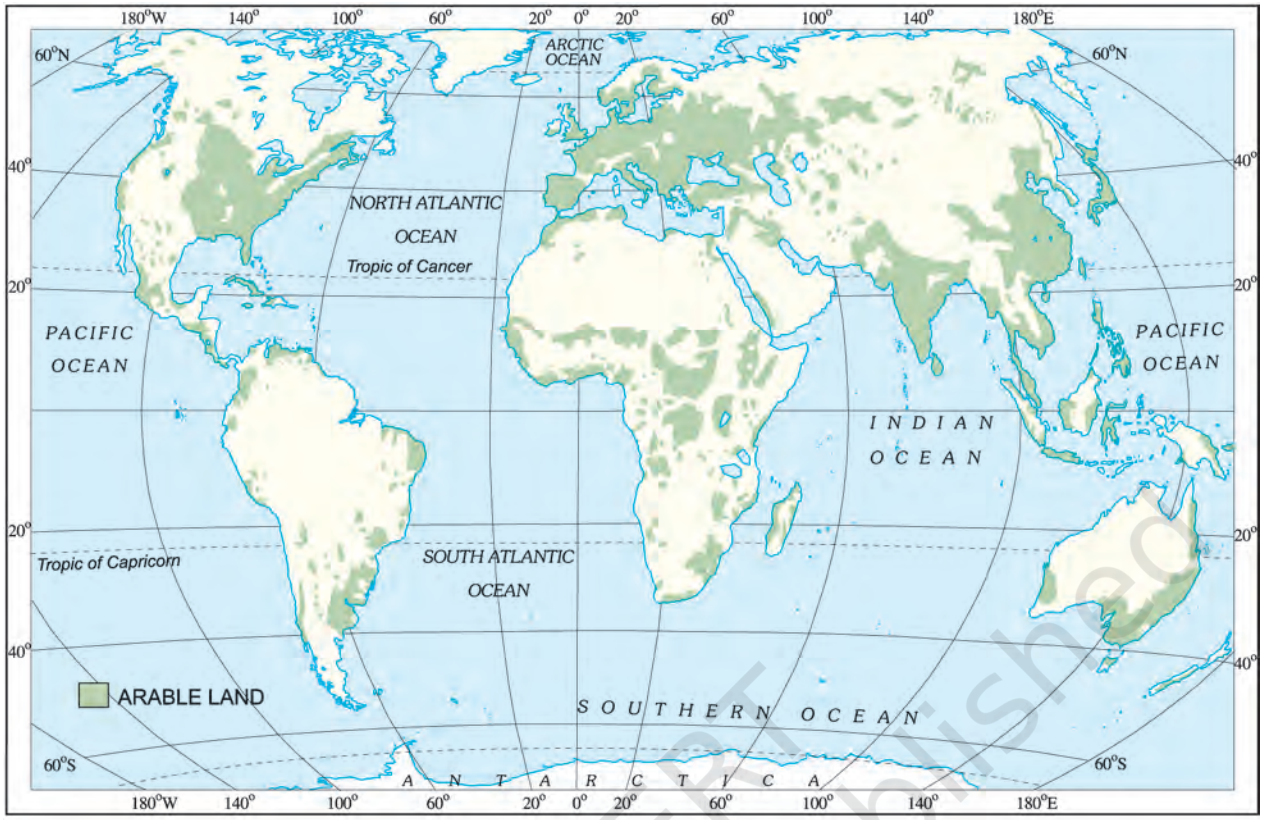
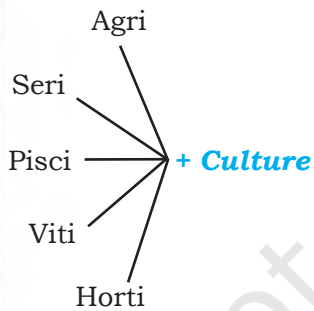


Fig. 4.1: World Distribution of Arable Land

© NCERT not to be republished

Do you know?



Agriculture
The science and art of cultivation on the soil, raising crops and rearing livestock. It is also called farming.

Sericulture
Commercial rearing of silk worms. It may supplement the income of the farmer.

Pisciculture
Breeding of fish in specially constructed tanks and ponds.

Viticulture
Cultivation of grapes.

Horticulture
Growing vegetables, flowers and fruits for commercial use.

Farm System

Agriculture or farming can be looked at as a system. The important inputs are seeds, fertilisers, machinery and

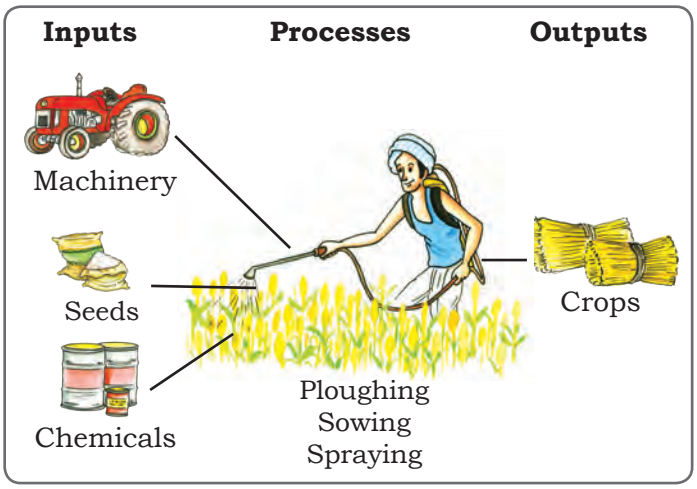


Fig 4.2: The farm system of an arable farm

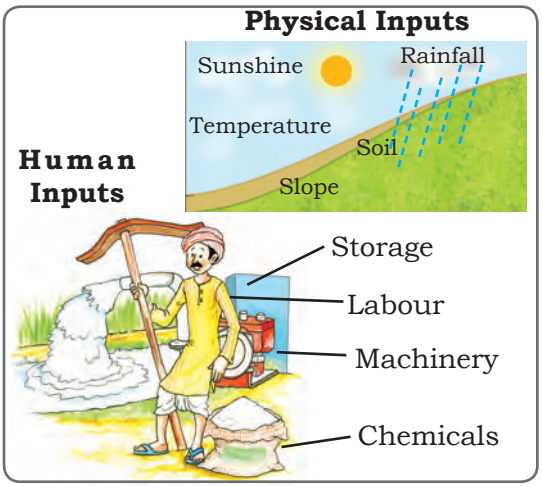


Fig 4.3: Physical and human farm inputs

labour. Some of the operations involved are ploughing, sowing, irrigation, weeding and harvesting. The outputs from the system include crops, wool, dairy and poultry products.

Types Of Farming

Farming is practised in various ways across the world. Depending upon the geographical conditions, demand of produce, labour and level of technology, farming can be classified into two main types. These are **subsistence farming** and **commercial farming**.

Interesting Fact

Organic Farming

In this type of farming, organic manure and natural pesticides are used instead of chemicals. No genetic modification is done to increase the yield of the crop.

Subsistence Farming

This type of farming is practised to meet the needs of the farmer's family. Traditionally, low levels of technology and household labour are used to produce on small output. Subsistence farming can be further classified as intensive subsistence and primitive subsistence farming.

In **intensive subsistence agriculture** the farmer cultivates a small plot of land using simple tools and more labour. Climate with large number of days with sunshine and fertile soils permit growing of more than one crop annually on the same plot. Rice is the main crop. Other crops include wheat, maize, pulses and oilseeds. Intensive subsistence agriculture is prevalent in the thickly populated areas of the monsoon regions of south, southeast and east Asia.

© NCERT not to be republished

Primitive subsistence agriculture includes shifting cultivation and nomadic herding.

Shifting cultivation is practised in the thickly forested areas of Amazon basin, tropical Africa, parts of southeast Asia and Northeast India. These are the areas of heavy rainfall and quick regeneration of vegetation. A plot of land is cleared by felling the trees and burning them. The ashes are then mixed with the soil and crops like maize, yam, potatoes and cassava are grown. After the soil loses its fertility, the land is abandoned and the cultivator moves to a new plot. Shifting cultivation is also known as 'slash and burn' agriculture.

Do you know?

Shifting cultivation is known by different names in different parts of the world

Jhumming - North-East India

Milpa -Mexico

Roca - Brazil.

Ladang - Malaysia

Nomadic herding is practised in the semi-arid and arid regions of Sahara, Central Asia and some parts of India, like Rajasthan and Jammu and Kashmir. In this type of farming, herdsmen move from place to place with their animals for fodder and water, along defined routes. This type of movement arises in response to climatic constraints and terrain. Sheep, camel, yak and goats are most commonly reared. They provide milk, meat, wool, hides and other products to the herders and their families.

Fig 4.4: *Nomadic Herders with their camels*

Commercial Farming

In commercial farming crops are grown and animals are reared for sale in market. The area cultivated and the amount of capital used is large. Most of the work is done by machines. Commercial farming includes commercial grain farming, mixed farming and plantation agriculture (Fig 4.5).

Fig 4.5: *A Sugarcane plantation*

In *commercial grain farming* crops are grown for commercial purpose. Wheat and maize are common commercially grown grains. Major areas where commercial grain farming is pracised are temperate grasslands of North America, Europe and Asia. These areas are sparsely populated with large farms spreading over hundreds of hectares. Severe winters restrict the growing season and only a single crop can be grown.

In **mixed farming** the land is used for growing food and fodder crops and rearing livestock.

It is practised in Europe, eastern USA, Argentina, southeast Australia, New Zealand and South Africa.

Fig 4.6 : A Banana Plantation

Plantations are a type of commercial farming where single crop of tea, coffee, sugarcane, cashew, rubber, banana or cotton are grown. Large amount of labour and capital are required. The produce may be processed on the farm itself or in nearby factories. The development of a transport network is thus essential for such farming.

Major plantations are found in the tropical regions of the world. Rubber in Malaysia, coffee in Brazil, tea in India and Sri Lanka are some examples.

Major Crops

A large variety of crops are grown to meet the requirement of the growing population. Crops also supply raw materials for agro based industries. Major food crops are wheat, rice, maize and millets. Jute and cotton are fibre crops. Important beverage crops are tea and coffee.

Fig 4.7: Rice Cultivation

Rice: Rice is the major food crop of the world. It is the staple diet of the tropical and sub-tropical regions. Rice needs high temperature, high humidity and rainfall. It grows best in alluvial clayey soil, which can retain water. China leads in the production of rice followed by India, Japan, Sri Lanka and Egypt. In favourable climatic conditions as in West Bengal and Bangladesh two to three crops are grown in a year.

Fig 4.8: Wheat Harvesting

Wheat: Wheat requires moderate temperature and rainfall during growing season and bright sunshine at the time of harvest. It thrives best in well drained loamy soil. Wheat is grown extensively in USA, Canada, Argentina, Russia, Ukraine, Australia and India. In India it is grown in winter.

Fig 4.9: Bajra Cultivation

Millets: They are also known as coarse grains and can be grown on less fertile and sandy soils. It is a hardy crop that needs low rainfall and high to

© NCERT not to be republished

moderate temperature and adequate rainfall. Jowar, bajra and ragi are grown in India. Other countries are Nigeria, China and Niger.

Fig 4.10: Maize Cultivation

Maize: Maize requires moderate temperature, rainfall and lots of sunshine. It needs well-drained fertile soils. Maize is grown in North America, Brazil, China, Russia, Canada, India, and Mexico.

Fig 4.11: Cotton Cultivation

Cotton: Cotton requires high temperature, light rainfall, two hundred and ten frost-free days and bright sunshine for its growth. It grows best on black and alluvial soils. China, USA, India, Pakistan, Brazil and Egypt are the leading producers of cotton. It is one of the main raw materials for the cotton textile industry.

Jute: Jute was also known as the 'Golden Fibre'. It grows well on alluvial soil and requires high temperature, heavy rainfall and humid climate. This crop is grown in the tropical areas. India and Bangladesh are the leading producers of jute.

Fig 4.12: Coffee Plantation

Coffee: Coffee requires warm and wet climate and well-drained loamy soil. Hill slopes are more suitable for growth of this crop. Brazil is the leading producer followed by Columbia and India.

Tea: Tea is a beverage crop grown on plantations. This requires cool climate and well distributed high rainfall throughout the year for the growth of its tender leaves.

Do you know?

Maize is also know as corn. Various colourful varieties of maize are found across the world.

Interesting Fact

Who discovered the Coffee Plant?

There are different versions about the discovery of coffee. In about AD 850, Kaldi, an Arab goat-herder, who was puzzled by the queer antics of his flock, tasted the berries of the evergreen bush on which the goats were feeding. On experiencing a sense of exhilaration, he proclaimed his discovery to the world.

© NCERT not to be republished

Fig 4.13: Tea Plantation

It needs well-drained loamy soils and gentle slopes. Labour in large number is required to pick the leaves. Kenya, India, China, Sri Lanka produce the best quality tea in the world.

Agricultural Development

Agricultural Development refers to efforts made to increase farm production in order to meet the growing demand of increasing population. This can be achieved in many ways such as increasing the cropped area, the number of crops grown, improving irrigation facilities, use of fertilisers and high yielding variety of seeds. Mechanisation of agriculture is also another aspect of agricultural development. The ultimate aim of agricultural development is to increase food security.

Do you know?

Food security exists when all people, at all times, have access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life.

Agriculture has developed at different places in different parts of the world. Developing countries with large populations usually practise intensive agriculture where crops are grown on small holdings mostly for subsistence. Larger holdings are more suitable for commercial agriculture as in USA, Canada and Australia. With the help of two case studies of farms — one from India and the other from the USA, let us understand about agriculture in the developing and a developed country.

A Farm in India

There is a small village Adilabad in Ghazipur district of Uttar Pradesh. Munna Lal is a small farmer in this village who has farmland of about 1.5 hectares. His house is in the main village. He purchases high yielding varieties of seeds from the market every alternate year. The land is fertile and he grows atleast two crops in a year which are normally wheat or rice and pulses. The farmer takes advice of his friends and elders as well as government agricultural officers regarding farming practices. He takes a tractor on rent for ploughing his field, though some of his friends still use traditional method of using bullocks for ploughing. There is a tubewell in the nearby field which he takes on rent to irrigate his field.

Fig 4.14: Farmers ploughing a field

© NCERT not to be republished

Munna Lal also has two buffaloes and few hens. He sells milk in the cooperative store located in the nearby town. He is a member of the co-operative society which also advises him on the type of fodder for his animals, safety measures to protect the health of the livestock and artificial insemination.

All the members of the family help him in various farm activities. Sometimes, he takes credit from a bank or the agricultural co-operative society to buy HYV seeds and implements.

He sells his produce in the *mandi* located in the nearby town. Since majority of the farmers do not have lack storage facilities, they are forced to sell the produce even when the market is not favourable to them. In recent years, the government has taken some steps to develop storage facilites.

Fig 4.15: *An Agricultural Field in India*

A Farm in the USA

The average size of a farm in the USA is much larger than that of an Indian farm. A typical farm size in the USA is about 250 hectares. The farmer generally resides in the farm. Some of the major crops grown are corn, soyabean, wheat, cotton and sugarbeet. Joe Horan, a farmer in the Midwest USA, in Iowa State owns about 300 hectares of land. He grows corn on his field after making sure that soil and water resources meet the needs of this crop. Adequate measures are taken to control pests that can damage the crop. From time to time he sends the soil samples to a soil testing laboratory to check whether the nutrients are sufficient or not. The results help Joe Horan to plan a scientific fertiliser programme. His computer is linked to the satellite which gives him a precise picture of his field. This helps him to use chemical fertilisers

Fig 4.16: *A Farm in the USA*

Fig 4.17: *Spray of Pesticides*

© NCERT not to be republished

Fig 4.18: Mechanised Harvesting in the USA

and pesticides wherever they are required. He uses tractors, seed drills, leveller, combined harvester and thresher to perform various agricultural operations. A grains are stored in the automated grain storage or despatched to market agencies. The farmer in USA works like a businessman and not like a peasant farmer.

Exercises

1. Answer the following questions.

(i) What is agriculture?

(ii) Name the factors influencing agriculture?

(iii) What is shifting cultivation? What are its disadvantages?

(iv) What is plantation agriculture?

(v) Name the fibre crops and name the climatic conditions required for their growth.

2. Tick the correct answer.

(i) Horticulture means

(a) growing of fruits and vegetables (b) primitive farming

(c) growing of wheat

(ii) Golden fibre refers to

(a) tea (b) cotton (c) jute

(iii) Leading producers of coffee

(a) Brazil (b) India (c) Russia

3. Give reasons.

(i) In India agriculture is a primary activity.

(ii) Different crops are grown in different regions.

4. Distinguish between the followings.

(i) Primary activites and tertiary activities

(ii) Subsistence farming and intenstive farming.

5. Activity

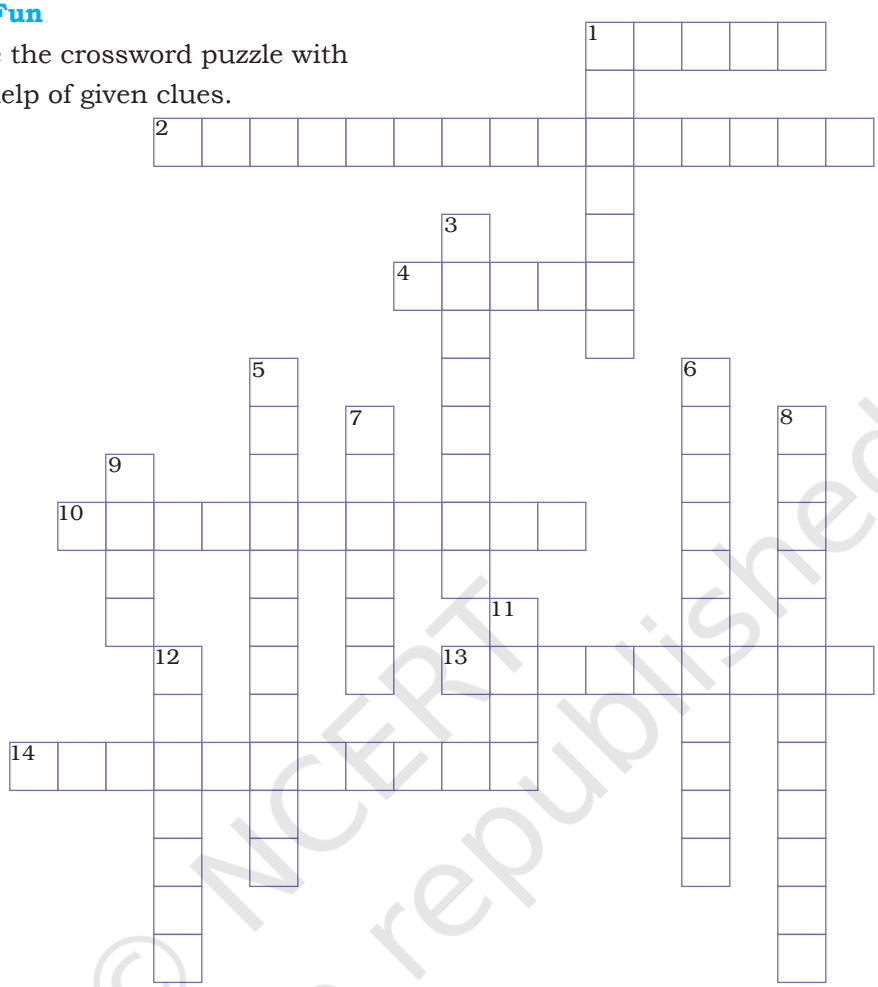
(i) Collect seeds of wheat, rice, jowar, bajra, ragi, maize, oilseeds and pulses available in the market. Bring them to the class and find out in which type of soil they grow.

(ii) Find out the difference between the life style of farmers in the USA and India on the basis of pictures collected from magazines, books, newspapers and the internet.

© NCERT not to be republished

6. For Fun

Solve the crossword puzzle with the help of given clues.



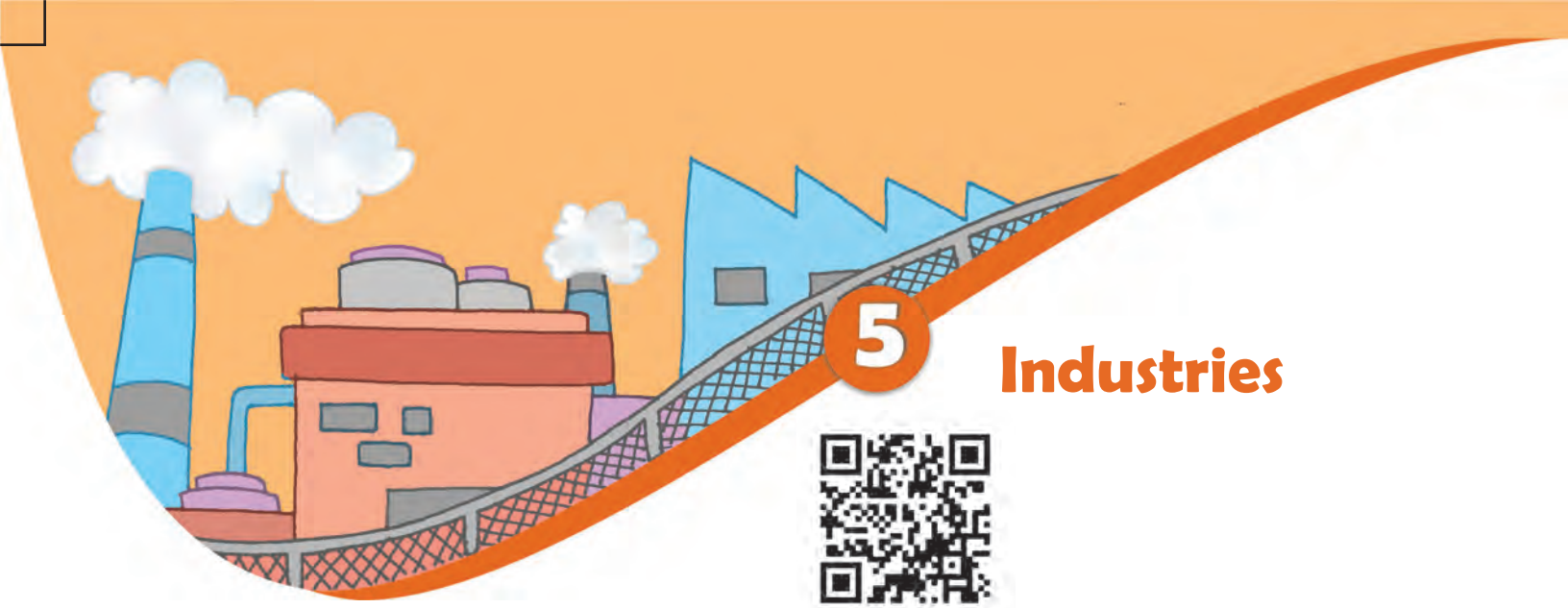
Across

1. Crop that needs well drained fertile soils, moderate temperatures and lots of sunshine (5)
2. Increasing production through use of HYV seeds, chemical fertilisers and pesticides (5,10)
4. USA, Canada, Russia, Australia are major producers of this crop (5)
10. Type of farming to meet family needs (11)
13. Rearing of animals for sale (9)
14. Growing grapes for wines (11)

Down

1. Coarse grains are also called (7)
3. Cultivation involving slash and burn (8)
5. Growing of crops, fruits and vegetables (11)
6. Tea, coffee, sugarcane and rubber are grown in (11)
7. Requires 210 frost-free days for growth (6)
8. Growing of flowers (12)
9. Also called 'Golden Fibre' (4)
11. Also known as paddy (4)
12. Activity concerned with extraction of natural resources (7)

© NCERT not to be republished



5 Industries

0858CH05

Journey begins...

...paper made...
...recycle...

Have you ever given a thought to the fact that the note book you use for writing has come to you after a long process of manufacturing. It started its life as part of a tree. It was cut down and transported to the pulp mill. There the wood of the tree was processed and converted into wood pulp. The wood pulp was mixed with chemicals and finally changed into paper by machines. This paper found its way to the press where ink made from chemicals was used to print the lines on the pages. The pages were then bound in the form of a note book, packed and sent to the market for sale. Finally, it reached your hands.

Secondary activities or **manufacturing** change raw materials into products of more value to people. As you have seen pulp was changed into paper and paper into a note book. These represent the two stages of the manufacturing process.

The paper made from pulp and cloth made from cotton have had value added to them at each stage of the manufacturing process. In this way the finished product has more value and utility than the raw material that it is made from.

Industry refers to an economic activity that is concerned with production of goods, extraction of minerals or the provision of services. Thus we have iron and steel industry (production of goods), coal mining industry (extraction of coal) and tourism industry (service provider).

Activity

Trace the journey of your shirt from a cotton field to your wardrobe.

Classification of Industries

Industries can be classified on the basis of raw materials, size and ownership.

© NCERT not to be republished

Raw Materials: Industries may be agro based, mineral based, marine based and forest based depending on the type of raw materials they use. **Agro based industries** use plant and animal based products as their raw materials. Food processing, vegetable oil, cotton textile, dairy products and leather industries are examples of agro-based industries. **Mineral based industries** are primary industries that use mineral ores as their raw materials. The products of these industries feed other industries. Iron made from iron ore is the product of mineral based industry. This is used as raw material for the manufacture of a number of other products, such as heavy machinery, building materials and railway coaches. **Marine based industries** use products from the sea and oceans as raw materials. Industries processing sea food or manufacturing fish oil are some examples. **Forest based industries** utilise forest produce as raw materials. The industries associated with forests are pulp and paper, pharmaceuticals, furniture and buildings.

Activity
Give some examples of agro based industries.

Size: It refers to the amount of capital invested, number of people employed and the volume of production. Based on size, industries can be classified into **small scale** and **large scale industries**. Cottage or household industries are a type of small scale industry where the products are manufactured by hand, by the artisans. Basket weaving, pottery and other handicrafts are examples of cottage industry. Small scale industries use lesser amount of capital and technology as compared to large scale industries that produce large volumes of products. Investment of capital is higher and the technology used is superior in large scale industries. Silk weaving and food processing industries are small scale industries(Fig 5.1). Production of automobiles and heavy machinery are large scale industries.

Fig 5.1: *Stages in food processing of Gorgon nut (makhana)*

Ownership: Industries can be classified into private sector, state owned or public sector, joint sector and cooperative sector. **Private sector industries** are owned and operated by individuals or a group of individuals. The public sector industries are owned and operated by the government, such as Hindustan Aeronautics Limited

© NCERT not to be republished

Fig 5.2: Sudha dairy in Co-operative sector

and Steel Authority of India Limited. **Joint sector industries** are owned and operated by the state and individuals or a group of individuals. Maruti Udyog Limited is an example of joint sector industry. **Co-operative sector** industries are owned and operated by the producers or suppliers of raw materials, workers or both. Anand Milk Union Limited and Sudha Dairy are a success stories of a co-operative venture.

Factors Affecting Location of Industries

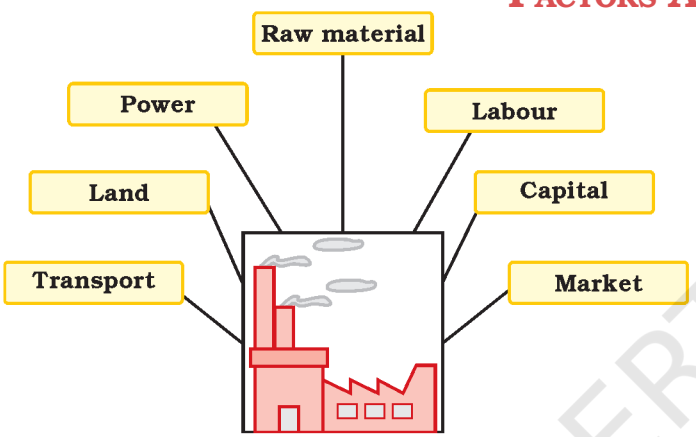


Fig 5.3: Locational factors for industries

The factors affecting the location of industries are the availability of raw material, land, water, labour, power, capital, transport and market. Industries are situate d where some or all of these factors are easily available. Sometimes, the government provides incentives like subsidised power, lower transport cost and other infrastructure so that industries may be located in backward areas. Industrialisation often leads to development and growth of towns and cities.

Industrial System

An industrial system consists of inputs, processes and outputs. The inputs are the raw materials, labour and costs of land, transport, power and other infrastructure. The processes include a wide range of activities that convert the raw material into finished products. The outputs are the end product and the income earned from it. In case of the textile industry the inputs may be cotton, human labour, factory and transport cost. The processes include ginning, spinning, weaving, dyeing and printing. The output is the shirt you wear.

Activity

Find out the inputs, outputs and processes involved in the manufacture of a leather shoe.

Industrial Regions

Industrial regions emerge when a number of industries locate close to each other and share the benefits of their closeness. Major industrial regions of the world are eastern North America, western and central Europe, eastern Europe and eastern Asia (Fig 5.4). Major

© NCERT not to be republished

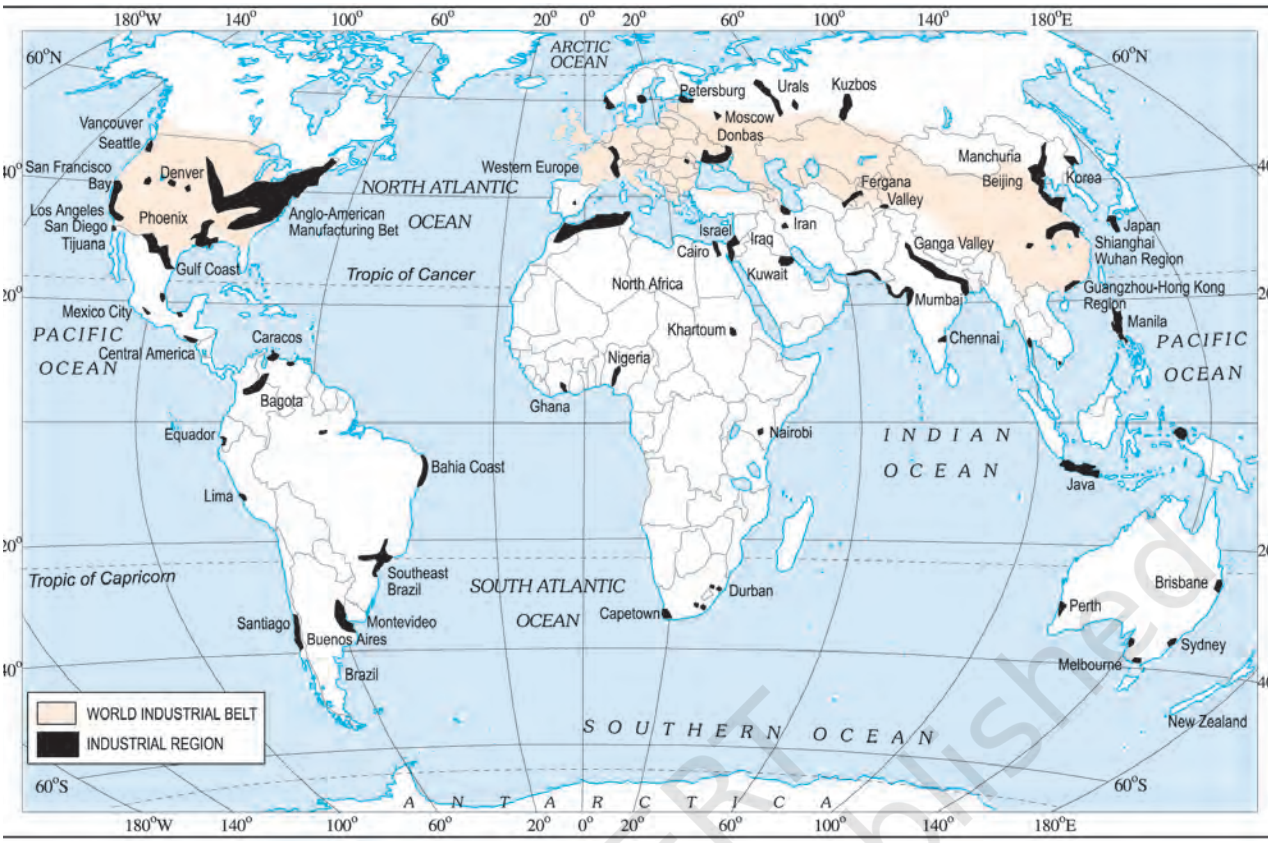


Fig 5.4: World's Industrial Regions

industrial regions tend to be located in the temperate areas, near sea ports and especially near coal fields.

India has several industrial regions like Mumbai-Pune cluster, Bangalore-Tamil Nadu region, Hugli region, Ahmedabad-Baroda region, Chottanagpur industrial belt, Vishakhapatnam-Guntur belt, Gurgaon-Delhi-Meerut region and the Kollam-Thiruvanathapuram industrial cluster.

Industrial Disaster

In industries, accidents/disasters mainly occur due to technical failure or irresponsible handling of hazardous material.

One of the worst industrial disasters of all time occurred in Bhopal on 3 December 1984 around 00:30 a.m. It was a technological accident in which highly poisonous Methyl Isocynate (MIC) gas along with Hydrogen Cyanide and other reaction products leaked out of the pesticide factory of Union Carbide. The official death toll was 3,598 in 1989. Thousands, who survived still suffer from one or many ailments like blindness, impaired immune system, gastrointestinal disorders etc.

Union Carbide Factory

© NCERT not to be republished

In another incident, on 23 December 2005, due to gas well blowout in Gao Qiao, Chongging, China, 243 people died, 9,000 were injured and 64,000 were evacuated. Many people died because they were unable to run after the explosion. Those who could not escape in time suffered burns to their eyes, skin and lungs from the gas.

Rescue operation in Gao Qiao

Risk Reduction Measures

1. Densely populated residential areas should be separated far away from the industrial areas.
2. People staying in the vicinity of industries should be aware of the storage of toxins or hazardous substances and their possible effects in case if an accident occurs.
3. Fire warning and fighting system should be improved.
4. Storage capacity of toxic substances should be limited.
5. Pollution dispersion qualities in the industries should be improved.

Do you know?
Emerging industries are also known as 'Sunrise Industries'.These include Information technology, Wellness, Hospitality and Knowledge.

Distribution Of Major Industries

The world's major industries are the iron and steel industry, the textile industry and the information technology industry. The iron and steel and textile industry are the older industries while information technology is an emerging industry.

The countries in which iron and steel industry is located are Germany, USA, China, Japan and Russia. Textile industry is concentrated in India, Hong Kong, South Korea, Japan and Taiwan. The major hubs of Information technology industry are the Silicon valley of Central California and the Bangalore region of India.

Iron and Steel Industry

Glossary
Smelting
It is the process in which metals are extracted from their ores by heating beyond the melting point

Like other industries iron and steel industry too comprises various inputs, processes and outputs. This is a feeder industry whose products are used as raw material for other industries.

The inputs for the industry include raw materials such as iron ore, coal and limestone, along with labour, capital, site and other infrastructure. The process of converting iron ore into steel involves many stages. The raw material is put in the blast furnace where it undergoes smelting (Fig 5.6). It is then refined. The output obtained is steel which may be used by other industries as raw material.

© NCERT not to be republished

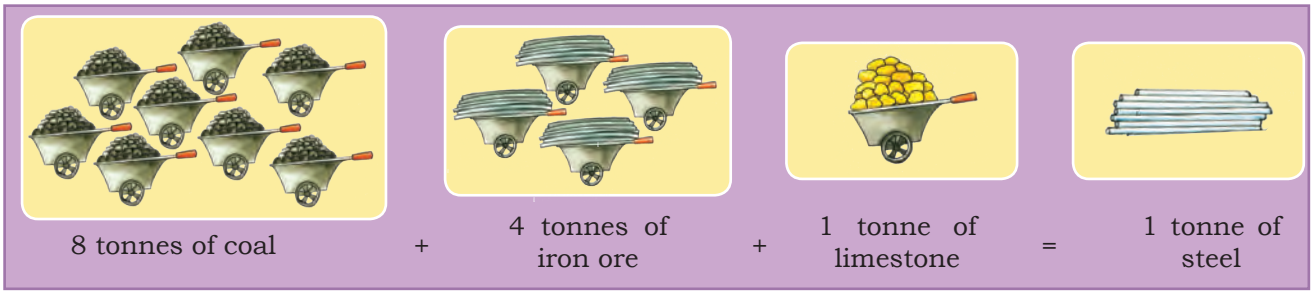


Fig 5.5: Manufacturing of steel

Steel is tough and it can easily be shaped, cut, or made into wire. Special alloys of steel can be made by adding small amounts of other metals such as aluminium, nickel, and copper. Alloys give steel unusual hardness, toughness, or ability to resist rust.

Steel is often called the backbone of modern industry. Almost everything we use is either made of iron or steel or has been made with tools and machinery of these metals. Ships, trains, trucks, and autos are made largely of steel. Even the safety pins and the needles you use are made from steel. Oil wells are drilled with steel machinery. Steel pipelines transport oil. Minerals are mined with steel equipment. Farm machines are mostly steel. Large buildings have steel framework.

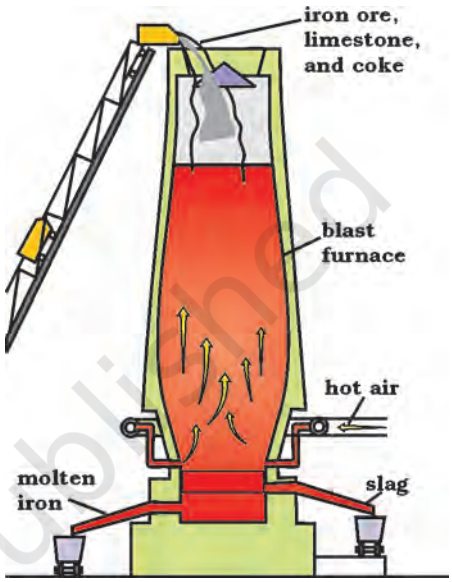


Fig. 5.6: From iron ore to steel in a blast furnace

Before 1800 A.D. iron and steel industry was located where raw materials, power supply and running water were easily available. Later the ideal location for the industry was near coal fields and close to canals and railways. After 1950, iron and steel industry began to be located on large areas of flat land near sea ports. This is because by this time steel works had become very large and iron ore had to be imported from overseas (Fig 5.7).

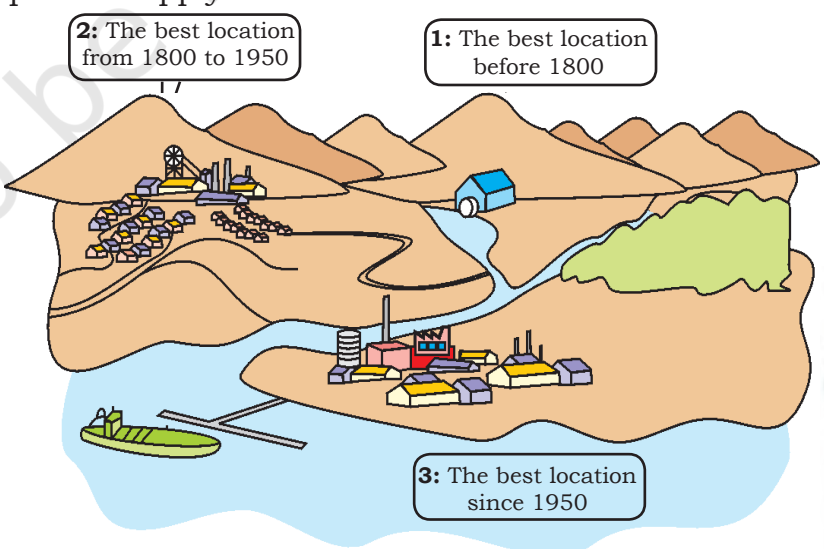


Fig 5.7: The changing location of the iron and steel industry

In India, iron and steel industry has developed taking

© NCERT not to be republished

Fig 5.8: *World: Major Iron Ore Producing Areas*

advantage of raw materials, cheap labour, transport and market. All the important steel producing centres such as Bhilai, Durgapur, Burnpur, Jamshedpur, Rourkela, Bokaro are situated in a region that spreads over four states — West Bengal, Jharkhand, Odisha and Chhattisgarh. Bhadravati and Vijay Nagar in Karnataka, Vishakhapatnam in Andhra Pradesh, Salem in Tamil Nadu are other important steel centres utilising local resources.

JAMSHEDPUR

Before 1947, there was only one iron and steel plant in the country – Tata Iron and Steel Company Limited (TISCO). It was privately owned. After Independence, the government took the initiative and set up several iron and steel plants. TISCO was started in 1907 at Sakchi, near the confluence of the rivers Subarnarekha and Kharkai in Jharkhand. Later on Sakchi was renamed as Jamshedpur. Geographically, Jamshedpur is the most conveniently situated iron and steel centre in the country.

© NCERT not to be republished

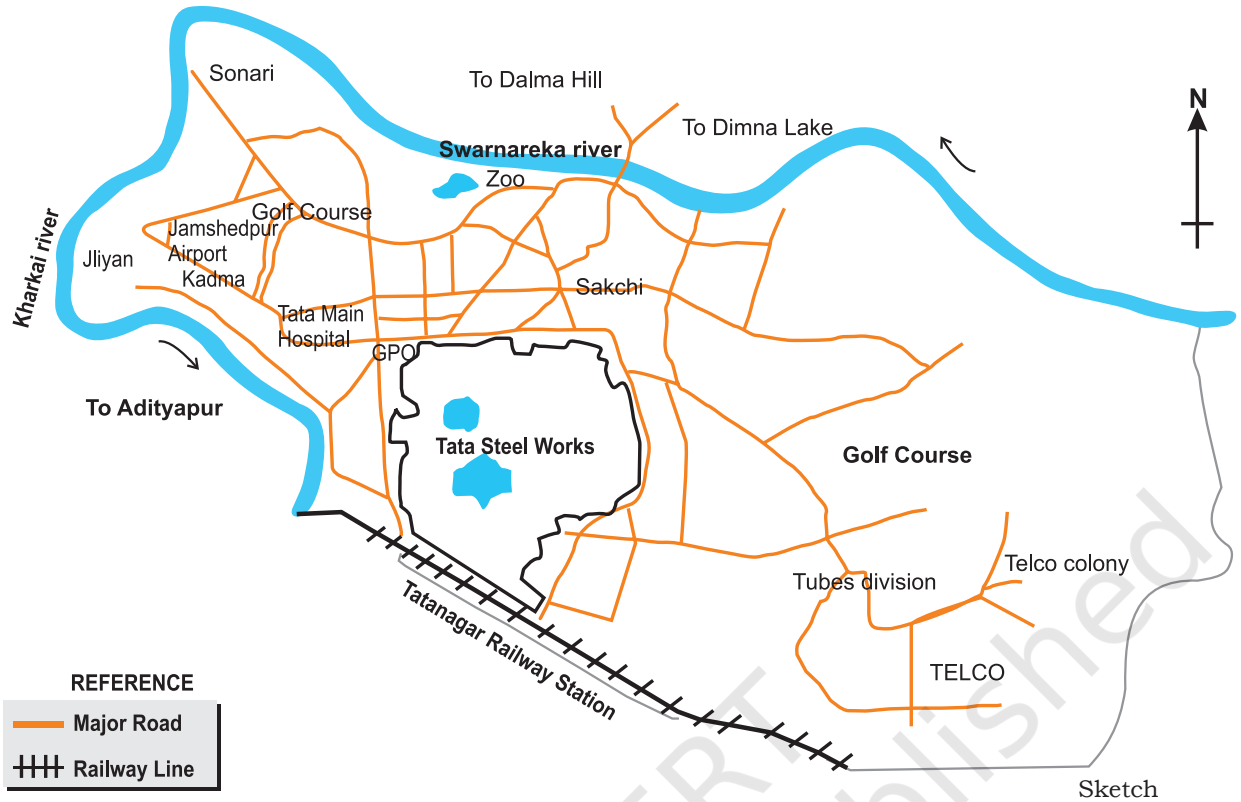


Fig 5.9: Location of iron and steel industry in Jamshedpur

Sakchi was chosen to set up the steel plant for several reasons. This place was only 32 km away from Kalimati station on the Bengal-Nagpur railway line. It was close to the iron ore, coal and manganese deposits as well as to Kolkata, which provided a large market. TISCO, gets coal from Jharia coalfields, and iron ore, limestone, dolomite and manganese from Odisha and Chhattisgarh. The Kharkai and Subarnarekha rivers ensured sufficient water supply. Government initiatives provided adequate capital for its later development.

In Jamshedpur, several other industrial plants were set up after TISCO. They produce chemicals, locomotive parts, agricultural equipment, machinery, tinplate, cable and wire.

The development of the iron and steel industry opened the doors to rapid industrial development in India. Almost all sectors of the Indian industry depend heavily on the iron and steel industry for their basic infrastructure. The Indian iron and steel industry consists of large integrated steel plants as well as mini

Let's do

With the help of an atlas identify some iron and steel industries in India and mark their location on an outline map of India.

© NCERT not to be republished

steel mills. It also includes secondary producers, rolling mills and ancillary industries.

Pittsburgh : It is an important steel city of the United States of America. The steel industry at Pittsburgh enjoys locational advantages. Some of the raw material such as coal is available locally, while the iron ore comes from the iron mines at Minnesota, about 1500 km from Pittsburgh. Between these mines and Pittsburgh is one of the world's best routes for shipping ore cheaply – the famous Great Lakes waterway. Trains carry the ore from the Great Lakes to the Pittsburgh area. The Ohio, the Monogahela and Allegheny rivers provide adequate water supply.

Today, very few of the large steel mills are in Pittsburgh itself. They are located in the valleys of the Monogahela and Allegheny rivers above Pittsburgh and along the Ohio River below it. Finished steel is transported to the market by both land and water routes.

The Pittsburgh area has many factories other than steel mills. These use steel as their raw material to make many different products such as railroad equipment, heavy machinery and rails.

Do you know?

The names of Great Lakes are Superior, Huron, Ontario, Michigan and Erie. Lake Superior is the largest of these five lakes. It lies higher upstream than others.

Cotton Textile Industry

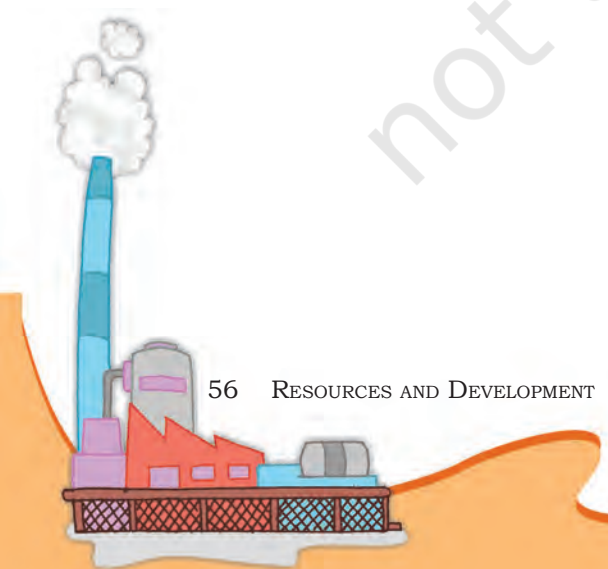
Weaving cloth from yarn is an ancient art. Cotton, wool, silk, jute, flax have been used for making cloth. The textile industry can be divided on the basis of raw materials used in them. Fibres are the raw material of textile industry. Fibres can be natural or man-made. Natural fibres are obtained from wool, silk, cotton, linen and jute. Man made fibres include nylon, polyester, acrylic and rayon.

The cotton textile industry is one of the oldest industries in the world. Till the industrial revolution in the 18th century, cotton cloth was made using hand spinning techniques (wheels) and looms. In 18th century power looms facilitated the development of cotton textile industry, first in Britain and later in other parts of the world. Today India, China, Japan and the USA are important producers of cotton textiles.

India has a glorious tradition of producing excellent quality cotton textiles. Before the British rule, Indian

Word Origin

The term 'textile' is derived from the Latin word *texere* which means to weave.



© NCERT not to be republished

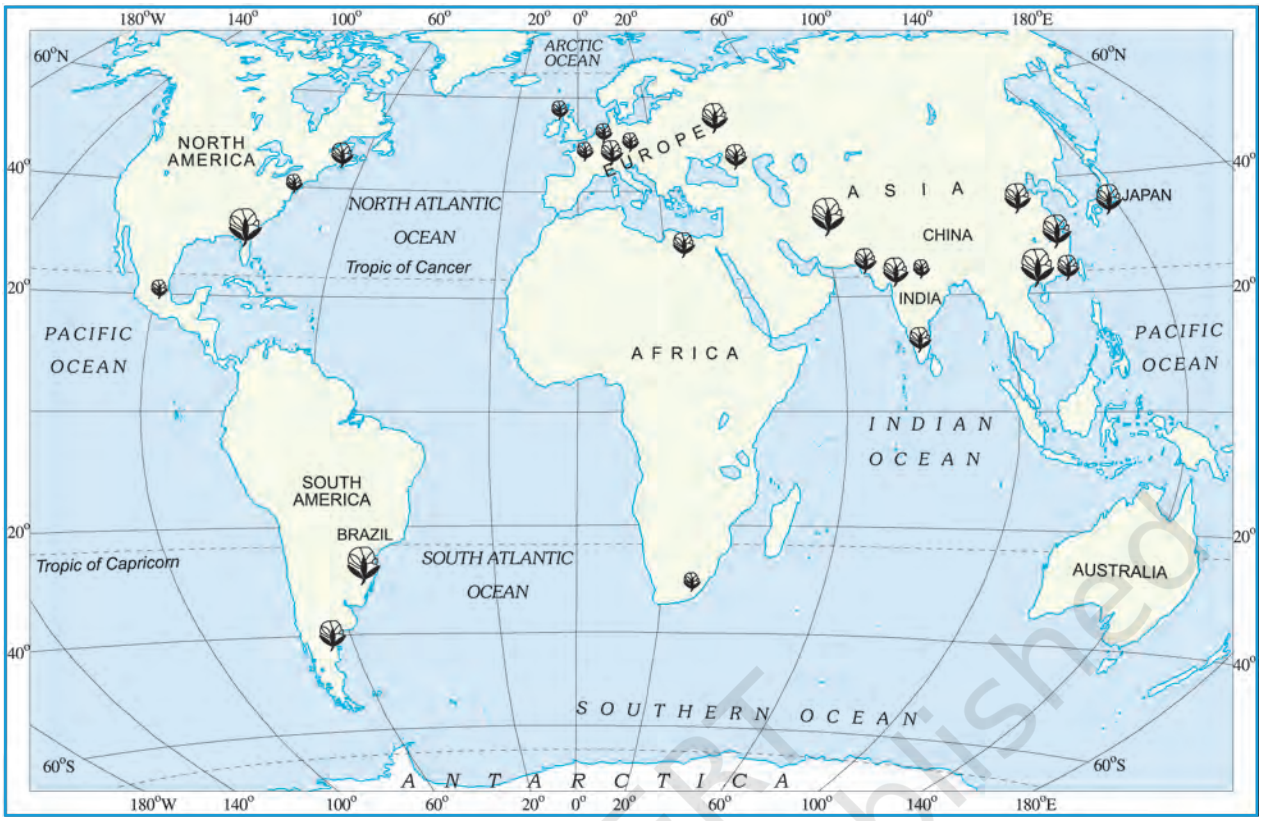


Fig 5.10: *World : Major cotton textile manufacturing regions*

hand spun and hand woven cloth already had a wide market. The *Muslins* of Dhaka, *Chintzes* of Masulipatnam, *Calicos* of Calicut and Gold-wrought cotton of Burhanpur, Surat and Vadodara were known worldwide for their quality and design. But the production of hand woven cotton textile was expensive and time consuming. Hence, traditional cotton textile industry could not face the competition from the new textile mills of the West, which produced cheap and good quality fabrics through mechanized industrial units.

The first successful mechanized textile mill was established in Mumbai in 1854. The warm, moist climate, a port for importing machinery, availability of raw material and skilled labour resulted in rapid expansion of the industry in the region.

Initially this industry flourished in the states of Maharashtra and Gujarat because of favourable humid climate. But today, humidity can be created artificially, and raw cotton is a pure and not weight losing raw material, so this industry has spread to other parts

Do you know?

The first textile mill in the country was established at Fort Gloster near Kolkata in 1818 but it closed down after some time.

© NCERT not to be republished

Do you know?

About one-third of the Indian textile industry's total production is exported.

Activity

Collect different types of pieces of cloth from a tailor's shop and classify them under cotton, silk, synthetic and woollen. Find out the raw materials used in their manufacturing.

Let's do

On an outline map of the world mark the places which provide raw material to cotton textile industry of Osaka

of India. Coimbatore, Kanpur, Chennai, Ahmedabad, Mumbai, Kolkata, Ludhiana, Puducherry and Panipat are some of the other important centres.

Ahmedabad : It is located in Gujarat on the banks of the Sabarmati river. The first mill was established in 1859. It soon became the second largest textile city of India, after Mumbai. Ahmedabad was therefore often referred to as the 'Manchester of India'. Favourable locational factors were responsible for the development of the textile industry in Ahmedabad. Ahmedabad is situated very close to cotton growing area. This ensures easy availability of raw material. The climate is ideal for spinning and weaving. The flat terrain and easy availability of land is suitable for the establishment of the mills. The densely populated states of Gujarat and Maharashtra provide both skilled and semi-skilled labour. Well developed road and railway network permits easy transportation of textiles to different parts of the country, thus providing easy access to the market. Mumbai port nearby facilitates import of machinery and export of cotton textiles.

But in the recent years, Ahmedabad textile mills have been having some problems. Several textile mills have closed down. This is primarily due to the emergence of new textile centres in the country as well as non-upgradation of machines and technology in the mills of Ahmedabad.

Osaka : It is an important textile centre of Japan, also known as the 'Manchester of Japan'. The textile industry developed in Osaka due to several geographical factors. The extensive plain around Osaka ensured that land was easily available for the growth of cotton mills. Warm humid climate is well suited to spinning and weaving. The river Yodo provides sufficient water for the mills. Labour is easily available. Location of port facilitates import of raw cotton and for exporting textiles. The textile industry at Osaka depends completely upon imported raw materials. Cotton is imported from Egypt, India, China and USA. The finished product is mostly exported and has a good market due to good quality and low price. Though it is one of the important textile cities in the country, of late, the cotton textile industry

© NCERT not to be republished

of Osaka has been replaced by other industries, such as iron and steel, machinery, shipbuilding, automobiles, electrical equipment and cement.

Exercises

1. Answer the following questions.

(i) What is meant by the term 'industry'?

(ii) Which are the main factors which influence the location of an industry?

(iii) Which industrty is often referred to as the backbone of modern industry and why?

(iv) Why cotton textile industry rapidly expanded in Mumbai?

2. Tick the correct answer.

(i) Fort Gloster is located in

(a) West Bengal

(b) California

(c) Gujarat

(ii) Which one of the following is a natural fibre?

(a) nylon

(b) jute

(c) acrylic

3. Distinguish between the followings.

(i) Agro-based and mineral based industry

(ii) Public sector and joint sector industry

4. Give two examples of the following in the space provided :

(i) Raw Materials: _____ and _____

(ii) End products: _____ and _____

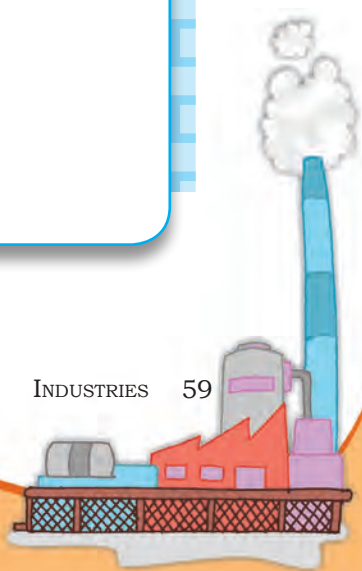
(iii) Tertiary Activities: _____ and _____

(iv) Agro-based Industries: _____ and _____

(v) Cottage Industries: _____ and _____

(vi) Co-operatives: _____ and _____

© NCERT not to be republished

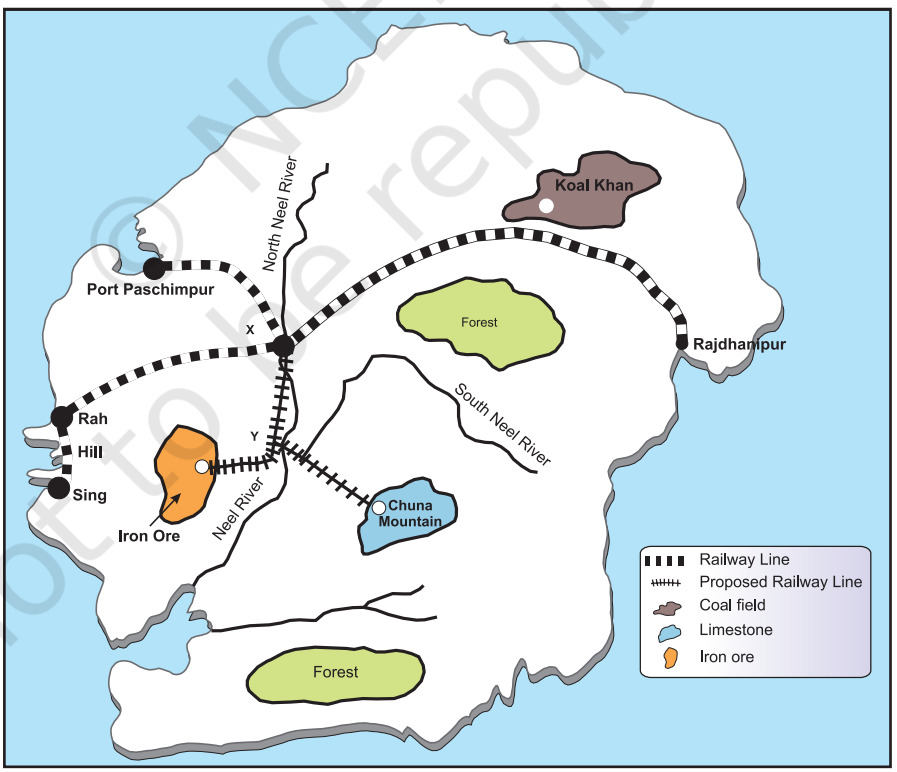


5. Activity

How to identify a location for establishing an industry —

Divide your class into groups. Each group is a Board of Directors faced with the problem of choosing a suitable site for an iron and steel plant of Developen Dweep. A team of technical experts has submitted a report with notes and a map. The team considered access to iron ore, coal, water and limestone, as well as the main market, sources of labour and port facilities. The team has suggested two sites, X and Y. The Board of Directors has to take the final decision about where to locate the steel plant.

- Read the report submitted by the team.
- Study the map to find out the distances of the resources from each site.
- Give each resource a 'weight' from 1 to 10, according to its importance. The greater the 'pull' of the factor on the industry the higher the weight from 1 to 10.
- Complete the table on the next page.
- The site with the lowest total should be the most satisfactory site.
- Remember each group of directors can decide differently.



© NCERT not to be republished

Report

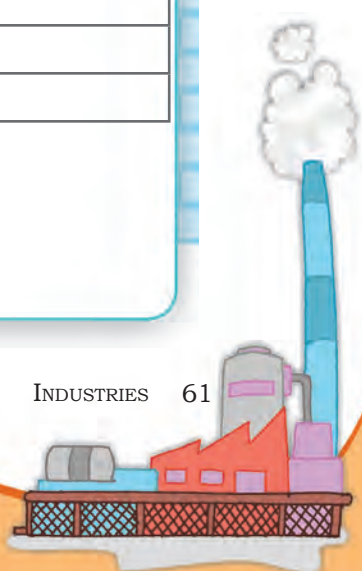
Factors/Resources affecting the location of a proposed Iron and Steel Plant on Developen Dweep.

- ***Iron ore***: This is a very large deposit of low grade iron ore. Long distance transportation of the ore would be uneconomic.
- ***Coal***: The only coalfield contains rich deposits of high grade coal. Transportation of the coal is by railway, which is relatively cheap.
- ***Limestone***: This is widely available over the island, but the purest deposits are in the Chuna Mountains.
- ***Water***: Both the tributaries of River Neel carry sufficient water to supply a large iron and steel plant in all seasons. The sea water because of its high salt content is unsuitable.
- ***Market***: It is expected that the chief market for the Plant's products will be the engineering works of Rajdhanipur. Transport costs for the products- mainly small steel bars and light steel plates would be relatively low.
- ***Labour supply***: This will have to be recruited mainly from the unskilled workers in the 3 fishing villages of Hil, Rah and Sing. It is expected that most workers will commute daily from their present homes.
- ***Port facilities***: These are at present minimal. There is a good, deep natural harbour at port Paschimpur developed to import metal alloys.

Resource	Distance from X	Distance from Y	Weighting* 1-10	Distance X weight for site X	Distance X weight for site Y
Iron ore					
Coal					
Limestone					
Water					
Chief market					
Labour supply					
			Total =		

* the larger the pull, the higher the weighting

© NCERT not to be republished



6 Human Resources

DBSBCH06

Do you know?

The Government of India has a Ministry of Human Resource Development. The Ministry was created in 1985 with an aim to improve people's skills. This just shows how important people are as a resource for the country.

Do you know?

Pradhan Mantri Kaushal Vikas Yojna (PKVY) was started in 2015 aiming to train one crore Indian youth from 2016 to 2020. The objective of this scheme is to encourage aptitude towards employable skills by giving quality training to probable and existing wage earners.

People are a nation's greatest resource. Nature's bounty becomes significant only when people find it useful. It is people with their demands and abilities that turn them into 'resources'. Hence, **human resource** is the ultimate resource. Healthy, educated and motivated people develop resources as per their requirements.

Human resources like other resources are not equally distributed over the world. They differ in their educational levels, age and sex. Their numbers and characteristics also keep changing.

© NCERT not to be republished

Distribution of Population

The way in which people are spread across the earth surface is known as **the pattern of population distribution**. More than 90 per cent of the world's population lives in about 30 per cent of the land surface. The distribution of population in the world is extremely uneven.

Some areas are very crowded and some are sparely populated. The crowded areas are south and south east Asia, Europe and north eastern North America. Very few people live in high latitude areas, tropical deserts, high mountains and areas of equatorial forests.

Many more people live north of the Equator than south of the Equator. Almost three-quarters of the world's people live in two continents Asia and Africa.

Sixty per cent of the world's people stay in just 10 countries. All of them have more than a 100 million people.

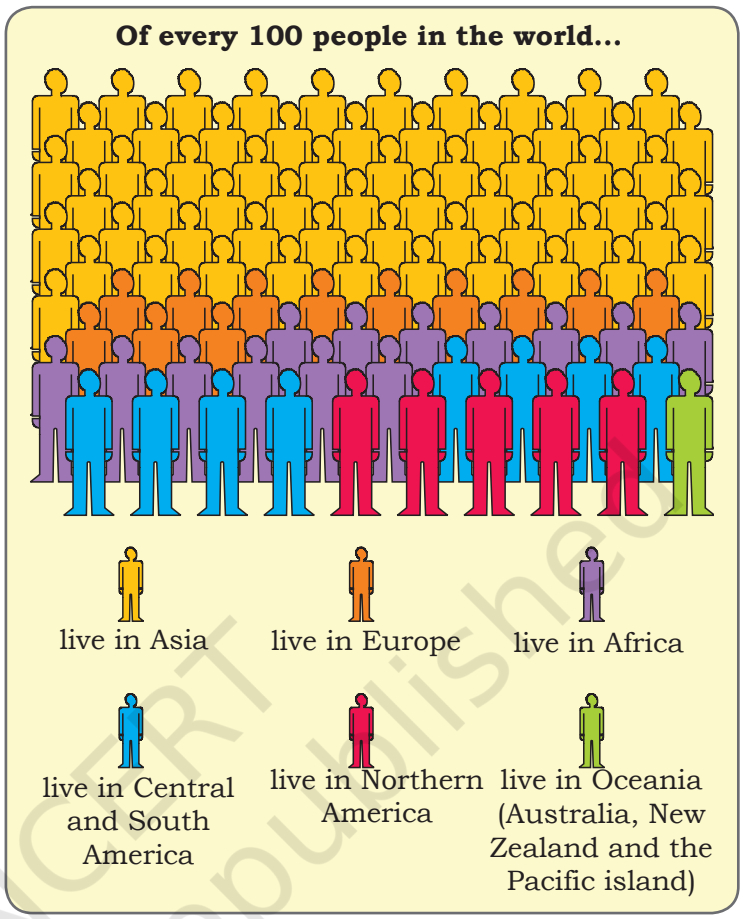


Fig. 6.1: World population by continents

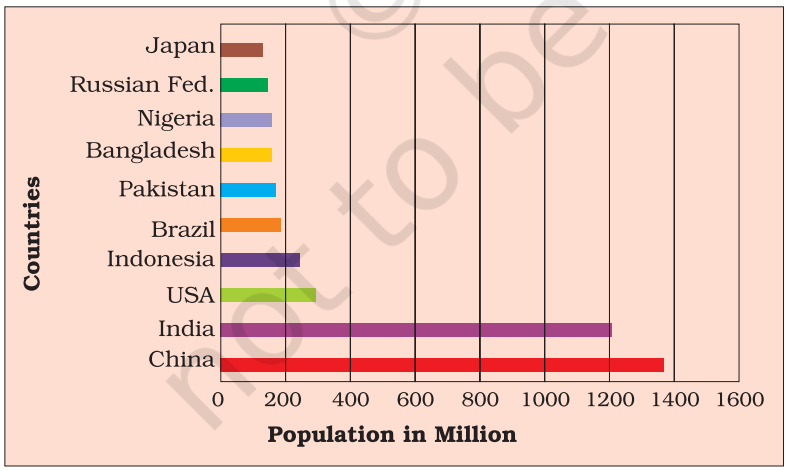


Fig. 6.2: World's most populous countries

Locate and label these countries on the outline map of the world.

Source: Census of India, 2011 Provisional Population Totals, Paper 1 of 2011 India Series 1

Activity

Study Fig. 6.1 and find out :
of the world's total population which continent has —
(a) only 5 per cent
(b) only 13 per cent
(c) only 1 per cent
(d) only 12 per cent

© NCERT not to be republished

Do you know?
Average density of population in India is 382 persons per square km.

Density of Population

Population density is the number of people living in a unit area of the earth's surface. It is normally expressed as per square km. The average density of population in the whole world is 51 persons per square km. South Central Asia has the highest density of population followed by East and South East Asia

When all the 30 students are present, our classroom seems very crowded. But when the same class is seated in the school assembly hall, it seems so open and empty. Why?

Because the size or area of the hall is much larger than that of the classroom. However, when all the students of the school come into the hall, the hall too starts looking crowded.

Factors Affecting Distribution of Population

Geographical Factors

Topography: People always prefer to live on plains rather than mountains and plateaus because these areas are suitable for farming, manufacturing and service activities. The Ganga plains are the most densely populated areas of the world while mountains like Andes, Alps and Himalayas are sparsely populated.

Climate: People usually avoid extreme climates that are very hot or very cold like Sahara desert, polar regions of Russia, Canada and Antarctica.

Soil: Fertile soils provide suitable land for agriculture. Fertile plains such as Ganga and Brahmaputra in India, Hwang-He, Chang Jiang in China and the Nile in Egypt are densely populated.

Water: People prefer to live in the areas where fresh water is easily available. The river valleys of the world are densely populated while deserts have spare population.

Minerals: Areas with mineral deposits are more populated. Diamond mines of South Africa and discovery of oil in the Middle east lead to settling of people in these areas.

Activity
Look at Fig 6.2 and find out: of these countries how many are in Asia? Colour them on a world map.

Social, Cultural and Economic Factors

Social: Areas of better housing, education and health facilities are more densely populated e.g., Pune.

© NCERT not to be republished

Cultural: Places with religion or cultural significance attract people. Varanasi, Jerusalem and Vatican city are some examples.

Economic: Industrial areas provide employment opportunities. Large number of people are attracted to these areas. Osaka in Japan and Mumbai in India are two densely populated areas.

Glossary

Life expectancy
It is the number of years that an average person can expect to live.

Population Change

The population change refers to change in the number of people during a specific time. The world population has not been stable. It has increased manifold as seen in the Fig 6.3. Why? This is actually due to changes in the number of births and deaths. For an extremely long period of human history, until the 1800s, the world's population grew steadily but slowly. Large numbers of babies were born, but they died early too. This was as there were no proper health facilities. Sufficient food was not available for all the people. Farmers were not able to produce enough to meet the food requirements of all the people. As a result the total increase in population was very low.

In 1804, the world's population reached one billion. A hundred and fifty five years later, in 1959, the world's population reached 3 billion. This is often called population explosion. In 1999, 40 years later, the population doubled to 6 billion. The main reason for this growth was that with better food supplies and medicine, deaths were reducing, while the number of births still remained fairly high.

Births are usually measured using the **birth rate** i.e. the number of live births per 1,000 people. Deaths are usually measured using the **death rate** i.e. the number of deaths per 1,000 people. **Migrations** is the movement of people in and out of an area.

Births and deaths are the natural causes of population change. The difference between the birth rate and the death rate of a country is called the **natural growth rate**.

The population increase in the world is mainly due to rapid increase in natural growth rate.

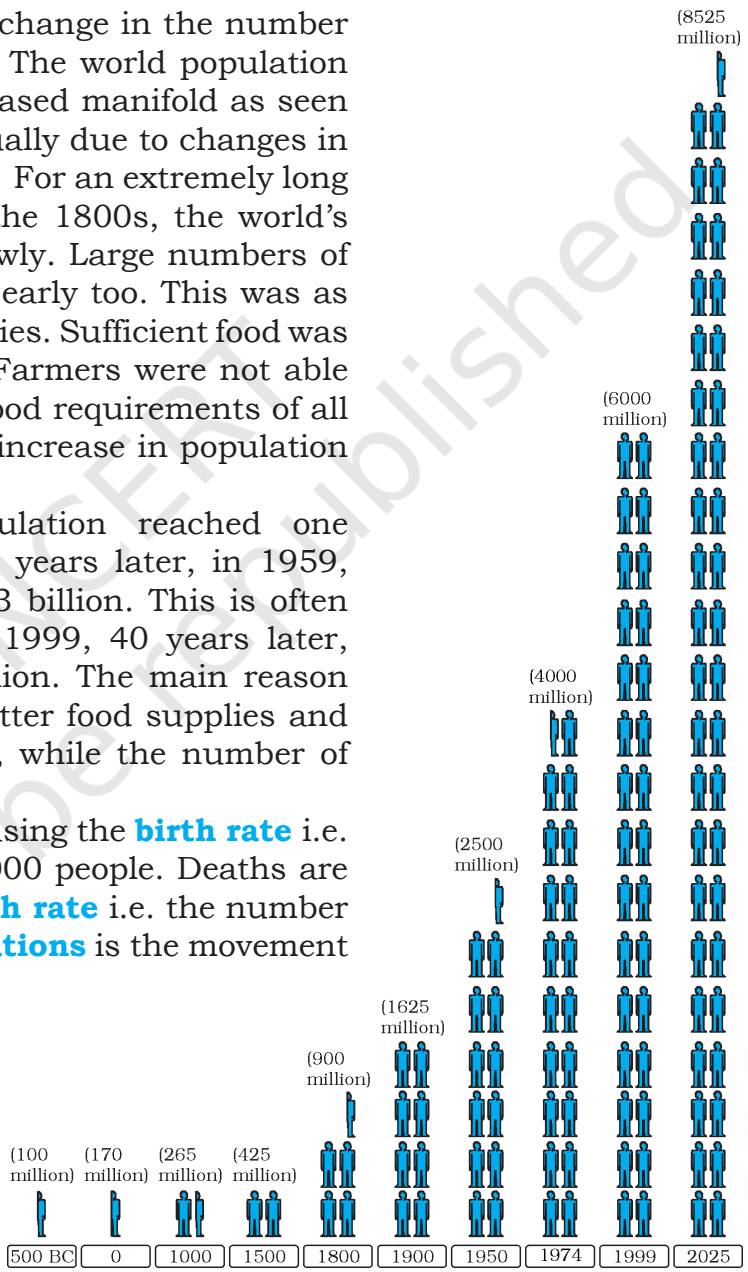
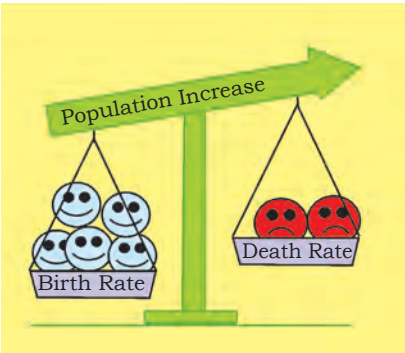
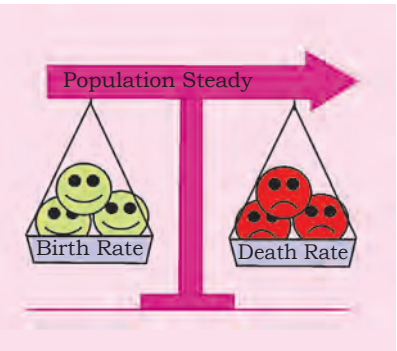


Fig 6.3: World Population Growth

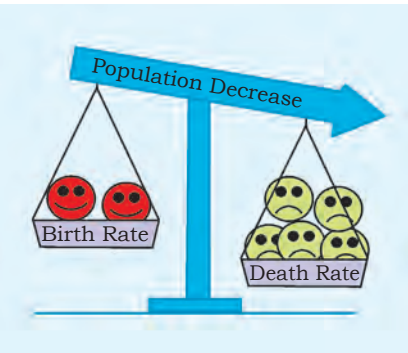
© NCERT not to be republished



Birth rate more than death rate: population increase



Birth rate and death rate same: population stays the same



Death rate more than birth rate:population decreases

Fig 6.4: *Balance of Population*

Glossary

Immigration
When a person enters a new country.

Emigration
When a person leaves a country.

Migration is another way by which population size changes. People may move within a country or between countries. **Emigrants** are people who leave a country; **Immigrants** are those who arrive in a country.

Countries like the United States of America and Australia have gained in-numbers by **in-migration** or **immigration**. Sudan is an example of a country that has experienced a loss in population numbers due to **out-migration** or **emigration**.

The general trend of international migrations is from the less developed nations to the more developed nations in search of better employment opportunities. Within countries large number of people may move from the rural to urban areas in search of employment, education and health facilities.

Patterns of Population Change

Rates of population growth vary across the world (Fig 6.5). Although, the world's total population is rising rapidly, not all countries are experiencing this growth. Some countries like Kenya have high population growth rates. They had both high birth rates and death rates. Now, with improving health care, death rates have fallen, but birth rates still remain high leading to high growth rates.

In other countries like United Kingdom, population growth is slowing because of both low death and low birth rates.

© NCERT not to be republished

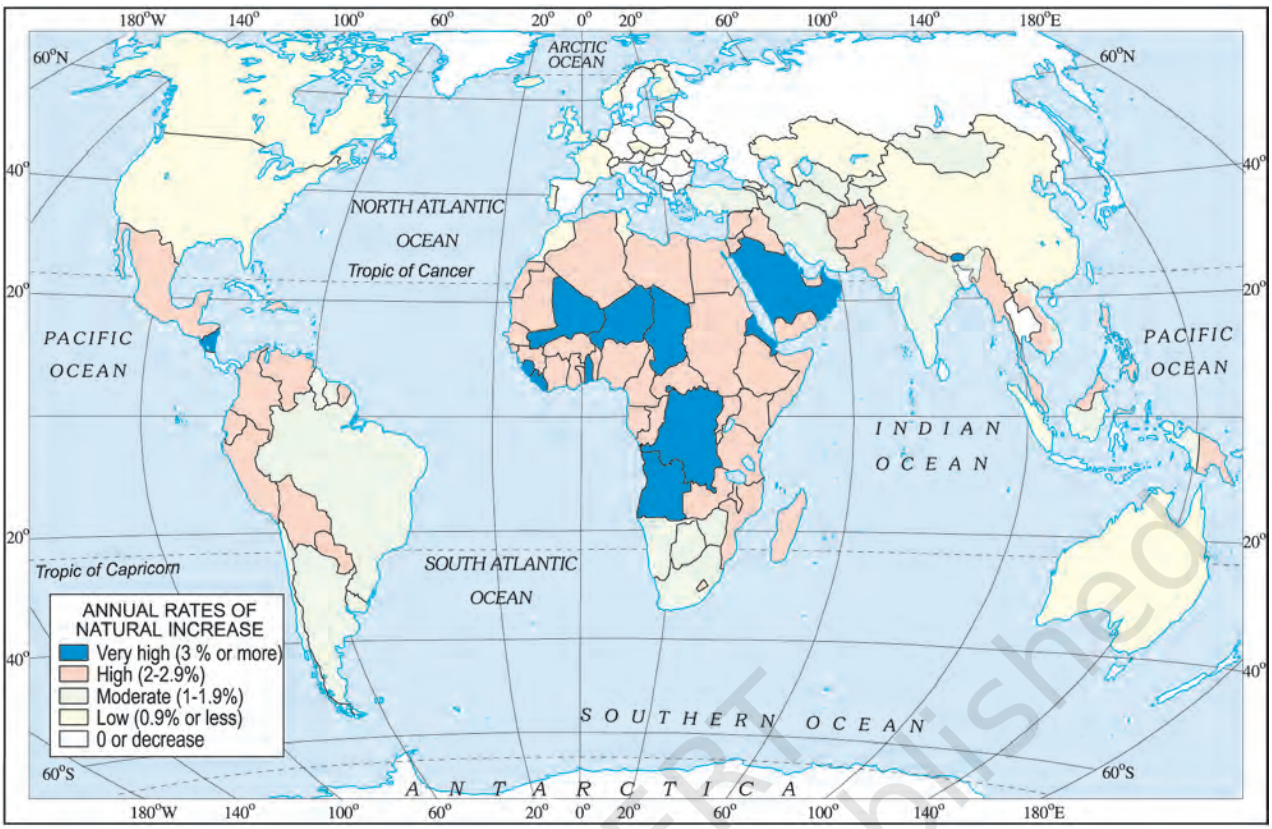


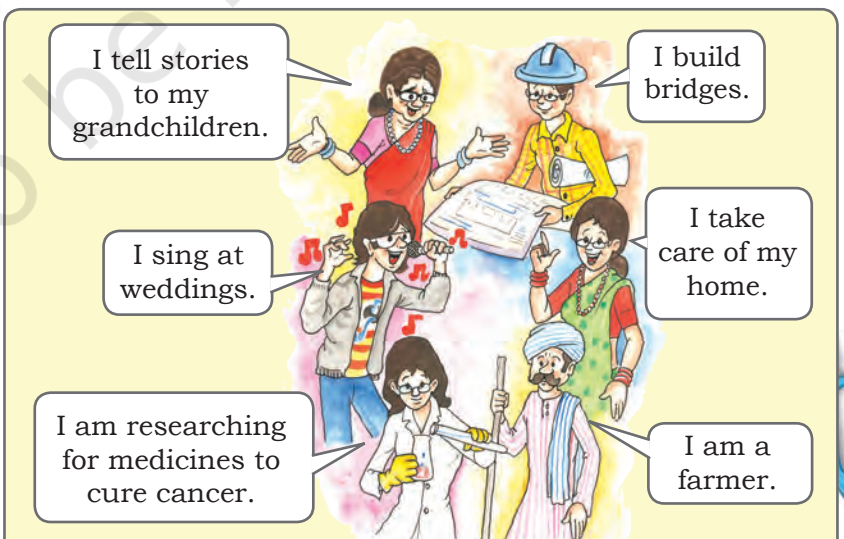
Fig. 6.5: *World: Differing rates of population growth*

Population Composition

How crowded a country is, has little to do with its level of economic development. For example, both Bangladesh and Japan are very densely populated but Japan is far more economically developed than Bangladesh.

To understand the role of people as a resource, we need to know more about their qualities. People vary greatly in their age, sex, literacy level, health condition, occupation and income level. It is essential to understand these characteristics of the people. Population composition refers to the structure of the population.

The composition of population helps us to know



Think: *Every human being is potential resource for the society. What will be your contribution as a human resource?*

© NCERT not to be republished

how many are males or females, which age group they belong to, how educated they are and what type of occupations they are employed in, what their income levels and health conditions are.

An interesting way of studying the population composition of a country is by looking at the population pyramid, also called an age-sex pyramid.

A population pyramid shows

- The total population divided into various age groups, e.g., 5 to 9 years, 10 to 14 years.
- The percentage of the total population, subdivided into males and females, in each of those groups.

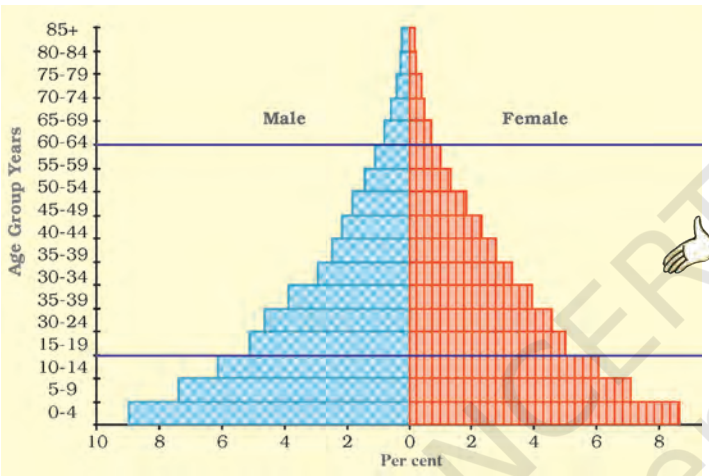
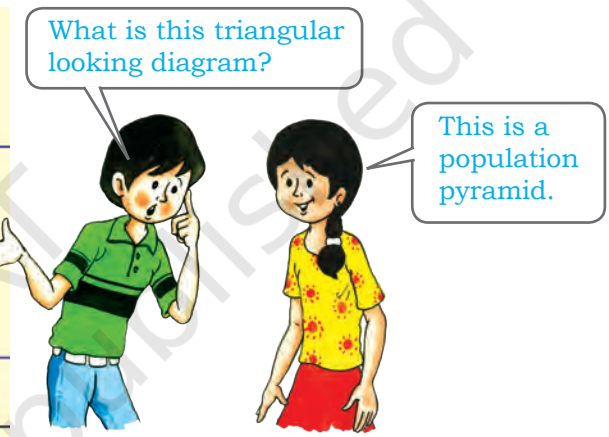


Fig. 6.6: Population Pyramid



© NCERT not to be republished

The shape of the population pyramid tells the story of the people living in that particular country. The numbers of children (below 15 years) are shown at the bottom and reflect the level of births. The size of the top shows the numbers of aged people (above 65 years) and reflects the number of deaths.

The population pyramid also tells us how many dependents there are in a country. There are two groups of dependents — young dependents (aged below 15 years) and elderly dependents (aged over 65 years). Those of the working age are the economically active.

The population pyramid of a country in which birth and death rates bothe are high is broad at the base and rapidly narrows towards the top. This is because although, many children are born, a large percentage of them die in their infancy, relatively few become adults and there are very few old people. This situation is typified by the pyramid shown for Kenya (Fig 6.7).

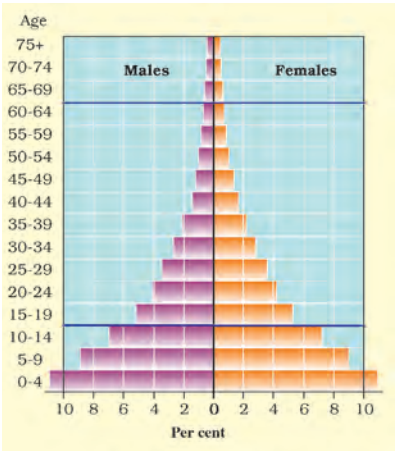


Fig. 6.7: Population Pyramid of Kenya

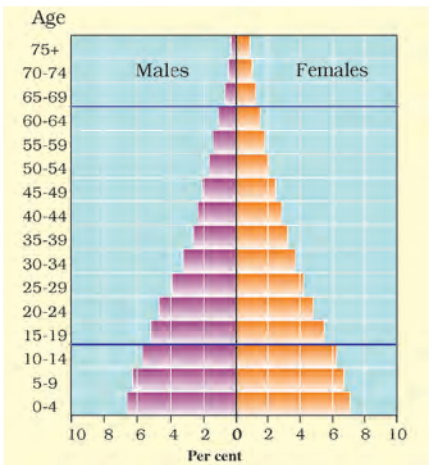


Fig. 6.8: Population Pyramid of India

In countries where death rates (especially amongst the very young) are decreasing, the pyramid is broad in the younger age groups, because more infants survive to adulthood. This can be seen in the pyramid for India (Fig 6.8). Such populations contain a relatively large number of young people and which means a strong and expanding labour force.

In countries like Japan, low birth rates make the pyramid narrow at the base (Fig 6.9). Decreased death rates allow numbers of people to reach old age.

Skilled, spirited and hopeful young people endowed with a positive outlook are the future of any nation. We in India are fortunate to have such a resource. They must be educated and provided skills and opportunities to become able and productive.

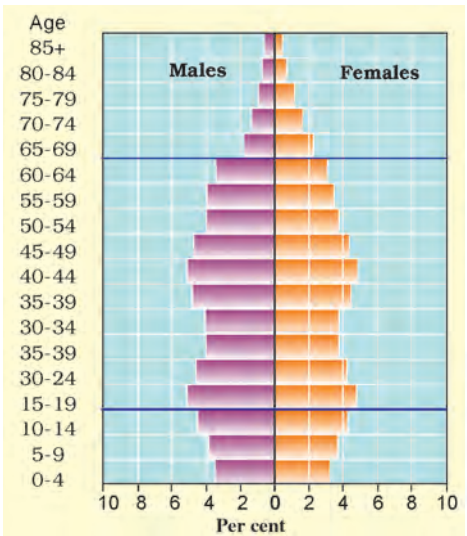


Fig. 6.9: Population Pyramid of Japan

© NCERT not to be republished

Exercise

1. Answer the following questions.

(i) Why are people considered a resource?

(ii) What are the causes for the uneven distribution of population in the world?

(iii) The world population has grown very rapidly. Why?

(iv) Discuss the role of any two factors influencing population change.

(v) What is meant by population composition?

(vi) What are population pyramids? How do they help in understanding about the population of a country?

2. Tick the correct answer.

(i) Which does the term population distribution refer to?

(a) How population in a specified area changes over time.

(b) The number of people who die in relation to the number of people born in a specified area.

(c) The way in which people are spread across a given area.

(ii) Which are three main factors that cause population change?

(a) Births, deaths and marriage

(b) Births, deaths and migration

(c) Births, deaths and life expectancy

(iii) In 1999, the world population reached

(a) 1 billion (b) 3 billion (c) 6 billion

(iv) What is a population pyramid?

(a) A graphical presentation of the age, sex composition of a population.

(b) When the population density of an area is so high that people live in tall buildings.

(c) Pattern of population distribution in large urban areas.

3. Complete the sentences below using some of the following words.

sparsely, favourable, fallow, artificial, fertile, natural, extreme, densely

When people are attracted to an area it becomes ..... populated

Factors that influence this include ..... climate; good supplies of ..... resources and ..... land.

© NCERT not to be republished

4. Activity

Discuss the characteristics of a society with 'too many under 15s' and one with 'too few under 15s'.

Hint : need for schools; pension schemes, teachers, toys, wheel chairs, labour supply, hospitals.

© NCERT not to be republished

Some Internet Sources for More Information

www.ndmindia.nic.in
www.environmentdefense.org
www.freefoto.com
www.worldgame.org/worldmeters
www.cseindia.org
www.mnes.nic.in
www.undp.org/popin

Notes

© NCERT not to be republished