
ECONOMICS

Chapter 1

MONEY AND BANKING

LEARNING OBJECTIVES:

After studying this chapter you will be able to understand:

- Money as a medium of exchange
- Modern forms of Money
- Concept of a bank and types of bank deposits
- How to open and operate a savings bank account
- Credit & loan facilities of a bank
- Role of post office in savings

MONEY AS A MEDIUM OF EXCHANGE

When we look around in our everyday life, we find that there are numerous transactions where goods are being bought and sold with the use of money. Sometimes instead of goods , services are being exchanged with money. Did it ever come to our mind why all exchange transactions are made in money. The reason is quite simple , a person having money can easily exchange it for any other commodity , goods or service that he or she wants. The word "money' generates a lot of interest. In today's busy life, money has occupied a very important role. We need money to buy various types of goods in order to satisfy our wants. Similarly, we need money to avail various services such as- transport, communication, education, health, entertainment, home deliveries and so on. As a buyer, we pay money to buy goods and services and as a seller, we receive money by selling them.

Activity box : 1

Enact a role play in the class showing ancient barter system of exchanging goods for goods .

As human beings we all have basic needs like food, shelter, clothes etc. Along with these basic needs we have multiplicity of wants. Take the case of a clothes merchant. He wants to sell Clothes and buy Rice. The clothes merchant will first exchange Clothes to sell for money and then exchange the money for Rice. However to obtain money , first he has to find a rice growing farmer who is willing to sell him rice. Imagine how much more difficult it would be for the cloth merchant if he had to exchange clothes directly for Rice without the use of Money. He would have to find a rice growing farmer who would be willing to sell him rice in exchange for clothes. To put it simple both parties have to agree to buy and sell commodities to each other . This problem is known as **double coincidence of wants.** Double coincidence in nutshell means "what a person desires to sell is exactly what the other wishes to buy". In earlier times, such kinds of problems were solved by a system known as Barter System. Under Barter System goods were exchanged for goods. Long before money was invented, people exchanged services and goods for other services and goods in return.

Did you know that

The term "money" is derived from the latin word "moneta "

Fig 1: Barter system

The main problem which is faced in double coincidence of want is to search for the persons with required excess and need. Such kind of problem was resolved by identification of a common medium of exchange which is acceptable to all. This common medium of exchange acceptable to all is termed as **Money**. Money as medium plays an important and crucial intermediate step and in turn eliminates the need for double coincidence of want. With the introduction of money as medium of exchange it is no longer necessary for cloth producer to search for a person with the excess for exchange. The cloth producer will now be able to sell clothes in the market against money (as common medium of exchange) and in turn will be able to buy food against money. Since money acts as an intermediate in the exchange process , it is called a medium of exchange. To put it simply , Money is any medium that can be

exchanged for goods and services , or "Anything which is widely accepted in payments for goods or in discharge of other kinds of obligations is money" . Money is legal finder that means legally none can refuse its exchange.

Evolution of Money

The development of money has passed through various stages in accordance with time, place and circumstances with the progress of economic civilization of mankind. The stages of the evolution of money are

Animal Money:

In the primitive hunting stage animals were used as a common medium of exchange. As per historical records cattle occupied a place of pride. Even at present in some of the tribes of Africa and some part of Asia cattle are considered as the most precious asset to help them in the barter exchange.

Commodity Money:

In certain communities in its crudest sense, also took the form of commodity money. A large number of commodities from axes to yarn have been adopted as money. The particular commodity chosen to serve as money depended upon various factors like location of the community, climatic environment of the region, culture and economic standard of society African people used ivory and tiger jaws as money. The precious stones, rice, tea, tobacco have also been used during the primitive days of human civilization.

Metallic Money:

The discovery of gold, silver, copper and bronze gradually replaced commodity money as a medium of exchange. Use of metals as money in the course of time paved the way for the development of coinage system in India. Minting of coins removed imperfection of the metallic money in size, shape and weight.

Paper Money:

In the 17th and 18th centuries paper currency emerged as a modern form of money. it was easy to carry and was convertible.

Fig 2: Commodity money

Fig 3: Metallic money

Fig 4: Paper money

MODERN FORMS OF MONEY

Having discussed the concept of money as a medium of exchange, let us understand the modern concept of money as we know it today. Before the introduction of coins, a variety of

objects were used as money. Ancient Indians have used grain and cattle as money , thereafter came the use of metallic coins –gold , silver, copper , which continued for centuries before giving way to paper currency. The modern forms of money include Currency, Demand Deposits , Plastic money (Debit cards, Credit cards).

Currency

How does money look like? What is the form of money? Over the years the form of money has changed. You must have read in history that during the days of Kings, people used to trade by using gold coins, silver coins, copper coins etc. Before that, in the ancient days, in some places people used to hold money in the form of cattle, salt . Paper money at present has occupied very important place in the monetary system of all countries. The paper money is used to refer to the government notes i.e. note issued by the central bank of a country. Have you ever wondered why paper notes are accepted as a medium of exchange,

Fig 5 : Indian Currency.

the answer is simple because it is authorised by the government of our country. In India currency notes and coins are issued by the Reserve Bank of India on behalf of the government. No person or organisation is allowed to issue currency. Moreover no person in India can legally refuse a payment made in rupees. Hence, the rupee is a universally accepted medium of exchange in India.Remember that currency notes and coins of India are valid only in India and not in other countries. Every country has its own currency. If you visit other countries, then you have to exchange Indian currency with the currency of that country. For instance if you visit United States of America, you have to exchange the Indian Rupee with Dollar American currency having symbol $. The European currency is called euro having symbol €.

Activity box: 2

Make a list giving names of the currencies of France, Germany, China, Brazil

Deposits with banks

Sometimes when we need only certain amount of money for our day to day needs , we need to keep our extra cash at a safe place. This means that apart from our currency as a form of holding money, the other form in which people hold money can be as deposits with banks. A Bank is an institution that deals in money. In simple words, bank means an institution which receives funds from the Public and gives loan to those who need them. The important function of Bank is collection of the savings of public. The bank does so by accepting deposits from its customers. The deposits are life line of the Banks. People deposit their extra money in the bank by opening a bank account in their name. Banks accept deposits

from the public and also pay some interest on the deposits. In this manner, people feel their money is safe and also earns them some extra amount called **interest**.

Type of deposit	Description
Saving account	• The simplest form of bank account opened by individual
	• Interest is given to the depositor
Current Account	• generally maintained by businessmen, traders and firms
	• No interest is given to the depositor
Recurring Deposits	• Money in these accounts is deposited in monthly instalment for fixed period .
Fixed Deposits	• Deposits in fixed account are time deposits.
	• These accounts give highest rate of interest to the depositor.

Fig 6 : Deposits with Commercial Bank

Plastic money

Every country has their own printed currency, however paper money can easily be spoiled and has no durability. Therefore, the use of Plastic money has started and found world wide acceptance. Plastic refers to the hard plastic cards which we use everyday in place of actual bank notes. They can come in many different forms such as cash cards, credit cards, debit cards, pre-paid cash cards and store cards.

A **Debit card** also known as a bank card is a plastic card that provides the cardholder electronic access to his or her bank account . The card, where accepted, can be used instead of cash when making purchases. Mostly the debit card is used for ATM (automated teller machine) transactions.

Fig 6 : ATM cum debit card

A Credit Card allows the cardholder to pay for goods and services based on the holder's promise to pay for them. The issuer of the card creates a revolving account and grants a limit of credit to the consumer (or the user) from which the user can borrow money for payment to a seller as a cash advance to the user.

Fig 7 : Credit card

BANKING & COMMON MAN

Once you open a bank account you can also withdraw your money as and when it is required.

A Saving account is the simplest form of bank account which can be opened by any individual for encouraging savings . In the saving account interest is given to the depositor.

Since the deposits with the bank can be withdrawn anytime on demand, these deposits are known as Demand Deposits. Demand deposits share the essential features of money. The facility of cheques against demand deposits makes it possible to directly settle payments without the use of cash.

The most common form of payments being made instead of cash is a bank instrument called a **Cheque**. A **Cheque** is a paper instructing the bank to pay a specific amount from the persons account to the person in whose name the cheque has been issued. The maker of a cheque is called the 'drawer', and the person directed to pay is the 'drawee'. The person named in the instrument, to whom or to whose order the money is, by the instrument directed, to be paid, is called the 'payee'. The facility of cheques against demand deposits make it directly possible to settle payments without the use of cash.

Format of a Cheque –

1. Branch address with IFSC code printed on top of the cheque
2. Date in dd/mm/yyyy format with boxes
3. Printers name with CTS-2010 in left side of cheque
4. A pantograph which shows void/copy while taking photocopy of the cheque below the account number
5. New rupee symbol instead of bilingual format
6. "Please sign above" is mentioned on bottom right of the cheque

The **Demand Draft** is a pre-paid negotiable Instrument, wherein the drawee bank undertakes to make payment in full when the instrument is presented by the payee for payment. The demand draft is made payable on a specified branch of a bank at a specified centre. This is also called a "remotely created check".

Activity box : 3

Paste a specimen of a form used to deposit and withdraw money from a bank in your scrap book.

Types of Banks

Based on their nature of activities banks can broadly be classified into four types-

- Commercial Bank
- Central Bank
- Co operative Bank
- Specialized Banks.

Fig 8 : Sample of a Cheque

A commercial Bank accepts deposits of money from the people and also uses money with it for lending purposes i.e. loan. There are some Public Sector commercial banks for example-State Bank of India (SBI), Punjab National Bank (PNB), Bank of India (BOI), Indian Bank,

Canara Bank, Bank of Baroda (BOB) etc.There are other Private Sector commercial banks which are under private sector such as- ICICI Bank, J&K Bank, HDFC Bank etc.

The **Central Bank** is an apex financial institution of a country. It issues (prints) notes controls and regulates monetary policy of the country. In India the name of the central Bank is RBI (Reserve Bank of India.

Fig 9 : Central Bank of India

In India there are many banks which are run by cooperative societies and are governed by the laws of the state in which they are operating. Such banks are called Cooperative Banks and are of two types - agricultural (or rural) and non - agricultural (or urban). In rural areas cooperative banks provide credit for farming, cattle, fishery etc. In urban areas the cooperative banks provide credit for self employment activities, small scale industry, purchase of durable goods such as television, refrigerator etc. and personal finance.

LOAN AND CREDIT ACTIVITIES OF A BANK

Understanding banking a little more , the people deposit their surplus funds with the banks and Banks besides providing security ,pay interest to the depositors. The Bank keeps only a small portion of their deposits as cash with themselves. The balance of deposits is lent out to those who are in need of money. To make things simple, let us think that there is only one bank in the economy. Let the banking authority has decided that the cash reserve ratio is 20 percent. So,the bank must keep 20 percent of its current deposit in the form of cash to make cash payments to persons who come to withdraw money.

Step1

A person called A, deposits Rs.100 in the bank. As a result the bank's deposits increases by Rs.100. As per rule the bank keeps 20% of 100 as cash. This comes out to be Rs.20. So the bank keeps Rs.20 to make cash payments. Now deduct 20 from 100. 100 – 20 = 80. So the bank can land out Rs.80 in the form of loan.

Step 2

A person called B approaches the bank to take a loan of Rs.80. After the bank gives this loan, it can claim the amount from B in future. This means that by giving loan to person B, the bank can create another deposit of Rs.80. Now calculate the total deposit with the bank First, person A deposited Rs.100. By giving loan to B, the bank is able to claim Rs.80. So after two steps the bank has total deposit of Rs.180.i.e 100 + 80 = 180

Step 3

Another person called C wants a loan from the bank. How much amount of money the bank can give as loan to C? In the previous step we saw that, the bank could increase its deposit by Rs.80 by claiming the amount from B. As per rule it has to keep 20% of 80 as cash before giving further loan to anybody. 20% of 80 = 16. So the bank will now keep Rs.16 as cash and give the rest of the amount as loan. 80 – 16 = 64. So the bank can give Rs.64 as loan to C. Again by claiming this amount from C, the bank can create another deposit of Rs.64 in step 3. Continuing from the previous two steps, we can say that, after three steps the total deposits with the bank has increased

upto 180 + 64 = 244. Or 100 + 80 + 64 = 244

So commercial Banks advances loans against some approved security (collateral). In India, these days banks hold about 15 per cent of their deposits as cash. This money is kept to pay depositors who may want to withdraw their money on any day as free will. Majority of the deposits are used to extend loan facility to customers. This **credit (Loan)** facility refers to an agreement in which the lender supplies the borrower with money, goods or services in return for the promise of future payment. It serves two purposes –

- Banks work as intermediaries between those who have surplus money (depositors) and those people who are in need of money (borrowers).
- Banks Charge higher Interest on the loans as compared to the interest paid to the deposit The difference between two rates is the bank's profit.

Aamir's dream house

Aamir has taken a loan of Rs 5 lakhs from the bank to purchase his dream house. The annual interest rate on the loan is 12 per cent and the loan is to be repaid in 10 years in monthly instalments. Aamir had to submit to the bank, documents showing his employment records and salary before the bank agreed to give him the loan. The bank retained as collateral the papers of the new house, which will be returned to Aamir only when he repays the entire loan with interest. So with the help of loan credit from the Bank , Aamir has fulfilled his dream of owning a house of his own .

Every loan agreement specifies a rate of interest at which the borrower must pay to the lender alongwith the repayment of principal amount. In addition , banks sometimes demand collateral security against loans.

Collateral is a asset that the borrower owns (Land, Business asset , House, Vehicle , Livestocks, Deposits with banks) and is kept with the lender/bank as a gurantee till the loan is repaid in full. If the borrower fails to repay the loan , the lender has the right to sell the collateral to obtain payment. The interest rate of the loan , collateral and documentation required for obtaining loan alongwith the mode of repayment together comprise the **terms of credit.**

Activity box :4

Paste pictures in your scrap book of some assets/collateral that can be kept by banks while lending a loan

Loan facility usually allows an individual / business to meet the working capital need of production, to buy a house, to fulfill marriage or children education needs . However when loan repayment becomes impossible due to certain reasons, in this case loans push the borrower into a situation where recovery is very painful . This is usually called a debt trap.

A commercial Bank is one of the important financial institutions serving the common man in his day to day activities . As mentioned before in the chapter , a Savings Bank Account is one of the easiest way to start the habit of Saving. These may include: opening of a bank account, depositing cash in bank and withdrawing cash from the bank.

OPENING OF SAVING ACCOUNTS IN A BANK

Following points should be considered for opening a bank account:

1 *Choose a bank in which you want to open an account:* This step involves choosing or selecting a bank with which a person wants to open an account. Presently we have many banks operational in our state Jammu and Kashmir. The leading bank of our state is Jammu and Kashmir Bank Ltd. popularly known as J K Bank.

2 *Fill up the prescribed application form:* Every bank has a prescribed application form to be filled up for opening an account. The application involves information regarding name, residence and space for fixing a photograph.

3 *Submit the filled up application form:* The filled up application form is to be submitted to the bank officer. It must be kept in mind that the bank may ask for necessary relevant documents like proof of residence, proof of identity. After scrutiny of the same the bank may issue an account number.

4 *Receive necessary documents from the bank:* After completion and successful submission of the form, the bank issues an account number. Bank also provides a small book known as passbook which contains particulars of the account holder. The entries regarding cash deposit and withdrawal are also entered in this book from time to time. The passbook serves as an important documentary link between bank and account holder. The Bank may also issue ATM Card.

Depositing money in a Savings Bank Account

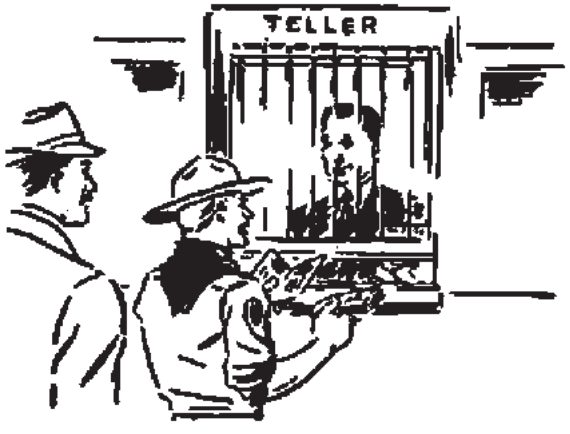


Fig 10 : depositing cash in the bank

For depositing cash in the bank the following steps should be adopted:

1 *Approach the bank where you have to deposit the cash:* First of all a person should identify the bank and the branch where the cash is to be deposited.

2 *Fill up the pay-in-slip:* The bank needs a person to fill up the pay-in-slip. Pay in slip contains information particulars like name of account holder, account number, date of deposit, amount to be deposited (both in figures and words), signature of the depositor, phone number etc. The reverse side of the pay in slip contains the information like number of currency notes deposited for each denomination. The pay-in-slip is to be filled in duplicate. One part will be retained by the bank while one will be returned to the depositor.

3 *Approach the Receipts Counter:* Once you have filled the pay-in-slip, you have to approach the receipts counter. Receipt counter is the counter maintained by the bank for receiving the cash of the depositor. In a disciplined manner, if a queue stands for the counter one has to wait for his turn.

4 *Take the receipt:* As the process of depositing cash has been completed, one should take the properly stamped and signed receipt from the same counter. The receipt is the part of the pay-in-slip as has been discussed in point 2 above.

5 *Keep the receipt at safe place:* Once the proper receipt has been acquired, it should be kept at safe and secure place. The safety and security of the receipt is necessary for

any future reference. The receipt acts as documentary evidence.

Withdrawing money from Saving accounts in Bank

Fig 11 : Withdraw Money through Bank

Fig 12: Withdraw money through ATM

Fig 13: ATM Machine

The cash can be withdrawn by two procedures:

I. *By visiting the branch*

(a) By filling withdrawal form: The person has to present himself personally and fill up the withdrawal form. The bank official will identify the person through passbook, photograph and Signature on withdrawl form.

(b) By Cheque: The cheques can be signed and issued by the account holder on the concerned bank. The bank will issue cash against such cheque. The account holder can himself also withdraw cash through such cheque. The person whose name is written on such cheque can also withdraw cash. With the help of cheques the amount can be transferred from account to account.

II. **By using ATM (Automated Teller Machine)**

It is a machine controlled procedure. A person, on opening an account, is provided with a card which can be used to withdraw cash by inserting in ATM and following few steps. The machine, after inserting the card, will ask for pin (electronic key) to proceed. After that the machine will ask for options like amount to be drawn etc. At the end of transaction the machine will provide slip showing amount withdrawn and balance remaining with the bank.

ROLE OF POST OFFICE IN SAVINGS

Fig 14: India post

The post offices which are found round the corner of the country are located in remote village as well as in modern city centres of the country. The Post Office savings bank is the oldest and by far the largest banking system in the country, serving the investment need of both urban and rural clientele. These services are offered as an agency service for the Ministry of Finance, Government of India. The India Post network with over 155,000 branches is twice as large as the outreach of commercial banks in India put together.

Various Post office Schemes
Post Office Savings Account
5-Year Post Office Recurring Deposit
Post Office Monthly Income Scheme
Senior Citizen Savings Scheme
15 year Public Provident Fund Account
5 Years National Savings Certificate (VIII Issue)
10 Years National Savings Certificate (IX Issue)

Fig 15 : Post Office Savings Schemes

What you have learnt

In this chapter you have learnt about the concept of money as a medium of exchange. We have looked at the modern forms of money and how they are linked with the banking system. On one side are the depositors who keep their money in the banks and on the other side are the borrowers who take loans from these banks. We have also learnt how to Open a Savings Bank Account, Deposit/Withdraw money from our account and the role that the Post Offices can play in generating savings. Economic activities require loans or credit. Credit, as we saw can have a positive impact, or in certain situations make the borrower worse off.

EXERCISES

Project /Activity

- Go to the local bank and ask them to give a demo of how to operate an ATM
- Go to the local post master and request them to deliver a lecture on various post office savings schemes in your school.
- Collect the pictures/logos of any 2 Commercial banks and our Central bank and paste in your scrap Book.

A. Fill in the blanks:

i. ----------issues currency notes on behalf of the Central Government.

ii. Banks charge a higher interest rate on loans than what they offer on ----------

iii. ---------- is an asset that the borrower owns and uses as a guarantee until the loan is repaid to the lender.

iv. A ---------- is the simplest form of bank account which can be opened by any individual for encouraging savings .

v. The most common form of payments being made instead of cash is a bank instrument called a ----------.

vi. This is also called a "remotely created check,----------.

B. One word Answers :

i. The central bank of India, ……

ii. One nationalized Bank of India , ……

iii. One privately owned bank in India ,…….

iv. One post office savings scheme, ……..….

v. One cooperative bank in rural India giving loans to farmers……...

C. Very short /short Answer Type Questions

1. What is double coincidence of wants?? Explain with an example of your own.

1. Can you think of some examples of goods/ services being exchanged or wages being paid through barter?

2. Why is money called a medium of exchange?

3. What are the different forms of modern currency?

4. Who is authorized to issue currency in India.

5. Why can no one refuse to accept payment in rupees?

6. Why are the deposits in the bank account called deposits?

7. How do banks mediate between those who have surplus money and those who need money?

8. Define a Cheque .

9. Define a Loan .

10. Why do lenders ask for collateral while lending?

D. Long Answer Type Questions

1. What are the various forms of modern money?

2. What is the procedure of opening a Savings Bank account?

3. How can you withdraw money from a Savings Bank account?

4. What are the various forms of Plastic money ?

5. Explain the various credit and loan activities of Banks with an example?

Chapter 2

Understanding the Indian Economy

LEARNING OBJECTIVES :

After studying this chapter you will be able to understand:

- Concept of people as a resource.
- Factors determining Quality of Population
- Meaning & types of Unemployment-
- Meaning of Poverty and poverty line
- Causes of poverty and various Govt Anti poverty measures
- Meaning of Food security, Public Distribution system in India.

SALIENT FEATURES OF THE INDIAN ECONOMY

Fig 1 : Economic activities

Economic activities

You will find that people are engaged in various activities around you , as is also shown in the pictures above . Some of these activities are producing goods. Some others are producing services. These activities are happening around us every minute even as we speak. These activities are quite common around us. People here are engaged in different occupations to earn their livelihood. How do we understand these activities? Actions that involve the production, distribution and consumption of goods and services at all levels within a society are called **economic activities**. Examples of economic activities are fishing, farming and mining, etc . Whereas non- economic activities are the activities which are undertaken to satisfy social, religious, cultural and sentimental requirements of the people. People engage in non- economic activities for reasons of love, sympathy, religion, patriotism etc. For example, a mother looks after her children, a student donates blood, an old man

goes to temple daily, a rich man donates money to Prime Minister Relief Fund, a young man helps a blind girl cross the road etc. The same activity may be economic as well as non-economic. For example, a nurse attending a patient in a hospital is an economic activity as the nurse works for a salary. But when the same nurse attends to her sick mother at home, it is a non- economic activity because the object is not to earn money. Thus the activity of the same person may be economic at one time or place and non-economic at another time or place. The dividing line is not the activity or the person, who is doing it, but the objective for which it is undertaken.

Sectors of the Economy

Take the scenario in rural areas of India. How do the people, who are living in villages, earn their livelihood? Many of them work on the fields to raise crops, which is known as cultivation. They are known as farmers and agricultural labourers and the occupation is called agriculture. There are different types of crops which are cultivated; such as food items and non food items. Food items include cereal, pulses, fruits and vegetables etc. and non-food items include cotton, jute etc. Similarly people also earn their livelihood from forestry which refers to collection of forest products and selling them in the market. Forest products include- timber, firewood, herbal medicines etc. Many people work in mining area to extract minerals. There also people who are engaged in raising live stock such as poultry and dairy farming. Finally fishery is another occupation in which people catch fish in ponds, rivers or sea to sell them in the market. All these activities i.e. agriculture, forestry, mining, livestock and fishery are complementary to each other. We classify them as primary production and place them in primary sector. When the economic activity depends mainly on exploitation of natural resources then that activity comes under the **primary sector.** Therefore, production and productivity of this sector depends mainly upon the availability of natural resources and their utilization. Why primary? This is because it forms the base for all other products that we subsequently make. Since most of the natural products we get are from agriculture, dairy, fishing, forestry, this sector is also called **agriculture and related sector**.

Fig 2: Rice cultivation

Fig 3: Dairy farming

When the main activity involves manufacturing

then it is called the **secondary sector**. All industrial production where physical goods are produced come under the secondary sector. It is the next step after primary. Primary Sector provides raw material to the secondary sector. The product is not produced by nature but has to be made and therefore some process of manufacturing is essential. This could be in a factory, a workshop or at home. For example, using silk fibre from the plant, we spin yarn and weave cloth. We convert earth into bricks and use bricks to make houses and buildings. The product is not produced by nature but has to be made and therefore some process of manufacturing is essential.

Since this sector gradually became associated with the different kinds of industries that came up, it is also called as **industrial** sector. Activities of secondary sector are related mainly with physical and human resources (Man and Capital). Therefore, production and productivity of this sector depends mainly upon the availability of these resources and their utilization.

Fig 4 : Iron & steel Industry

Fig 5 : Silk Industry

When the activity involves providing intangible services then this is part of the **tertiary sector.** Financial services, management consultancy, Telephone/Telecommunication telephony and IT are good examples of service sector. These are activities that help in the development of the primary and secondary sectors. These activities, by themselves, do not produce a good but they are an aid or a support for the production process. For example, goods that are produced in the primary or secondary sector would need to be transported by trucks or trains and then sold in wholesale and retail shops. At times, it may be necessary to store these in godowns. We also may need to talk to others over telephone or send letters (communication) or borrow money from banks (banking) to help production and trade. Transport, storage, communication, banking, trade are some examples of tertiary activities.

Since these activities generate services rather than goods, the tertiary sector is also called the **service sector**. Service sector also includes some essential services that may not directly help in the production of goods. For example, we require teachers, doctors, and those who provide personal services such as washermen, barbers, cobblers, lawyers, and people to do administrative and accounting works. Tertiary sector bears direct relationship with economic growth and development of a country. At the

initial stage of development, contribution of this sector to national product and income remains negligible but goes on increasing along with economic development.

Fig 6: Transport & logistics

Fig 7: Banking

Why is the tertiary sector gaining so much importance in India?

There could be several reasons for the same-

- First, in a developing country like India, several services such as hospitals, educational institutions, police stations, courts, defense, transport, banks, insurance companies etc. are required and are provided by the government. These can be considered as basic services.
- Second, the development of the primary and secondary sectors leads to the development of services such as transport, trade and the like.
- Third, as income level rises, people start demanding many more services.
- Fourth, as the development gains momentum, certain new services such as those based on information and communication technology have become important and essential.

Activity Box : 1

Classify the following occupations into various activities, primary, secondary and tertiary.

- Cook in Hotel
- Courier
- Basket weaver
- Basmati rice producer
- Saffron cultivator
- Milk vendor
- Fishermen
- Banker
- Workers in silk factory
- Plumber
- Potter
- Bee-keeper
- Truck driver
- Call centre employee

Evolution of an Economy from Primary Sector Based to Tertiary Sector

During early civilization, all economic activity was in primary sector. When the food production became surplus people's need for other products increased. As the methods of farming changed and agriculture sector began to prosper, it produced much more food than before. Many people could now take up other activities. There were increasing number of craftpersons and traders. Buying and selling activities increased many times. Besides, there were also transporters, administrators, army etc. Over a long time and especially because new methods of manufacturing were introduced, factories came up and started expanding. Those people who had earlier worked on farms now began to work in factories in large numbers. This led to the development of secondary sector. The growth of secondary sector spread its influence during industrial revolution in nineteenth century. After growth of economic activity, a support system was the need to facilitate the industrial activity. Certain sectors like transport and finance play an important role in supporting the industrial activity. Moreover, more shops were needed to provide goods in people's neighbourhood. Ultimately, other services like transport, banleons communication, administrative support developed. To understand this interdependency, let us take an example of a cold drink. A cold drink contains water, sugar and artificial flavour. Suppose if there is no sugarcane production then procuring sugar will become difficult and costly for the cold drink manufacturer. Now to transport sugarcane to sugar mills and sugar to the cold drink plant needs the services of a transporter. A person or system of persons is required to maintain and monitor all these movements of goods from farm to factory to shop in different locations. That is where role of administrative staffs comes. Let us go back to the farmer. He also needs feritlisers and seeds which is processed in some factory and which will be delivered to his doorstep by some means of transportation. To top it all, at every step of these activities we require the proper monetary and banking system. So, in a nutshell, this describes how interrelated all sectors of an economy are. In the past 100 years, there has been a further shift from secondary to tertiary sector in developed countries. The service sector has become the most important in terms of total production. Most of the working people are also employed in the service sector. This is the general pattern observed in developed countries. Over the 30 years between 1980 and 2010, while production in all the three sectors has increased. It has increased more in the tertiary sector. As a result, in the year 2010-11, the tertiary sector has emerged as the largest producing sector in India.

However, all the three sectors of the economy are closely inter-dependent. Growth of one sector directly depends upon the growth of other two sectors. Development of agriculture and allied activities is not possible without the development of manufacturing and service sector. Therefore, balanced and coordinate growth of all the three sectors is essential for economic and social development.

The story of Sector linkages

Hari Singh is a farmer who cultivates wheat on his agricultural land in the village Rampur. Last year he had a good harvest due to good rain fall. So he could sell 10 quintals of wheat in the local mandi and keep another 10 quintals for his household consumption. This year there is no proper rainfall. The area is also having no irrigation facility. Then how to provide water to the wheat crop ? Hari Singh decided to lift ground water. But for this he needs a diesel pump set. Who will provide a diesel pump set? It is produced by a manufacturing unit called Ravi manufacturers which is situated 200km away in an industrial

area called Karim Nagar. Now going to such distant place is a difficult task.Ganga Singh, a friend of Hari Singh told that there is no need to worry. He took Hari Singh to the nearest township market called Shiv Mandi. In the market complex there is a shop called Pappu Hardware Store run by Ganga's brother-in-law named Pappu who sells pump sets. When Hari Singh asked for the pump set Pappu told him to wait for two hours because the truck carrying 50 Ravi pump sets and some spare parts for tractors from Karim Nagar would reach his shop by that time. Pappu also talked to Ravi Khetrapal, who is the owner of Ravi pumps, over his mobile phone to confirm this. In the mean time Ganga and Hari took tea and snacks in the tea stall, went to enquire about admission into primary schooling for Hari's little daughter and brought medicines from the health center for Ganga's son who was having fever at home. After two hours when they came back to Pappu's shop they saw labourers unloading the pumpsets. Pappu told them that he had ordered 50 pumps from the factory in Karim Nagar. The truck would deliver the spare parts to another shop in the same market place which sells auto and tractor parts. Hari saw that Pappu gave a cheque of Rs.100, 000 to the truck driver who received it on behalf of Ravi Khetrapal. " Since the amount is big, it is not safe to give cash. Cheque is a better option. Mr. Khetrapal can deposit the cheque in his bank account to get the money" Pappu said. He further said that this payment was made to settle some earlier dues. The payment for pumps would be made after he sells the pumps to the customers in the similar way. Hari Singh paid Rs. 7000 to Pappu and bought one pump set. "Due to bad monsoon this year pump sets are in great demand and will be sold quickly" said Pappu confidently. "What about the truck now?" asked Hari while returning back to village with Ganga Singh. "The truck will now carry wheat and vegetables from the mandi which would be sold to households in the Karim Nagar industrial area and township" replied Ganga.

What is Gross Domestic Product

The various production activities in the primary, secondary and tertiary sectors produce a very large number of goods and services. Also, the three sectors have a large number of people working in them to produce these goods and services. The next step, therefore, is to see how much goods and services are produced and how many people work in each sector. How do we count the various goods and services and know the total production in each sector? Since, we have thousands of goods and services produced around us. It is not all the goods (or services) that is produced have to be counted. **We have to include only the final goods and services.** Take, for instance, a farmer who sells rice to a flour mill for Rs 10 per kg. The mill grinds the wheat and sells the flour to biscuit company for Rs 15 per kg. The biscuit company uses the flour and other things such as sugar, milk and oil to make 10 packets of biscuit. It sells biscuit in the market to the consumers for Rs 150 (Rs 10 per packet). Biscuits are the final goods, that is, goods that reach the consumers. Thus the value of final goods and services produced in each sector during a particular year provides the total production of the sector for that year**.** And the

sum of production in the three sectors gives what is called the **Gross Domestic Product (GDP)** of a country. It is the value of all final goods and services produced **within a country** during a particular year. It is the sum of production in the three sectors gives what is called **Gross Domestic Product (GDP)** of a country. It is the value of all final goods and services produced within a country during a particular year. Thus, the value of final goods and services produced in each sector during a particular year provides the total production of the sector for that year. GDP shows how big the economy is. In India, the task of measuring GDP is undertaken by the Central Government Ministry. This Ministry, with the help of various governments of all the Indian States and Union Territories collects information relating to total volume of goods and services and their prices and then estimates the GDP.

Sectoral share in Gross Domestic product

The primary sector contributes around 17 %. The secondary sector contributes around 29 % and the tertiary sector contributes around 54 %. Now, come to the percentages of population dependent on each of these sectors. 60 % of the population is dependent on primary sector, where around 80-90 % of these are dependent on agriculture itself. This means that around 50 % of total Indian population is still dependent on these sectors. But , in case of primary sector, the share in GDP is only 17 % and 60 % of the population is dependent on the same.

Sectors Share in GDP (2012-13)	
Primary Sector	13.68
Secondary Sector	27.03
Teritiory Sector	59.29
Source : Central Statistical Organisation (CSO)	

Fig 8 : Share of sectors in GDP

Agriculture and allied Sector

Agriculture is the process of producing food, feed, fiber and other goods by the systematic raising of plants and animals. Agricultural output is a component of the GDP of a nation. Agriculture is the dominant sector of Indian economy, which determines the growth and sustainability. About 65% of the population still relies on agriculture for employment and livelihood. In 2001 agriculture provides employment to 58.2 per cent people. This helps to provide income and food security along with employment in rural areas. The green revolution transformed India from a food deficient stage to a surplus food market. In a span of 3 decades, India became a net exporter of food grains. Remarkable results were achieved in these fields of dairying and oil seeds through white and yellow revolutions. Agriculture is one of the strongholds of the Indian economy and is geared towards the second green revolution. Agricultural transformation in India is induced by rapidly changing consumption patterns, increasing availability and access to new and improved technologies and mechanization of farming systems, which are some of the key drivers. Agriculture continues to be an important sector of the economy with a 14.1 % share (at constant prices 2004-05) in the Gross Domestic Product (GDP) in 2011-12. Its contribution in terms of providing employment to nearly two third of the work force has been critical in maintaining livelihoods especially in the rural areas. The planned approach to development has helped the country to reach a stage where the country is self sufficient in food grains and has a comfortable buffer stock. These achievements have been possible mainly through the favourable policy framework. The policy of Indian Agriculture was to achieve food security by providing incentive for growth alongwith equitable access to food. As a result terrible famines have become events of the past and the agricultural production does not show large variation even in the event of adverse climatic condition. It is, however, revealed that

the growth rate of agricultural production declined from 3.72% in eighties to 2.35% in the nineties indicating towards the need of sustainability in agriculture. Indian agriculture is still beset with problems like inadequate capital formation, low productivity, high cost of production, uneven growth etc. The 11th Five Year Plan (2007-12) witnessed an average annual growth of 3.6 per cent in the gross domestic product (GDP) from agriculture and allied sectors against a target of 4.0 per cent and much higher than the average annual growth of 2.5 and 2.4 per cent achieved during the 9th and 10th Plans. The 12th Plan also kept the target for growth at 4 %. Today Indian Agriculture is witnessing a phase of diversification. Attention has been shifting to high-value crops from traditional crops. This is expected to enable a desired transition in Indian Agriculture from its stagnation to a growth path. To leverage the global competitive advantage, Indian agriculture needs intervention in the areas of policy, technology and market access.

Industrial Sector

Industry is the segment of economy concerned with production of goods. Industrial output is a component of the GDP of a nation. It includes mining and extraction sectors. Currently, India's manufacturing sector contributes about 16% to the GDP, and India's share in world manufacturing is only 1.8%. This is in stark contrast to China; where manufacturing contributes 34% to the GDP and share is 13.7% of world manufacturing –up from 2.9% in 1991. India's growth has been on the back of a booming services sector which contributes 62.5% of the GDP. These statistics clearly indicate that while manufacturing has not been the engine of growth for the Indian economy, it now needs to grow at a much faster rate. The role of manufacturing in driving India's growth can hardly be overemphasized. While the share of manufacturing in India's GDP has stagnated at 15-16%, the sector seems poised for immense growth in future owing to its eminent talent pool in science, technology and research. The Government's recognition of the potential of the sector and its multiplier effect is clear in its formulation of the National Manufacturing Policy, which aims at enhancing the share of manufacturing to 25% within a decade and creating 100 million jobs. The policy is particularly encouraging in its sharp focus on the role of states in enhancing manufacturing competitiveness. With the vision and objective in place, sustained emphasis on execution will help manufacturing to reclaim its rightful place in the Indian Economy

Service Sector:

A service is the non-material equivalent of a good. Service sector includes farm and factory related activities. Service output is a component of the GDP of a nation. The share of service sector in GDP has increased from 50 % in 2001 to 58.2 % in 2011. The growth of this sector in 2011 was 7.4%.

You can directly see the changing importance of the sectors over the last thirty years. Why most of the labour force is absorbed in the primary sector? It is because enough jobs are not created in the secondary and tertiary sectors. It has been observed, more than half of the workers in the country are working in the primary sector, mainly in agriculture, producing only a quarter of the GDP. In contrast to this, the secondary and tertiary sectors produce three-fourth of the produce, whereas they employ less than half the people. Does this mean that workers in agriculture are not working well? What it implies is that most of the labour force is engaged in agriculture than is necessary. In such a situation, even if many workers are withdrawn, the same work can be continued by few workers. For instance, take the case of a small farmer, Barkat , owning about three hectares of unirrigated land, dependent only on rain and growing crops like jowar and bajra. All the six members of his family work on the plot throughout the year. Why? They have nowhere else to go for work. You see that everyone is

working, none remains idle, but in actual fact, their labour effort gets divided. Each one is doing some work but no one is fully employed. This is the situation of underemployment. This form of underemployment can be defined in two ways: a) a situation in which a labour does not get the type of work he is capable of doing; b) as a labourer does not get sufficient work to absorb him self for the total length of working hours of day. There are lakhs of farmers like Barkat in India. This means that even if we shift some of labours from agricultural sector and provide them some other employment opportunities elsewhere, and the same work can be continued by few workers only.

Let us examine another way of classifying activities in the economy. Just look at the way people are employed. What are their conditions of work? Are there any rules and regulations that are followed as regards their employment?

Organised sector covers those enterprises or places of work where the terms and conditions of work are properly framed and followed by the workers in an organized sector. They get paid leave, payment during holidays, provident fund, gratuity etc. They are supposed to get medical benefits and, under the laws, the factory manager has to ensure facilities like drinking water and a safe working environment. When they retire, these workers get pensions as well.

Activity Box : 2

Classify the following categories into organized sector and unorganized sector –

1. A teacher taking classes in a school
2. A farmer irrigating her field
3. A doctor in a hospital
4. A daily wage labourer working under a contractor.
5. A factory worker going to work in a big factory.
6. A carpenter at a construction site .

The **unorganized sector** is characterised by small and scattered units which are largely outside the control of the government. There are rules and regulations but these are not followed. Jobs here are low-paid and often not regular. There is no provision for overtime, paid leave, holidays, leave due to sickness etc. Employment is not secure. People can be asked to leave without any reason. When there is less work, such as during some seasons, some people may be asked to leave. This sector includes a large number of people who are employed on their own doing small jobs such as selling on the street or doing repair work.

Similarly, farmers work on their own and hire labourers as and when they require.

Another way of classifying economic activities into sectors could be on the basis of who owns assets and is responsible for the delivery of services. In the **public** sector, the government owns most of the assets and provides all the services. Railways or post office is an example of the public sector. In the **private** sector, ownership of assets and delivery of services is in the hands of private individuals or companies. Whereas companies like Tata Iron and Steel Company Limited (TISCO) or Reliance Industries Limited (RIL) are privately owned.

Activity Box : 3

Collect logos of the following public sector companies and paste them in your scrap book - MTNL, Indian Railways, Air India, All India Radio , BSNL

Activity Box : 4

Collect photographs of any two products produced by following private sector companies and paste them in your scarp book -TATA , RIL, Britannia, Unilever , P&G

Fig 9 : Some MNC's selling products in India

GLOBALISATION

You know that India is one among the many countries in the world. Countries interact with one another and keep relationship in various areas of interest. Citizens of one country travel to other countries as tourists, to seek jobs, to do business, to study,to do charity and on some government assignments . Now a days , the word **globalization** is commonly used. The reason is obvious. Today television and internet and mobile phones become easily available. People in remote areas can now talk and keep in touch through mobile phones. Today you can watch India-West-Indies cricket match live on television. You can talk to your friend in USA or Europe through mobile phone. There is no need of sending letters if you want to say something in detail. Getting a letter in USA from India takes at least 3 to 7 days. But through internet you can send e-mail which can reach your friend in seconds. You can order a new good produced in Germany or Japan through internet and it will reach you in India.

Globalization refers to in which activities of large number of business enterprises is carried out in many different locations across national boundaries. It is much more than just importing or exporting from one country to another. *True globalization involves one firm procuring from, manufacturing in, and selling in many different countries.* Thus Globalization is the process of integrating the economy of a country with the economies of other countries under conditions of free flow of trade and capital, and movement of persons across borders. **Globalization** is the process by which the economies of countries around the world become increasingly integrated over time. This integration occurs as technological advances expedite the trade of goods and services, the flow of capital, and the migration of people across international borders.

There has been an increasing trend in the world towards globalization. It is characterized by trends such as:

- Increased trade across national boundaries.
- One company having subsidiary companies and plants in many countries.
- One company selling its products in many different countries.
- Growth of joint ventures and technical collaborations between companies from different countries.
- Lowering of trade barriers and simplified import and export procedures.
- Faster and wider spread of new technologies across the world.

To put it simply, Globalization creates an opportunity for the producers to reach beyond the domestic markets , that is, markets of their own countries. Producers can sell their produce not only in markets located within the country but can also compete in, markets located in other countries of the world. Similarly, for the buyers import of goods produced in another country is one way of expanding the choice of goods, beyond, what is domestically produced. Foreign trade thus results in connecting the markets or integration of markets in different countries.

MULTINATIONAL CORPORATIONS (MNCs)

In today's world, every aspect of our lives is having influence of many parts of this world. Start thinking about anything and you will find a bit of many nations in it. In our day to day life we may be eating burger from US, pizza from Italy or noodles from China. Most of the household items we are using are being manufactured by some multinational companies. The coke and pepsi are from the US, the Hyundai is from Korea, Suzuki is from Japan selling cars under Maruti's banner. The calculator you are using may have been manufactured in Taiwan, the English you are using is mix of US, British and Indianised version of the original language.

A **multinational corporation** (**MNC**) is a corporation that is registered in more than one country or that has operations in more than one country. It is a large corporation which both produces and sells goods or services in various countries.

Activity Box : 5

Name 1 product each produced by the MNC's in India as shown in fig 9.

Such MNCs set up offices and factories for production in the regions where they can get cheap labour and other resources. This is done so that the cost of production is low and the MNCs can earn greater profits. The money that is spent to buy assets such as land, building, machines and other equipment is called investment. An investment made by the MNCs is called **foreign investment**. Any investment is made with the hope that these assets will earn profits. At times, MNCs set up production jointly with some of the local companies of these countries. The benefit of the local company of such joint production is two-fold. First, MNCs can provide money for additional investments, like buying new machines for faster production. Second, MNCs might bring with them the latest technology for production. In the past two to three decades, more and more MNCs have been set up and are looking for the locations around the world, where they find it cheap for production.

Foreign investment by the MNCs has also been increasing in these countries. A large part of foreign trade is also being controlled by MNCs. The result of greater foreign investments and foreign trade has been the greater integration of production and markets across countries.
MNCs are agents of globalization. Globalization gives business access to markets that would have been difficult to reach in the past. Because of the internet, customers from anywhere in the world can order products from companies anywhere else in the world, and have those products delivered by aeroplane in just a few weeks. This is naturally a tremendous advantage to business, who stand to increase their potential customer base by millions by reaching out to foreign buyers. Globalization allows businesses to access labour at cheaper prices. Globalization allows corporations to form partnerships with companies all around the world.

Activity Box : 6

Paste Labels/wrappers/ of products produced by MNC's in India which you can purchase from your local Karyana/ Provisions shop in your scrap book .

PEOPLE AS A RESOURCE

Fig 10 : The future of India

Fig: 11. Education and skill development

Fig: 12. Education makes better humans

Just as a country can turn physical resources like land into physical capital like factories. Similarly, it can also turn human resources like its population into human capital like engineers and doctors. Societies need sufficient human capital in the first place—in the form of competent people who have themselves been educated and trained as professors and other professionals. As land can be put to more and more use by adopting latest technologies and more production can be achieved hence increased performance. In the same manner efficiency and effectiveness of the people can be increased by enhancing their skills and hence the performance can be increased. This means that we need investment in human capital to produce more human capital out of human resources. Investment in human capital (through education, training, medical care) yields a return just like investment in physical capital. This can be seen directly in the form of higher incomes earned because of higher productivity of the more educated or the better trained persons, as well as the higher productivity of healthier people.

People as Resource' is a way of referring to a country's working people in terms of their existing productive skills and abilities. Looking at the population from this productive aspect emphasizes its ability to contribute to the creation of the Gross National Product. Like other resources population also is a resource — a 'human resource'. This is the positive side of a large population that is often overlooked when we look only at the negative side, considering only the problems of providing the population with food, education and access to health facilities. When the existing 'human resource' is further developed by becoming more educated and healthy, we call it 'human capital formation' that adds to the productive power of the country just like 'physical capital formation'.

All activities carried out by the productive population of the country add value to the national income. These activities are called **economic activities**. Economic activities have two parts. Market activities and non-market activities. **Market activities** involve remuneration to any one who performs i.e., activity performed for pay or profit. These include production of goods or services including government service. **Non-market activities** are the production for self-consumption. Education and skill are the major determinants of the earning of any individual in the market.

Activity Box : 7

Visit a village or colony located near to your residential area and note down the various activities undertaken by the people of that village or colony. Say whether these activities are Market or non Market activities.

QUALITY OF POPULATION

The education and health of the people of a country can be considered as major factors determining quality of the population of a country. The quality of population depends upon the literacy rate, health of a person indicated by life expectancy and skill formation acquired

by the people of the country. The quality of the population ultimately decides the growth rate of the country. Illiterate and unhealthy population are a liability for the economy. Literate and healthy population are an asset. So far as people or population of a country is concerned the standards which determine its quality are literacy rate, skill formation related to education and life expectancy related to health. These determinants ultimately decide the growth of a country. The other related factors which determine the quality of the population are unemployment, poverty etc. These two factors pose threat to the growth and development of the country.Do you know who takes care of education and health in India? Before we take up the analysis of the education sector in India, we will look into the need for government intervention in education and health sectors. We do understand that education and health care services create both private and social benefits and this is the reason for the existence of both private and public institutions in the education and health service markets. Expenditures on education and health make substantial long-term impact and they cannot be easily reversed; hence, government intervention is essential. In a developing country like ours, with a large section of the population living below the poverty line, many of us cannot afford to access basic education and health care facilities. Moreover, a substantial section of our people cannot afford to reach super specialty health care and higher education. Furthermore, when basic education and health care is considered as a right of the citizens, then it is essential that the government should provide education and health services free of cost for the deserving citizens and those from the socially oppressed classes.

Fig: 13. Polio Drops Programme is a flagship programme for child health

HEALTH

The health of a person helps him to realize his potential and the ability to fight illness. Improvement in the health status of the population has been the priority of the country. Our national policy, too, aims at improving the accessibility of health care, family welfare and nutritional service with a special focus on the under-privileged segment of population. Over the last five decades India has built up a vast health infrastructure and has developed man power required at primary, secondary and tertiary sector in Government as well as in the private sector. These measures adopted have increased the life expectancy to over Life expectancy 69.89/ year IMR 30.15 death/1000 line births (As per 2009 estimates). Crude birth rates have dropped to 26.1 and death rates to 8.7 within the same duration of time. Increase in life expectancy and improvement in child care are useful in assessing the future progress of the country. Increase in longevity of life is an indicator of good quality of life marked by self-confidence. Reduction

in infant mortality involves the protection of children from infection, ensuring nutrition along with mother and childcare.

The Government needs to devise effective policies in the public health sector with cohesive involvement from all relevant stakeholders. These include hospitals, pharmaceutical companies, health educators, health professionals, and logistics companies engaged in health-related service delivery. At the same time, the government needs to lay sufficient emphasis on wider determinants of healthcare such as food and livelihood security, drinking water, women's literacy, nutrition and sanitation. The public health policy should not only focus on the prevention of diseases by providing clean water and sanitation. It should also stress on fighting disease by administering antibiotics, which can be facilitated through the appropriate training of public health specialists and the development of health facilities at all levels.

Fig: 14. Girl education is promoted by the government

EDUCATION

You must have been told many a times by your parents to study well and attain good education. Education plays a vital role in making our life better, education by imparting skills and knowledge increases the efficiency and capacities of a person. Education contributes towards the growth of the society also. It enhances cultural richness and increases the efficiency of governance. With a view to strengthen and universalise education in India, government has introduced various schemes at various levels. The literacy rates have increased from 18% in 1951 to 74.04% in 2011. Literacy is not only a right, it is also needed if the citizen are to perform their duties and enjoy their rights properly. However, a vast difference is noticed across different sections of population. Literacy among males is nearly 50% higher than females and it is about 50% higher in urban areas as compared to the rural areas. Literacy rates vary from 96% in some district of Kerala to a below 30% in some parts of Madhya Pradesh. The primary school system has expanded to over 5,00,000 villages in India. Unfortunately, this huge expansion of schools has been diluted by the poor quality of schooling and high dropout rates. Do you know how much the government spends on education? During 1952-2010, education expenditure as percentage of total government expenditure increased from 7.92 to 11.1 and as percentage of GDP increased from 0.64 to 3.25. Elementary education takes a major share of total education expenditure and the share of the higher/tertiary education (institutions of higher learning like colleges, polytechnics and universities) is the least. Major government schemes for promoting elementary education are as under –

The most prominent among them being Sarva Shiksha Abhiyan, RMSA and Mid Day Meal scheme. **Sarva shiksha abhiyan** has been operational since 2000-2001 and provides for universal access, retention and quality in elementary education with special emphasis on girls. at elementary level. At the secondary level, the scheme launched in March 2009 called Rashtriya Madhyamik Shiksha Abhiyan (RMSA)

has been introduced. The objective of the scheme is to enhance access to secondary education and to improve its quality by the year 2017. **Mid day meal scheme was** launched on 15th august 1995 with a view to enhance enrolment, retention and attendance and simultaneously improving nutritional level among children. Under the scheme, every child in every government and government aided primary school be served a prepared mid day meal with a minimum content of 300 calories of energy and 8-12 gram protein per day for a minimum of 200 days. There is also an establishment of schools like Navodaya Vidyalaya in each district. Vocational streams have been developed to equip large number of high school students with occupations related to knowledge and skills.

UNEMPLOYMENT

Meaning & Types

Unemployment is said to exist when people who are willing and able to work at the going wages cannot find jobs. NSSO (National Sample Survey Organisation) defines **unemployment** as a situation in which all those who, owing to lack of work, are not working but seek work either through employment exchange, intermediaries, friends, relatives or by making applications to prospective employers or express their willingness or availability for work under the prevailing conditions of work and remuneration.

One of the important reasons of unemployment in India is the slow growth of capital formation as compared to increase in labour force. In case of India we have unemployment in rural and urban areas. However, the nature of unemployment differs in rural and urban areas. In case of rural areas, there is **seasonal** and **disguised unemployment**. Urban areas have mostly **educated** unemployment.

Seasonal unemployment happens when people are not able to find jobs during some months of the year and is generally found in the agricultural sector of the economy. Since Agriculture is a seasonal occupation. Labourers find the work only during the sowing and harvesting seasons. For the rest of the year, they have to remain unemployed. **Disguised Unemployment** refers to that unemployment which is not open for everyone and remains concealed. This usually happens among family members engaged in agricultural activity. The work requires the service of five people but engages eight peopleIn such a situation, even if many workers are withdrawn, the same work can be continued by few workers. In Indian villages, this form of unemployment is a common feature. Joblessness among the matriculates, graduates, post graduates and above forms **educated unemployment**. Many youth with matriculation, graduation and post graduation degrees are not able to find job. A study showed that unemployment of graduate and post-graduate has increased faster than among matriculates. A paradoxical manpower situation is witnessed as surplus of manpower in certain categories coexist with shortage of manpower in others. There is unemployment among technically qualified person on one hand, while there is a dearth of technical skills required for economic growth.

Unemployment leads to wastage of manpower resource. Inability of educated people who are willing to work, to find gainful employment implies a great social waste. Unemployment tends to increase economic overload. The dependence of the unemployed on the working population increases. The quality of life of an individual as well as of society is adversely affected. Increase in unemployment is an indicator of a depressed economy. It also wastes the resource, which could have been gainfully employed. If people cannot be used as a resource, they naturally appear as a liability to the economy.

Poverty

Meaning

In our daily life, we come across many people who we think are poor. They could be landless labourers in villages or people living in overcrowded *jhuggis* in cities. They could be daily wage workers at construction sites or child workers . They could also be beggars with children in tatters.

Why do we call them poor? Because they suffer from hunger, starvation ,malnutrition ,unemployment. They do not have their own houses to live, nor do they have enough to eat and wear. They are helpless and hopeless. In case of rural areas, poor do not own a piece of land and if they do, it is not sufficient to satisfy their family needs. They work as agricultural labourers where employment is partial or seasonal. Another characteristic of rural poor is that they live in kutcha house made of mud and straw. These houses are incapable to face harsh weather conditions owing to lack of job opportunities in rural areas, these landless labourer borrow to satisfy the needs of their families. Due to lack of means to return the borrowed money, they are caught in chronic indebtedness. This situation makes them more poor. They need the support of their children to fulfil the bare needs of the family. That is why they have bigger family size. These children instead of going to school go to work in rural factories, dhabas and as domestic servants. An important point to be noticed here is that since these children do not go to school they remain illiterate, uneducated and hence poor. These rural poor being tired of hunger and starvation shift to the urban areas. As they cannot own a house in urban areas they dwell in hutments which are dirty, dusty and filthy. Sanitary facilities are lacking in the hutments and there is no access to safe drinking water. Moreover they do not get regular employment. All these conditions rendered them to poor health which contributes to loss of work and consequently poverty again.

Poverty refers to a situation in which a section of society is unable to meet its basic need. These needs includes minimum human needs in respect of food, clothing, housing, education and health. **Poverty** is thus defined as a situation of lack of income to acquire minimum necessities of life.

We see poverty all around us. In fact, every fourth person in India is poor. This means, roughly 260 million (or 26 crore) people in India live in poverty. This also means that India has the largest single concentration of the poor in the world.

One of the biggest challenges of independent India has been to bring millions of its people out of abject poverty.

Estimates of Poverty in India

	Poverty ratio (%)			Number of poor (in millions)		
Year	Rural	Urban	Combined	Rural	Urban	Combined
1973-74	56.4	49.0	261	54.9	60	321
1993- 94	50.1	31.8	45.3	328.6	74.5	403.7
2004-05	41.8	25.7	37.2	326.3	80.8	407.1
2009-10	33.8	20.9	29.8	278.2	76.5	354.7

Source: Economic Survey 2002-03 & 2012-13, Ministry of Finance, GoI.

Poverty Line

Poverty line may be defined as a line which differentiates between poor and non-poor. The line as such may not be a marked line but the value expressions that state the limits of poverty. The limits of poverty may be in terms of income and / or consumption. The consumption levels as states are to determine the Poverty line, 2400 k (calories) per pesson perday for rural areas and 2100 k (calories) per person perday for urban areas. The people who could not reach the limits as stated above may be considered below the limit or below the fixed line while who could attain or reach the line may be treated as above the line.

Those below the limit are popularly known as people living below poverty line (BPL). Those living above the limit are known as above poverty line (APL). Thus poverty line is a mark which defines the limit of being poor or non-poor. In Jammu and Kashmir the state government claims that about 21.63 per cent population lives below poverty line while Planning Commission Government of India put it at below 4 per cent

Activity Box : 8

On the basis of the given definition for poverty line, find out whether people who work as domestic help, *dhobies* and newspaper vendors ,gardner in your locality/neighbourhood are above the poverty line or not.

Causes of Poverty in India

1. High growth of population: There has been a rapid increase of population in India. The high rate of population growth accompanied by low rate of growth leads to low growth rate of per capita income.

2. Rural economy and backward agriculture: Indian economy is an economy in which large part of population lives in rural areas. The main source of employment in the rural areas is agriculture. However, agriculture in India is highly backward. This results in low productivity and hence poverty.

3. Underutilized resources: India is a country which is full of natural resources. Due to lack of technology, the vast resources of minerals, forests, water etc remain untapped.

4. Lack of infrastructure: There is a lack of well developed infrastructure in our country. Facilities of transportation, banking, warehousing, roads, water, power, health are etc are highly deficient. For the growth and development of any country, infrastructural facilities play a vital role.

5. Huge income inequalities: Another feature of high poverty rate has been the huge income inequalities. One of the major reasons for this is the unequal distribution of land and other resources.

6. Socio-cultural and economic factors.: Many socio-cultural and economic factors are also responsible for poverty. In order to fulfil social obligations and observe religious ceremonies, people in India, including the very poor, spend a lot of money.

7. High level of indebtedness; Small farmers need money to buy agricultural inputs like seeds, fertilizers, pesticides. Since poor people hardly have any savings, they borrow. Unable to repay because of poverty, they become victims of indebtedness. So the high level of indebtedness is both the cause and effect of poverty.

Fig: 15. Rural Poverty

Rural poverty

Arjun belongs to a small village near Jammu in J&K. His family doesn't own any land, so they do odd jobs for the big farmers. Work is erratic and so is income. At times they get paid Rs 50 for a hard day's work. But often its in kind like a few kilograms of wheat or dal or even vegetables for toiling in the farm through the day. The family of eight cannot always manage two square meals a day. Arjun lives in a kuchha hut on the outskirts of the village. The women of the family spend the day chopping fodder and collecting firewood in the fields. His father a TB patient, passed away two years ago due to lack of medication. His mother now suffers from the same disease and life is slowly ebbing away. Although, the village has a primary school, Arjun never went there. He had to start earning when he was 10 years old.

Anti poverty measures

One can find, in all policy documents, emphasis being laid on poverty alleviation and that various strategies need to be adopted by the government for the same. Most poverty alleviation programmes implemented are based on the perspective of the Five Year Plans.

The government of India has taken up number of initiatives and programmes in order to address the poverty. Some of the programmes started were based on the expectation that the effects of the programme implementation through economic development would spread to all sections of society and will trickle down to the poor sections as well. Some other programmes were also started with the policy intention that income and employment for the poor could be raised through the creation of additional assets and by means of work generation. The another approach being used for poverty reduction was based on the perspective that expanding self-employment programmes and wage employment programmes are being considered as the major ways of addressing poverty. The major poverty alleviation programmes being launched by the government of India from time to time are being discussed below:

MGNREGA, 2005 :

Mahatma Gandhi National Rural Employment Guarantee Act is a scheme implemented by the government of India at national level and of the magnitude not seen anywhere in world. The scheme guarantees unskilled wage employment of 100 days to one person in every rural household at minimum wage. The 100 days employment under the scheme is visualised in the lean season of agricultural activities. The scheme is implemented in all the districts of the country and is seen as a major step in creating employment opportunities and also for poverty alleviation in the country. The state government

are required to give unemployment allowance of 1/3 the wages if not able to provide employment within 15 days of their registration.

NFWP (National Food for Work Programme):

The scheme was launched in 2004 in 150 most backward districts of the country. The programme is open to all rural poor who are in need of wage employment and desire to do manual unskilled work. It is implemented as 100 percent centrally sponsored scheme and food grains are provided free of cost to the states

PMRY (Prime Minister Rozgar Yojna):

PMRY is another scheme which was started in 1993. The aim of the programme is to create self-employment opportunities for educated unemployed youth in rural areas and small towns. They are helped in setting up small business and industries.

REGP (Rural Employment Generation Programme):

This programme was launched in 1995. The programme aimed at creating self employment opportunities in rural and small towns. The Khadi and Village Industries Commission is implementing this programme. Under this programme one can get assistance in the form of Loans to establish small business.

SGSY (Swarnajayanti Gram Swarozgar yojna):

This programme was launched in 1999. The programme aims at bringing the assisted poor families above the poverty line by organising them into self help groups through a mix of bank credit and government subsidy.

AAY (Antodaya Anna Yojna):

This scheme was launched in December 2000. Under the scheme, one crore of the poorest eligible families among the Below poverty line were provided with twenty five kilograms of food grains at highly subsidised rate of Rs 2 / kg for wheat and Rs 3 / kg for rice. This quantity has been enhanced from 25 to 35 with effect from April 2002. The scheme has been further expanded twice by additional 50 lakh Below poverty line families in June 2003 and August 2004. With this increase, 2 crore families have been covered under the AAY.

Activity Box : 9

Discuss and then develop a list of three employment opportunities each that can be created in most backward districts of J&K under National Food for Work Programme

FOOD SECURITY AND PUBLIC DISTRIBUTION SYSTEM (PDS)

The 1995 World Food Summit declared, "Food Security at the individual, household, regional, national and global levels exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life". The declaration further recognises that poverty eradication is essential to improve access to food. In simple words, food security means something more than getting two square meals. It has following dimensions:

(i) Availability of food: means food production within the country, food imports etc are suffice to meet the requirements.

(ii) Accessibility: means food is within the reach of every person.

(iii) Affordability: implies that an individual has enough money to buy sufficient, safe and nutritious food to meet one's dietary needs.

Thus food security is ensured in a country only if -

(1) enough food is available for all the persons

(2) all persons have the capacity to buy food of acceptable quality and

(3) there is no barrier on access to food.

Who are food-insecure? Although a large section of people suffer from food and nutrition insecurity in India, the worst affected groups are landless people with little or no land to depend upon, traditional artisans, providers of traditional services, petty self-employed workers and destitute including beggars. In the urban areas, the food insecure families are those whose working members are generally employed in ill-paid occupations and casual labour market. The social composition along with the inability to buy food also plays a role in food insecurity. The SCs, STs and some sections of the OBCs (lower castes among them) who have either poor land-base or very low land productivity are prone to food insecurity. The people affected by natural disasters, who have to migrate to other areas in search of work, are also among the most food insecure people. A high incidence of malnutrition prevails among women. This is a matter of serious concern as it puts even the unborn baby at the risk of malnutrition. The food insecure people are disproportionately large in some regions of the country, such as economically backward states with high incidence of poverty, tribal and remote areas, regions more prone to natural disasters etc. In fact, the states of Uttar Pradesh (eastern and south-eastern parts), Bihar, Jharkhand, Orissa, West Bengal, Chhattisgarh, parts of Madhya Pradesh and Maharashtra account for largest number of food insecure people in the country.

How is food security affected during a calamity? The poorest section of the society might be food insecure (that is they may not be able to get food) most of times while persons above poverty line might be food insecure when the country faces a national disaster / calamity. India is aiming at self-sufficiency in food grains since independence. Due to a natural calamity, say drought, total production of food grains decreases. It creates a shortage of food in the affected areas. Due to shortage of food, the prices goes up. At the high prices, some people cannot afford to buy food. If such calamity happens in a very wide spread area or is stretched over a longer time period, it may cause a situation of starvation. A massive starvation might take a turn of famine. The most devastating famine that occurred in India was the FAMINE OF BENGAL in 1943. This famine killed thirty lakh people in the province of Bengal.

National Food for Work Programme

National Food for Work Programme was launched on November 14, 2004 in 150 most backward districts of the country with the objective of intensifying the generation of supplementary wage employment. The programme is open to all rural poor who are in need of wage employment and desire to do manual unskilled work. It is implemented as a 100 per cent centrally sponsored scheme and the foodgrains are provided to States free of cost. The Collector is the nodal officer at the district level and has the overall responsibility of planning, implementation, coordination, monitoring and supervision.

PUBLIC DISTRIBUTION SYSTEM

The government is responsible for making food grains available to the people of country. **Food Corporation of India (FCI)** purchases wheat

and rice from the farmers in states where there is surplus production. The farmers are paid a pre-announced price for their crops. This price is called **Minimum Support Price**. The MSP is declared by the government every year. **Buffer Stock** is the stock of food grains, namely wheat and rice procured by the government through **FCI**. The food procured by the FCI is distributed through government regulated ration shops and fair price shops to different sections of society. Such distribution is called Public Distribution System (PDS). The ration shops keep stock of foodgrains, sugar, kerosene oil etc. Any family with a ration card can buy a stipulated amount of these items (e.g. 35 kg's of grains, 5 litres of kerosene oil etc) every month from ration shops. For buying at ration shop, one needs a ration card duly issued by the government. The ration cards are of three kinds viz Antyodaya cards for poorest of poor, Below poverty line cards and Above poverty line cards.

Targeted PDS (TPDS)

In June 1997, the Government of India launched the Targeted Public Distribution System (TPDS) with the focus on poor replacing the RPDS.

RPDS: Revamped Public Distribution System was lamented in June 1992 with a view to strengthen and stream line the PDS as well as to improve its reach in the far-flung hilly, remote and in accessible areas.

The allocation to the foodgrains to the Sate UT's was made by the Government of India on the basis of average consumption in the past i.e. average Annual off - take of foodgrains for the PDS during the past 10 years at the time of introduction of TPDS.

Activity Box : 10

Photocopy the ration card of your family and paste in your Scrap book.

In J&K State, the TPDS is being implemented since the year 1997 as elsewhere in the country and the foodgrains are allocated to the State at a scale of 35 Kg per family per month on the basis of projected population of the State as on 1.3.2000 which has been estimated by the Registrar General of India at 99.45 lac comprising of 18.02 lac families at an average family size of 5.52 persons per family. TDDS was introduced as a two tier system. It implies:

1 Supplying food grains at highly subsidised rates to the people below the poverty line.

2. Supplying food grains at moderately subsidised rates to people not below the poverty line but only marginally above the poverty line.

The sale rate and the scale of food grains under different categories under TPDS in J&K is as under:-

Category	Commodity	Scale	Rate in Rs. Per Kg
BPL	Wheat Atta Rice	35 Kg per family	4.80 5.35 6.40
AAY	Wheat Atta Rice	35 Kg per family	2.00 2.00 3.00
APL	Wheat Atta Rice	35 Kg per family	7.25 8.00 10.00
All categories	Sugar	700 gms per soul	13.50

What you have learnt

This Chapter starts by understanding the concept of Economic activities and how they lead to the development of various sectors in the Economy. We move on to examine whether the activity relates to the primary, secondary or tertiary sectors. Another classification is to consider whether people are working in organised or unorganised sectors. Most people are working in the unorganised sectors and protection is necessary for them. We also looked at the difference between private and public activities, and why it is important for public activities to focus on certain areas. We looked at the present phase of globalisation. Globalisation is the process of rapid integration of countries. This is happening through greater foreign trade and foreign investment. MNCs are playing a major role in the globalization process. You have seen how inputs like education and health helped in making people an asset for the economy. The chapter also discusses about the economic activities undertaken in the three sectors of the economy. We also study about the problem associated with unemployment. You have seen in this chapter that poverty has many dimensions. Normally, this is measured through the concept of .poverty line. The unit ends with the concepts of Food security .As a nation is ensured, if all of its citizens have enough nutritious food available, all persons have the capacity to buy food of acceptable quality and there is no barrier on access to food. To ensure availability of food to all sections of the society, the Indian government carefully designed food security system, which is composed of two components: (a) buffer stock and (b) public distribution system. In addition to PDS, various poverty alleviation programmes were also started which comprised a component of food security. In addition to the role of the government in ensuring food security, there are various cooperatives and NGOs also working intensively towards this direction.

EXERCISES

Project /Activity

Collect information and fill in the following table with the amount of money spent in terms of rupees by four low income families on various commodities. Analyse the research and find out which family is relatively poor in comparison to the other families. Also find out who are absolutely poor if the poverty line is fixed at an expenditure of Rs 500 per month per person.

Commodities	*Family A*	*Family B*	*Family C*	*Family D*
Wheat/Rice				
Vegetable Oil				
Sugar				
Ghee				
Clothes				
House Rent				
Electricity/water				

Fill in the blanks:

1. Actions that involve the production, distribution and consumption of goods and services at all levels within a society are called **…….**
2. The ……is also called as **industrial** sector.
3. The sum of ……. in the three sectors gives what is called the Gross Domestic Product (GDP) of a country.
4. **……** refers to in which activities of large number of business enterprises is carried out in many different locations across national boundaries.
5. The ……. and ……..of the people of a country can be considered as major factors determining quality of the population of a country.
6. NSSO defines **…….** as a situation in which all those who, owing to lack of work, are not working but seek work.
7. In the **……..**sector, the government owns most of the assets and provides all the services.
8. **…….** is thus defined as a situation of lack of income to acquire minimum necessities of life.
9. The consumption levels as states to determine the poverty line are ……k (calories) for rural areas and …….. k (calories) for urban area.
10. The rate at which the FCI purchases wheat and rice from the farmers in states where there is surplus production is called **……..**

One word Answers:

1. The Sector which generates employment and income in agriculture is called…….
2. Rearing of animals for milk and milk products is called ……
3. Tertiary sector is also called ……

4. A sector characterized by small and scattered units is called ……..

5. A person living below the poverty line is ……..…

Very short /short Answer Type Questions :

1. What are the various activities undertaken in the primary sector, secondary sector and tertiary sector?

2. What do you understand by 'people as a resource.

3. Explain the term poverty line.

4. What is Buffer Stock.

5. What is meant by 'Food for Work' programme?

Long Answer Type Questions :

1. What is Gross Domestic product and how is it calculated. Describe the contribution of the three sectors to the GDP of the Indian Economy.

2. Explain the term Multinational corporations and how globalization has made the world "one big market". What are the advantages of Globalisation

3. What are the various forms of Unemployment.

4. Define poverty. Explain four important anti-poverty measures undertaken by the Government of India.

5. Define Food security. What do you understand by TPDS. Describe the three dimensions of food security.

“We cannot eliminate disasters, but we can mitigate risk.

We can reduce damage and we can save more lives.”

(Ban Ki-Moon)

United Nations Secretary-General

Chapter 3

Natural Disaster

Disasters are as old as human history. The risk of disasters has increased dramatically in the recent past. These disasters cause huge damages to the life, property and livelihood. The state of Jammu and Kashmir is prone to various natural and anthropogenic (man-made) disasters. The 7.6 magnitude earthquake that struck on 8th October, 2005 killed about 1400 people in this part of Jammu and Kashmir, damaged thousands of buildings, roads and caused huge landslides. Similarly about 79,000 people died, more than 1,00,000 got injured and extensive damage was done to the houses, property and other physical infrastructural facilities in Pakistan and Pakistan administered Jammu and Kashmir. Thousands of people have died in our state due to snow avalanches, landslides, cloudbursts, terrorist activities and other disasters.

HAZARD is a situation that poses a level of threat to life, health, property or environment. A hazard becomes a disaster when it hits an area affecting the normal life.

DISASTER

Disasters occur when hazards meet vulnerable situations. A disaster is a natural, man-made or technological event that causes significant physical damage or destruction, widespread loss of life or drastic change to the environment. Disasters can destroy the economic, social and cultural life of people.

An old man sitting on the remains of his house destroyed in 2005 Muzaffarabad earthquake at Tangdhar, J&K

MITIGATION is an effort to reduce loss of life and property by reducing the impact of disasters. Mitigation is taking preventive actions before the next disaster happens in order to reduce human and financial consequences.

Disasters can be Natural or Anthropogenic (Man-made)

A NATURAL DISASTER is an event that is caused by natural hazards and leads to loss of life and damage to physical infrastructure and environment. Examples of natural disasters are 2004 Indian Ocean Tsunami, 2005 Muzaffarabad earthquake, 2005 Waltengo snow avalanche, 2010 cloudburst in Leh, landslides etc.

MAN-MADE DISASTERS cause serious damages to life, property and environment due to human induced activities. Examples of man-made disasters are 1984 Bhopal Gas tragedy, 1994 Kumbakonam school fire, terrorist attacks, bomb blasts, road and rail accidents, global warming etc.

NATURAL DISASTERS

The state of Jammu and Kashmir is prone to various natural disasters like earthquakes, landslides, floods, snow avalanches, cloud bursts etc. These disasters are perceived to be on increase in terms of their magnitude, frequency and economic impact.

EARTHQUAKE

An earthquake is a sudden shaking of earth's surface due to release of energy in the Earth's crust. This energy is released when two parts of the rock masses move suddenly in relation to each other along a fault. Earthquake is the most destructive natural hazard and its occurrence is usually sudden with little or no warning. Earthquakes result into collapse of buildings, damage to infrastructure and environment and loss of life. Electric short circuit and gas leaks can create big fires and broken water pipes, damaged water tanks/dams can lead to severe flooding leading to misery of the affected community. The impact and nature of earthquake is dependent on number of factors including its magnitude, location, soil and geological conditions of the particular area.

Some important earthquakes in Jammu and Kashmir

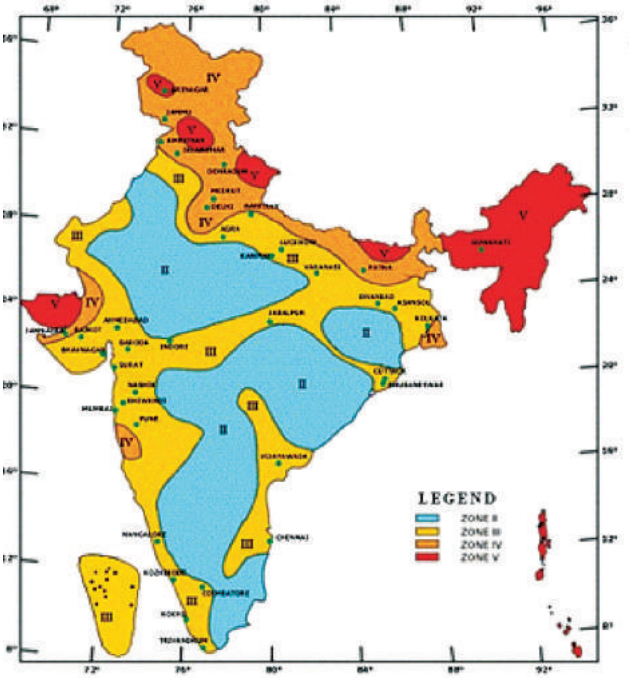
Area	Year	Magnitude
Udhampur,	1951	6.0
Udhampur,	1962	6.0
Kathua,	1947	6.0
Kathua,	1950	6.0
Kathua,	1951	6.0
Uri Muzaffarabad	2005	7.6

Seismic (Earthquake) zones

The earthquake zoning map divides India into four seismic zones (Zone II, III, IV and V). As per this classification, the state of Jammu and Kashmir falls in seismic zone IV and V and is prone to severe and very severe earthquakes.

Some important Earthquakes in India

Area	Year	Magnitude
Rann of Kuch	1819	8.0
Assam	1897	8.7
Kangra	1905	8.0
Arunachal P.	1950	8.5
Uttrakashi	1991	7.0
Kutch	2001	7.7
Indonesia (Indian Ocean Tsunami)	2004	9.3
Sikkim	2011	6.9



Seismic map of India

Measurement of Earthquake

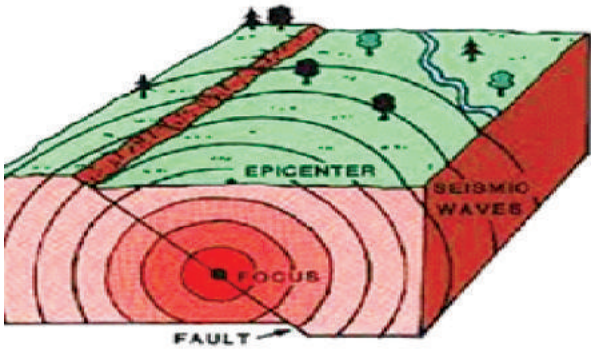
Earthquake magnitude or amount of energy released is determined by use of a **seismograph**, an instrument that continuously records ground vibrations. A scale developed by a seismologist named Charles Richter in the year 1935, to record the magnitude of earthquakes is called as Richter scale. An increase of one magnitude signifies a

10-times increase in ground motion or roughly an increase of 30 times the energy.

The **epicentre** is the point on the Earth's surface that is directly above the **focus**, the point where an earthquake originates.

Earthquakes generate seismic waves which can be detected with a sensitive instrument called a **seismograph**.

Liquefaction is an earthquake-induced phenomenon when saturated, loose, granular soils lose shear strength and behave as a liquid.



EFFECTS

Earthquakes are the most destructive of natural hazards. The impact of the event is most dangerous because it affects large area, occurs all of a sudden and is unpredictable. These can cause:

- Large scale loss of life and property.
- Landslides and avalanches
- Fire due to damage to electric plants and gas pipelines.
- Floods due to overflow from some natural water bodies and breaking of Dams.
- Trauma or psychological disturbances to victims and their near ones.
- Disruption of essential services such as water supply, sewerage systems, communication, power and transport etc.
- Destabilization of economic and social structure of the nation.

On 8th October, 2005 at 9.20 a.m., an earthquake with magnitude of 7.6 on Richter scale and epicenter near Muzafarabad, struck the northwestern part of the Himalaya causing heavy damage to buildings and infrastructure and loss to life. It was one of the deadliest earthquakes in the history of Indian subcontinent in terms of loss of life and property. The earthquake devastated about 40,000 km^2 in both parts of Jammu and Kashmir and Northern Pakistan and killed more than 80,000 people and injured about one lac people. The earthquake affected more than 500,000 families. About 3.5 million people got dislodged including about 1.6 million children. Besides, more than 3100 schools got damaged, 20000 children got killed and another 20000 injured in Pakistan and its administered part of Kashmir. In addition, approximately 250,000 farm animals died due to collapse of stone barns.

It is estimated that more than 780,000 buildings were either destroyed or damaged beyond repair, and many more were rendered unusable for extended periods of time. Property loss is placed at 4 billion US dollars. Three lac people got unemployed in the aftermath. In the State of Jammu and Kashmir, the Karnah and Uri Tehsils and Poonch District were badly hit. Buildings collapsed, roads got damaged, power and communication got destroyed, heavy landslides and rockfalls took place, besides heavy toll to the life (both people and cattle).

MITIGATION MEASURES

As we have learnt till now, that earthquakes can cause devastating effects on human lives, physical property and economy of a region, there is a need to analyze some mitigation measures that can be taken up to minimize the impact of this natural disaster.

Village Ibkot (Tangdhar) before 2005earthquake.

Village Ibkot (Tangdhar) after 2005earthquake.

Cracks on Jehlum River bank near Kichhama, Baramulla due to 2005 earthquake

Earthquake does not kill people but buildings do. The structures/ buildings/ houses should be designed and built in a way that these can withstand ground shaking. Architectural and engineering inputs need to be put together to improve building design and construction practice. Soil types must be analyzed before construction and structures must not be built on soft soils without proper designing. Buildings built on soft soils are more likely to get damaged even if the earthquake is not particularly strong in magnitude. Buildings/ houses should not be constructed very close to each other in earthquake prone areas. This can cause much damage due to collisions during the occurrence of earthquake.

Enforcement of building codes: During construction, we must strictly follow the Building Codes and Guidelines published by The Bureau of Indian Standards and National Disaster Management Authority (NDMA) to reduce the impact of earthquakes.

Verification of building plans: Municipality should verify that buildings are constructed in compliance with building guidelines set by the government.

Retrofitting of existing buildings: The existing earthquake non-resistant buildings especially hospitals and educational institutions can be made safe by retrofitting. Retrofitting is the process of strengthening older buildings in order to make them earthquake resistant.

Public awareness: Training programmes should be conducted for Architects, Engineers, Contractors, Government functionaries etc. regarding adoption of safe construction practices for building and structures. Mock drills and earthquake awareness programmes must be conducted among people especially students.

Safety Rules: We can not predict or stop the earthquakes, but we can minimize the impact of earthquakes. The following points should be kept in mind to minimize damage to life and property due to an earthquake.

What to do before an earthquake?

- Bolt down or provide other strong support to gas and power appliances.
- Place large and heavy objects on ground or lower shelves of storage almirahs etc.
- Do not stack glass or crystal wares as slight shaking will topple these.
- While constructing new buildings, follow building codes and other sound practice to minimise earthquake hazards. Build on solid ground or dig down to bed rock when laying foundations. Avoid filled and sediment areas as much as possible.
- Strengthen the existing unsafe buildings by retrofitting them.
- Regular mock drills to make people aware about safety practices.

What to do during an Earthquake?

Hiding under a table during an earthquake

- Remain calm, try to be calm and reassure others to derive an action plan.
- If you are inside a building, watch for falling plaster/bricks/stones, light fixtures and other objects.
- Watch for high book cases, shelves and other cabinets which might slide or topple
- Stay away from glass, windows, mirrors and chimneys
- If in danger get under a table, desk or bed in a corner away from the window with your head covered by your arms.
- Encourage others to follow your example and don't run and create panic, instead walk calmly outside to an open area
- If outside avoid high building walls, power poles and other objects that could fall. Do not run through streets. If surrounded by buildings take shelter in the nearest strongest one.
- If in an automobile, stop in a safe place available, preferably an open area
- Don’t use elevators while coming out of a building instead use stair cases.

What to do after an Earthquake?

- Check for injuries, do not attempt to move seriously injured persons unless they are in immediate danger of further injury.
- Check for fires.
- Wear shoes in all areas near debris and broken glass.
- Check utility lines and appliances for damage. Do not use matches/lighters until it has been established that there are no gas leaks.
- Check and see that sewage lines are intact before using / flushing of toilets.
- Draw moderate quantity of water in case service is disrupted. Do not draw large quantity as this would interfere with fire-fighting.
- Do not eat or drink anything from open

containers, especially near shattered glass.

- Do not turn light switches on and off. This creates sparks which may ignite fire due to gas leakage.
- Do not spread rumours, these often do great harm following a disaster?
- Call 100, 101 only, if you have a life-threatening emergency.
- Respond to request for help from civil defence, fire services, police and home guards
- Do not crowd into damaged areas unless help has been requested, co-operate with the public safety officials.

LANDSLIDES

What is a landslide? If you happen to travel by road on Jammu-Srinagar National Highway especially during rainy seasons, you must have seen large blocks of rocks or mountain debris slide on the way. During such phenomenon, vehicles are often stopped for some time until the road is cleared. Incidents of landslides can also be seen in areas where activities such as excavation for roads or buildings take place.

Photographs of landslide and rockfall along Uri-Kaman Post Road triggered due to Muzaffarabad earthquake in 2005

A landslide is a geological phenomenon which includes the movement of a mass of soil, rock or debris down slope. Landslides are caused due to heavy rainfall, snowfall or earthquakes.

EFFECTS

Landslides are mostly observed to affect hilly areas and are recurring phenomenon occurring in all parts of India, from Kerala to Himalayas. Areas prone to landslides include the Eastern and Western Ghats, the Nilgiris, the Vindhyans, mountains of northern and north-eastern states throughout the Himalayan range. The incidence of landslides mostly occurs during and after spells of heavy rains. The major consequences of landslides include:

- Blocking of streams
- Overflowing of lakes
- Disruption of vehicular movements
- Risk to life (people, cattle)
- Risk of accidents.
- Loss of vegetation
- Loss or damage to infrastructure (roads, shops, buildings etc.)

MITIGATION MEASURES

Drainage Management: Landslides occur

mostly when water infiltrates into the land during heavy rains. In order to prevent or minimize this infiltration, natural drains should be strengthened to allow the smooth flow of water which otherwise gets stranded and infiltrated.

Retaining walls: Construction of concrete retaining walls prevents the slippage from slopes.

Plantation: Growing more and more plants along the landslide zones helps in total or maximum arrest of the slippage. This is the most effective and cheapest way of landslide mitigation. The roots of plants bind the top soil which prevents excessive soil erosion as well as water run-off thereby lowering the chances of landslides.

Mapping: Mapping helps to identify the landslide risk areas. This data can help to avoid such areas to use for settlements.

Awareness programmes: People should be educated about various signs and caution boards installed at various landslide risk zones.

SNOW AVALANCHES

About 200 persons were killed in January 1995 after avalanches buried the highway connecting Srinagar and Jammu. Five buses plunged off the highway into valley below near Jawahar Tunnel.

February 19-20, 2005: Around Waltengoo, Kashmir about 250 people got killed in avalanches after heavy snowfall in Kashmir. On February 8, 2008, 29 people were killed, 500 were rescued in snow avalanches from various parts of Kashmir Valley.

Avalanche means down slope movement of snow. It is a large mass of snow that moves rapidly down a mountain slope sweeping and grinding everything in its path. Avalanches can occur anywhere with steep slopes and unstable snow. These are generated by an external disturbance such as a person or animal passing over a slope, due to warming, or due to structural failure of snow heap lying on mountain slopes. Such structural failures may occur due to:

Movement of snow during an avalanche

(a) Excessive melting of upper layer of the snow mass lubricates the bottom surface of the snow mass which enables it to slip and create a snow avalanche.

(b) External stresses caused by large accumulation of snow mass from heavy snowfall making excessive loading and

movement of persons, animals, and thunder traffic vibrations etc. create a snow avalanche.

(c) Physical happenings (compactions fracturing etc.) within the snow mass which would weaken layers within it creating a snow avalanche.

A hut dumped under heap of snow

North-western part of Himalaya is prone to snow avalanches and Jammu and Kashmir, Himachal Pradesh and Uttarakhand are the most affected states in India. In general avalanches occur when more winter conditions exist for a long duration and heavy snowfall occurs over glaciated slopes which are devoid of vegetation cover.

People trapped in a snow avalanche

Sometimes snow mass can even come down flying from a cliff through air fall over an unprepared community resulting in serious disaster.

Effects of Snow Avalanche

Avalanches move unnoticed in most of the cases and large amount of snow comes down with speed on often unprepared communities. The effects and impact of avalanches causes physical damage such as blockage of roads, streams, damage to buildings, electric and communication lines and loss of life.

Mitigations Measures

Snow Avalanches can be mitigated by shifting people and property from the areas which are prone to avalanches, or by protecting the people and property by using engineered sheds, walls, berms and deflectors to absorb, dissipate or redirect moving avalanches. In addition the following mitigation measures can be adopted:

- Stopping indiscriminate mining and quarrying in mountain areas which may lead to avalanches during winter.
- Afforestation of zones prone to snow avalanches.
- Modifying the slopes removing unstable material through engineering measures.

FLOODS

Floods are temporary inundation of large regions as a result of rivers overflowing their banks because of heavy rains, high winds, cyclones, storm surge along coast, tsunami, melting of snow or cloud burst.

Floods are one of the most common hazards in India. About 12 per cent of total land area is prone to floods. However, all floods are not alike. Riverine floods develop slowly, sometimes over a

period of days. Flash floods can develop quickly, sometimes in just a few minutes, without any visible signs of rain.

Be aware of flood hazards no matter where you live, especially if you live in a low lying area, near water or downstream from a dam. Even very small streams, gullies, or low lying ground that appears harmless in dry weather can flood.

FLASH FLOODS

The National Weather service defines a flash flood as "A rapid and extreme flow of high water into a normally dry area, or a rapid rise of a stream above a predetermined flood level begning within six hours of the causative event (e.g. intense rainfall, dam failure etc.)

EFFECTS

The damage resulting from floods is not only dependent on the intensity and frequency of the flood that occurs at a location but also is a reflection of the extent of human interference with nature such as construction of structures across or along the floodway and the manner of utilizing the flood plains for human activities. Some of the major effects of floods are:

- Casualty to lives due to drowning.
- Damage to property (roads, buildings, drains, sewerage etc.)
- Contamination of drinking water supplies.
- Spread of water borne diseases.
- Evolving up of unhygienic conditions.
- Damage to crops and shortage of food.
- Damage of top soil, making it unfit for agricultural purposes
- Loss of vegetation due to submergence.
- Disruption of transport due to damage to major road and rail links,
- Economic loss– economic hardship due to temporary decline in tourism, rebuilding costs, food shortage leading to price increase, etc.
- Psychological impact– flooding can be highly traumatic for individuals, in particular where deaths, serious injuries and loss of property occur.

MITIGATION MEASURES

Embankments/flood walls: It is the oldest and most common methods of construction of artificial high banks.

Storage reservoirs: Cleaning of the complete natural water storage should be done regularly especially before the monsoon season. Encroachments on tanks and ponds or any natural drainage channels should be removed before the onset of rains.

Construction on higher areas: The construction of any kind (houses, buildings, shops etc) should be done on elevated areas in flood prone areas.

Retention basins: Construction of a raised ring surrounding the area that needs to be protected from floods should be done. Such rings like structures are called 'Ring Bunds'. Besides, some dams can also be constructed which can be used as temporary storing space which will reduce the chances of lower plains getting flooded.

Flood zonation mapping: Mapping of flood prone areas is the basic exercise in reducing the risk of hazard.

Land use planning: No major development or construction should be allowed in flood prone areas. This will minimize loss of life and property.

Devastation due to flash floods in Uttarakhand

Jammu flash floods

Floods in Gangetic Plains

2005 Mumbai floods

Awareness and information dissemination: Awareness among the general public should be made regarding the floods and their causes. Governmental agencies should emphasize more on the flood warnings through televisions, newspapers, radio, internet and other sources of media.

During a flood emergency, the following is a basic checklist of essential tasks:

- Identify a safe place where you, your family and your pets can keep away from the floodwater.
- Gather essential items together. These include warm clothes, blankets, regular medication, a torch, food supplies, a mobile phone and a battery operated or wind-up radio.
- Turn off gas, electricity and water supplies at the mains.
- Move electrical items and valuables to the first floor or higher position.
- Floods can kill. NEVER attempt to walk or drive through any depth of floodwater.
- WAIT for the emergency services. Follow their instructions. If an evacuation order is issued you MUST comply.
- For the latest information, stay tuned to local radio.

Drought and Famine

Drought can be defined as a lack or shortage of water for an unusually long period. A drought is an extended period of months or years when a region notes a deficiency in its water supply whether surface or underground. A situation of drought occurs generally when a region receives consistently below average precipitation. It can have a substantial impact on the ecosystem and agriculture of the affected region. Drought, if takes place can occur for years together but even a short, intense drought can cause significant damage and disturb the local economy.

Poor farmers sitting on a dry barren land

A famine is a widespread scarcity of food, caused by several factors including crop failure, population unbalance or government policies. Drought results in shortage in the agricultural production thereby causing food shortages that can lead to famine. Famines are caused either or by both of the following reasons:

(a) Decline in the availability of food

(b) Reduction in people's access to or their ability to acquire food.

The main characteristics of drought are:

- It builds over a period of time (varying from months to years) with increased scarcity of water.
- It does not have a well-defined start.
- It does not have a well-defined ending. Sometimes a prolonged period of drought can come to a sudden end through a fairly long spell of heavy rainfall.
- It can occur in a small area and can even spread to wide region.

EFFECTS

Droughts can have significant impact on environment, agriculture, health, economy and social aspects. The effect varies according to vulnerability. For example, poor farmers are more likely to migrate during drought because they do not have alternative food sources. Drought can also reduce water quality, because there is reduction in dilution of pollutants and increase in contamination of remaining water sources due to lower water flows. Common consequences of drought include:

- Diminished crop growth and reduced grazing grounds for livestock.
- Dust storms, resulting from desertification and erosion
- Famine due to lack of water for irrigation
- Habitat destruction, affecting both terrestrial and aquatic life
- Malnutrition, dehydration and related diseases
- Mass migration, resulting in internal displacement
- Reduced electricity production due to reduced water flow through hydroelectric dams
- Shortages of water for industrial users
- Snake migration and increases in snakebites
- Social unrest
- War over natural resources, including water and food
- Wildfires are more common during times of drought

MITIGATION MEASURES

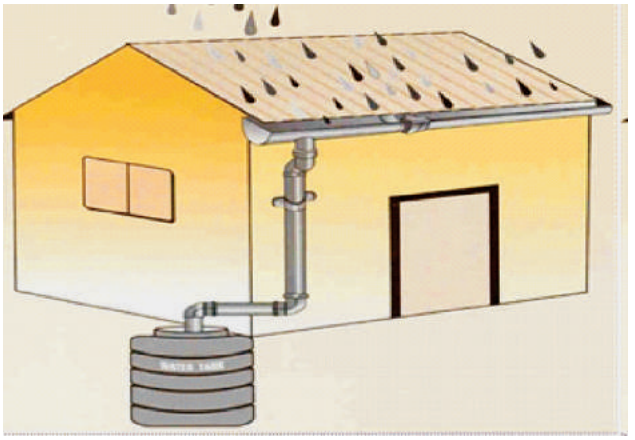
To reduce the impacts of a drought expected to happen in future, emphasis is required to be made on preparedness and mitigation. The first step in drought mitigation is to identify areas that are at a risk. In this situation, historical records can be analyzed. After the identification of vulnerable areas, priority zones should be established.

Thereafter, comprehensive and integrated development programmes should be initiated. The commonly adopted mitigation strategies are as follows:

- Construction of dams/check dams to store water
- Watershed management
- Proper selection of drought resistant crop for drought affected areas
- Soil conservation techniques
- Reducing deforestation and cutting of firewood in affected areas
- Education and awareness to people

Revival of existing system: The traditional water harvesting structures should be revived and strengthened like canals, tanks etc. For example in Jammu Division, construction of artificial ponds (locally called as Chappad) in Kandi belt, especially in villages are quite predominant. The existing ponds must be maintained and desilted regularly.

Rain water harvesting: Rain water harvesting must be adopted to store water which can be utilized in cases of scarcity. Roof top rain water harvesting is one of the best practices which can be easily adopted without much efforts and investments. Water harvesting can be done by allowing the run-off water from all the areas to a common point (ponds) or allowing it to infiltrate into the soil, thereby increasing the ground water level.



Construction of Dams: A dam is a barrier that impounds water or underground streams. Dams store water in the form of reservoirs which can be supplied during of droughts.

Desalination: It involves removal of some amount of salt and other minerals from saline water. Salt water is desalinated to produce fresh water suitable for human consumption or irrigation. Along with recycled wastewater, this is one of the few rainfall-independent water sources.

Monitoring: Continuous monitoring and providing early warning can be helpful for preparedness and decision making well before the onset of a drought. Monitoring all the components of hydrological system is the only mechanism for detecting the early onset of drought and its potential impacts.

Awareness: Many organizations including governmental, non-governmental and other key players have been organizing programmes and activities to create awareness regarding water conservation, land use planning, traditional water conservation methods etc. Apart from this, students should also participate and organize such awareness programmes to help prevent the occurrence of drought situations.

Crop insurance: It provides insurance to the farmers who have lost their crops due to drought or acute water shortage.

CLOUD BURST

Read story: The maximum ever recorded rainfall in Leh was 96.2 mm in a 24 hour period measured in 1933. It was a cloud burst that took place around 0000–0030hours IST on 6th August, 2010

in Leh. The cloudburst yielded 250mm rainfall within an hour. People were in their deep sleep during a dark night, when flash floods carrying muddy water from uphill in three different routes devastated the settlements by burying most of the houses and washing away everything on the course of the running water and leaving deep silt deposits and huge boulders. It did not leave even a moment for victims to wake up and manage to fight for life. Whosoever came in the way got into the trap of mighty flood. At least 255 people are reported to have died due to flash floods, mudslides, and debris flows. Thousands were rendered homeless after the flooding caused extensive damage to property and infrastructure. Overall, 9000 people were directly affected by the event. Buildings were razed, communication lines snapped and highways leading to Srinagar and Manali washed away.

Mudflows seen after 2010 cloudburst in Leh

The **cloud burst** is a disastrous weather event in which, the heavy rainfall occurs over a localized area at a faster rate. The rate of rainfall may be of the order of 100mm per hour. It is sometimes associated with hail and thunder and is capable of creating flood conditions. The cloud bursts in India occur during monsoon season in Himalayan region, Northeastern states and the Western Ghats. Cloudbursts lead to flooding, landsliding, ponding of rivers due to huge landslides, mudflows. Cloudbursts cause huge damage to buildings, infrastructure, communication links etc.

The cloud bursts lead to sudden flash floods, mudslides and debris slides. It is therefore necessary to follow the same mitigation measures as are to be followed in case of floods.

EXERCISE

Conduct a small social survey in your locality/ street/ village/ town and collect the information against each question. Based upon the data received, try to assess how prepared the people are against different disasters. Also, try to pen down some suggestions that may be helpful to minimize the chances of any disaster to happen.

Social Survey Form					
S. No	**Question**	**Yes/ No**	**Disaster risk**	**Yes/ No**	**Suggestions**
1.	Do you live near the foot of a hill?		Risk of landslide		
2.	Is your house located in a congested/ overpopulated area?		Risk of earthquake		
3.	Do you have adopted measures like rainwater harvesting, canals construction, bund formation in your village?		Risk of drought		
4.	Have you observed retaining walls along the hill side of the road in your area?		Risk of landslide/ avalanche		
5.	Is your locality situated in a low lying or flood prone area.		Risk of flood		
6.	Have you followed the building codes while constructing your house?		Risk of earthquake		

Fill in the blanks

1. Disasters that are caused by nature are called as……
2. The earthquake zoning map divides India into ……...seismic zones.
3. The state of Jammu and Kashmir falls in seismic zone …….. and ……..
4. …… is a large mass of snow that moves rapidly down a mountain slope.
5. …….. can be defined as a lack or shortage of water for an unusually long period.
6. A ……. is a widespread scarcity of food in an area.
7. Storing rain water on the roofs of the houses is called as ……..
8. **……..** is a disastrous weather event in which, the heavy rainfall occurs over a localized area.
9. An …….. is a natural disaster in which the sudden shaking of earth's surface is involved.
10. Instrument used to measure the magnitude of an earthquake is called as ……..

One word Answers

1. Which disaster hit Muzaffarabad region in year 2005?
2. Which disaster involves the movement of a mass of soil, rock or debris down the slope?
3. Which disaster hit the famous Kedarnath Shrine area at Uttrakhand in June, 2013?
4. Which disaster devastated the normal life in Leh on 6th August, 2010?
5. Which disaster hit the Bhaderwah area in year 2013

Very short/ short answers

1. What is the difference between hazard and disaster?
2. What do you understand by a natural disaster? Enlist few.
3. Write down some events of earthquakes in India?
4. What is the difference between drought and famine?
5. Illustrate briefly how an earthquake occurs.

Long answers

1. What do we understand by Mitigation? Give some examples.
2. List some of the major natural disasters that are likely to occur in hilly regions. Elaborate any one of them.
3. What is a drought? Describe how it can be prevented?
4. What are the relief steps that need to be taken in the aftermath of landslides or snow avalanches?
6. Describe some of the safety measures that should be adopted during an earthquake.

Chapter 4

Man-Made Disaster

A disastrous event caused directly and principally by one or more identifiable deliberate or negligent human actions is called as Man-made disaster. Man-made or anthropogenic disasters are the consequence of technological or human hazards. Examples include stampedes, fires, transport accidents, industrial accidents, oil spills and nuclear explosions/ radiation. Man-made disasters are examples of specific cases where man-made hazards have become reality in an event.

FIRE

For longer than recorded history, fire has been a source of comfort and catastrophe for the human race. Fire is rapid, self-sustaining oxidation process accompanied by the evolution of heat and light in varying intensities. Fire is believed to be based on three elements being present: fuel, heat and oxidizer. Fire disasters can occur above the ground (in tall buildings) and on plains, on the ground, and below the ground (in mines). Sometimes fire occurs in circumstances that are unexpected or unpredictable. Firestorms can be natural or human generated. Natural firestorms develop from forest fires. The basic requirement to ignite fire is that both air and burning fuel (grass, bush, leaves, branches, deadwood) should be dry. Even many trees are known to give out resins and wax like substances which provokes forest fires. Once started, forest fires are seen to travel as much as 15 km per hour and continues until there is a heavy rain or the burning material is finished.

Except for rare cases of lightening, fires are always man-made disasters. The main causes of eruption of fires (residential and forest) are:

A Natural Forest fire

A House under fire

- Storage of wood, dry grass and other inflammable materials in houses
- Non insulated electric wires and cooking heaters
- Short circuits and malfunctioning electric equipments
- Throwing of cigarette butts in fire prone areas.

- Picnic makers throwing burning ambers
- Shepherds leaving behind burning wood pieces after cooking in forests.
- Left out burning camp fires.

How disastrous are fires?

People lose their life, shelter or even get injured in fire accidents. Forest fire causes a great damage to the plants and animals of the area. The trees and plants, which get ablaze, cannot grow further and may even die. Sometimes even the endangered, rare or endemic flora and fauna get victimized and may get perished forever, causing a great loss to the global biodiversity. The crops or any agricultural fields which may come across this calamity are destroyed. The soil may also become infertile for a longer period of time if not properly treated. Many harmful gases like CO_2 are released during the incidents of fires which ultimately pollute the environment.

MITIGATION MEASURES

What to do Before a Fire?

The following are things you can do to protect yourself, your family, and your property in the event of a fire:

- Install smoke alarms on every level of your house.
- Practice escape routes with your family from each room of your house.
- Make sure windows are not nailed or painted shut so they can be easily opened from that inside.
- family members to stay low to the floor (where the air is safer in a fire) when escaping from a fire.
- Clean out storage areas. Do not let trash, such as old newspapers and magazines to get accumulated.
- Never use gasoline, benzene, naphtha, or similar flammable liquids in indoors.
- Store flammable liquids in approved containers in well-ventilated storage areas.

Fire fighting equipments

- Don't store firewood, grasses, dry leaves or any inflammable material in your house.
- Never smoke near flammable liquids.
- The chimney should be at least three feet higher than the roof. Remove branches of plants hanging above and around the chimney.
- Place heaters at least three feet away from flammable materials.
- Store coal/ashes in a metal container outside and away from your residence.
- Keep open flames away from walls, furniture, drapery and flammable items.
- Keep heating units regularly inspected and cleaned annually by a certified specialist.
- Keep matches and lighters up high, away from children, and, if possible, in a locked cabinet.
- Never smoke in bed or when drowsy or medicated and provide smokers with deep, sturdy ashtrays.
- Have the electrical wiring in your residence checked by an electrician and make sure outlets have cover plates and no exposed wiring.
- Do not overload extension cords or outlets.

- Install fire extinguishers at your homes and teach family members how to use them.

What to do during a Fire?

- If your clothes catch on fire:Stop, drop, and roll - until the fire is extinguished. Running only makes the fire burn faster.
- If you are escaping through a closed door, use the back of your hand to feel the top of the door, Never use the palm of your hand or fingers to test for heat burning as those areas could impair your ability to escape a fire.
- Crawl low under any smoke to your exit as heavy smoke and poisonous gases collect first along the ceiling.
- Close doors behind you as you escape, to delay the spread of the fire.
- Call the Fire Service by dialing 101

What to do after a Fire?

The following are guidelines for different circumstances in the period following a fire:

- If you are with burn victims, or are a burn victim yourself, cover burns to reduce chance of further injury or infection.
- Pour cold water on the burnt parts of body as it reduces the impact of heat.
- If you detect heat or smoke when entering a damaged building, evacuate immediately.
- If you have a safe or strong box, do not try to open it. It can hold intense heat for several hours.
- Contact the nearest police control room, police station or fire brigade office for immediate help.

ENVIRONMENTAL DEGRADATION

We come to know by reading newspapers or listening to discussions on radio or watching on television how the rivers and even the underground water sources are being polluted and the water level is going down fast. If you live in a village, you would have seen the trees being cut for using the land to grow crops or to construct houses. You may have also observed that small water bodies that existed some time ago are no longer seen now. If you are a resident of a city, you must have seen trees being felled for constructing houses, multiplexes and roads. We all feel the impact of air pollution owing to emission of carbon monoxide by large number of vehicles and harmful gases from factories. You may be aware of some of these incidences like Bhopal gas tragedy, landslides and air pollution etc. The deterioration of environment has also led to various kinds of man-made disasters and natural calamities.

Trained cops during a fire fighting operation

Let us now begin the discussion on environmental degradation by understanding the term environment' itself. What does the word 'environment' mean? Commonly environment means the surroundings in which we live. Environment denotes all the elements, processes and conditions around us along with their interrelationships.

We are utilizing resources like water, soil, trees, coal and petroleum without caring for the future. We are carelessly interfering with the eco-system and deliberately

killing wild animals. Environmental degradation is the process by which the environment i.e., air, water and land, is progressively contaminated, overexploited and destroyed. In specific terms, environmental degradation is the deterioration of the environment through depletion of resources such as air, water, soil and forest; the destruction of eco-systems and the extinction of wildlife. Whenever habitats are destroyed, biodiversity is lost, or natural resources are depleted so the environment is hurt.

Causes of Environmental Degradation

The important factors responsible for environmental degradation are:

Growing Population: Population is the greatest resource of any country and a major contributory factor for development, and yet it is a major cause of environmental degradation. As we find, the rapid pace of population growth has led to excessive utilization of natural resources. Huge population also leads to huge production of wastes. The resultant outcomes are loss of biodiversity, pollution of air, water and soil and increased pressure on arable land. All these have been putting great stress on the environment.

Overpopulation

Urbanisation: You may have observed a large number of people from villages moving to towns, cities and mega cities to earn their livelihood. This has led to unplanned and rapid expansion of cities, creating enormous pressure on the infrastructural facilities. If you live in a city, you may be experiencing these pressures on housing, water and electric supply and sewage. Urban slums are major sources of pollution and suffer from the worst kind of unhygienic conditions. The fast pace of urbanisation has also been responsible for the depletion of forests and irrational use of other resources.

Changing Life Style: There has been a remarkable change in the style of people living in cities, towns and villages. It has contributed to air, water and noise pollution. The fallout of the fast increasing use of modern amenities like motor cars, refrigerators, air conditioners etc. is release of harmful gases in the atmosphere that leads to global warming.

Agricultural Development: Agricultural development is very important for a country like ours. But this has been affecting the environment adversely. Various kinds of farming activities especially directed towards increasing agricultural production have a direct impact on environment. These activities have been contributing to soil erosion, land salination, alkalization and loss of nutrients. Extensive use of fertilizers and pesticides has been a major source of contamination of water bodies and land degradation.

Agriculture practice in india

Industrialization: Rapid industrialization has been the foremost contributor to environmental degradation. The current pace of industrialization is resulting in the depletion of natural resources like fossil fuel, minerals and timber, and contamination of water, air and soil. All these are causing immense damage to ecosystems and leading to health hazards.

Solid Waste: One of the major causes of environmental degradation is generation of solid wastes. Do you know that, all over the world people throw away 1000 million tons of solid wastes annually? If we pile up all this at sea level in the shape of a cone, a pyramid with circular base of one kilometre region, its peak would be higher than Mount Everest.

Pollution: Due to rapid industrialization, urbanization and the change in life style we are adding more and more of pollution into the environment. Adverse air and water quality can kill many organisms including humans. Water pollution causes approximately 14,000 deaths per day, mostly due to contamination of drinking water by untreated sewage in developing countries.

Depletion of natural resources: We are taking much from the environment and giving very less back to it. We are cutting more trees but planting very less or none. Every day, we fill fuel in our cars and scooters without thinking that it will be exhausted one day. We do not check the wastage of drinking water at our home or work place which would cause acute shortage of it in future.

MITIGATION MEASURES

Sustainable development: It is defined as development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs. So we should use our resources (drinking water, coal, petroleum, electricity etc.) in such a judicious way that these remain available for use of our future generations as well.

Pollution control: We should check and try to produce less pollution at our end. We should advice our parents to regularly get the servicing of vehicles done; as vehicles alone are the major source for air pollution. We should not dump waste into drains, streams or rivers; instead should install proper dust bins at home. Proper disposal and recycling of waste material is the key to safe environment. A little effort by every person can minimize the level of pollution to a great extent.

Thinking of alternative sources of energy: We should also think and use alternative sources of energy for our day to day needs. We must use solar heater, cooker and light at our home. Other alternative sources of energy include wind energy, hydro energy, gobar-gas plant energy etc.

Protection of wild animals and plants: Plants and animals form an important part of our ecosystem and we are greatly dependent on them. We must ensure that any damage or harm is not being done to these, as it can disturb our ecological balance.

Plantation: More plantation means we are giving healthier environment to ourselves. We are giving more oxygen, more habitats for organisms and lessening the pollution in the environment.

TRANSPORT ACCIDENTS

Means of transport: Asset or abuse?

Technology has eased the lifestyle of man in several ways. The invention of motor car, motor cycle, train, aeroplane and other sources of transportation has reduced travel time and increased comfort to mankind. Now we can reach to the destination in short period of time which otherwise would have taken several hours or even days. On the other hand, this has also increased the vulnerability towards road accidents. Every day, we read on newspapers or watch on television about road accidents happening here and there. People get injured or even killed depending upon

the severity or impact of the accident. About thirteen small children got killed when a school bus was hit head on by a truck in Jalandhar on 4th March, 2013.

A bus accident on Jammu Srinagar National Highway

In Jammu and Kashmir Legislature Assembly during March 2012 Session, it was revealed that 4453 persons died and 36920 got injured in 25495 accidents during 2009-2012. The number of accidents has increased considerably from 6006 in 2009 to 6709 in 2012. The erstwhile Doda District (Doda, Kishtwar, Ramban) is reported to have maximum casualties (823 deaths, 3700 injured) in 2401 accidents followed by Jammu District with 783 deaths. Kathua District recorded 368 deaths, Samba 311, Srinagar 257 and Anantnag District recorded 193 deaths.

Types of accidents

Head on collision between vehicle

Vehicle to vehicle collisions: Mostly accidents have been observed to happen when a speedy vehicle collides with another speedy vehicle from front to front, front to side or front to back. More the speed of vehicles, higher is the probability of damage to occur during accident.

Negligent driving: In other cases, accidents also occur due to negligence of the drivers like over-speeding, disobeying traffic rules, rash driving, over-loading, use of alcohol or sedatives, using cellphones, playing loud music or gossiping while driving.

Low visibility: Driving in conditions of low visibility also leads to accidental situation. Most of the drivers do not use lower beam of dipper (head-lights) while driving during night due to which the driver coming from the opposite direction cannot see the road. As a result, he can hit the vehicle or some other object on road side causing a major accident. During foggy conditions, visibility sometimes goes down to even zero. In such conditions there is a maximum probability for road accidents to happen.

Low visibility on road

Bad road conditions: Most of the roads in hilly regions of J&K state are in a bad condition for driving especially in remote areas. Cases of buses, private cars and other commercial vehicles skidding off the roads and then falling into deep gorges or rivers are common in news.

Effects of accidents

Loss of life: Accidents can have a little or large scale effect on human life and property. Sometimes in minor accidents, there is no loss of life or property but in certain cases, people receive major injuries or even get killed on spot.

Mental trauma: Even those who survive the accidents suffer from mental problems throughout their life. They always feel a situation of near death experience and they may get down with depression. Mostly children, old people and pregnant women fall prey of mental disturbances.

Mitigation Measures

One should always follow safety rules while driving or walking on a road.

- Always follow traffic rules

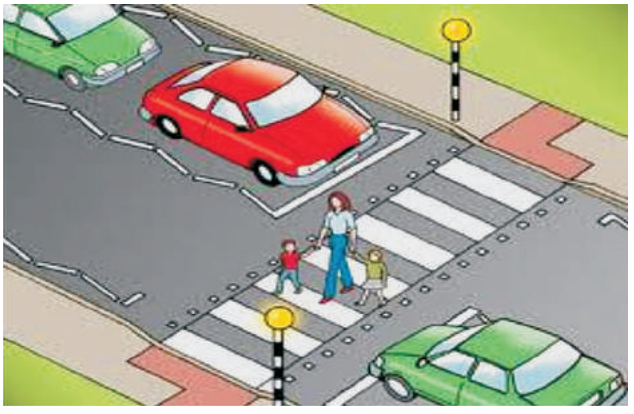
Traffic Light

- Observe and respect the traffic signals and lights
- Avoid rash driving
- Never use mobile phones while driving. If it is urgent to use it, stop the vehicle.

Negligent driving

- Never overtake on wrong side
- Always use low beam light of the vehicle during darkness
- Always tie seat belts while moving in a car.
- Wear good quality helmets while riding a motorcycle.

Overloading in a local bus



Giving way to pedestrians

- Respect the right of pedestrians; allow them to cross the road first.
- Always use footpaths for walking along the roads
- Trauma centres and specialised hospitals must be provided around accident prone areas.

CHEMICAL AND INDUSTRIAL DISASTER

The twentieth century has witnessed the appearance of a whole new series of man-made or technological disasters, resulting from enormously increased industrial growth and chemical utilization. The usage of chemicals has increased many fold for increasing crop yields, water purifications, painting of houses, washing of floors etc. But we hardly realize that these chemicals which are helpful to mankind can be harmful to humans and environment. Some of these hazardous chemicals are commonly found in our homes like hair sprays, deodorants,

A scene of industrial disaster

detergents, soaps, nail polish and removers, paints etc.

The act of acid throwing on people especially girls has increased in recent years. This act causes a permanent damage on skin and defaces the individual.

THE INDUSTRIAL HAZARDS

Rapid industrialization has increased the hazard, risk and vulnerability of the human and the environment. The accidents in various types of industries like manufacturing, power production etc. and in storage and transportation of various hazardous materials used in these industries fall under in this category. Major Chemical (Industrial) disasters are low in frequency but are very significant in terms of loss of lives, injuries, environmental impact and property damage. Frequency and severity of chemical disasters has increased in last few years due to rapid development of chemical and petrochemical industries and increase in size of plants, storage and carriers, specifically in densely populated areas. Chemical accidents can occur due to lack of safety measures, technical break down, or due to a human error. The Bhopal Gas Tragedy (spread of methyl iso-cyanate) is a typical example of this disaster.

An old photograph of Bhopal Gas Tragedy incident

Impacts and Risk

Since there is little or no warning in case of industrial/chemical accidents, the loss incurred is very high. There can be a huge loss to life, property, livelihood and environment. Hazardous materials in various forms can cause death, serious injury, long lasting health effects and damage to buildings, houses and other property.

On-Site industrial accident is restricted only within the industrial premises. Whereas an **Off-Site** accident is of far concern as it involves a broader area outside the industry.

Types of industrial disasters

Industries pose a threat for following disasters:

- **Fire:** Industries always have a risk to trigger the incidences of disasters like fire. The impact of the fire depends upon the direction of wind, amount of combustible material and the resources available to extinguish it.
- **Toxic leaks:** Spread of toxic gases like Ammonia, Chlorine etc can pose serious health hazards to the living beings.
- **Explosions:** Such incidences are highly dangerous: giving no notice to erupt.

Fill in the blanks:

1. …… gas is mainly released during the occurrence of fire disaster.
2. Urbanization, overpopulation and industrialization cause ……
3. A major chemical disaster involving leakage of methyl iso-cyanate gas occurred at ……
4. The frequently occurring disaster in the dry forests of J&K is ……..
5. Development without compromising the needs of future generations is known as …….....

True/ False

1. Forest fires are mainly caused by floods (True/False)
2. Chemical disasters are highly prone in industrial areas (True/False)
3. Solid waste is mainly responsible for environmental degradation (True/False)
4. Fire extinguishers are used to lit the fire (True/False)
5. Construction of walls or paths in forests can reduce the risk of forest fires (True/ False)

Short answers

1. Write a short note on chemical disasters.
2. Illustrate some events of natural fires in J&K.
3. Enlist some of the causes of road accidents.

Long answers

1. What is a forest fire? How can it be controlled?
2. What do you understand by environmental degradation? What are the factors responsible for it?
3. How a chemical disaster can be prevented?

Exercise

Organize training and mock drill for rescue operation, fire-fighting and first aid for students in your school. Technical expertise can be had from the following departments:

a) Fire and Emergency Services

b) Civil defence

c) State Disaster Response Force (SDRF)

d) Medical Experts

e) Indian Red Cross Society

f) Disaster Management Centre, University of Jammu

After undergoing the mock exercise or training programme, try to prepare the chart mentioned below:

Training taken for which disaster	**What to do?**		
	Before disaster	During disaster	After disaster

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