Indira Gandhi National Open University
School of Extension and Development Studies

MDV-103
Issues and Challenges of Development

Block

1

BASIC ISSUES IN DEVELOPMENT

UNIT 1
Population 5

UNIT 2
Poverty 31

UNIT 3
Inequality 47

UNIT 4
Unemployment 62

ORIGINAL PROGRAMME DESIGN COMMITTEE

Prof. Amita Shah
Gujarat Institute of Development Research
Ahmedabad

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. J. S. Gandhi (Rtd)
Jawaharlal Nehru University, New Delhi

Prof. Gopal Krishnan (Rtd)
Punjab University, Chandigarh

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. Kumar B. Das
Utkal University, Bhubaneswar

Prof. Nadeem Mohsin (Rtd)
A.N.Sinha Institute of Social Sciences, Patna

Prof. P. Radhakrishan
Madras Institute of Development Studies, Chennai

Prof. Ramashray Roy (Rtd)
Centre for Study of Developing Societies
New Delhi

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Indian Agriculture Research Institute, New Delhi

Dr. Nilima Shrivastava, IGONU, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Dr. Nehal A. Farooquee, IGNOU, New Delhi

Dr. P. V. K. Sasidhar, IGNOU, New Delhi

REVISED PROGRAMME DESIGN COMMITTEE

Late Prof. T S Papola(Rtd)
Institute of Studies in Industrial Development
New Delhi

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. Preet Rustagi
Institute of Human Development, New Delhi

Prof. Gopal Iyer (Rtd)
Punjab University, Chandigarh

Dr. S Srinivasa Rao
Jawaharlal Nehru University, New Delhi

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Hindu College, University of Delhi, Delhi

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A.N.Sinha Institute of Social Sciences, Patna

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Dr. Pradeep Kumar, IGNOU, New Delhi

Dr. Grace Don Nemching, IGNOU, New Delhi

Dr. Nisha Varghese, IGNOU, New Delhi

COURSE PREPARATION TEAM

Units Writers:

Dr. Subkant Mahapatra (Unit 1)
IGNOU, New Delhi

Prof. Kumar B. Das (Unit 2)
VC, F M University, Odisha

Dr. Nisha Varghese (Unit-3)
IGNOU, New Delhi

Prof. B.K. Pattanaik (Unit-4)
IGNOU, New Delhi

Editors:

Prof. Alak N.Sharma
Institute of Human Development, New Delhi

Mr. Praveer Shukla, New Delhi (Language Editor)

Prof. B.K. Pattanaik, IGNOU, New Delhi

Prof. Nehal A. Farooquee, IGNOU, New Delhi

Prof. P.V.K.Sasidhar , IGNOU, New Delhi

Dr. Pradeep Kumar, IGNOU, New Delhi

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Programme Coordinators : Prof. P.V.K. Sasidhar, Prof. B.K. Pattanaik, Prof. Nehal A. Farooquee

Course Coordinators: Prof. B.K. Pattanaik, E-mail:bkpattanaik@ignou.ac.in

PRODUCTION TEAM

Mr. S. Burman
Dy. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. K.N. Mohanan
Asst. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. Babu Lal Rewadia
Section Officer (Publication)
MPDD, IGNOU, New Delhi

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MDV-103 ISSUES AND CHALLENGES OF DEVELOPMENT

Dear Learner,

Welcome to the Course MDV-103 on "Issues and Challenges of Development"

It is not a flight of fancy but a fact that despite sundry of development measures, the goal of achieving holistic development in the developing countries is still a distant reality. The World Development Indicators published by the UNDP provides data and information on the achievements of nations on various areas of development. The developing nations are facing many daunting developmental challenges and are also confronting many issues with regard to various aspects of development, such as education, health, per capita income, gender, poverty and unemployment. Therefore, it is pertinent to study about the factors behind all those issues, which pose challenges to the nation state in achieving sustainable development goals. After reading this course you will be enabled to share your perspectives on development in various forums. The main aim of this course is to impart knowledge regarding various issues and challenges of development. This course has following five blocks.

The Block 1 deals with basic issues in development. The basic issues discussed in this block are population, poverty, inequality and unemployment.

The Block 2 is on sectoral issues in development. This block illustrates in detail, the three key sectoral issues in development such as agriculture, industry, service and infrastructure.

The Block 3 gives an account of the key social issues in development such as education, health and gender. These units establish linkages between these key issues and their linkages with the development.

The Block 4 deals with emerging issues in development. The various emerging issues discussed in this block are: Energy and Development Nexus; Natural Resources Management and Environment and Sustainable Development and Climate Change. This block takes into account the recent changes taken place in these key areas.

The Block 5 gives an account of governance. The important aspects discussed in this block are: Governance - An Overview; Participatory and Decentralized Governance; Good Governance- Attributes and Challenges and E-Governance and development.

BLOCK 1 BASIC ISSUES IN DEVELOPMENT

Block-1 on '**Basic Issues in Development'** consists of four units covering main issues in development such as population, poverty, inequality and unemployment. All these issues related to development have contemporary relevance to developed as well as developing countries. This block gives an exhaustive analysis of the above said basic issues with suitable examples. Unit-1, on '**Population'** gives an account of human demography and world's population scenario and its significance for development. This unit also discusses the theories of population, age-sex compositions, population dynamics, population policies and relationship between population and development.Unit-2, on '**Poverty**' introduces basic concepts of poverty, its measurement and existence in both global as well as local situations. It also provides detail analysis of vicious circle of poverty, causes and types of poverty and measures to alleviate poverty.Unit-3, is on '**Inequality'** which gives a detail account of meaning and measurement of income inequality. It also deals with various causes, effects and remedies of economic inequality. Unit-4, is on '**Unemployment**' which discusses the meaning and types of unemployment, and its measurement. The unit also includes dimensions of unemployment, trends of unemployment and policies and programmes to reduce unemployment.

UNIT 1 POPULATION

Structure

1.1 Introduction

1.2 World Population Scenario

1.3 Population Growth and Fertility

1.4 Migration and Development

1.5 Age-Sex Compositions of Population

1.6 Theories of Population

1.7 Growth of Population and Development- Argument in Favour and Against

1.8 Population Policies

1.9 Let Us Sum Up

1.10 Key Words

1.11 References and Suggested Readings

1.12 Check Your Progress - Possible Answers

1.1 INTRODUCTION

We all have some ideas and experiences about the growing population, and sometimes we analyze, or discuss among ourselves, various issues related to it, like rising numbers, crowding, and congestion. We also try to analyze various consequences arising from overpopulation. Some of the major consequences are unemployment, poverty, lack of basic amenities, like housing and drinking water. Therefore, we can say that population and development have a very close relationship. There is a cause and effect relationship, i.e., development can affect population, and *vice versa* (Gould, 2009). Human beings are at the centre of the concerns for any developmental activities. This is because people are the most important and valuable resource of any nation. Consequently, the right to development must be fulfilled so as to equitably meet the population and development needs of present and future generations. In this unit, we will analyze the complexities that exist between population and development.

After reading this unit, you will be able to

- describe the growth and distribution of world population over the time and space;
- explain age-sex compositions and its implication on development;
- analyze various theories on population and development and their significance;
- evaluate various arguments in favour and against the linkages between growth of population and development; and
- compare the population policies adopted by developed and developing countries.

1.2 WORLD POPULATION SCENARIO

World population is unevenly spread all over the globe. Some places have a low concentration of population, like deserts, dense forests, and mountainous areas, whereas many areas are heavily populated, like coastal and deltaic plains, moderate climates, fertile areas, industrialized areas, and urban centres. This spread of population is known as the distribution of population. If we look at the factors responsible for the distribution of population, then all the factors may be broadly grouped under two categories: (i) geographical factors – latitude, altitude, relief, climate, mineral and energy resources, and (ii) socioeconomic factors, like industrialization, urbanization, type of economy, political scenario and public policies. Density is one way of expressing distribution of population. Density of population is expressed as the number of persons per sq. km. This is popularly known as arithmetic density.

1.2.1 Distribution and Density of Population

Population distribution can be analyzed by different criteria. In terms of continents, Asia has the largest share of population (about 60 per cent) followed by Africa, Latin America and Europe. According to the Population Reference Bureau, World Population Data Sheet, even by 2050, Asia will still have the largest share of population, but it would decline from about 60 per cent to 57 per cent. But the major increase of population would take place in Africa, i.e., 12.7 per cent to 22.4 per cent and a major decline in population would take place in Europe, i.e., 7.2 per cent to 4.1 per cent (Figure 1). As the world's population has risen from 2.5 billion in 1950 to 6.7 billion in 2008, the proportion of those living in the developing countries of Africa, Asia, and Latin America, and the Caribbean has expanded from 68 per cent to more than 80 per cent. India and China, with a billion plus each in 2008, make up about 37 per cent of the total. Projections for 2050 show this shift to developing countries continuing. The share of those living in the more developed countries is projected to drop from about 18 per cent in 2008 to less than 14 per cent in 2050.

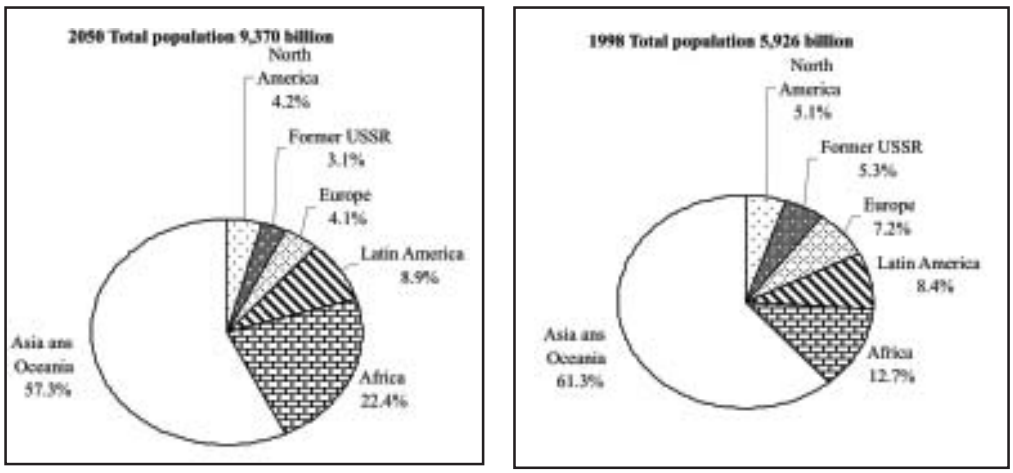

Figure 1: World Population Situation

Source: Population Reference Bureau, 1998 World Population Data Sheet (Washington D.C.: Population Reference Bureau, 1998); United Nations, Report on the World Social Situation, 1997(New York, United States, 1997), pp. 15-16

1.2.2 Growth of population

The growth of population is determined by fertility, mortality, and migration. Population growth may be expressed in various ways. Natural growth is the simplest expression which is the difference between birth rate and death rate, whereas actual growth takes migration in to consideration. The world's population has been growing continuously since the end of the Black Death around 1400. There were also short term falls at other times due to plague, for example in the mid-17th century. The fastest rates of world population growth (above 1.8 per cent) were seen briefly during the 1950s, and then for a longer period during the 1960s and 1970s. According to population projections, world population will continue to grow until around 2050. The 2008 rate of growth has almost halved since its peak of 2.2 per cent per year, which was reached in 1963. World births have levelled off at about 137-million per year, since their peak at 163 million in the late 1990s, and are expected to remain constant. However, deaths are only around 56 million per year, and are expected to increase to 90 million by the year 2050. Since births outnumber deaths, the world's population is expected to reach about 9 billion by the year 2040. The alarming fact is that we have been adding one billion populations in 12 years interval. If we look at the demographic history, it is evident that the world took about 200 years to add three billion populations, whereas the next three billion populations were added in the next forty years (Table 1).

Table - 1 : World: Growth of Population

Year	Population (Million)	No. of years to Add 1 Billion People
8000 B.C.	5	-
1 A.D.	200	-
1000 A.D.	300	-
1650	500	-
1804	1000 (1 Billion)	1804
1927	200 (2 Billion)	123
1960	300 (3 Billion)	33
1975	400 (4 Billion)	15
1987	500 (5 Billion)	12
1999	600 (6 Billion)	12
2012	700 (7 Billion)	13
2025	800 (8 Billion)	13
2040	900 (9 Billion)	15

Source: *http://en.wikipedia.org/wiki/World_population*

Till 1950, the growth rate in the developed world was high in comparison with developing countries. This was due to the decline in mortality, and the widening gap between birth rate and death rate. The decline in mortality was due to various factors like increase in literacy, advancement in medical sciences and health

facilities, etc. But in developing countries, the growth rate was low because both birth rates and death rates were very high, and that helps in reducing growth rate. After 1950, the growth rate in the developed world was very low in comparison with developing countries. This was because of the remarkable decline in birth rates and death rates in developed countries, whereas in the developing world, particularly in the countries with a larger population base, like China and India, there was a sharp decline in the death rate, but the birth rate remained high. The UNFPA's State of World Population 2011 has envisaged following facts on world population: (i) our world of 7 billion people is one of the paradoxes: fewer children, but our numbers is rising, high fertility rate in the poor countries and low fertility in the industrialized countries; (ii) global population to reach 10 billion by end of the century; (iii) 80 billion people added to the world population each year; and (iv) Asia accounts for 60% of the world population.

In this session you have read about the population in the world scenario. Now answer questions given in Check Your Progress-1.

Check Your Progress 1

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) Describe briefly, what the tentative population scenario in 2050 would be.

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2) World population is not evenly distributed- Comment.

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1.3 POPULATION GROWTH AND FERTILITY

Fertility is one of the major components of demographic situation and is connected with human child bearing or reproduction. Sometimes, the term 'natality' is used in place of fertility. Commonly, the term refers to occurrences of births, or, more particularly, live births. In order to understand the implications of fertility, let us understand indicators of fertility such as Growth Rate, Crude Birth Rate, General Fertility Rate, Age Specific Fertility Rate, Total Fertility Rate, Gross Reproduction Rate, and Net Reproduction Rate.

1.3.1 Growth Rate

The growth rate indicates the pace of the growth of population. The rapid growth of population in developing countries, as compared with developed countries, is causing problems that are not only quantitative but qualitative, too. The implications of population growth on the quality of life of the people are of critical importance. The future growth of population in developing countries will have further repercussion on their education, health, employment, housing, and other aspects of life. Even the negative population growth as experienced in certain European countries has an adverse impact on the process of development and the quality of life of the people in those countries. The demographic situation, whether it is population growth or its decline, is determined by births, deaths, and migration. It is with this understanding that the calculation of population growth is done so that the country can take appropriate measures for controlling the population growth.

Before calculating the growth rate, it is essential to know the fundamental demographic relationships that are represented by the following symbols:

$P_{t+1} = Pt + B - D + IN (M) - OUT (M)$

P_t = Population of an area at a particular time or period

P_{t+1} = Population at a time t plus the number of births between t and t+1

B = Number of births

D = Number of deaths

IN (M) = Number of in migrants leaving in the area.

OUT (M) = Number of people out migrants in the area.

The 'natural increase' is the difference between numbers of births and deaths.

Natural Increase = B – D

'Net Migration' is the difference between the numbers of migrants in and out.

Net Migration = IN (M) – OUT (M)

Thus, the population change is the summation of 'natural increase' and 'net migration'.

Population Change = Natural Increase + Net Migration

The rate of population change is derived by dividing each element by the mid-year population (MYP).

$$\text{The Rate of Population Change} = \frac{P_{t+1} - P_t}{MYP}$$

$$= \frac{B}{MYP} - \frac{D}{MPY} + \frac{IN\ (M)}{MYP} - \frac{OUT\ (M)}{MYP}$$

Thus, the difference between the Birth Rate and Death Rate is the Rate of Natural Increase and the difference between the IN-Migration and OUT-Migration is Net Migration Rate. So the Growth Rate can be written as: Growth Rate = Rate of Natural Increase+ Net Migration Rate.

1.3.2 Crude Birth Rate (CBR)

The Crude Birth Rate is the number of live births occurring among the population of a given geographical area during a given year, per 1,000 mid-year total population of the given geographical area during the same year. The reason it is a 'crude' rate is because it includes all ages and both sexes in the denominator .The equation of CBR is given below.

$$\text{CBR} = \frac{\text{Birth in a year}}{\text{Population at mid- year}} \times 1000$$

The Crude Birth Rate (CBR) is a decisive indicator of the demographic situation of any geographical area.

1.3.3 General Fertility Rate

This is the ratio of the total number of live births during a calendar year in a given geographical area to the total number of women (mid-year population) of child bearing ages (15-49 years) in that area. The equation of GFR is given below.

$$\text{GFR} = \frac{\text{Birth during year}}{\text{Women 15 – 49 at mid year}} \times 1000$$

1.3.4 Age Specific Fertility Rate

The Age Specific Fertility Rate (ASFR) is the number of live births per women of a specific age-group (usually 5- year age groups from 15-19 to either 15-44, or 45-49 years) of the population of a given geographical area during a given year. The equation for GFR estimation:

$$\text{ASFR} = \frac{\text{Number of live births to women of a specific age group}}{\text{Mid year women population in the same age group}} \times 1000$$

The ASFR is usually given for five year age-group. In other words, the magnitude of age is five.

1.3.5 Total Fertility Rate

Total fertility rate (TFR) is defined as the sum of age specific fertility rates of women by single year of age from 15 to 44 years (or 15 to 49 years) and is expressed per woman. It is directly calculated as the sum of age-specific fertility rates (usually referring to women aged 15 to 49 years), or five times the sum if data are given in five-year age groups. The formula for TFR estimation is given below.

$$\text{TFR} = \frac{\text{Sum of Age Specific Fertility Rate}}{1000} \times \text{Magnitude of Age Group}$$

The magnitude of age group is usually 5. The TFR also indicates the demographic situation.

1.3.6 Factors Affecting Fertility

Fertility depends on various factors of nutrition, sexual behaviour, culture, instinct, endocrinology, timing, economics, way of life, and emotions. Broadly we may classify these factors in following categories that affect fertility.

i) **Biological Factors:** the biological factors, such as age and sex affect fertility. The age of the onset of menstruation among girls and menopause among women are the biological limits to fertility. The food habits among the people of certain area result in early onset of puberty among girls. Once the girls start menstruating the possibility of their becoming mothers begins. Their early exposure to sex and marriage contributes to higher fertility.

ii) **Physiological Factors:** physiological factors such as impotency among males and sterility among women affect the fertility. Fertility is also affected by abortion and still births. The abortion of the first pregnancy can result in infertility among women. Nowadays, the drug habits among the younger generation are leading to infertility.

iii) **Religion:** religion affects fertility in many societies. The birth of a son and marriage of a daughter are considered as social and cultural obligation. This leads to early marriage and increasing numbers of births until at least one son is born. The practice of polygamy, as in the case of Muslims, naturally, increases fertility. This not only enhances fertility but also affect the education and health status of women in that society.

iv) **Education:** education plays an important role in influencing fertility. In countries where the percentage of literates is high, fertility is low and vice versa. Kerala, which has high literacy rate, has a lower fertility rate among women in the country. Among the South Asian countries, Sri Lanka, with a high literacy rate has lower fertility compared to other countries, like Bangladesh, Pakistan, India, and Nepal.

v) **Status of Women:** fertility is also influenced by the status of women in a society. It is found that fertility is low among women those who are educated and are in the jobs, compared to their counterparts who are illiterates and unemployed.

vi) **Family Planning**: an important factor affecting fertility is family planning. Developed countries have been able to bring down their fertility rate by voluntarily adopting family planning measures. There is a direct relationship between the rate of adoption of family planning services and the rate of fertility.

There are also many other factors, such as the caste system, racial groups, customs, urbanization, and economic condition of families affect fertility.

1.4 MIGRATION AND DEVELOPMENT

Migration is the movement of people which involves a change in the place of normal residence of people from one settlement to another. Migrations occur due to push and pull factors. Push factors are those that compel humans to leave a place of origin, whereas push factors are those that attract humans towards a particular place. Some of the major push factors are war, political unrest, poverty,

natural calamity, lack of opportunity, etc., whereas some of the major pull factors are more opportunity, glamour, fertile land and soil, good means of transport and communication, high levels of urbanization, industrialization, etc. There are two types of migration i.e. internal migration and international migration.

1.4.1 Internal Migration

The process of urbanization is intrinsic to economic and social development and, in consequence, both developed and developing countries are in the process of shifting from predominantly rural to predominantly urban societies. The proportion of the world's population living in urban areas grew from 29 per cent in 1950 to about 50 per cent in 2009, and is projected to reach 60 per cent by 2020. Migration to cities is contributing to the marked increase of urbanization in the developing world. Today, eight out of ten of the world's mega cities are in developing countries.

Rural-Rural Migration in India

In developing countries like India, rural to rural migrations also constitute a significant number of people. In short distance, rural-to-rural migration, most females migrate due to marriage. But in long distance migration, people migrate from economically backward areas of Bihar and Eastern Uttar Pradesh to economically progressive states, like Punjab and Haryana, to work as agricultural and allied field workers. They also migrate even up to Jammu & Kashmir for the same. This provides seasonal employment to many and full time employment to some.

Urban growth in the developing world results more from rural poverty than urban prosperity. Rapid rural population growth, along with inequitable land distribution, poor income prospects, and inadequate government investment in agriculture, all combine together give rise to growth of urban slums. It seems more appealing than rural life. Due to unemployment rates in developing countries, the search for jobs is a major incentive for migration. Unfortunately, migrants arriving in many cities of developing countries find large areas of shanty towns and slums characterized by high unemployment, pollution, disease, social disorder, political unrest, and, in many cases, violence. At least a third of Mumbai lives in slums, and Mexico City is surrounded by shanties and garbage dumps. Cities in most developing nations are similarly circled by squatter settlements that lack space, safe water, sanitation, waste collection, lighting, adequate housing, and other essentials for decent living. This leads to the spread of diseases, alienation and violence, and vulnerability to natural and industrial disaster.

1.4.2 International Migration

International economic, political, and cultural interrelations play an important role in determining the flow of people between countries. In its diverse types, international migration is linked to such interrelations. International migration both affects, and is affected by, the development process. There are broadly two major patterns of international migration, South-South Migration and North-South Migration. Let us analyze them one by one.

1) **South-South Migration:** This migration is basically between the countries that are emerging as newly industrializing countries and countries at the

periphery that seem to be performing less well. A key feature of this migration is that it is circular rather than permanent. Within this pattern of migration, labour migration from poorer countries of the south to richer countries of the south is very prominent, and that reflects the current global international order associated with globalization (Gould, 2009). The migration is basically to the oil rich countries of the Arabian Gulf from the non oil producing countries of the Middle East and highly populous countries of South and East Asia. The vast majority of labourers are unskilled or semiskilled working in construction and maintenance, IT, and service industries, etc. In this type of migration, remittances are varied but definitely better than the migrant's own country. But, the host countries generally do not have much liability because the majority of migrants are temporary and without their families. Therefore, the host government does not have to spend money for education, family health, pensions, and other social security.

2) **South- North Migration:** In contrast, in this pattern, migration has been mostly permanent and any associated problems are entirely different from the previous one. Here, migrants dominate various sectors of an economy, like transport, health service, tourism industry, and in some of its manufacturing and service industries. In this type of migration remittances are definitely better in comparison to South-South migration. But the hosts have much more liability because the majority of migrants are permanent and with their family. Therefore, the host government has to spend huge revenue for education, family health, pensions, and other kinds of social security. The most visibly negative impact of South-North migration is the brain-drain. The source country spends a huge amount on education to develop skilled manpower but ultimately this skilled manpower does not pay back adequately to the source country in terms of their services and remittances.

The table given below depicts both positive and negative effects of emigration.

Table 2 : A Summary of the Economic Effects of Emigration

Positive Effects	Negative Effects
1. Provide opportunities to workers not available in the home country.	1. Charitable activities of Diasporas can assist in relief and local community development.
2. May ease effect on the domestic market of the supply of excess labour and reduce unemployment.	2. Loss of highly skilled workers and reduced quality of essential services.
3. Inflow of remittances (that increase incomes and may lead to improved human development outcomes for recipients) and foreign exchange.	3. Reduced growth and productivity because of the lower stock of highly skilled workers and its externalities.
4. Technology, investments and venture capital from Diasporas.	4. Lower return from public investments in public education.
5. Can contribute to increased trade flows between sending and receiving countries.	5. Selective migration may cause increasing disparities in incomes in the home country.

Contd....

6. Stimulus to investment in domestic education and individual human capital investments.	6. Loss of fiscal revenue from taxation of workers.
7. Return of skilled workers may increase local human capital, transfer of skills and links to foreign networks.	7. Remittances may diminish over time.
8. Charitable work of Diasporas can assist in relief and local community development.	8. A 'culture' of migration, disincentives to invest locally.

Source: *Adapted from UN/DESA (2004: 97)*

In this session you have read about the population dynamics, fertility and migration. Now answer questions given in Check Your Progress-2.

Check Your Progress 2

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) What is Crude Birth Rate? How it is measured

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2) Explain South-South migration.

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1.5 AGE-SEX COMPOSITIONS OF POPULAITON

The age-sex composition of population at any single point in time is crucial for understanding the dynamics of population change. Age and sex distributions are described by using population pyramids, the sex-ratio and dependency ratios.

1.5.1 Population Pyramid

Population pyramids are an elegant and useful way of graphically presenting an age-sex distribution. As shown in the illustration below, a pyramid essentially comprises two ordinary histograms placed on their sides and back to back. Some of the features of the Age-Sex pyramid are:

1) Pyramids are always drawn showing the male population on the left hand side and the female population on the right hand side.

2) The young are always at the bottom and the old at the top.

3) Customarily either single-year or five-year age groups are used. However, other age groupings are possible.

4) The last open-ended age-group is normally omitted entirely from the pyramid because it is impossible to draw it truthfully.

5) The bottom scale can be graduated as either absolute numbers or percentages. The shape of the pyramid is not affected at all. However it is essential that the percentages are calculated using as a base, the total population of both sexes combined. If the percentages are calculated separately for males and females, then the pyramid will present a false picture. An example of a population pyramid is given in figure 2.

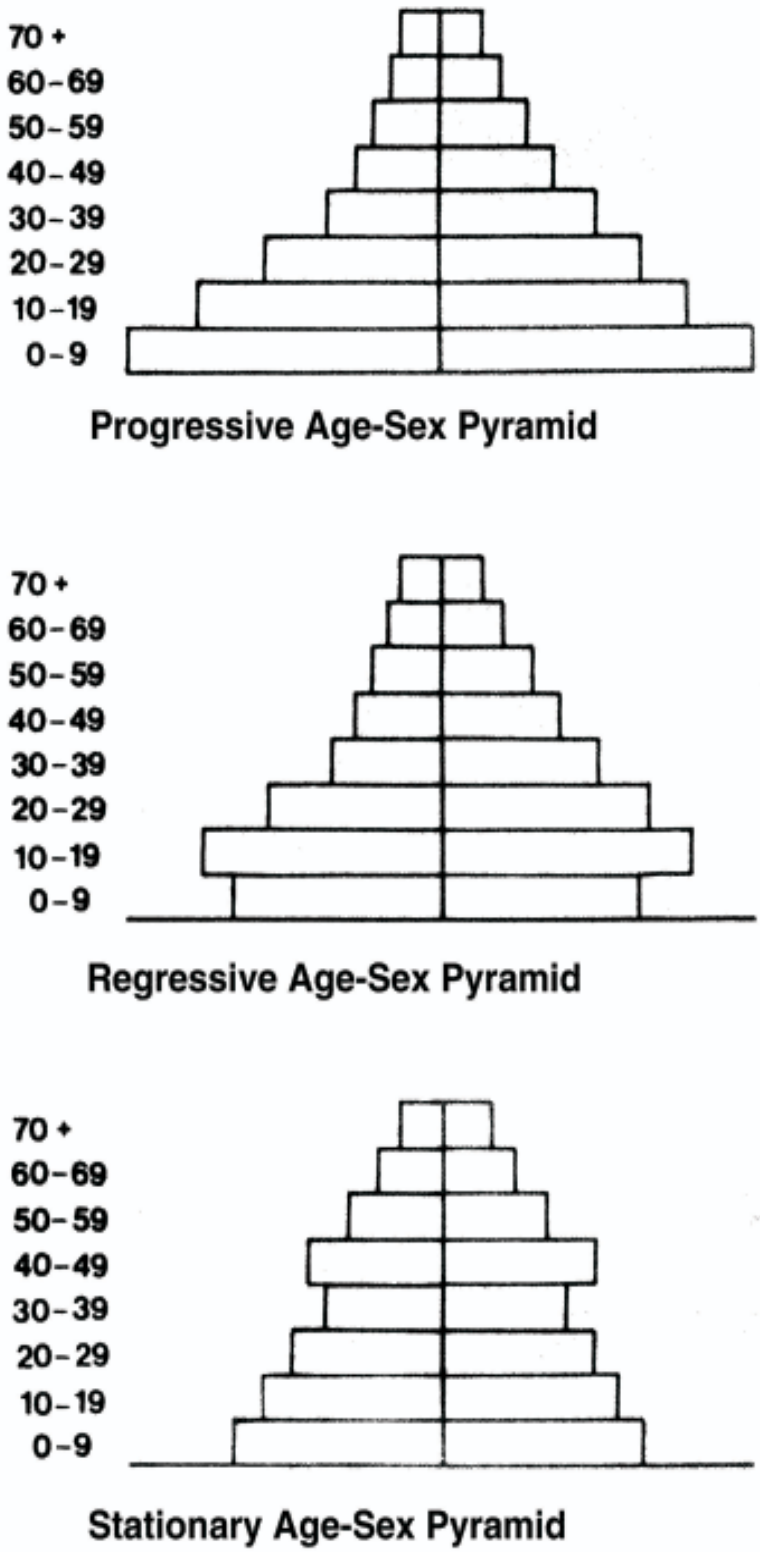
Age–sex structure reflects the demographic and socio-economic history of a population over a period of time and even their prospects for the future. It is the result of various factors such as fertility, mortality and migration. Four main types of age-sex pyramids have been identified: (i) Progressive (ii) Regressive (iii) Stationary and (iv) Intermediate.

i) A **progressive** age structure is one in which **both birth and death rates are high**. Children account for only 45-55% of the total population and the aged for only 5-10%. Such a structure is common in developing countries where social, cultural and perhaps religious and economic conditions lead to high fertility, and poor living conditions, bad diets and little medical aid lead to high levels of mortality.

ii) A **regressive** age structure is one in which **birth and death rates are low and declining**. Children account for about 30% of the total population and the aged for above 15%. This pattern is common in developed countries (especially those in Western Europe), where high living standards, education and social awareness are accompanied by good food and medicine.

iii) A **stationary age** structure is one in which birth and death rates are both low and children account for about 35-40% of the total population and the aged for about 10%. This pattern may remain the same for many years.

Figure 2: Age-Sex Pyramid



1.5.2 The Sex Ratio

The sex-ratio is simply the ratio of males to females in the population. It is normally expressed as the number of males per 1000 females.

$$\text{Sex Ratio} = \frac{\text{Males}}{\text{Females}} \times 1000$$

1.5.3 Dependency Ratio

Dependency ratio is another important measure of the age distribution of population. It describes the number of dependent persons that are supported by the active or working members of the population. It is the ratio of the economically dependent part of the population to the productive part; arbitrarily defined as the ratio of the elderly (ages 65 and older) plus the young (under age 15) to the population in the working ages (ages 15-64). The Total Dependency Ratio (TDR) is the sum total of Child Dependency Ratio (CDR) and Old Age Dependency Ratio (ODR). The equations for calculating CDR and ODR are given below.

$$\text{Child Dependency Ratio} = \frac{\text{Children below age 15}}{\text{Persons 15 – 64 years of age}} \times 1000$$

$$\text{Old Age Dependency Ratio} = \frac{\text{Persons age 65 years above}}{\text{Persons 15 – 64 years of age}} \times 1000$$

Total Dependency Ratio = Child Dependency Ratio + Old Age Dependency Ratio

1.6 THEORIES OF POPULATION

In this section we will discuss two important theories /models that explain the linkages between population and development. These theories /models are Malthusian theory and Demographic Transition Model. Malthusian theory is an example of population affecting development whereas the Demographic Transition Model is an example of how development affects population. Let us discuss them one by one.

1.6.1 Malthusian Theory

In 1798, Thomas Malthus published An Essay on the Principle of Population, describing his theory of quantitative development of human populations. Between 1798 and 1826 Malthus published six editions of his famous treatise, updating each edition to incorporate new material, to address criticism, and to convey changes in his own perspectives on the subject. He wrote the original text in reaction to the optimism of his father and his father's associates, (notably Rousseau) regarding the future improvement of society. Malthus regarded ideals of future improvement of humanity with scepticism, considering that throughout history a segment of every human population seemed relegated to poverty. He explained this phenomenon by pointing out that population growth generally preceded expansion of the population's resources, in particular the primary resource of food. While developing his theory, Malthus proposed two postulates: (i) food is necessary for the existence of man (ii) the passion between the sexes is necessary and will remain nearly in its present state. Based on these two postulates, he made the following assertions.

Primary theory: the axioms - The power of population is indefinitely greater than the power in the earth to produce subsistence for man. Population, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio. A slight acquaintance with numbers will show the immensity of the first power in comparison with the second.

Secondary theory: the consequences – Yet, in all societies, even those that are most vicious, the tendency to a virtuous attachment is so strong that there is a constant effort towards an increase of population. This constant effort as constantly tends to subject the lower classes of the society to distress and to prevent any great permanent amelioration of their condition.

Malthus also saw that societies, through history, had experienced, at one time or another, epidemics, famines, or wars that masked the fundamental problem of populations overstretching their resource limitations.

Proposed solutions: Malthus argued that population was held within resource limits by two types of checks: positive ones, which raised the death rate, and preventative ones, which lowered the birth rate. The positive checks included hunger, disease, and war; the preventative checks, abortion, birth control, prostitution, postponement of marriage, and celibacy. In the second and subsequent editions, Malthus put more emphasis on moral restraint. By that he meant the postponement of marriage until people could support a family, coupled with strict celibacy until that time. "He went so far as to claim that moral restraint on a wide scale was the best means—indeed, the only means—of easing the poverty of the lower classes." This plan appeared consistent with virtue, economic gain and social improvement.

Criticism

- Malthus basic premise on passion between sexes has been questioned on the plea that the desire to have children cannot be mixed with passion and desire for sex. The desire for sex is a biological instinct whereas the desire to have children is a social instinct.
- The validity of the two ratios proposed by Malthus was also questioned on the basis of empirical evidence that population has rarely grown by geometric progression and similarly production of food rarely multiplied in arithmetic progression.
- The time span of 25 years assumed by Malthus for doubling of population also does not seem to be anywhere near reality because it varies from country to country depending upon demographic situation of that particular country. For example, it took Mexico only 20 years to double the population whereas USA which is the adjoining country took 120 years for the same.
- Malthus also seems to be swayed by the supremacy of positive checks like delayed marriage, moral restraints and controlled frequency of sex after marriage. It is rather strange that Malthus could not think of the use of contraceptives as an effective preventive check despite the fact that Malthus very much knew about it.
- Malthus has been severely criticized for ignoring the role of changing technology and changes in the socioeconomic set up of a society.

1.6.2 Reactions to Malthusian Ideas

Neo Malthusian Arguments

A neo Malthusian is somebody who sides with Malthus beliefs. The neo Malthusian theorists may be presented as a splinter group. Essentially they agree with Malthus that control of population is inevitable, and have pessimistic views that consider the growth of world population with fear and alarm. However, they disagree with Malthus that factors like war and famine are the key to population

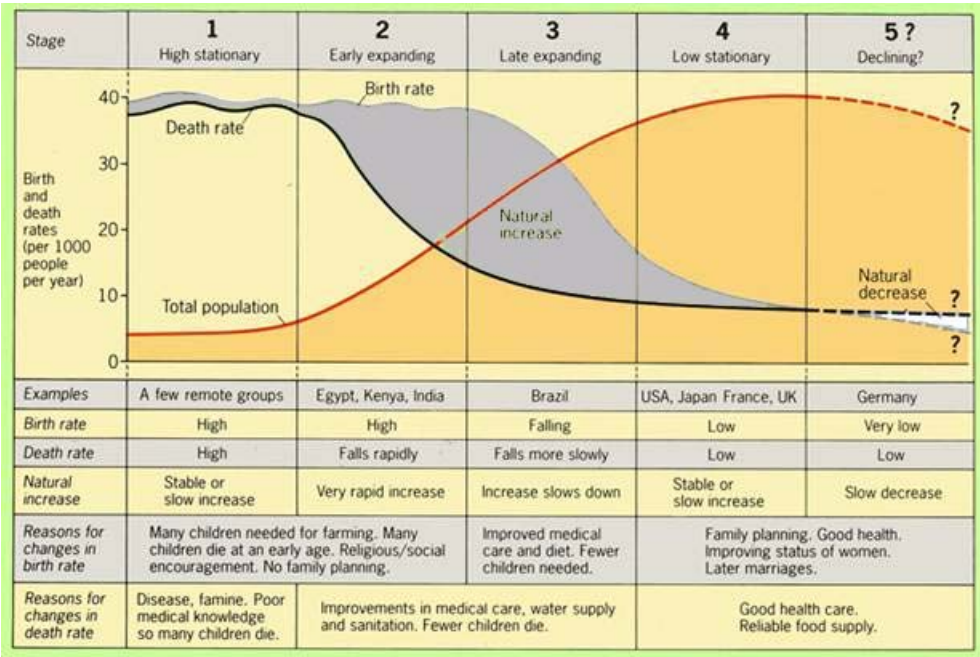
control and reject such simplistic notions. Instead they promote a number of ideals, for example planned parenthood as a method of population control.

Marxian Argument

Other opposition to Malthus' ideas came from the middle of the nineteenth century with the writings of Karl Marx (Capital, 1867) and Friedrich Engels (Outlines of a Critique of Political Economy, 1844). Engels and Marx argued that what Malthus saw as the problem of the pressure of population on the means of production actually represented the pressure of the means of production on population. They, thus, viewed it in terms of their concept of the reserve army of labour. *Reserve army of labour* is a concept in Karl Marx's critique of political economy. It refers basically to the unemployed in capitalist society. The use of the word "army" refers to the workers being conscripted and regimented in the workplace in a hierarchy, under the command or authority of the owners of capital. In other words, the seeming excess of population that Malthus attributed to the seemingly innate disposition of the poor to reproduce beyond their means actually emerged as a product of the very dynamics of capitalist economy. Engels called Malthus's hypothesis "...the crudest, most barbarous theory that ever existed, a system of despair which struck down all those beautiful phrases about love thy neighbour and world citizenship."

1.6.3 Demographic Transition Model

The Demographic Transition Model (DTM) is a model used to represent the process of explaining the transformation of countries from high birth rates and high death rates to low birth rates and low death rates, as part of the economic development of a country from a pre-industrial economy to an industrialized economy. It is based on an interpretation, begun in 1929, by the American demographer Warren Thompson, of prior observed changes, or transitions, in birth and death rates in industrialized societies over the past two hundred years. Most developed countries are beyond stage three of the model; the majority of developing countries are in stage 2 or stage 3. The model was based on the changes seen in Europe, so these countries follow the DTM relatively well.



Stage	1 High stationary	2 Early expanding	3 Late expanding	4 Low stationary	5 ? Declining?
Examples	A few remote groups	Egypt, Kenya, India	Brazil	USA, Japan France, UK	Germany
Birth rate	High	High	Falling	Low	Very low
Death rate	High	Falls rapidly	Falls more slowly	Low	Low
Natural increase	Stable or slow increase	Very rapid increase	Increase slows down	Stable or slow increase	Slow decrease
Reasons for changes in birth rate	Many children needed for farming. Many children die at an early age. Religious/social encouragement. No family planning.		Improved medical care and diet. Fewer children needed.	Family planning. Good health. Improving status of women. Later marriages.	
Reasons for changes in death rate	Disease, famine. Poor medical knowledge so many children die.	Improvements in medical care, water supply and sanitation. Fewer children die.		Good health care. Reliable food supply.	

Figure 1.3 : World's Demographic Transition Model

Source: *www.geographyalltheway.com/in/gcse-popn/imagesetc/demographic_transition_detailed.jpg*

Many developing countries have moved into stage 3. Traditionally, transition involves four stages, but later on, a fifth stage, called deindustrialization, was added by various theorists to explain the economic transition from manufacturing based industries into service and information based industries.

- In stage one; pre-industrial society, death rates and birth rates are high and roughly in balance.
- In stage two, that of a developing country, the death rates drop rapidly due to improvements in food supply and sanitation, which increase life spans and reduce disease. These changes usually come about due to improvements in farming techniques, access to technology, basic healthcare, and education. Without a corresponding fall in birth rates this produces an imbalance, and the countries in this stage experience a large increase in population.
- In stage three, birth rates fall due to access to contraception, increases in wages, urbanization, a reduction in subsistence agriculture, an increase in the status and education of women, a reduction in the value of children's work, an increase in parental investment in the education of children and other social changes. Population growth begins to level off.
- During stage four there are both low birth rates and low death rates. Birth rates may drop to well below replacement level as has happened in countries like Germany, Italy, and Japan, leading to a shrinking population, a threat to many industries that rely on population growth. As the large group born during stage two ages, it creates an economic burden on the shrinking working population. Death rates may remain consistently low or increase slightly due to increases in lifestyle diseases due to low exercise levels and high obesity and an aging population in developed countries.
- The original DTM has just four stages. However, some theorists consider that a fifth stage is needed to represent countries that have undergone the economic transition from manufacturing based industries into service and information based industries called deindustrialization. Countries such as the United Kingdom (the earliest nation universally recognized as reaching Stage Five), Germany, Italy, Spain, Portugal, Greece, and most notably, Japan, whose populations are now reproducing well below their replacement levels, are not producing enough children to replace their parents' generation.

Critical evaluation

- **As with all models, this is an idealized picture of population change.** It has to be remembered that the DTM is only a model and cannot necessarily predict the future. It does, however, give an indication of what the future birth and death rates may be for a country, together with the total population size. Therefore, there are limitations to it, as with any model. Most particularly, of course, the DTM makes no comment on change in population due to migration. Following are some of the major criticism about the model.
- **Non-applicability to less developed countries**: DTM has a questionable applicability to developing countries, where information access is limited. For example, the DTM has been validated primarily in Europe and North America where demographic data exists over centuries, whereas high quality

demographic data for most developing countries did not become widely available until the mid 20th century. DTM does not account for recent phenomena such as AIDS; in these areas HIV has become the leading cause of mortality.

- **Generalization from European experience:** The DTM is mostly applicable to European countries. It also contains a hypothesis that other countries would follow suit. The DTM assumes that countries will go through all the stages. Some countries may even skip stages. Demographic data for developing countries span about five decades, leading to questionable extrapolation from the experiences of the most developed countries.

- **Economic development not sufficient cause to effect demographic change**: DTM assumes that population changes are induced by industrial changes and increased wealth, without taking into account the role of social change in determining birth rates, e.g., the education of women. In recent decades, more work has been done on developing the social mechanisms behind it. DTM assumes that the birth rate is independent of the death rate. Nevertheless, demographers maintain that there is no historical evidence for society-wide fertility rates rising significantly after high mortality events. Notably, some historic populations have taken many years to replace lives such as the Black Death.

In this session you have read about the fertility, migration, and population theories. Now answer questions given in Check Your Progress-3

Check Your Progress 3

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) What is an age-sex pyramid? Describe any two age-sex pyramid.

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2) Explain any three criticisms of the Demographic Transition Model.

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1.7 GROWTH OF POPULATION AND DEVELOPMENT - ARGUMENTS IN FAVOR AND AGAINST

There is a divergence of opinion, about population growth and its implications on development. There are two broad lines of arguments. One group argues that population growth is not the real problem. The other group argues that it is a real problem. The first one is an optimistic view, whereas the latter is a pessimistic view. In the following paragraphs, we will discuss some of the main arguments for and against the idea that rapid population growth is a serious developmental problem.

1.7.1 Population Growth is not a Real Problem

We can identify three general lines of argument on the part of those individuals, primarily from the developing countries, who assert that: (1) the problem is not population growth, but some other issue; (2) population growth is a deliberately created false issue, and (3) for many countries and regions population growth is, in fact, desirable (Todaro & Smith, 2009).

i) **The Problem is Not Population Growth but 'Some Other Issue'**

Many knowledgeable people from developed as well as developing nations argue that the real problem is not population growth *per se* but some other aspects. These are:

a) **Underdevelopment:** if correct strategies are pursued which lead to higher levels of living, greater esteem, and expanded freedom, then population will take care of itself. Eventually, it will disappear as a problem, as it has in all the present-day, economically advanced nations. According to this argument, underdevelopment is the real problem. Economic progress and social mechanisms will, more or less automatically regulate population growth and distribution. As long as the vast majority of people in developing countries remain impoverished, uneducated, and physically and psychologically weak, the large family will constitute the only real source of social security.

b) **World Resource Depletion and Environmental Destruction**: was primarily caused by the developed nations. The fact is that the developed countries, with less than 25 per cent of the world's population, consume almost 80 per cent of the world's resources. According to this argument, the developed nations should curtail, or cut back on their excessively high consumption standards, rather than having the less developed nations restrict their population growth. The latter's high fertility is really due to their low levels of living. It is this combination of rising affluence and extravagant, selfish consumption habits in rich countries and among rich people in poor countries which should be the world's major concern, not population growth.

c) **Population Distribution**: the third line of argument is that it is not numbers of people *per se* which are causing population problems but their distribution in space. Many regions of the world (e.g., parts of

sub Saharan Africa) and many regions within countries (e.g., the northeast and Amazon regions of Brazil) are, in fact, under populated in terms of available or potential resources. Others simply have too many people, concentrated in too small an area, (e.g., central Java, or most urban concentrations in developing countries). What is needed, therefore, instead of moderating the quantitative rate of population growth, the governmental efforts should be to reduce rural-urban migration and to bring about a more rational spatial distribution of the population in terms of available land and other productive resources?

d) **Subordination of women**: according to this line of arguments, population growth is a natural outcome of women's lack of economic opportunity. The argument is that if women's health, education, and economic wellbeing are improved along with their role and status in the family and the community, these empowered women will inevitably lead to smaller families and lower population growth.

ii) A Deliberately Created False Issue

This line of argument is closely allied to the dependence theory of underdevelopment. Basically, it is argued that the frenetic over concern in the rich nations with the population growth of poor nations is in reality an attempt by the former to hold down the development of the latter, in order to maintain the status quo for their own self interest. Rich countries are pressuring poor nations to adopt aggressive population control programmes, even though they themselves went through a period of sizable population increase which accelerated their own development processes. This argument views population control efforts by rich countries and their allied international agencies as racist or genocidal attempts to reduce the relative or absolute size of those poor, largely non-white populations of the world, who may someday pose a serious threat to the welfare of the rich, predominantly white populations.

iii) Growth is Desirable Phenomena

A more conventional economic argument is that population growth in many developing countries is, in fact, desirable to stimulate economic development. Larger populations provide the needed consumer demand to generate favourable economies of scale in production, to lower production costs and to provide a sufficient and low-cost labour supply to achieve higher output levels. Moreover, it is argued that many rural regions in the developing countries of tropical Africa and Latin America and even parts of Asia are under populated in the sense that there is much unused but arable land that could yield large increases in agricultural output if only more people were available to cultivate it. Three other non-economic arguments put forward by developing countries, also compete this viewpoint. First, many countries claim a need for population growth to protect currently under-populated border regions against any expansionist intentions of neighbouring nations. Second, there are many ethnic, racial and religious groups within developing countries whose differential attitudes towards family size have to be protected both for moral and political reasons. Finally, military and political power is often seen as dependent on a large and youthful population.

1.7.2 Population Growth is a Real Problem

The extreme version of the population-as-a-serious-problem position attempts to attribute almost all the world's economic and social evils to excessive population growth. Unrestrained population increase is seen as the major crisis facing mankind today. It is claimed to be the principal cause of poverty, low levels of living, malnutrition and ill-health, environmental degradation, and a wide array of other social problems. Value-laden and incendiary words, such as the 'population bomb' or 'population explosion' are tossed around at will. Indeed, dire predictions of world food catastrophes and ecological disaster are attributed almost entirely to the growth in numbers.

1.7.3 Empirical Arguments in support of Negative Consequences of Population

Growth researchers has established that population growth has a negative impact on economic development by way of hampering various sectors like education, health, environment, food, economic growth (Todaro & Smith, 2009). Let us discuss some of these areas that are mentioned above.

i) **Increasing Poverty:** the negative consequences of rapid population growth effect most heavily to the poor because they are the ones who are landless and suffers first from cuts in government health and education programme, bear the brunt of environmental damage and are the main victims of job cut due to the slower growth of the economy.

ii) **Retarding Economic Growth:** evidence shows that rapid population growth lowers per capita income growth in most of the developing countries particularly countries that are already poor and mostly agrarian based economy.

iii) **Problems of Food Scarcity and Security:** rapid increase of population poses serious challenges to provide foods (both, in terms of quantity and quality) to billions of population in developing countries. New technologies have to be invented because fertile lands have already been cultivated and levels of food production have reached a point of saturation.

iv) **Education:** studies reveal that large family and low income tends to restrict parents to provide education to all the children. In this situation, it has been observed, particularly in developing countries, preference is given male children. Rapid population growth also affects quality of education as the government has less funds to address, equally, the need for all learners, and this directly affects the development of human capital.

v) **Health:** high fertility harms health of mothers and children. It also increases the health risk of pregnant mothers. It not only affects mothers but also affects newborns, in terms of low birth weight as well as increased infant mortality rate.

vi) **Environmental Degradation***:* the earth's carrying capacity is burdened, not only by the demands of growing population, but also by food requirements by billions of livestock. This leads to the clearing of land for cattle ranching and overgrazing by livestock. While the former is an important factor in tropical deforestation, the latter is a major cause of desertification and soil loss in many countries. Therefore, it has been argued

that population growth leads to various environmental degradation like deforestation, desertification and soil erosion, declining fish and animal resources, air and water pollution, etc.

1.8 POPULATION POLICIES

Population policy may be defined as deliberately constructed or modified institutional arrangements and/or specific programs through which governments influence, directly or indirectly, demographic change (Demeny, 2002). In simpler terms, population policy is a strategy for achieving a particular pattern of demographic change. The change could be both quantitative as well as qualitative. Policies can broadly grouped those for under developed countries and other for developing countries.

1.8.1 Population Policy in Developing Countries

Since the 1950's, the population policy in the developing world has become essentially synonymous with family planning programs. Financial and administrative limitations within developing countries necessitated the heavy involvement of foreign assistance in launching and sustaining family planning programs. Declared demand for birth control does not necessarily translate into effective willingness to practice it: conflicting desires may interfere. Weakness of measures of latent demand, or "unmet need," is reflected in the requirements that programmes are supposed to satisfy if they are to be successful. These, typically, included such items as "doorstep accessibility of quality services," "broad choice of contraceptive methods," "forceful IEC [information, education, and communication] programs," "sound financing strategies," "sound management with proper logistics," "evaluation systems," "a continuous process of strategic thinking, planning and management, " and "staff leadership for program parameters" (Mahler 1992: 5).

The effectiveness of family planning programs in reducing fertility remains a matter of controversy. According to international guidelines, programs recruit their clients on a strictly voluntary basis. By accepting the service voluntarily, the individual acceptor demonstrates that they value that service. But some of the more successful programs, notably in Asia, tended to increase acceptance by often heavy-handed methods of persuasion, and, in the especially important case of China, by coercion backed by legal sanctions. Where fertility fell in less developed countries with active family planning programs, it is typically found that program-provided free services account for a large percentage of those practicing contraception. But what would have happened in the absence of the program is conjectural. Some less developed countries that lacked government programs also experienced major falls in fertility. Brazil is a conspicuous example. Similarly, if programs have seemingly only minor success in reducing fertility, this can be taken as evidence that the program is inadequately financed, organized, and managed.

In India, the experience is mixed. India was the first country in the world to introduce a National Family Planning Policy in 1952. It was basically voluntary in nature, except during a short emergency period, and target-based in approach. During the 1991 Census, itwas observed that there is a clear cut demographic divide between Northern BIMARU (BI stands for undivided Bihar, MA stands

for undivided Madhya Pradesh, R stands for Rajasthan and U stands for undivided Uttar Pradesh) States in comparison to southern states of Kerala and Tamil Nadu. Major factors responsible for this are differences in literacy, particularly female literacy, and health care facilities.

On the eve of the 1994 International Conference on Population and Development, a review on the importance of fertility decline for successful development, reached the guarded conclusion that the data on the subject "mostly supports the view that rapid population growth in poor countries under conditions of high fertility is inimical to many development goals" (Cassen,1994). Accordingly, the development rationale of family planning programs was gradually dropped and was replaced by the argument that the programs satisfy important health needs and help people exercise a fundamental human right. The Cairo conference formalized this shift. Family planning programs were redefined, instead, as reproductive health programs, responding to a broader range of women's health needs, such as prevention of unsafe abortions and sexually transmitted diseases, including HIV/AIDS. But beyond this, new emphasis was put on some requirements that would contribute to women's empowerment: reduction of infant and maternal mortality and improvement in girls' education and women's opportunities for employment and political participation. These are conditions that are likely to help reduce the birth rate through stimulating the demand for smaller family size.

1.8.2 Population Policy in Developed Countries

In developed countries, though birth control measures have been universally adopted for a long time, yet, there are very few countries that have formulated an explicit national policy on population growth. On the other hand, there are many European countries that still follow pro-natalist policy due to their concern about declining population. But, indirectly population-related issues are reflected in various other policies enacted for economy, health and welfare measures. Some of those laws relate to the availability of contraceptives, sterilizations, abortions, marriage, divorce, income taxes, family allowances, and immigration (Chandna, 2008).

In developed countries a quite different demographic phenomenon has begun to attract increasing attention: fertility levels that are inadequate for the long term maintenance of the population. This fertility trend was detected earlier also, especially in Europe, in the 1920s and 1930s. But, in the decades immediately following World War II, the baby boom seemed to make the issue of low fertility moot. The baby boom was, however, a temporary interruption of the downward trend in fertility. By the 1970s, the net reproduction rate was at, or below, unity in most countries in Europe, and also in the United States. In the US, fertility stabilized at, or very close to, that rate, but in Europe, fertility continued to decline. If continued, in the absence of large compensatory immigration this would not only lead to rapid population decline, but also result in very high proportions of the population at old ages. Surprisingly, most governments as well as the general public tend to view below-replacement fertility with equanimity quite unlike the alarmed reaction that the same phenomenon elicited between the two World Wars. And, explicit pro-natalist policies, common in the 1930s, are conspicuous by their absence.

Among the factors explaining the low level of fertility despite general material affluence, many observers point to the double burden on women of both raising children and working outside the home. To the extent that higher birth rates are seen to be socially desirable, the derived policy prescription is to adopt measures that make motherhood and women's labour force participation more compatible. The higher fertility in countries, notably in Scandinavia, where such measures are strongly applied, compared to countries of Southern Europe, where they are largely absent, suggests that enhanced compatibility (through day care services, flexible work hours, liberal sick leave allowances, and the like) is an effective pro-natalist policy, even if motivated by other considerations. But it is far from clear whether the fertility differential so generated is high enough to bring the total fertility rate back to replacement level.

In this portion, you read about the causes and consequences of population growth on population and about the population policies relating to developed as well as developing countries. Now answer the questions given in Check Your Progress-4.

Check Your Progress 4

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) Why does a certain group consider that population growth is a deliberately contrived and false issue? Give any two reasons.

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2) Explain the shift in population policy in developing countries after the International Conference on Population and Development (1994).

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1.9 LET US SUM UP

Population and development have a very close relationship because human beings are at the centre of concerns for any developmental activities, and people are the most important and valuable resource of any nation. Therefore, to understand the complex relationship between population and development, there is a need to study various aspects of population and its related theories and policies. There

are two widely debated theories and models that establish close links between population and development. Malthusian theory is an example of population affecting development, whereas the Demographic Transition Model is an example of how development affects population. There is a divergence of opinion, about population growth and its implications on development. There are two broad lines of arguments. One group argues that population growth is not the real problem and the other group argues that it is a serious problem. The former argument is mainly propounded by developing countries, whereas the later is advocated by developed countries. Similarly, population policies of developed and developing countries have distinct emphasis, depending upon their socioeconomic and demographic history

1.10 KEY WORDS

Age-sex Pyramids : Age-sex pyramids display the percentage, or actual amount of a population, broken down by gender and age. This is also known as a population pyramid.

Demographic Transition Model : This is a model used to represent the process of explaining the transformation of countries from high birth rates and high death rates to low birth rates and low death rates as part of the economic development of a country from a pre-industrial economy to an industrialized economy.

Dependency Ratio : This is an age-population ratio of those typically not in the labour force (the dependent part) and those typically in the labour force (the productive part).

Migration : Migration is only that movement of people which may involve a change in the place of normal residence of people from one settlement to another.

Natural Growth Rate : This shows the difference between the birth rate and the death rate.

Population Policy : Deliberately constructed or modified institutional arrangements, and/or specific programs through which governments influence, directly or indirectly, demographic change.

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1.12 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check your Progress 1

1) Describe briefly, what would be the tentative population scenario in 2050.

Answer. In 2050, Asia will still have the largest share of global population, but it would decline from about 60 per cent to 57 per cent. The major increase of population would take place in Africa, i.e., 12.7 per cent to 22.4 per cent and the major decline in population would take place in Europe, i.e., 7.2 per cent to 4.1 per cent. The share of those living in the more developed countries is projected to drop from about 18 per cent in 2008 to less than 14 per cent in 2050.

2) World population is not evenly distributed-Comment.

Answer. The density and structure of population around the world is spread unevenly. On one hand, there is a very low concentration of population like deserts, dense forests, mountainous areas and on the other hand coastal and deltaic plain, moderate climate region, fertile soil areas, industrial areas and urban centers have higher concentration of population. The distribution is diverse, not only in population density rather it may be observe in terms of age-sex ratio, growth with time and migration.

Check Your Progress-2

1) What is Crude Birth Rate? How it is measured

Answer: The Crude Birth Rate is the number of live births occurring among the population of a given geographical area during a given year, per 1,000 mid-year total population of the given geographical area during the same year. The reason it is a 'crude' rate is because it includes all ages and both sexes in the denominator .The equation of CBR is given below.

$$\text{CBR} = \frac{\text{Birth in a year}}{\text{Population at mid – year}} \times 1000$$

2) Explain South-South migration.

Answer : This migration is basically between the countries that are emerging as newly industrializing countries and countries at the periphery that seem to be performing less well. A key feature of this migration is that it is circular rather than permanent. Within this pattern of migration, labour migration from poorer countries of the south to richer countries of the south is very prominent, and that reflects the current global international order associated with globalization (Gould, 2009).

Check Your Progress 3

1) What is the age-sex pyramid? Describe any two age-sex pyramid.

Answer. The age–sex pyramid is a graphical illustration that shows the distribution of various age groups in a population which normally forms the shape of a pyramid. It typically consists of two back-to-back bar graphs, with the population plotted on the X-axis and age on the Y-axis, one showing the number of males and one showing females in a particular population in five-year age groups. Males are conventionally shown on the left and females on the right, and they may be measured by raw number or as a per cent age of the total population. The age–sex structure reflects the demographic and socioeconomic history of a population over a period of time and even their prospects for the future.

2) Explain any three criticisms against the Demographic Transition Model.

Answer. Major criticisms about the Demographic Transition Model are (i) non-applicability to less-developed countries; (ii) generalization from European experience; and (iii) economic development not sufficient cause to effect demographic change.

Check your Progress 4

1) Why does a certain group consider population growth as a deliberately contrived and false issue? Give any two reasons.

Answer. (i) It is argued that the frenetic over concern in the rich nations with the population growth of poor nations is in reality an attempt by the former to hold down the development of the latter in order to maintain the status quo for their own self-interest. (ii) Rich countries are pressuring poor nations to adopt aggressive population control programmes were viewed as racist or genocidal attempts to reduce the relative or absolute size of those poor, largely non-white populations of the world who may someday pose a serious threat to the welfare of the rich, predominantly white populations.

2) Explain the shift in population policy in developing countries after the International Conference on Population and Development (1994).

Answer. After ICPD, 1994 the rationale of family planning programs was gradually dropped and replaced by the programs that satisfy important health needs and help people to exercise a fundamental human right. Family planning programs were redefined, instead, as reproductive health programs, responding to a broader range of women's health needs. New emphasis was put on requirements that would contribute to women's empowerment: reduction of infant and maternal mortality and improvement in girls' education and women's opportunities for employment and political participation.

UNIT 2 POVERTY

Structure

2.1 Introduction

2.2 Poverty: Meaning and Features

2.3 Poverty Situation

2.4 Measurement of poverty

2.5 Vicious Circle of Poverty

2.6 Dimensions of Poverty in India

2.7 Causes and Remedies of Poverty

2.8 Poverty in India and Planned Efforts to Alleviate Poverty in India

2.9 Let Us Sum Up

2.10 References and Suggested Readings

2.11 Check Your Progress: Possible Answers

2.1 INTRODUCTION

Poverty involves an infinite variety of circumstantial misfortune experienced both at the household level and the societal level. Poverty has many faces, changing from place to place and across time, and has been described in many ways. Extreme poverty strikes when household resources prove insufficient to secure the essentials of dignified living. The very poor are those who can hardly afford more than one meal a day and depend exclusively on a single source of income. That fragility is defined by a lack of education, the absence of work opportunities, the diminution of household back up resources, and exclusion from valuable social and decision making networks. The trend of migration from poor farming regions has raised the incidence of urban poverty, especially in the slum zones of the world's major cities. Nevertheless, poverty remains inextricably linked with the disappointing progress in agriculture in developing countries. Rural poverty rates are more than double those in cities, often embracing the majority of the rural population. The most persistent poverty is found amongst ethnic minorities, scheduled castes, tribal and indigenous people experiencing discrimination, nomadic pastoralists, and landless labourer toiling on marginal land. Most often, poverty is a situation people want to escape. So poverty is a call to action - for the poor and the wealthy alike - a call to change the world so that many more may have enough to eat, adequate shelter, access to education and health, protection from violence, and a voice in their communities.

After studying this unit you should be able to

- explain the meaning and features of poverty
- examine the global poverty and historical trend of poverty in India
- describe the trends and dimensions of poverty in India
- analyze causes and remedies of poverty
- Narrate measures for poverty alleviation, under taken during different Five year Plans in India.

2.2 POVERTY: MEANING AND FEATURES

2.2.1 Meaning of Poverty

India is poor compared with the USA, and, within India, Bihar and Orissa are poor compared to Punjab and Haryana. You might be aware about the poor - those who have inadequate income, housing, clothing etc. You also know that the definition and methods of measuring poverty differ from country to country. Poverty is the syndrome of assetlessness, landlessness, joblessness, deprivation and helplessness. It is not a pure economic phenomenon. It has social, cultural, political, historical, and geographical dimensions. It is lack of livelihood security and food security. It is hunger, starvation, and vulnerability. Poverty is lack of shelter, and lack of education, and lack of access to health care. Poverty is being sick and not being able to see a doctor. Poverty is not being able to go to school and not knowing how to read. Poverty is not having a job, is fear for the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom. To know what helps to alleviate poverty, what works and what does not, what changes over time, poverty has to be defined, measured, and studied - and even lived. As poverty has many dimensions, it has to be looked at through a variety of indicators — levels of income and consumption, social indicators, and now, increasingly, indicators of vulnerability to risks, and of socio/political access. It has many non income and non quantifiable dimensions. Attempts to define or measure poverty do not give justice to the reality of its experience. The extreme poverty of the developing countries crushes the human spirit. It draws out many of finest qualities of human being. Family loyalties survive the desperate search for livelihoods. They display stoicism in the face of exclusion and dignity amongst deprivation. Extreme poverty strikes when household resources prove insufficient to secure the essentials of dignified living. That fragility refers to lack of education, the absence of work opportunities, and exclusion from valuable social networks.

Poverty and inequality are multidimensional – consumption and income, education, health, opportunities, voice, etc., and have multiple determinants: geographic and agro-climatic factors, services, infrastructure, etc. It has to be looked at through a variety of indicators - levels of income and consumption, social indicators, and indicators of vulnerability to risks, and of socio/political access. In general, poverty can be defined as a situation when people are unable to satisfy the basic needs of life.

The picture of dire poverty is found in India where the incidence of absolute poverty abounds. Absolute poverty is not related to income or the consumption level of the household but to some minimum standard of living. The concept of absolute poverty is relevant for less developed countries. In order to measure it, absolute norms for living are first laid down. It is expressed in terms of income or expenditure. A person falling below this norm (called the poverty line) is classified as poor. In India, the poverty norm is anchored in terms of daily intake of food. According to the definition by the Planning Commission of India, the poverty line is drawn at an intake of 2400 calories in rural areas, and 2100 calories in urban areas. If a person is unable to get that minimum level of calories, then he, or she, is considered as living below the poverty line. The consumption basket representing this calorie intake is then converted into a monetary equivalent by using price indices separately for rural and urban areas.

2.2.2 Features of Poverty

Poverty has many faces, many causes and many effects. It has several monetary and non monetary dimensions. It has several manifestations. It is caused by several obstacles and constraints, which do reinforce each other. It is characterized by the following features.

i) Few assets, landlessness and low income

ii) Low consumption, no savings and high indebtedness

iii) Jobless, employment insecurity and food insecurity

iv) Illiteracy and lack of formal education and training

v) Poor health, housing, or ill health, poor sanitation

vi) Marginalization and high dependency

vii) Few contacts with key persons/institutions

viii) Little involvement in influential forum

ix) Competition for resources among the poor

x) Economic vulnerability and subordination

xi) Low self esteem, low social status and resignation

xii) Subsistence living and no future plan.

2.3 POVERTY SITUATION

The World Bank calculates an international poverty line by reference to the average of the national poverty lines in 15 of the world's poorest countries. According to the World Bank, the number of people living below the international poverty line of $1.25 per day fell from 1.8 billion to 1.4 billion between 1990 and 2005. China accounted for 465 million of this reduction, implying that poverty has increased elsewhere over this period. In sub-Saharan Africa, the increase was 100 million. However, expressing global poverty as a percentage reverses the trend due to the rising global population. For example, extreme poverty in sub-Saharan Africa has fallen slightly from 57per cent to 51 per cent between 1990 and 2005. The wealth of our new millennium has tended to increase inequality rather than reduce poverty. The UNDP has reported that, in 2005, the richest 500 people in the world earned more than the poorest 416 million. Global poverty is then assessed by reference to "data from 675 household surveys across 116 developing countries", according to the World Bank. This data is compared to the $1.25 benchmark, not by standard currency exchange rates, but by purchasing power parity (PPP) rates which smooth out the different buying power of the dollar in each country. The World Bank figure of $1.25 per day was intended to be a bottom marker. Unfortunately, the two countries with the largest populations in the world, India and China, have both defined national poverty lines which are even lower. India's poverty line is $1.02 which gives a national poverty rate of 26 per cent compared to 42 per cent on the international basis. In China the gap is even wider, tripling its national poverty numbers to over 200 million. These inconsistent measures are the source of much confusion. A second tier international poverty line of $2 per day is derived from the average of national poverty lines in all lower and middle income countries. The World Bank reports that 2.6 billion people live below this benchmark, a figure which has changed

little since 1981. Indeed, a slightly higher benchmark of $2.50 per day captures more than half of the world's population. The population living below international poverty line in various countries is given in Table 1.

Table 1: Status of Poverty in various Region of the World, 2013

Region	% in $1.90 a day poverty	Population (in millions)
East Asia & Pacific	3.5	71
Latin America & the Caribbean	5.4	34
South Asia	15.1	256
Sub Saharan Africa	41.0	389
Europe & Central Asia	2.2	10
Middle East & North Africa	-	-
World	10.7	766

Source: *World Development Indicators, 2017 seehttp://wdi.worldbank.org/table/1.2.2(accessed on 15/4/2018)*

There are two contrasting and complementary reasons for reducing global poverty. The first reason is ethical. It springs from religious teaching. This finds secular expression in the 1948 Universal Declaration of Human Rights which asserts that "everyone has the right to a standard of living adequate for the health and well-being of himself and of his family." The second reason lies in self interest. In a globalized world, countries, large and small, are interdependent. Poverty anywhere is a threat to prosperity everywhere. Extreme poverty is the engine of international labour migration which the richer countries are notoriously reluctant to accommodate. The spread of any disease is more difficult to control if weak countries lack the capacity to deliver an appropriate response. Whilst the risk of terrorism is often complex in origin, extreme poverty is the ideal recruiting ground for its foot soldiers.

Table 2: Status of Hungry People in various Regions of the World, 2010

Region/Countries	Hungry People (in millions)
Developed Countries	19
Near East/North Africa	37
Latin America / the Caribbean	53
Sub-Saharan African	239
Asia & the Pacific	578

***Source**: FAO, 2010.*

The failure of the macroeconomic policies of the 1980s and 1990s created pressure on world leaders to find an approach which delivered measurable results for poverty reduction. This led to the Millennium Declaration, committing governments to eight Millennium Development Goals (MDGs) with targets to be met by 2015. Apart from the goal to provide primary education for all, the targets aim for reduction rather than elimination of poverty.

2.4 MEASUREMENT OF POVERTY

The four important used methods of measurement of poverty are: (i) The Head Count Index (H); (ii) Income Gap Index (I) (ii) The Poverty Gap Index (P) and (iii) The Sen Index (SI).

i) **Head Count Index (H)-** It is the easiest and the most popular method of measurement of poverty. The poverty head count measures the percentage of population that falls below the poverty line. The formula used for the calculation of HCI is:

HCI=M/N

HCI= Head Count Index

Where

M= Number of people living below the poverty line

N=Total Population

ii) **Income Gap Index (I):** The formula used in the calculation of Income Gap Index is follows:

$$\text{IGI} = \frac{\sum_{i=1}^{M}(Z_i - y_i)}{\text{Mz}}$$

IGI = Income Gap Index

Mz = Number of people living below the poverty line

Zi = Poverty line income

yi = Mean income of the poor

iii) **The Poverty Gap Index (P):** The formula used in the calculation of PGI:

$$\text{IGI} = \frac{\sum_{i=1}^{M}(Z_i - y_i)}{\text{Nz}}$$

PGI = Poverty Gap Index

M = Number of people living below poverty line

Nz = Number of poor population

Zi = Poverty line income

yi = Mean income of the poor

iv) **The Sen Index (SI)**: Amartya Sen (1976) gave an index which has taken into consideration the combine effects of the number of poor, the depth of their poverty and distribution of poverty within the group. The Sen Index has taken into account the head count index, income gap index and Gini coefficient into consideration in the calculation of poverty. The formula used in the calculation of Sen's index is as follows

$$SI = H \times [\, I + (1 - I\,) \times G\,]$$

Where SI = Sen Index

H = Head Count Ratio

G = Gini Coefficient

I = Income Gap Index

The Sen Index of poverty is an increasing function of the head count ratio and increasing function of the income shortfall as well as increasing function of the Gini coefficient.

After going through the definition and meaning of poverty, the measurement of poverty, in the global and Indian contexts, now Check Your Progress-1.

Check Your Progress 1

Note: a) Write your answer in given space.

b) Check your progress with the possible answers given at the end of the unit.

1) What is poverty? Examine its features and manifestation.

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2) How do we measure poverty?

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3) What are the reasons of reducing global poverty?

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2.5 VICIOUS CIRCLE OF POVERTY

The vicious circle of poverty refers to the interconnectedness of different factors that reinforce each other for generating poverty. They are poor because they are too many. They are too many because they are poor. According to Nurkse and Kindleberger the reasons for this vicious circle of poverty can be classified into three groups.

a) Supply side factors

b) Demand side factors

c) Market imperfection.

2.5.1 Supply Side Factors

The supply side of the vicious circle indicates that in underdeveloped countries, productivity is so low that it is not enough for capital formation. According to Samuelson, "The backward nations cannot get their heads above water because their production is so low that they can spare nothing for capital formation by which their standard of living could be raised." According to Nurkse on the supply side there is small capacity to save, resulting from low level of national income. The low real income is the result of low productivity, which in turn, is largely due to the lack of capital. The lack of capital is a result of the small capacity to save, and so, the circle is vicious.

Low Income

– Low Saving
– Low Investment
– Low Production
– Low Income

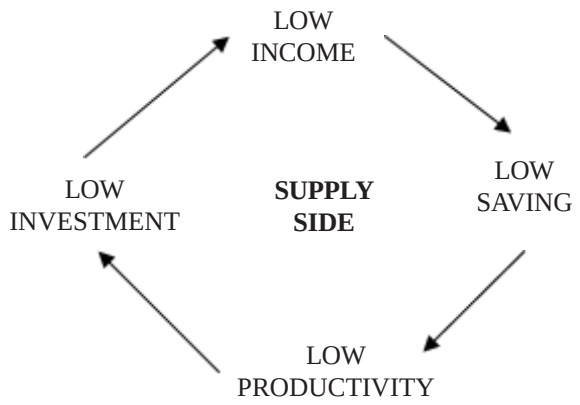

Fig. 2.1 : Low Supply

Thus, it becomes clear from the above diagram that the main reason of poverty is the low level of saving. Consequently, investment is not possible in production channels. A huge chunk of GDP is used for consumption purposes. People cannot save. So, there is lack of investment and capital formation. Although rich people can save, they spend their surplus in some on luxurious goods instead of saving. They gave preference to high priced items and foreign products. Thus, their demand does not enlarge the size of the market. The developing countries, therefore, lack investment facilities.

2.5.2 Demand Side Factors

According to Nurkse, poverty is caused by several factors in the demand side. In underdeveloped countries the inducement to invest is low because of the low purchasing power of the people, which is due to their small real income. It is illustrated in the following diagram.

Low Income

– Low Demand
– Low Investment
– Low Productivity
– Low Income

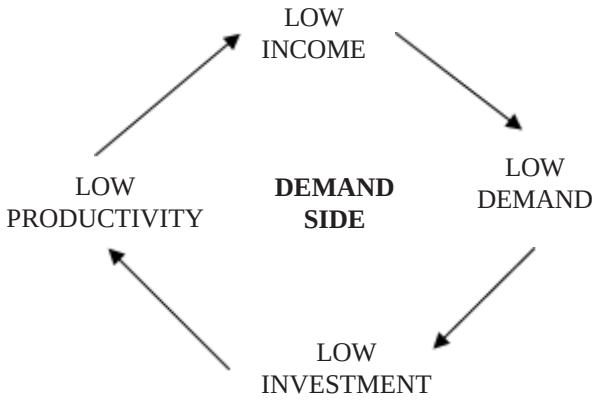

Fig. 2.3 : Low Demand

The main reason for poverty in these countries is the low level of demand. Consequently, the sizes of markets remain low. The small size of the market becomes a hurdle in the path of inducement to invest.

2.5.3 Market Imperfections

According to Meier and Baldwin, the existence of market imperfections prevents optimum allocation and utilization of natural resources, and the result is underdevelopment, and this, in turn, leads to poverty. The development of natural resources depends upon the character of human resources. But due to lack of skill and low level of knowledge, natural resources remain unutilized, underutilised and misused. The vicious circle of poverty caused by market imperfections is shown in the following diagram.

2.6 DIMENSIONS OF POVERTY

The two main dimensions of poverty in India are:

i) Regional dimensions of poverty

ii) Social dimensions of poverty.

iii) Human development dimension of poverty

2.6.1 Regional Dimension of Poverty

There poverty differences between the developed and developing countries and within the same continent some countries and regions have less poverty as compared to the other. For example the poverty is more pervasive in South Asia as compared to other part of the Asia. In the same region and within the same country some regions suffer from more poverty as compared to other region. For example in India the poverty is less in northern region states as compared to the eastern region states. Poverty in India has a regional dimension. Poverty profiles differ in rural and urban areas. They also differ widely across states and regions of India. This is primarily due to wide regional disparities. Regional imbalance in economic growth in major states is observed from the variations in the growth of Net State Domestic Product (NSDP). There is wide interstate imbalance in the economic growth of rich and poor states of India. During the post reforms period (1990-2004), some states have accelerated and some states have decelerated in terms economic development. There is a wide difference in the investment climate of different states of Indian union. Kerala's achievement in social development and reduction in poverty are very impressive. The percentage of poor in rural areas of Kerala declined from 50 per cent in 1973 to 12.7 per cent in 1999-2000. Its record of overcoming poverty, even with moderate economic growth has been attributed to its effective implementation of land reforms, comprehensive social and food security coverage, decentralized system of governance, and highly conscious civil society. The rural–urban divide in India is widening after economic reforms. There is deceleration in agricultural growth, which is the matter of concern in employment generation and poverty reduction.

2.6.2 Social Dimension of Poverty

Poverty in India is not merely an economic phenomenon but also a social one. Poverty is seen today as an outcome of multiple deprivations. It is

disproportionately high among SCs and STs. Poverty gets disproportionately concentrated among casual labourers. Growing dependency of rural and urban households on casual labour market exposes the poor to market risks and tends to increase transient poverty, whereby households move in and out of poverty due to fluctuations in the labour market. The incidence of poverty among SCs is very high in Bihar, MP and UP in both rural and urban areas. In terms of income poverty and other indicators of human development such as education and health, STs are at the bottom. The gender dimension of poverty is very important in India. There is gender discrimination against women in the labour market. A majority of women are illiterate. The female members of the poor household suffer the most from all kinds of deprivation.

2.6.3 Human Development Dimension of Poverty

The human development dimension of poverty become popular after the publication of human development report by the UNDP in 1990s. This dimension acknowledge that the human poverty influences and being influenced by the income poverty. Because of low income, the education, health and per capita income of the family become low. It is customarily found that the family with illiterate and low level of education are suffer from deeper poverty as compared to the family with higher level of education and skill education. The unskilled labour force also get lower wage rate than their counterpart skilled labour force. As far as health is concerned health and poverty are interlinked. Families with it members suffering from sever morbidities drag towards poverty.

2.7 CAUSES AND REMEDIES OF POVERTY

2.7.1 Causes of Poverty

All types of poverty and deprivation in India are caused by the following factors.

i) **Colonial Exploitation:** Colonial rule in India is the main reason of poverty and backwardness in India. The Mughal era ended about 1800. The Indian economy was purposely and severely de-industrialized through colonial privatizations. British rule replaced the wasteful warlord aristocracy by a bureaucratic-military establishment. However, colonial exploitation caused backwardness in India. In 1830, India accounted for 17.6 per cent of global industrial production against Britain's 9.5 per cent, but, by 1900, India's share was down to 1.7 per cent against Britain's 18.5 per cent. This view claims that British policies in India exacerbated by the weather conditions led to mass famines, roughly 30 to 60 million deaths from starvation in the Indian colonies. Community grain banks were forcibly disabled, land was converted from food crops for local consumption to cotton, opium, tea, and grain for export, largely for animal feed.

ii) **Lack of Investment for the Poor:** There is lack of investment for the development of poorer section of the society. Over the past 60 years, India decided to focus on creating world class educational institutions for the elite, whilst neglecting basic literacy for the majority. This has denied the illiterate population - 33 per cent of India – of even the possibility of escaping poverty. There is no focus on creating permanent income-generating assets for the poor people.

Studies on China (2004) also indicated that since universal and free healthcare was discontinued in 1981, approximately 45 million (5 per cent of its 900 million rural population) took on healthcare-related debts that they could not repay in their lifetimes. Since then, the government has reintroduced universal health care for the population. Given India's greater reliance on private healthcare spending, healthcare costs are a significant contributor to poverty in India.

iii) **Social System:** The social system is another cause of poverty in India. The social subsystems are so strongly interlocked that the poor are incapable of overcoming the obstacles. A disproportionally large number of poor people are lower caste Hindus. According to S. M. Michael, Dalits constitute the bulk of poor and unemployed. Many see Hinduism and its structure, called the caste system, as a system of exploitation of poor, low ranking groups by more prosperous, high ranking groups. In many parts of India, land is largely held by high ranking property owners of the dominant castes that economically exploit low ranking landless labourers and poor artisans, all the while degrading them with ritual emphases on their so-called, god-given inferior status. According to William A. Haviland, casteism is widespread in rural areas, and continues to segregate Dalits. Others, however, have noted the steady rise and empowerment of the Dalits through social reforms, and the implementation of reservations in employment and benefits.

iv) **Economic Policies:** In 1947, the average annual income in India was US$439, compared with US$619 for China, US$770 for South Korea. But South Korea became a developed country by the 2000s. At the same time, India was left as one of the world's poorest countries. India had the Hindu rate of growth which stagnated at around 3.5 per cent from the 1950s to the 1980s, while per capita income averaged 1.3 per cent License Raj prevailed with elaborate licenses, regulations and accompanying red tape. Corruption flourished under this system. The labyrinthine bureaucracy often led to absurd restrictions. India had started out in the 1950s with: high growth rates, openness to trade and investment, a promotional state, social expenditure awareness, and macro stability but we ended the 1980s with: low growth rates (the Hindu rate of growth), closure to trade and investment, a license-obsessed, restrictive state (License Raj), inability to sustain social expenditures and macro instability, indeed crisis. Poverty has decreased significantly since reforms were started in the 1980s. India currently adds 40 million people to its middle class every year. An estimated 300 million Indians now belong to the middle class; one-third of them have emerged from poverty in the last ten years. At the current rate of growth, a majority of Indians will be middle class by 2025. Literacy rates have risen from 52 per cent to 65 per cent in the same period.

v) **Over-reliance on Agriculture**: In India there is high level of dependence on primitive methods of agriculture. There is a surplus of labour in agriculture. Farmers are a large vote bank and use their votes to resist reallocation of land for higher-income industrial projects. While services and industry have grown at double digit figures, the agriculture growth rate has dropped from 4.8 per cent to 2 per cent. About 60 per cent of the population depends on agriculture, whereas the contribution of agriculture to the GDP is about 18 per cent. The agricultural sector has remained very unproductive. There is

no modernization of agriculture despite some mechanization in some regions of India.

vi) **Heavy population pressures**: Although demographers generally agree that high population growth rate is a symptom rather than cause of poverty and add to poverty. Mohmood Mamdani aptly remarked "people are not poor because they have large families. Quite the contrary, they have large families because they are poor". However this is a general argument in developing country that population growth is a major obstacle to development and cause of poverty.

vii) **High Illiteracy**: Indian literacy rate rose almost tenfold during the British era. In 1947, India's literacy rate matched China's. However, in 2007, China reported at 91 per cent literacy rate versus 66 per cent for India. Now India suffers from about 35 per cent illiteracy among the adult population. Literacy levels among SC, ST and females are very low.

viii) **High Unemployment**: There is high degree of underutilization of resources. The whole country suffers from a high degree of unemployment. India is marching with jobless economic growth. Employment is not growing, neither in the private sector, nor in the public sector. The IT sector has become elitist, which does not improve the poverty situation in the country. Disguised unemployment and seasonal unemployment is very high in the agricultural sector of India. It is the main cause of rural poverty in India.

ix) **Lack of Entrepreneurship:** The industrial base of India has remained very slender. The industrial sickness is very widespread**.** The whole industrial sector suffers from capital deficiency and lack of entrepreneurial spirit.

2.7.2 Remedies for Poverty

It is widely recognised that while income poverty reduction is relatively easy, elimination of multiple deprivation is more difficult to achieve. So poverty reduction strategy should go beyond income poverty and inadequacy of basic needs and rights as well as inadequate access to both productive assets and social infrastructure. Therefore, empowerment of the poor is considered a critical factor in accelerating poverty reduction. Empowerment is sought to be achieved by giving a role to the poor in governance and development decisions. At present NGOs, donor agencies, and development activists are exerting pressure on policy makers to involve all stake holders in poverty alleviation projects and activate the panchayats and promote institutions like self help groups and user groups and mobilize the poor for collective action. According to SAPAP (2003) poverty is the product of livelihood systems and the socio-political and economic forces that shape them. SAPAP argues that multidimensional interventions revolving around land and other property rights, bargaining power for improved wage, holistic health care, micro finance and insurance, and physical and social security are needed for accelerating poverty reduction. The key issue is to weaken the stronghold of the rich in the governance of local institutions and facilitate the participation of the poor.

There are different measures for tackling poverty is discussed below. Let us discuss these aspects in detail.

i) **Increase in Saving**: In order to get rid of the supply side vicious circle in these countries, efforts should be made to increase savings so that investment in productive channels may be encouraged. To increase saving, expenditure on marriages, social ceremonies, etc., should be curtailed. In under developed countries, the possibility of voluntary savings is slim. Thus, in this regard, government interference is necessary. The government can increase saving by altering its fiscal policy. The government can impose heavy taxes on luxury goods. Moreover, it can increase the role of direct taxes. Thus, the government can curtail consumption by altering the tax system.

ii) **Increase in Investment**: To break the vicious circle of poverty, apart from increasing savings, investment of saving in productive channels is also of immense use. The policies of short run and long run investment should be coordinated. By short period investment, people can get the necessary goods at fair rates, which will have a favourable impact on their skill. Moreover, along with short period investment, investment in the establishment of multipurpose projects, like iron and chemical fertilizers should be properly encouraged. In UDCs, proper monetary and banking policies should be adopted which may provide facilities and encouragement to small savings.

iii) **Balanced Growth**: To resolve the demand side vicious circle in under developed countries, the extent of the market should be widened so that people may get inducement to invest. In this regard, Prof. Nurkse advocated the doctrine of balanced growth. According to the principle of balanced growth, investment should be made in every sphere of an economy so that demand of one sector can be fulfilled by another sector. Thus, an increase in demand will lead to wider extent of the market, and so, the inducement to invest. On the other hand, economists like Hirschman, Singer, and Fleming do not consider the policy of balanced growth effective. According to them, the policy of unbalanced growth would be more useful. In UDCs, there is every possibility of increase in demand and there is the need of increase in monetary income. The majority of UDCs have adopted the policy of planned development. Accordingly, due to more investment in the public sector, the supply of money increases. Due to increase in monetary income, sizes of the market widen. These countries endeavour to widen the size of foreign market by increasing their exports.

iv) **Human Capital Formation**: In underdeveloped countries, the main obstacle to economic growth is the backwardness of human capital. Human capital should no longer be neglected. Many suggestions can be made to increase skill of manpower. For instance, in these countries, education, technical knowledge, and vocational training should be enlarged. Health facilities should be enhanced, which may increase the efficiency of the workers. Transportation and communication should be developed.

v) **Industrialisation**: Poverty can be eradicated by a self-sustaining process of industrialization. All industries should have linkage to build a powerful process of ancilary industries and occupations. The percolation effect of industries can be very strong through the establishment of auxiliary industries. Industry should be linked to agricultural growth. Agro-based industries should grow to provide employment to village people as they are very much labour intensive. Industrialisation can contribute to the growth process and bring improvement in the standard of living of people.

Other Measures for Poverty Reduction

i) More employment opportunities : poverty can be eliminated by creating more employment opportunities, so that people may be able to meet their basis needs

ii) Minimum needs programmes: providing minimum needs to the poor people can help to reduce the problem of poverty

iii) Social security programmes: various social security schemes, like worker's compensation, maternity benefit. provident fund, etc., can make a frontal attack on poverty

iv) Small scale industries: encouraging and establishing small scale industries can create jobs in rural areas, which can reduce poverty

v) Spread of education: education can create awareness and build confidence among people to find methods to overcome poverty

vi) Empowerment of poor: poor people are voiceless due to the ruthless system of development. So, empowerment of poor people will reduce poverty

vii) Land reforms: land belongs to the absentee landlords in India. Therefore, land reform is needed for giving rights to the actual tiller of the soil

viii) Asset creation: productive assets must be created which will ensure regular income for the poor people

ix) Political will: political will and thrust is needed to face the challenge of poverty. Government policy should be designed with determination for having a poverty-free country

x) Social change: social strata and traditional values should be free from dogmas. The caste system should not discriminate any people for anything. Social reforms are also needed to remove poverty among the lower caste and women.

Poverty Reduction Measures in India: During different Five Year Plans, the Government of India has adopted several strategies and devised several schemes to remove poverty in India. The following are some steps.

- IRDP: the Integrated Rural Development Programme was initiated in 1976 in 20 selected districts of India. Then, it was extended to all blocks in 1980.The objective of this program was to enable the selected families to cross the poverty line by creating productive assets for the poor people.
- NREP: the National Rural Employment Programme was launched in 1980 in order to generate gainful employment in rural areas.
- RLEGP: the Rural Landless Employment Guarantee Programme was launched in August 1983 to generate additional employment opportunities for the landless people in the villages.
- JRY: Jawahar Rojgar Yojana was introduced in 1989 to create 837 million man-days in the country.
- TRYSEM: Training of Rural Youth for Self Employment was launched in 1979 with the aim of generating self employment opportunities for unemployed educated rural youth.

- DWC: Development of Women and Children was launched during the Sixth Plan on a pilot basis in 50 districts, and continued in 7th plan.
- DPAP: the Drought Prone Area Programme was started in 1970 for drought areas with a view to create jobs through labour intensive schemes.
- DDP: the Desert Development Programme was started in 1977 to control the expansion of deserts and raise local productivity of desert areas.
- MNP: the Minimum Needs Programme was introduced in the Fifth Plan, in order to achieve growth with justice.
- PMRY: the Prime Ministers Rozgar Yojana was implemented in 1993 to give employment to more than 10 lakh people by setting up 7 lakh micro enterprises.
- SGSY: Swarna Jayanti Gram Swarozgar Yojana, created in 1999, is a combination of many previous poverty eradication programmes, like IRDP, TRYSEM, Minimum Wells Programme, and DWCRA.
- PMIUPEP: the Prime Ministers Integrated Urban Poverty Eradication Programme was implemented in 1995 to reduce urban poverty.
- EGS: the Employment Guarantee Scheme was launched in many states to provide employment for poor people.
- SJRY: Swarna Jyanti Rozgar Yojana was launched in 1997 for the urban poor.
- JGSY: Jawahar Gram Samridhi Yojana is the new name of Jawahar Rozgar Yojana with effect from 1999.
- PMGY: Pradhan Mantri Gramodaya Yojana.
- PMGSY: Pradhan Mantri Grama Sadak Yojana.
- AAY: Antyodaya Anna Yojana.
- JPRGY: Jai Prakash Rozgar Guarantee Yojana.
- VAMBAY: Valmiki Ambedkar Awas Yojana.
- DWCRA: Development of Women and Children in Rural Areas.
- MGNREGA: This was implemented since 2002 for providing 100 days employment in a calendar year to a family member interested for doing unskilled manual work.

You have read about the vicious circle of poverty, dimensions of poverty, causes and remedies of poverty. Now, you should be able to answer the following questions in order to check your progress.

Check Your Progress 2

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) What is the vicious circle of poverty?

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2) What are the regional dimension of poverty in India?

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2.9 LET US SUM UP

In this unit we dealt with the definition, features and measurement of poverty. At the outset, it has examined the incidence of poverty. It has analysed the problems of poverty across the states. This unit has also explained the vicious circle of poverty as well as the regional and social dimensions of poverty. This unit has also explained various causes of poverty. The falling trends of both rural and urban poverty have also been explained. Finally it has discussed various governmental efforts for alleviation of poverty.

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2.11 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress-1

1) What is poverty? Examine its features and manifestation.

Answer: Poverty has many faces. Poverty is the syndrome of assetlessness, landlessness, joblessness, deprivation and helplessness. It is not a pure economic phenomenon. It has social, cultural, political, historical and geographical dimensions. It is lack of livelihood security and food security. It is hunger, starvation and vulnerability. Poverty is lack of shelter and lack of education and lack of access to health care. Poverty is being sick and not being able to see a doctor. Poverty is not being able to go to school and not knowing how to read. Poverty is not having a job, is fear for the future, living one day at a time. Poverty is losing a child to illness brought about by unclean water. Poverty is powerlessness, lack of representation and freedom.

2) How do we measure poverty?

Answer: Poverty has been measured by several economists and non economists. There are three commonly used measures of poverty. They are:

1) Head Count Ratio (HCR): $H = M / N$
2) Poverty Gap Ratio (PGR): $R = \mu - ì / z$
3) Amartya Sen's Index (ASI): $S = H [R+ (1"R) G]$

Where: H is the proportion of households who are poor; N is total number of households, M is number of poor *households* having incomes at or below the poverty line *z*. ì is the mean income of the poor; and *R* is the mean income shortfall of the poor expressed as a proportion of the poverty line. G is the Gini coefficient computed over the vector of poor incomes. The 'Sen index', S satisfies the relative deprivation property.

3) What are the reasons of reducing global poverty?

Answer: There are two contrasting and complementary reasons for reducing global poverty. First reason is ethical. It springs from religious teaching. This finds secular expression "everyone has the right to a standard of living adequate for the health and well-being." The second reason lies in self-interest. In a globalized world, countries large and small are interdependent. Poverty anywhere is a threat to prosperity every where. Extreme poverty is the engine of international labour migration which the richer countries are notoriously reluctant to accommodate. Poverty is one of the main causes of terrorism in the world.

Check Your Progress-2

1) What is the vicious circle of poverty?

Answer: The vicious circle of poverty refers to the interconnectedness of different factors that reinforce demand and supply each other in terms of low income, low saving, low investment and low production.

2) What is the regional dimension of poverty in India?

Answer: Poverty in India has a regional dimension. The poverty profile differs in rural and urban areas. It also differs widely across states and regions of India. It is primarily due to the wide regional disparity.

UNIT 3 INEQUALITY

Structure

3.1 Introduction

3.2 Inequality: Concept and Meaning

3.3 Inequality at International Level

3.4 Measurement of Inequality

3.5 Dynamics of Inequality in India

3.6 Causes of Inequality

3.7 Measures to Reduce Inequality

3.8 Let Us Sum Up

3.9 References and Selected Readings

3.10 Check Your Progress – Possible Answers

3.1 INTRODUCTION

In the previous unit you read about poverty which is one of the basic issues of development. This unit will deal with another basic issue of inequality that affects both developed and developing countries. While poverty concentrates on the bottom strata of the society, inequality refers to the distribution of wealth across the whole society. It is important to understand inequality in order to have a better understanding of poverty as the distribution of wealth in a country helps in understanding the extent and depth of poverty. Around 42 percent of the world income is in the hands of richest 10 percent of the world population while the poorest 10 percent of the population holds only 1 percent of the total wealth. Economic growth in the world has happened in such a way that while the income gap between the countries has decreased, the income inequality within countries has increased. This unit will also help you to understand inequality in terms of its meaning, extent, causes and remedies. After reading this unit you will be able to:

- Explain the meaning of inequality
- Describe inequality in different regions
- Explain the various types of inequality
- List out the various causes and remedies of inequality

3.2 INEQUALLITY:CONCEPT AND MEANING

Inequality may be defined as a condition in which some people have more rights or better opportunities than other people. Though inequality exists in different dimensions in an economy, it is generally used for income inequality in common parlance. Income inequality is generally used as a benchmark indicating the welfare of a society. It is a measurement of distribution of wealth across households. It gives a relative comparison of the gap in household incomes across a given region, country or the world.

The dictionary meaning of inequality is an unfair situation in which some people have more rights or better opportunities than other people (Merriam Webster dictionary).

Economic inequality has been defined in the textbooks (Ray 1998) as the fundamental disparity that permits one individual certain material choices, while denying another individual those very same choices. Inequality concerns variation in living standards across a whole population. It is an indicator of how well the member states redistribute their income among the people and how resources are distributed across the society. While poverty focuses on those whose standard of living falls below a predefined benchmark like the poverty line or minimum calorie intake required, inequality is a relative term reflecting the living conditions of the individuals in the whole population.

The income per capita in high income countries has always been higher than that in other countries. However, the income per capita of lower and upper middle income countries has seen an upward trend owing to the growth of India and China. Between 2000 to 2010, the per capita income in China has risen by an average of 5.9 percent per year and that of India has risen by an average of 5.1 percent per year during the same period. According to Simon Kuznet, as countries move up the ladder of development, they first experience more inequality and then progressively less inequality. High income countries are more likely to have lower income inequality. Middle income countries are more likely to have higher inequality as they are in the process of being more developed. Most of the world population lives in countries which have increasing income inequality like China, India, US, Canada and Russia. Countries like Brazil and Mexico have experience declining inequality whereas in countries like Bangladesh and Japan, inequality has remained stable.

The table-1 below gives the Human Development Index ranks as well as Gini Coefficients of some countries for the year 2013.

Table 1: Gini Index of selected Countries of the World

HDI Rank	Country	Gini Index (2013)
1	Norway	25.8
5	United States	40.8
8	Canada	32.6
12	Sweden	25.0
49	Argentina	44.5
62	Malaysia	46.2
71	Mexico	47.2
73	Sri Lanka	36.4
79	Brazil	54.7
91	China	42.1
108	Indonesia	38.1
118	South Africa	63.1

135	India	33.9
136	Bhutan	38.1
142	Bangladesh	32.1
173	Ethiopia	33.6
185	Central African Republic	56.3
187	Niger	34.6

Source: *http://hdr.undp.org/en/content/income-gini-coefficient*

3.3 INEQUALITY AT INTERNATIONAL LEVEL

Inequality in Asia

According to "Asian Development Outlook, 2012" released by the (ADB, 2012)Asian Development Bank, income inequalities in Asia are high with the Gini Coefficient in the end of 2000's being 0.37. In Asia, China is one of the most income unequal countries with a Gini of 0.43 in 2008. The richest 20 percent of the population in China earn 9.6 times more than the poorest 20 percent of the population. This is in contrast to the Gini of 0.32 in 1990 and the richest 20 percent earning 4.8 times more than the poorest 20 percent during 1990. In India, the Gini Coefficient is equal to 0.37. Levels of inequalities are also different between town and countryside. In India inequalities are more in towns (.39) than in countryside (.30) whereas in China inequalities are more in the country (.39) than in towns (.35).

Inequality in Europe

Research conducted by European Commission on the income inequality in European countries (Sierminska & Medgyesi, 2013), show that in the European Union (EU), the income share of the richest 10 percent of the population was highest in Portugal where top 10 percent had 27 percent of the total income. This share was between 25 and 26 percent in Bulgaria, Latvia, UK and France and around 20 percent in Sweden and Slovenia. The smallest share of income (around 2 percent) held by the bottom 10 percent of the population was by Romania, Latvia and Spain whereas Netherlands, Czech Republic and Finland, where the income share of the poorest decile exceeded 4 percent. In the EU, the value of the Gini coefficient in 2010 ranged from 0.24 (in Slovenia and Sweden) to 0.35 (in Bulgaria and Latvia). The Gini coefficient in the European Union ranged from 0.24 in Slovenia and Sweden to 0.35 in Bulgaria and Latvia. Portugal was at the higher side with 0.34 and Netherlands and Czech Republic towards the lower side at 0.25. The Baltic states, Southern European countries, France, Poland, Romania, Bulgaria, UK and Ireland had Gini ranging from 0.31 to 0.33. Other EU countries had Gini ranging between 0.25 and 0.29.

Inequality in America

According to a report in The Wall Street Journal, The gap between the richest and poorest Americans widened even as the U.S. economic recovery gained traction in the years after the recession (Leubsdorf, 2014). In US, the inequality as measured by Gini Coefficient has been increasing since 1982.

Andrew Samwick, economics professor at Dartmouth College, divides the period from 1929 to today into four distinct eras based on income inequality (Samwick, 2006):

- **The Great Depression: 1929–1947**

  This was the birth of the middle class in the United States. Real wages for manufacturing production workers rose by 67 per cent, while real income of the richest 1 per cent fell by 17 per cent. This resulted in the gap between rich and poor narrowing (compressing).

- **The Postwar Boom: 1947–1973**

  This was an era in which growth was widely shared—real wages for manufacturing production workers rose 81 per cent, and the income of the richest 1 per cent of the population increased by 38 per cent.

- **Stagflation: 1973–1980**

  This was a period in which all groups lost ground. Real wages for manufacturing production workers fell by 3 per cent, and the income of the richest 1 per cent fell by 4 per cent.

- **The New Gilded Age: 1980–2007**

  Incomes in the richest group soared, while they stagnated in the other groups. Between 1980 and 2007, the income of the richest 1 per cent rose 197 per cent, although the income share of the richest 1 per cent is still slightly below its peak in 1928.

Inequality in Africa:

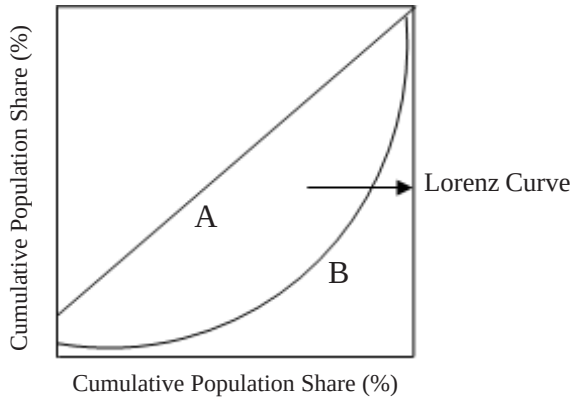
Africa is not just the poorest regions of the world but also the second most inequitable regions, next only to Latin America. Sub Saharan Africa and more specifically Southern Africa is home to most of the unequal countries of the world. As per the report of African Development Bank Group the richest section of population capture the largest share of income (Maurice Mubila, 2012). In Mozambique, the mean share of the lowest 20% of the population is 5.2% of total income while the top 20% has a share of 51.5%. A larger percentage of the population is poor in rural areas (56.9%), compared to urban areas (49.6%). The poor, defined as those earning less than $2 a day account for almost 61 percent of Africa's population and they hold only 36 percent of the region's income. The rich (those who earn more than $20/day) account for 4.8% of the population and 18.8% of total income. The report says that Southern Africa is the most unequal part of Africa. Most unequal countries of Africa include Namibia, Comoros, South Africa, Angola, Botswana, Lesotho and Swaziland.

3.4 MEASUREMENT OF INEQUALITY

1) Gini Coefficient:

One of the most commonly used measures of inequality is Gini Coefficient. Gini coefficient is a measure of the extent to which the distribution of income or consumption expenditure of individuals or households within an economy deviates from a perfectly equal distribution. The coefficient varies between 0, which reflects complete equality and 1, which indicates complete inequality

(one person has all the income or consumption, all others have none). Gini coefficient can also be represented graphically using Lorenz curve. A Lorenz curve plots the cumulative percentages of total income against cumulative number of recipients starting with the poorest individual/household. The Gini coefficient measures the area between the Lorenz curve and a hypothetical line of absolute equality, expressed as a percentage of the maximum area under the line.



In Lorenz curve, the cumulative income share is mapped on the vertical axis and the population share of the horizontal axis. If there was income equality or in other words if each individual had the same level of income, the income distribution curve will be the straight line shown in figure 1. Gini coefficient is calculated as the area 'A' divided by the sum of area 'A' and 'B'. When the income is equally distributed in the society, the Lorenz curve merges with the line of equality and the Gini coefficient is zero. On the other hand if all the income is concentrated with one person then the Lorenz curve would superimpose the X axis leading to the value of one for the Gini coefficient.

Though a fairly good representative of inequality in a society, Gini is often criticised for not being additive across groups. This means that the total Gini for a society is not equal to the sum of Ginis of its sub groups.

2) Theil Index:

Theil index is less commonly used than the Gini Coefficient. Thiel's index has the advantage of being decomposable so that inequality can be measured both within group and also between group. This index is additive across different subgroups. However, this index could not get the appeal of the Gini index as it lacks straightforward representation and interpretation.

The basic form of Theil index is

$$E(1) = \frac{1}{n}\sum_i \left(\frac{y_i}{\bar{y}}\right) \text{In} \left(\frac{y_i}{\bar{y}}\right)$$

Where,

y_i = income of individual 'i'

y = average income of the population 'n'

3) Decile Dispersion Ratio

Another measure used sometimes to measure inequality is the decile dispersion ratio. This is the ratio of the average consumption or income of the richest 10 percent of the population to that of the poorest 10 percent. This measure can also be calculated for other percentiles and is easily interpretable in terms of expressing the incomes of rich in multiples of that of poor.

4) Palma Ratio

Critics of Gini coefficient say that though Gini coefficients may be of great significance to the statisticians but they are beyond the understanding of a common man and hence fail to attract the required political attention for its. Another criticism this coefficient faces is that though it speaks about overall inequality, it does not say anything about what is driving the changes in the levels of Gini. Hence a new measure of inequality based on the work of Chilean economist Gabriel Palma is gaining popularity with the researchers. Palma's research shows that in almost every society, the share of income of the people who make less than the richest 10 percent and more than the poorest 40 percent of the population remains fairly stable. Major shift in income share is generally observed only in the top 10 or bottom 40 percent of the population. Palma ratio defines inequality as the ratio between the top 10 and bottom 40 percent. This ratio thus addresses this volatility at the edges. In a society with a Palma ratio of 4, the top 10 percent is getting four times more income than the bottom 40 percent.

Till now you have read about the meaning and measurement of inequality and inequality at international level. Now try and answer the questions in *Check Your Progress-1*.

Check Your Progress 1

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) Write about inequality in Asia.

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2) What do you understand by Palma ratio?

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3.5 DYNAMICS OF INEQUALITY

The income inequality is largely happening because of the economic inequality as well as social inequality. Therefore, it is important to discuss the economic and social dynamics of income inequality.

3.5.1 Economic Dynamics of Income Inequality

Since 1980, International inequality increased for two decades owing particularly to the Latin American debt crisis in the 1980s and the economic implosion of Sub Shahran African countries as well as the economic collapse of the transition countries. The trend was however reversed since 2000 because of the economic growth in Asia, Africa and Latin America. In 2010, high-income countries – that accounted for only 16 per cent of the world's population – were estimated to generate 55 per cent of global income. Low-income countries created just above one per cent of global income even though they contained 72 per cent of global population. Let us briefly discuss the various aspects of economic inequality:

1) **Inequality in Landholdings:** Caste based disparities in terms of the land possessed has persisted over time in India. In his analysis of NSSO 68th round (Rawal, 2014) shows that 62 per cent of Dalit households, 39 per cent of Adivasi households, and 60 per cent of Muslim households in rural India did not cultivate any land in 2011–12. Between 1987–88 and 2011–12, the proportion of households that did not cultivate any land increased by 20 percentage points among Muslims, 11 percentage points among Dalits, 11 percentage points among Adivasis, and 12 percentage points among Other households. The data show a clear rise in inequality in distribution of land cultivated by households. In 2011–12, the top 10 per cent of households cultivated about 50 per cent of the land. The share of the top decile of households in total cultivated land increased by about 1.6 percentage points between 1987–88 and 2011–12. The Gini coefficient of land cultivated by households in 2011–12 was about 0.72.

2) **Poverty as an indicator of Inequality: Poverty is another indicator of inequality.** In India, poverty is officially linked to a nutritional baseline measured in calories (food-energy method). The poverty lines thus defined correspond to a total household per capita expenditure sufficient to provide, in addition to basic non-food items — clothing, transport — a daily intake of 2400 calories per person in rural areas and 2100 in urban areas. Individuals who do not meet these calorie norms fall below the poverty line. About 17 percent of India's overall population of 1.25 billion was undernourished during 2011-13. An expert panel headed by former RBI governor C Rangarajan, in their report submitted in July 2014 have fixed the levels of poverty line to Rs 32 a day in rural areas and Rs Rs 47 in town and cities. These newly defined poverty lines lead to increase in below poverty line population which when estimated using Tendulkar's formula is 270 million (21.9% of population) for the year 2010-11and using Rangarajan committee's report is 363 million (29.5% of population). The World Bank in its Global Monitoring Report for 2014-15, on the Millennium Development Goals says that India is one of the biggest contributors to poverty reduction between 2008 to 2011. A combination of high growth and social security programmes has led to lifting out of around 140 million people out of absolute poverty. There still are a number of milestones to be achieved as India accounts for 30 percent of the total poor.

3) **Employment as an indicator of Inequality:** Unemployment and inequality are closely related. If unemployment continues for a long time, it leads to inequality. Unemployment leads to increased borrowing to meet the day to day expenses and this debt trap in turn leads to widening of the income gap between the employed and the unemployed. Of the 116 million Indians available for work, 32 million were illiterate and 84 literate. Among literates, unemployment rates were higher among the better qualified. At all levels of education, unemployment rates were higher in rural than in urban areas. At every level of education, female unemployment exceeded male unemployment. Overall, India's unemployment rate grew from 6.8 p.c. in 2001 to 9.6 p.c. in 2011, based on official Census data. Unemployment grew faster for illiterates than for literates. In all, India had just 56 million graduates and post-graduates in 2011 and 12 million with a technical certificate or diploma equivalent to a graduate or post-graduate degree. Half of these with the highest level of education were classified as "main workers", meaning that they worked for at least six months in the year preceding the Census (The Hindu, November 7, 2015).

3.5.2 Social Dynamics of Income Inequality:

Let us briefly discuss the various aspects of social dynamics of income inequality:

1) **Inequality promoted by the caste system:** The *Chaturvarna* or the four classes in the Indian social system were created to assist in smoother functioning of the society. The Varna system has four main groups — Brahmins, Kshatriyas, Vaisyas, Sudras. Brahmins were traditionally the priestly and scholarly community. Kshatriyas were the ruling groups. Vaisyas were associated with trading and money lending, and Sudras were the peasants and artisans. Although the four classes were initially formed for smooth functioning of the society, inequality of privileges bestowed to certain castes has vitiated the system. Caste system though banned in India now is still seen to be prevalent in many parts of the country.

2) **Gender inequality:** UNDP's Human Development Report 2013 shows that when the Human Development Index is adjusted for gender inequality, India becomes South Asia's worst performing countries after Afghanistan. The following table gives comparable ranks of India and Aisa for both Human Development Index (HDI) and Gender Inequality Index (GII).

Table 2 : A comparison between HDI and GII in South Asian countries (2013)

Country	GNI/capita	HDI rank	GII rank	Loss due to inequality	MPI value
India	3285	136	132	29.3	0.283
Pakistan	2566	146	123	30.9	0.264
Bangladesh	1785	146	111	27.4	0.292
Nepal	1137	157	102	34.2	0.217
Sri Lanka	5170	92	75	15.1	0.021

Source: *http://timesofindia.indiatimes.com/india/Gender-equality-in-India-among-worst-in-world-UN/articleshow/18982029.cms*

3) **Health inequality:** The government health spending in India is just around 1 percent of GDP whereas the total health spending in India is around 5 percent of GDP. These figures clearly indicate that most spending on health care in India goes from an individual's pocket. This is also one of the major reasons for inequities of health care in India. According to (Linda Sanneving, 2013) Utilization of antenatal care (ANC) and skilled attendance at birth has increased among the general population in India in the last 15 years. However, progress among women belonging to economically disadvantaged segments of the populations has been low. The use of ANC services in the whole of India increased by 12 percentage points between 1992 and 2006, however, the increase among the poor was only 0.1 percentage. There are large differences in progress between states but the progress among the poor is substantially less than among the non-poor in all states and the use of skilled birth attendance among the poor remained low across an urban–rural spectrum.

4) **Education inequality:** There is a huge disparity in the levels of education in India. First disparity comes in the education levels of rural and urban areas and the second one in the education levels of males and females. According to 2011 census, around 84.11 percent of the total population in urban areas is literate in contrast to 67.77 percent of population in rural areas. Talking of educational inequality between male and female, 80.89 percent male in India are literate as compared to 64.64 percent female. In rural areas this gap is wider with 77.15 percent male and 57.93 percent female literacy.

3.6 CAUSES OF INEQUALITY

The major causes of income inequalities can be categorised into the following heads:

1) **Low levels of education and skills:** People with lower levels of education and skills have lesser chances of employability in well paid jobs. Researches show that there is a significant relation between income levels and educational attainment. The higher the education level, higher the income. Also, it is an individual's skills that determine whether the person can get a good job and move up the income ladder. In India specially, the educational system is inefficient and defective. It does not help in skill formation of the weaker section. It is not effective enough to build human capital. It also discriminates against the poor. The high dropout rate is associated with high push out rates in primary schools in remote villages. There are two types of education: education through English medium schooling, and education through the medium of regional languages. The former education is very expensive. It is an investment which is not affordable by the majority of the people. The poor villagers and labour class consider education, and, particularly, a girl's education as wasteful, having no return. There is inequality in training and skill building.

2) **Inequality as a result of unemployment:** Unemployment and inequality are very closely related. The relationship between unemployment and inequality is more pronounced in less developed and developing economies which do not have proper policies of social security in place. Another

important cause of inequality is when the workers are not gainfully employed. This happens when there is excess labour in any sector of the economy (eg. Agricultural sector in India). The marginal productivity and hence the expected wage rate of such labour is low. Unemployment, underemployment and disguised unemployment lead to widespread inequality in different layers of the society.

3) **Spatial inequalities and degrees of urbanization:** Location of a place influences the opportunities that are available to the people. To a large extent, the concentration of investment, employment opportunities and people are concentrated in places that are better endowed with natural resources. The differences in education, health, skills and other household endowments across space leads to inequalities in employment opportunities and wage differentials. Unequal distribution of public and private assets as in case of rural and urban areas is also an important determinant of spatial disparities. In general, large cities have better access to social services and infrastructure including safe drinking water, sanitation and electricity as compared to smaller ones. Spatial concentration of activities in the urban areas leads to efficiency gains and economies of scale in these areas. Productivity tends to be higher in urban areas as a result of which salaries and returns to assets are also higher. The rural areas on the other hand are at a disadvantage in the areas of health, education, skills, employment opportunities etc. Such compounded disadvantages result in rural population falling into what can be termed as spatial poverty traps.

4) **Differential Regional Growth:** Regional disparity is one of the major reasons for income inequality. The economic disparity has a geographical facet. A large majority of poor people live in backward regions/states of the country. The rich are more in percentage in the advanced states and regions. There is also intra state income inequality. But that income inequality is still sharper in poor states. It is because the advanced states grow rapidly. They have performed well, both in agriculture and industries. Their per capita income also rises very fast. On the contrary the poor states lag behind. Due to slow economic growth, the poor states continue to be inhabited by poor people with low per capita income. Statistical convergence among states in terms of inequality, poverty, and real mean consumption is weak.

5) **Unequal Asset Distribution:** income flows from wealth. Assets like land, cattle, labour, training, education, and shares represent the wealth of households. Asset distribution is very uneven, both in rural and urban areas especially in developing countries like of India. Few people are land owners, but a majority are land tillers. Therefore, income distribution is highly skewed. Asset formation in different regions has been very asymmetric. The accumulated assets pass on from generation to generation. This inequality in wealth enables few people to get income in the form of rent, interest, and profit. But the majority of people in the villages and urban areas do not possess any income generating assets. Private ownership of property has no limit. It is the cause of the concentration of economic power.

6) **Technological Dualism**: Technological dualism may be defined as co-existence of two differentiated sectors in the economy in terms of the technology they use. The visibility of latest and updated technology is more

prominent in the urban sector and is relatively absent in the rural and agricultural sector of the developing economies. The industrial sector employs high end technology leading to higher output per unit of time whereas the agricultural sector still employs traditional techniques which are more labour intensive and low in productivity.

7) **Inappropriate Government Policy**: the policy of the government lacks any perspective. It does not discourage the profit–seeking business class and rent-seeking groups in their habit of accumulating wealth. The tax authority is ineffective in curbing this trend. The credit policy and the laws governing inheritance are also defective. The government needs to follow appropriate income–policy, which keeps the ratio between the highest income and lowest income at a socially acceptable figure. The government's top-down approach to development is the main reason for the low trickle-down effect. Rising prices reduce the purchasing power of poor people. The poor are left with nothing to save and reinvest, and are also not in a position to provide education to their children. The poor fall into a vicious circle, so, the rich becomes richer, and the poor get poorer.

8) **Growth of the Informal Sector:** inequality arises out of the differences in the capabilities and ownership of assets. There is growth of the informal sector in India. The informal sector is unregistered, unregulated, and unprotected. India's labour force is about 390 million. Out of this, only 7 per cent work on regular salaries. About half are unionized. During the 1990s, the unregistered workforce increased from 89 per cent to 93 per cent. The informal economy, comprise 60 per cent of net domestic product, 68 per cent of income, 60 per cent of savings, 31 per cent of agricultural exports, and, even 41 per cent of manufactured exports. However, the informal sector is viewed as a shock absorber, but it has become the source of exploitation, too. Exploitation of women and children is very common in this sector.

9) **Level of Corruption**: corruption is one of the important causes of inequality. People misuse their office and power to make money and assets by illegal means. There is less punishment for larger corruption. The legal procedure takes a very long time to punish wrongdoing. Gradually, illegal activities are finding permissiveness. Therefore, illegal accumulation of money in one generation results in wealth for succeeding generations. Thus, inequality of income and wealth prevails in the long run.

10) **Family conditions:** Inequality also arises out of large size of the family. If there is a single earning member for a large sized family, the share of each person in the family income lowers. Likewise if there is ill-health of any member of the family, lot of income is spent on medical expenses.

3.7 MEASURES TO REDUCE INEQUALITY

1) **Shared Prosperity:** One of the goals established by World Bank is to promote shared prosperity. It is an undisputed fact that sustained economic growth is essential to raise the standard of living of the poor. The concept of shared prosperity was introduced to make this growth inclusive of the les well off. This goal aims to foster income growth in bottom 40 percent of a country's population. Many a times, economic growth is accompanied by

increase in inequality and social exclusion of certain sections of a society. Shared prosperity is not based on redistribution or reallocation of societal wealth. Instead, it is based on boosting the income of bottom 40 percent of the population. Shared prosperity can be achieved by various ways like investing in skill development of labour, improving and equalizing opportunities for all citizens. This would mean providing universal access to early childhood development in terms of health, nutrition and education. For women it would mean dismantling barriers to their participation in economic, social and political life. Countries should also have safety nets to protect the poor and vulnerable against deprivation and shocks.

2) **Equity based education policies:** Countries where educational opportunities are more equitable show more equitable distribution of labour income. Researches prove that countries with equitable educational policies help students to perform better, go for higher education and eventually secure good jobs. Countries like Canada, Finland, Japan and Korea have reaped the benefits of equity based educational policies. These countries strive to provide high-quality education to all students and to minimise large variations in school performance through an equitable distribution of resources and opportunities. In Japan and Korea, for example, teachers and principals are often reassigned to different schools in order to foster more equal distribution of the most capable teachers and school leaders. In Finland, the teaching profession is a highly selective occupation, with highly-skilled, well-trained teachers spread throughout the country. Finnish schools also assign specially-trained teachers to support struggling students who are at risk of dropping out. In Canada, equal or greater educational resources – such as supplementary classes – are provided to immigrant students, compared to non-immigrant students (OECD, 2012).

3) **Universal provision of social services:** Universalism in the provision of basic and essential services like housing, water, electricity, sanitation, health facilities and education is crucial to promoting equality and reducing poverty. Targeted interventions need to be done in order to improve the conditions of some of the disadvantaged sections of the society. Such an approach will help in building overall human capacities and help in bridging social and economic gaps.

4) **Well designed policies for tackling unemployment and labour market woes:** Effective policy reforms to increase the scope of gainful and productive employment can help in reducing inequality in the society. This can be achieved through efficient channelization of labour through effective utilization of indigenous resources, proper utilization of labour pool and greater participation rate. In countries like India which has an abundance of unskilled labour, skill development leading to gainful employment is the need of the hour. Encouraging small and medium enterprises can also help in creating new employment opportunities. Agro-based industries can generate income employment for the unskilled people. A relatively high minimum wage of labour also helps in reducing inequality but if fixed at a very high level may induce unemployment.

5) **Social security measures:** Government should devise appropriate social security measures to reduce income inequality.

6) **Tax reforms:** Appropriate taxation system of the government can bring redistribution of the income from the rich to the poor.

7) **Public sector reforms:** The public sector should be revitalized and modified to reduce inefficiency and corruption. It can increase the production and income level of the poor people. Good performance by the public sector can reduce income inequality in developing countries.

Till now you have read about the types of inequality in India, its causes and remedies. Now try and answer the questions given in *Check Your Progress – 2*

Check Your Progress 2

Note: a) Write your answer in about 50 words.

b) Check your progress with possible answers given at the end of the unit.

1) Write down a few causes of inequality.

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2) Suggest a few remedies for the removal of inequality.

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3.8 LET US SUM UP

In this unit, we dealt with the definition, causes, and effects of inequality. Economic inequality is measured with the use of the Gini coefficient. It is glaring in underdeveloped countries like India. The differentials in regional growth, unequal asset distribution, technological dualism, educational disparities are a few important causes of economic inequality. Economic inequality produces effects on social cohesion, education and health. Several steps can be initiated for the removal of economic inequalities. In nutshell, it is enemy of development.

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3.10 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress 1

1) Income inequalities in Asia are high with the Gini Coefficient in the end of 2000's being 0.37. In Asia, China is one of the most unequal countries with a Gini of 0.43 in 2008. The richest 20 percent of the population in China earn 9.6 times more than the poorest 20 percent of the population. This is in contrast to the Gini of 0.32 in 1990 and the richest 20 percent earning 4.8 times more than the poorest 20 percent during 1990. In India, the Gini Coefficient is equal to 0.37. Levels of inequalities are also different between town and countryside. In India inequalities are more in towns (.39) than in countryside (.30) whereas in China inequalities are more in the country (.39) than in towns (.35).

2) Palma ratio is a new measure of inequality based on the work of Chilean economist Gabriel Palma is gaining popularity with the researchers. Palma ratio defines inequality as the ratio between the top 10 and bottom 40 percent. This ratio thus addresses this volatility at the edges. In a society with a Palma ratio of 4, the top 10 percent is getting four times more income than the bottom 40 percent.

Check Your Progress - 2

1) Some of the causes of inequality are:

    1) Low levels of education and skills

2) Inequality as a result of unemployment
3) Spatial inequalities and degrees of urbanization
4) Differential Regional Growth
5) Unequal Asset Distribution
6) Technological Dualism
7) Inappropriate Government Policy
8) Growth of the Informal Sector
9) Level of Corruption
10) Family conditions

2) Some of the remedies of inequality are:
   1) Shared Prosperity
   2) Equity based education policies
   3) Universal provision of social services
   4) Well designed policies for tackling unemployment and labour market woes:
   5) Social security measures:
   6) Tax reforms:
   7) Public sector reforms

UNIT 4 UNEMPLOYMENT

Structure

4.1 Introduction

4.2 Unemployment: Meaning and Types

4.3 Measurement of Unemployment

4.4 Causes of Unemployment

4.5 Effects of Unemployment

4.6 Measures to Control Unemployment

4.7 Issues and Challenges of Unemployment

4.8 Let Us Sum Up

4.9 References and Suggested Reading

4.10 Check Your Progress: Possible Answers

4.1 INTRODUCTION

Unemployment is one of the vital issues and challenges of the most the developing countries of the world. Even the developed capitalists' countries also not free from its bondage. According to Blinder(1988) the failure to provide productive employment for all those willing and able to work has long been one of the major weaknesses of market capitalism. It is haunting the minds of the politicians, policy makers and the economists since decades. With growing number of population and addition of unemployed forces in the labour market is a cause of concern. All most all socio-economic problems such as poverty, illiteracy, ill-health, insanitation, etc. are perpetuating in the developing countries particularly in India because of unemployment. The bizarre type of unemployment which is haunting the minds of the policy makers and the government is the growing number of educated and skilled unemployed in the country. The type and pattern of unemployment is changing in the country. The type of unemployment existing before the liberalization is different from that after the liberalization. Further the globalization depicts a different unemployment scenario in the country. The growing number of skilled unemployment among the youth has posed a challenge to the popular claim of "demographic dividend" of India. Therefore, it is essential to discuss various types of unemployment in the country. This unit gives an exhaustive analysis of unemployment.

After studying this unit, you should be able to

- explain the meaning and types of unemployment
- narrate the causes and effect of unemployment
- delineate the possible measures to control unemployment
- describe various issues and challenges of unemployment.

4.2 UNEMPLOYMENT: MEANING AND TYPES

The unemployment is a condition where person is willing and is able to work but there is no work. The ILO defines unemployed as the number of the economically active population, who are without work, but available for and seeking work, including people who have lost their jobs and those who have voluntarily left work (World Development Indicator, 2007). According to Fajana (2000) unemployment refers to a situation where people who are willing and capable of working are unable to find suitable paid employment.

Various types of unemployment seen in the developing countries and also in India are as follows:

i) **Voluntary Unemployment**: It is a situation where a person prefers to be remaining unemployment despite availability of job. It may be either due to low quality of job, low paid job or available jobs are not of his or her choice. It is seen that son or daughter of landlord families prefer to remain unemployed then to be employed in low paid job below their dignity.

ii) **Involuntary Unemployment**: It is a type of unemployment where the person wants a job but do not get a job. This is unemployment in real sense. For example number of persons registered in the employment exchanges for the want of job in various States of India without a job in hand are said to be involuntarily unemployed. According to Keynesian theory of employment involuntary unemployment exists when there is an excess of supply of labour at a given money wage.

iii) **Structural Unemployment**: Structural unemployment refers to that unemployment which arises due to the change of the structure of the economy. It is a gap between the job available and skill set of the unemployment. Here jobs are available in the economy, however, the skill set of the unemployed do not match with the available job set. Globalization process has created structural unemployment situation in the developing countries, where the skilled manpower are scantly available. For example mechanization of agriculture has created structural unemployment in the agriculture sector, while use of information technology has created unemployment in the service sector of the developing countries.

iv) **Seasonal Unemployment**: Seasonal unemployment occurs when people are found unemployed during particular season of the month. This is mostly observed in the agriculture sector of the developing countries, where agricultural labourer are found unemployed during lean agriculture season. This seasonal unemployment in agriculture sector is one of the important reasons for migration of labour from rural to urban areas.

v) **Cyclical Unemployment:** This type of unemployment occurs due to change in the business cycle in an economy such as depression and inflation. During the recession there is slump in the business as result the traders and private business sector layoff some of the employees and once the recession over they call back the employees.

vi) **Disguised Unemployment:** It is otherwise called hiding unemployment, mostly observed in the agriculture sector. They pretend to be employed however; they are actually unemployed as their presence does not either add

to productivity or to the income of the households. According to Nurkse the developing countries are suffering from large scale disguised unemployment in the agriculture sector.

vii) **Frictional Unemployment:** Frictional unemployment occurs when a person leave a job and search for another job. The unemployment occurred during this period of leaving a job and finding another job is called frictional unemployment. It is largely find in the economy predominated with private and informal sector activities.

4.3 MEASUREMENT OF UNEMPLOYMENT

The measurement of unemployment is very difficult in a country and particularly in the developing countries where the size of informal sector is very vast. The labour survey undertaken by the International Labour Organization (ILO) envisaged that to be unemployed individual must: (i) aged 16-65 years; (ii) have been out of work for 4 weeks; (iii) be able to start work in the next 2 weeks so they must be readily available for work; and (iv) worker only need to be available for work for one hour per week, so part-time unemployment is included in the measurement, though these workers are unlikely to claim unemployment benefits. While, the National Sample Survey Organization of India has defined 'work' or 'gainful activity' as the activity pursued for pay, profit or family gain or in other words, the activity which adds value to the national product. Normally, it is an activity which results in production of goods and services for exchange. However, all activities in 'agriculture sector' in which a part or whole of the agricultural production is used for own consumption and does not go for sale are also considered as gainful.

The NSSO survey adopts three different approaches to measure employment and unemployment. The three approaches are:

i) **Usual Status Approach:** The usual status activity is that activity on which a person has spent relatively longer time of the preceding 365 days prior to the date of survey. The usual status activities are further subdivided into 'principal status activity' and 'subsidiary status activity'. Both the principal status workers and subsidiary status workers together constitute 'all workers' according to the usual status classification.

ii) **Current Weekly status Approach:** Here a person is considered to be employed if he or she pursues any one or more of the gainful activities for at least one hour on any day of the reference week. On the other hand, if a person does not pursue any gainful activity, but has been seeking or available for work, the person is considered as unemployed.

ii) **Current Daily Status Approach:** Under this approach, all the activities of a person are listed on each day of the preceding week. Here in this approach, a person is considered as working employed for the entire day if he had worked four hours or more during the day. On the other hand, if he/she is not engaged in any work, even for one hour on the day, but is seeking and available for work for four hours or more, is considered to be unemployed entire day.

The unemployment in a nation is usually calculated by the unemployment rate. The formula for unemployment rate is:

Unemployment Rate (UR):- Unemployment Rate (UR) is defined as the number of persons unemployed per 1000 persons in the labour force (employed & unemployed).

$$UR = \frac{\text{Number of unemployed persons}}{\text{Labour Force}} \times 1000$$

Table 1: Workforce Participation and Unemployment of Selected Countries

Countries	Labour force participation rate of population ages 15+, (2015)	Vulnerable employment % of total employment (2012-2016)	Unemployment % of total labour force (2016)
Bangladesh	62	-	4
China	71	-	5
Finland	58	10	9
France	55	8	10
India	54	-	3
Japan	59	9	3
Namibia	59	33	26
USA	62	6	5

Source: *World Development Report 2017*

Concepts of Labour Force

1) **Labour Force Participation Rate:-** Labour Force participation Rate (LFPR) is defined as the number of persons in the labour force per 1000 persons.

$$LFPR = \frac{\text{No. of employed + No. of unemployed persons}}{\text{Total population}} \times 1000$$

2) **Worker Population Ratio:-** Worker Population Ratio (WPR) is defined as the number of persons employed per 1000 persons

$$WPR = \frac{\text{No. of employed/Persons}}{\text{Total population}} \times 1000$$

3) **Proportion Unemployed :-** Proportion Unemployed (PU) is defined as the number of persons unemployed per 1000 persons

$$PU = \frac{\text{No. of unemployed persons}}{\text{Total population ages 15 +}} \times 1000$$

4) **Uemployment Rate:-** Unemployment Rate (UR) is defined as the number of persons unemployed per 1000 persons in the labour force (employed & unemployed)

$$UR = \frac{\text{No. of unemployed persons}}{\text{labour force}} \times 1000$$

Source: *http://labourbureaunew.gov.in/UserContent/EUS_5th_1.pdf*

In this section you have read about the meaning and types of unemployment. Now try and answer the questions in *Check your progress-1*.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Write a short note on structural unemployment.

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4.3 CAUSES OF UNEMPLOYMENT

Unemployment is one of the important problems of the nation states which is haunting the minds of the planners and policy makers as well as the leaders of the national and state governments. Many factors are responsible for rising unemployment problems in the nation states. Some of the important causes of unemployment are narrated below.

i) Population Growth: One of the most important causes of unemployment in India is the population growth. High population growth is adding to the youth population above the age 15+ which is increasing in the geometric proportion, while the number of employment is growing at arithmetic proportion. There is a huge gap between the availability of employment and employment seekers particularly in the developing countries. Population growth is one of the leading causes of unemployment.

ii) Low capital formation: Most of the developing countries are capital poor countries. Income of the gigantic percentage of population is very low; resulting in low saving, consequently low investment. Moreover, investment and job creation in the private sector is also low. Creeping inflation has raised the expenditure and reduce the saving mostly in case of the middle and lower middle class of population resulting in poor investment in individual and small and middle entrepreneurial activities.

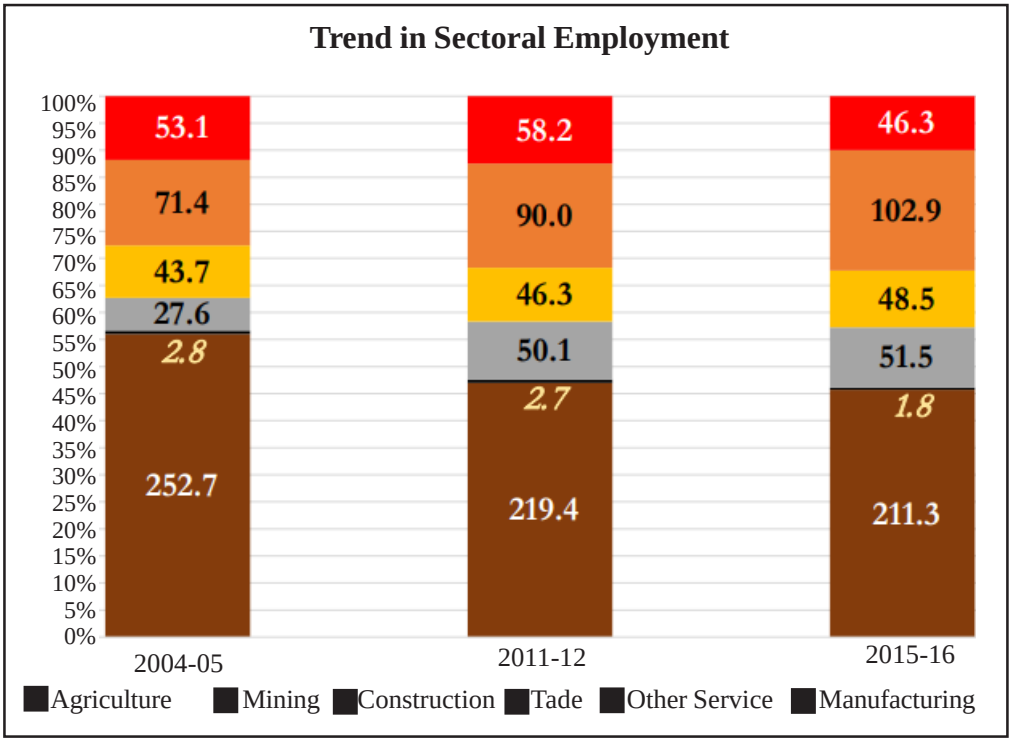
iii) Informal sector: Most of the employment in the developing countries is informal employment. A large percentage of population are working in the unorganized sector where the income is low and the there is no job security. Therefore, most of the workers working in the informal sector consider themselves to be unemployed.

iv) Slow industrial growth rate: Industrialization creates employment and that to sustainable employment. Country where the industrialization process is slow has larger percentage of population found to be unemployed as compared to those where the industrialization is fairly faster. Industrialization

leads to urbanization and thus enhances the scope of employment in the economy.

v) **Jobless service sector:** In the developing countries in particular, the contribution of service sector to employment is quite dismal as compared to the developed countries. In the developed countries have the service sector contributes more than 70 percent to their GDP and also in the same vein obsorved more than 70 percent of labour force in it. As far as India is concerned, the contribution of service sector to GDP is more than 58 percent, however, it employees only 27 percent of labour force in it. Therefore, joblessness in service sector is also a cause of unemployment.

vi) **Slow structural changes:** Structural changes are very slow in the developing countries leading to presence of disguised unemployment in the agriculture sector in these countries. This is due to slow industrialization and urbanization in the developing countries. The disguised unemployed are burden on the family and also on the agriculture sector. They are deliberate burden on the family and the economy. Moreover, because of slow urbanization and industrialization there is slow pace of structural changes particularly in the developing countries. This is one reasons for unemployment particularly in the developing countries. The trend of unemployment in agriculture, mining, construction, trade, other services and manufacturing are given in the Figure below.



Source: *NSSO, Labour Bureau, IMA analysis*

vii) **Higher salary:** Higher salary in public sector has reduced jobs in the public sector: It is observed that a high scale in the public sector after implementation of 6th pay commission many state governments in India have reduced employment in the public sector. Low salary and check on inflation can create more jobs in the economy rather than high salary and high inflation.

viii) **Faulty education system:** There is lack of quality education both general as well as technical education in the developing countries. Several studies have shown that a large percentage of technical graduates in India are not fit for employment. The education system in the developing countries is very poor as compared to the developed countries. The low quality of education is a responsible factor for unemployment. Quality education has a strong relationship with the employment.

ix) **Poor implementation of employment progarmmes**: Many developing countries have launched many employment programmes for the rural and urban areas unemployed. However, these employment programmes are in piece meals have miserably failed to upflit the people from the specter of unemployment. Moreover, many self employment programmes have not ensured better income to the self employed persons.

x) **Migration**: The migration of people from the rural to urban areas is one of the main causes of urban unemployment. Further, migration of less qualified and unskilled population from rural areas to urban areas has created a layer of underemployed workforce in the urban areas. Their quality of living is very poor and most of them are living in the unorganized colonies.

xi) **Private Sector role is not strong:** Many developing countries private sector is not plying important role in generation of employment. Moreover, because of rules and regulations many entrepreneurs are not encouraged to invest in the developing countries. Besides, the private sector job in many cases lacks job security and other benefits. They also exploit by paying low salaries and wage rate.

xii) **Informal sector:** In developing countries more than 90 percent of people are found to be employed in the informal sector. Here the working hour is more and the wage rate is low. Informal sector is responsible for creating more underemployment rather than employment in these countries.

4.4 EFFECTS OF UNEMPLOYMENT

Unemployment produces negative effect on the economic growth and development. Some of the important effects of unemployment are narrated below:

i) **Poverty:** Unemployment and poor work force participation will enhance both absolute as well as relative poverty in an economy. Income poverty occurs when household income is low so that it is incapable to have access to basic needs. Lack of employment opportunity both in formal and informal sector will reduce the per capita income thus would affect the poverty. Unemployment has direct correlation with poverty, that is higher the unemployment rate higher will be the poverty rate both absolute poverty as well as relative poverty. Thus unemployment will have bizarre effect on poverty.

ii) **Income Inequality:** Unemployment could affect income inequality. Lack of work will reduce the income of the labourer group of population and thus can enlarge the income differences between the rich and poor. The income inequality is high in the nation state having large percentage of

population working in the informal sector where the underemployment is very high.

iii) **Social and Human Development:** The social and human development depends on the employment in general and quality of employment in particular. The household with lower income because of lack of employment and work would be unable to spend on quality health care and higher education. Therefore, illiteracy is customarily high among the poverty stricken household and household where there are more dependent members because of lack of work and unemployment. The unemployment also influences the health status such as morbidity and mortality. Several studies have sighted high infant mortality among the poverty stricken households where the income is less because of low level of employment.

iv) **Quality of Life:** Unemployment deeply affects the quality of life of the households with unemployed person. Lack of employment reduces the income and as a result the household could not invest on the basic amenities such as food, clothing, shelter, etc. The quality of life also depends on the type of employment. The people with white collar jobs have better quality of life as compared to daily wage earners and contractual workers whose employment status is uncertain.

v) **Social Unrest and Crime:** Unemployment among the youth will increase rate of crime in the society. It is seen that the crimes like pick pocketing, chain snatching, theft, etc. are largely committed by the unemployment youth. Moreover, rise in unemployment may lead to social unrest such as strike; increase the rate of suicide, diverse, and crime against women, etc. in the society.

vi) **Malnutrition:** Unemployment in general and chronic unemployment in particular will affect the household income by which it cannot able to spend on food and nutrition. It is seen that malnutrition is higher among the household victim of chronic unemployment. The worst victims are the children and women.

In these two sections you have read about the causes and effects of unemployment. Now try and answer the questions in *Check your progress-2*.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe three important causes of unemployment.

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2) Explain two important effect of unemployment

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4.4 MESURES TO REDUCE UNEMPLOYMENT

Some of the suggested measures to control unemployment are as follows:

i) **Enhancement of Employment in Private Sector:** Government alone cannot be able to provide employment and therefore has to seek the help of the private sector to expand and provide employment opportunities. In India, the scope of employment opportunities has been enhanced after the liberalization process started in 1991.

ii) **Not taking populist policy measures:** The populist policy measures like raising exorbitant dearness allowances, higher pay, etc. will reduce the capacity of the government to create new jobs. This has happened in India after the implementation of 6th pay commission, which has restricted the state government to create new jobs.

iii) Skill Education: Imparting quality skill and vocational education among the youth will enhance their employability in the private sector. Most of the employers in the private and corporate sector believe that the quality of education, particularly the skill education has to be improved for enhancing employability of youth in the private and corporate sector. One of the studies has found that only 25 percent of engineers in India are employable.

iv) Foreign direct Investment: In the globalized era foreign direct investment is also considered as one of the measures to promote investment in the private and create employment. The government of developing countries therefore need to attract foreign direct investments for creation of employment in the perspective sector of the economy.

v) Modernization of agriculture and agro-based industrialization: The agriculture and its allied sectors in the developing countries has immense potential for enhancing employment. Therefore mechanization of agriculture and establishment of agro-based industries with strong agriculture and industry nexus will raise employment in the primary sector.

vi) Public-Private Partnership: The public-private partnership is a suggested measure for promotion of employment in the developing countries. The government needs to provide infrastructure support and other support to the private sector. The Smart City initiative through public private partnership will create employment opportunities in urban areas.

vii) Role of NGO in Employment Generation: It is observed that in the developing countries NGOs are playing important role in provisioning

employment and therefore, a proper mechanism be formulated for the creation of sustainable employment in the NGO sector. NGOs are plying role in creating employment in the service sector particularly health and education.

(viii) Launching of Employment Programmes by the Government of India: Various rural and urban employment projects and programmes must be initiated with sustainable wage rate and income to the employed persons from time to time. Government of India since 1951 has launched various programme in both rural and urban areas for enhancing employment. A few important among them are:

i) 1952: Community Development Program (CDP) for Overall Development of Rural Areas and People's Participation.

ii) 1960-61: Intensive Agriculture Development Program (IADP) to Provide Loan for Seeds and Fertilizers to Farmers.

iii) 1964-65: Intensive Agriculture Area Program (IAAP) to Develop Special Harvest in Agriculture Area.

iv) 1973: Drought Prone Area Program to Protect from Drought by Achieving Environment Balance and by Developing Ground Water.

v) 1973-74: Marginal Farmer and Agriculture Labor Agency (MFALA) Technical & Financial Assistance to Marginal Farmers.

vi) 1974-75: Small Farmer Development Scheme (SFDS) Technical & Financial Assistance to Small Farmers.

vii) 1975: Command Area Development Program: (CADP) For Better Utilization of Irrigational Capacities.

viii) 1975: Twenty Point Program (TTP) For Poverty Eradication and an Overall Objective of Raising the Level Living.

ix) 1977-78: Desert Development Program (DDP) To Control the Desert Expansion by Maintaining Environment Balance.

x) 1977-78: Food for Work Program for Providing Food Grains to Labor.

xi) 1979: Training Rural Youth for Self Employment (TRYSEM) for Educational and Vocational Training.

xii) 1980: Integrated Rural Development Program (NREP) for Overall Development of Rural Poor.

xiii) 1982: Development of Women & Children in Rural Areas (DWCRA) for Sustainable Opportunities of Self Employment to the Women Belonging to the Rural Families who are Living Below the Poverty Line.

xiv) 1983: Rural Landless Employment Guarantee Program (RLEGP) to Provide Employment to Landless Farmers and Laborers

xv) 1989: Jawahar Rozgar Yojna (JRY) for Employment to Rural Unemployed.

xvi) 1990: Scheme of Urban Wage Employment (SUWE) for Urban Poors.

xvii) 1993: Employment Assurance Scheme (EAS) to Provide Employment of at Least 100 Days in a Year in Villages.

xviii) 1997: Swaran Jayanti Shahari Rojgar Yojana for Urban Employment.

xix) 1999: Swaran Jayanti Gram Swarojgar Yojna for Self Employment in Rural Areas.

xx) 2001: Sampoorna Grameen Rozgar Yojna for Employment and Food Security of Rural People.

xxi) 2006: National Rural Employment Guarantee Scheme (Late Mahatma Gandhi National Rural Employment Guarantee Scheme) to Provide 100 Days Wage Employment for development works in rural areas.

xxii) 2015: MUDRA Yojana sanction loan to the small and micro entrepreneurs to create jobs.

xxiii) 2015: Pradhan Mantri Kausal Vikas Yojana for the skill development and enhancing employment opportunity.

4.5 ISSUES AND CHALLEGES UNEMPLOYMENT

Some of the issues and challenges of unemployment are as follows:

i) **Informalization of Employment:** It is one of the important aspects of employment in the developing countries, where the employed people in the informal sector because of casualization of work still consider themselves unemployed. Informal sector in the developing countries employees more than 90 percent of labour force in it. There is hardly any social security and other benefits and employer takes no responsibility of the well being of the employees. It is just to eke out a livelihood as a human being. Therefore, unemployment and employment in the informal sector which is otherwise called vulnerable employment is a challenge before the nation state.

The vulnerable employment which is mostly found in the informal sector is a major issue of employment and quality of life in the developing countries. The Table-2 depicts that the vulnerable employment is astoundingly high in South Asia and Sub-Saharan Africa.

Table 4.2: Vulnerable Employment (Contributing Family Workers & Own Account Workers), 2016

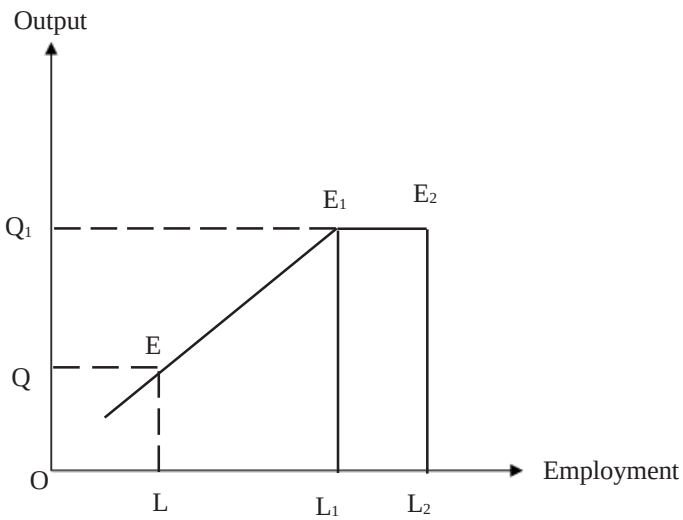
Region	Male	Female
World	41.1	41.3
Europe & Central Asia	15.6	12.7
Latin America & Caribbean	31.8	31.5
Middle East & North Africa	26.0	34.3
North America	7.7	5.6
South Asia	71.9	78.8
Sub-Saharan Africa	53.5	68.3

Source: *World Development Indicators, 2017*

ii) **Underemployment:** Existence of underemployment in the semi urban and urban areas and presence of disguised unemployment in rural areas is a cause of concern in the developing countries. The underemployment is a bizarre situation for the employed person. Here the high qualified person placed in the job which is not as per his or her talent or efficiency. This happens because of lack of employment opportunities. It is observed that many graduates and post graduates are found to be being placed in class four jobs for which minimum qualification is matriculation. This creates a lot of frustration among the workers.

Another aspect of employment which is paradoxical is disguised unemployment. This is largely found in the agriculture sector of the developing countries, where number of persons pretends to be employed is more than the requirements. Disguised unemployment, if perpetuates for a long period in the farming families in agriculture sector of the developing countries, it will result in frustration among the farming community, fragmentation of landholding, family feud and selling of land among the small and marginal farmers leading to landlessness and pauperization of the farmers. The marginal productivity of labour, those who are disguisedly or superfluously employed in various sectors either in rural or urban areas is zero. The disguised unemployed labour force quantity is L_1 L_2 as depicted in Graph2.2, as the increase in labour force has not resulted in increase in output. The output remains stagnant at point Q1.

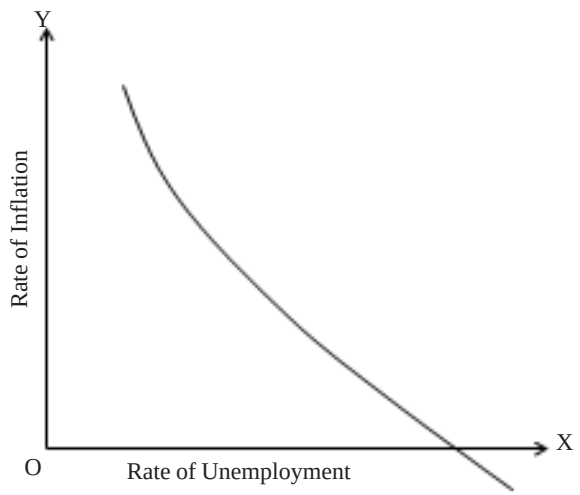
Graph-1:Measurement of Disguised unemployment



Source: Pattanaik (2017)

iii) **Unemployment and inflation relationships:** The relationship between unemployment and inflation is customarily known as the famous Phillips Curve. The relationship between unemployment and inflation is depicted by the famous Phillips Curve (graph -2). The Phillips curve describes the inverse relationship between inflation and unemployment and tells that if unemployment decreases, inflation will increase and vice versa as given in graph below.

Graph-2: Unemployment and Inflation Relationship



Source: Pattanaik (2017)

However in the context of developing countries this relationship is not found. Many of the developing countries are seen to have higher unemployment with high inflation rate.

In these two sections you have read about the various measures to be taken for reduction of unemployment and issues and challenges of unemployment. Now try and answer the questions in *Check your progress-3.*

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What is Phillips Curve?

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4.6 LET US SUM UP

Unemployment is one of the concurrent problems of both developed as well as developing countries. Most of the economies and particularly the developing countries are struggling to provide employment to its burgeoning population. The important causes of unemployment are population growth, lack of skilled education, lack of capital formation and investment in the private sector, lack of employment policy and programmes, etc. Unemployment has a serious effect on the economic growth and development of the nation. Moreover, it will also have repercussion on poverty and quality of life. The developing countries have to take measures to reduce unemployment through liberalization, creating of self employment, launching of employment programmes, etc. The two important issues of unemployment are the underemployment and disguised unemployment in the developing countries. The relationship between unemployment and inflation is depicted in Phillips Curve.

4.7 REFERENCES AND SUGGESTED READINGS

Notes:

1) See https://ttu-ir.tdl.org/ttu-ir/bitstream/handle/2346/46939/TALUKDAR-THESIS.pdf?sequence=1(accessed on 25/08/2017).

2) Refer to "Status of employment and unemployment statistics in India" by P N Pandey, Ministry of Statistics &Programme Implementation, New Delhi, refer to the website http://e.unescap.org/stat/meet/keyindia/india_current (accessed on 21/03/2014).

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2) ILO (1976): *Employment, Growth and Basic Needs, One World Problems*, International Labour Organization, Geneva.
3) ILO(2008): "Global Employment Trends-January 2008", International Labour Organization, Geneva.
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6) Also see http://shodhganga.inflibnet.ac.in/bitstream/10603/31999/14/n14-various%20programme.pdf(accessed on 12/3/2018).

4.8 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress 1

1) Write a short note on structural unemployment.

Answer: Structural unemployment refers to that unemployment which arises due to the change of the structure of the economy. It is a gap between the job available and skill set of the unemployment. Here jobs are available in the economy, however, the skill set of the unemployed do not match with the available job set. Globalization process has created structural unemployment situation in the developing countries, where the skilled manpower are scantly available. For example mechanization of agriculture has created structural unemployment in the agriculture sector, while use of information technology has created unemployment in the service sectors of the developing countries.

Check Your Progress 2

1) Briefly describe three important causes of unemployment.

Answer: The three important causes of unemployment are:

i) **Population Growth:** One of the most important causes of unemployment in India is the population growth. High population growth is adding to the youth population above the age 15+ which is increasing in the geometric proportion, while the number of employment is growing at arithmetic proportion. There is a huge gap between the availability of employment and employment seekers particularly in the developing countries. Population growth is one of the leading causes of unemployment.

ii) **Low capital formation:** Most of the developing countries are capital poor countries. Income of the gigantic percentage of population is very low; resulting in low saving, consequently low investment. Moreover, investment and job creation in the private sector is also low. Creeping inflation has raised the expenditure and reduce the saving mostly in case of the middle and lower middle class of population resulting in poor investment in individual and small and middle entrepreneurial activities.

iii) **Informal sector:** Most of the employment in the developing countries is informal employment. A large percentage of population are working in the unorganized sector where the income is low and the there is no job security. Therefore, most of the workers working in the informal sector consider themselves to be unemployed.

2) Explain two important effect of unemployment

Answer: The two important effects of unemployment in an economy are:

i) **Poverty:** Unemployment and poor work force participation will enhance both absolute as well as relative poverty in an economy. Income poverty occurs when household income is low so that it is incapable to have access to basic needs. Lack of employment opportunity both in formal and informal sector will reduce the per capita income thus would affect the poverty. Unemployment has direct correlation with poverty, that is higher the unemployment rate higher will be the poverty rate. Thus unemployment will have bizarre effect on poverty.

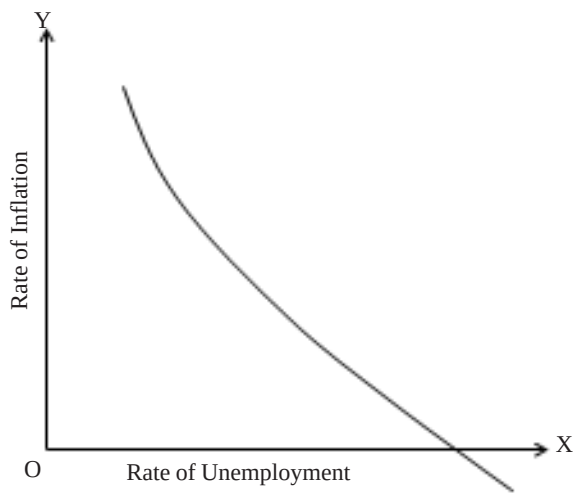
ii) **Income Inequality:** Unemployment could affect income inequality. Lack of work will reduce the income of the labourer group of population and thus can enlarge the income differences between the rich and poor. The income inequality is high in the nation state having large percentage of population working in the informal sector where the underemployment is very high.

Check Your Progress 3

1) What is Phillips Curve?

Answer: The relationship between unemployment and inflation is customarily known as the famous Phillips Curve. The relationship between unemployment and inflation is depicted by the famous Phillips Curve (graph-2.3). The Phillips curve describes the inverse relationship between inflation and unemployment and tells that if unemployment decreases, inflation will increase and vice versa as given in graph below.

Graph: Unemployment and Inflation Relationship



MDV 103: ISSUES AND CHALLENGES OF DEVELOPMENT

Block	Unit Nos	Unit Titles
1		**BASIC ISSUES IN DEVELOPMENT**
	1	Population
	2	Poverty
	3	Inequality
	4	Unemployment
2		**SECTORAL ISSUES IN DEVELOPMENT**
	1	Agriculture
	2	Industry
	3	Services
	4	Infrastructure
3		**SOCIAL ISSUES IN DEVELOPMENT**
	1	Education and Development
	2	Health and Development
	3	Gender and Development
4		**EMERGING ISSUES IN DEVELOPMENT**
	1	Energy and Development Nexus
	2	Natural Resource Management and Environment
	3	Sustainable Development
	4	Climate Change
5		**GOVERNANCE**
	1	Governance – An Overview
	2	Participatory and Decentralized Governance
	3	Good Governance: Attributes and Challenges
	4	E-Governance and Development

Indira Gandhi National Open University
School of Extension and Development Studies

MDV-103
Issues and Challenges of Development

Block

2

SECTORAL ISSUES IN DEVELOPMENT

UNIT 1
Agriculture 5

UNIT 2
Industry 28

UNIT 3
Service 49

UNIT 4
Infrastructure 62

ORIGINAL PROGRAMME DESIGN COMMITTEE

Prof. Amita Shah
Gujarat Institute of Development Research
Ahmedabad

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. J. S. Gandhi (Rtd)
Jawaharlal Nehru University, New Delhi

Prof. Gopal Krishnan (Rtd)
Punjab University, Chandigarh

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Madras Institute of Development Studies Chennai.

Prof. Kumar B. Das
Utkal University, Bhubaneswar

Prof. Nadeem Mohsin (Rtd)
A.N.Sinha Institute of Social Sciences, Patna

Prof. P. Radhakrishan
Madras Institute of Development Studies, Chennai

Prof. Ramashray Roy (Rtd)
Centre for Study of Developing Societies
New Delhi

Prof. R. P. Singh (Rtd)
Ex-Vice-Chancellor, MPUAT, Udaipur

Prof. K. Vijayaraghavan
Indian Agriculture Research Institute, New Delhi

Dr. Nilima Shrivastava, IGONU, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Dr. Nehal A. Farooquee, IGNOU, New Delhi

Dr. P. V. K. Sasidhar, IGNOU, New Delhi

REVISED PROGRAMME DESIGN COMMITTEE

Late Prof. T S Papola(Rtd)
Institute of Studies in Industrial Development
New Delhi

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. Preet Rustagi
Institute of Human Development, New Delhi

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Jawaharlal Nehru University, New Delhi

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Hindu College, University of Delhi, Delhi

Prof. Nadeem Mohsin (Rtd)
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Prof. B. K. Pattanaik, IGNOU, New Delhi

Prof. Nehal A. Farooquee, IGNOU, New Delhi

Prof. P. V. K. Sasidhar, IGNOU, New Delhi

Dr. Pradeep Kumar, IGNOU, New Delhi

Dr. Grace Don Nemching, IGNOU, New Delhi

Dr. Nisha Varghese, IGNOU, New Delhi

COURSE PREPARATION TEAM

Units Writers:
Dr. C.Karthikeyan (Unit 1)
TNAU, Coimbatore
Pro. B K Pattanaik (Unit 2)
IGNOU, New Delhi
Pro. B K Pattanaik (Unit 3)
IGNOU, New Delhi
Dr. D. K. Agrawal (Unit 4)
Energy Infratech Pvt. Ltd., Gurgaon

Editors:
Prof. Alak N.Sharma
Institute of Human Development, New Delhi
Mr. Praveer Shukla, New Delhi (Language Editor)
Prof. B.K. Pattanaik, IGNOU, New Delhi
Prof. Nehal A. Farooquee, IGNOU, New Delhi
Prof. P.V.K.Sasidhar , IGNOU, New Delhi
Dr. Nisha Varghese, IGNOU, New Delhi

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Programme Coordinators : Prof. P.V.K. Sasidhar, Prof. B.K. Pattanaik, Prof. Nehal A. Farooquee
Course Coordinators: Prof. B.K. Pattanaik, E-mail:bkpattanaik@ignou.ac.in

PRODUCTION TEAM

Mr. S. Burman
Dy. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. K.N. Mohanan
Asst. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. Babu Lal Rewadia
Section Officer (Publication)
MPDD, IGNOU, New Delhi

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BLOCK 2 SECTORAL ISSUES IN DEVELOPMENT

Block 2 on **'Sectoral Issues in Development'** with four units deal with agriculture, industry, service and infrastructure issues in development.

Unit-1 on **'Agriculture'** gives an account of the importance of agriculture in development and the major issues in agricultural development. It also discusses the concepts of sustainable agriculture and briefly reviews the various factors responsible for the global food crisis. It gives a brief account of the agricultural development in India.

Unit-2 on **'Industry'** discusses the concept of industrialization and economic growth. It discussed the nexus between agriculture and industry. It gives a brief account of industrialization in the world and India's experience pre and post independence. It discusses the Causes and Implications of standstill in industrial development in India.

Unit-3 on **'Service'** describes the meaning of service sector and various components of service sector and the role of service sector in the economic growth and development. Moreover, this unit also explains the issues and challenges of services in global and Indian context.

Unit-4 on **'Infrastructure'** deals with the problems and issues in different sub-sectors of infrastructure development, characteristics of infrastructure development and measurement of infrastructure development.

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UNIT 1 AGRICULTURE

Structure

1.1 Introduction
1.2 Importance of Agriculture in Development
1.3 Performance of Agriculture
1.4 Major Issues in Agricultural Development
1.5 Sustainable Agriculture
1.6 Global Food Crisis
1.7 Agricultural Development in India
1.8 Let Us Sum Up
1.9 References and Selected Readings
1.10 Check Your Progress -Possible Answers

1.1 INTRODUCTION

Agriculture contributes a large share of national output and employs majority of labour force in most developing countries. It plays an important role in development. Productivity gains in agriculture have a positive impact on the overall development of an economy. This unit discusses the importance of agriculture in the development of an economy and the major issues in the development of agriculture. Green Revolution has played an important role in moving India from the status of dependency to self sufficiency and even surplus. This unit discusses the various aspects as well as the critics of Green Revolution. We will also be familiarized with the concept of sustainable agriculture.

After reading this unit, you will be able to

- explain the importance of agriculture in the development of an economy.
- discuss the major issues in the development of agriculture.
- narrate the process and problems of agricultural development in india
- explain the concepts of sustainable agriculture
- discuss the causes and remedies of the current food crisis at national and global level

1.2 IMPORTANCE OF AGRICULTURE IN DEVELOPMENT

Agriculture is vital to the development because of the fact that a large percentage of world's population live in rural areas and depend directly or indirectly on agriculture. Agriculture is an engine of growth, and productivity gains in agriculture would have a positive impact on overall development of the economy. The classical economists believe that agricultural progress contributes to greater productivity. Greater productivity and output further lead to economic development. Meier (1995) has noted four different ways of how agriculture can contribute to development. Those are as follows:

- By supplying foodstuffs and raw materials to other expanding sectors in the economy;
- By providing an "investable surplus" of savings and taxes to support investment in other expanding sectors;
- By selling a "marketable surplus' for cash, which will raise the demand of the rural population for products of other expanding sector; and
- By relaxing the foreign exchange constraints, by earning foreign exchange through exports or by saving foreign exchange through import substitution.

The old paradigm of development believes that an economy, to take-off, must have productivity gain in agriculture. First, the surplus in agriculture sector will not only raise farmer's income and their demand for industrial product, but also free some labour from the agriculture sector to be employed in industrial sector and other activities. Second, increase in productivity in agriculture will also improve food security of a nation. Third, the rise in agricultural productivity will lead to the rise of industrial sector.

The problem arises in recent years, when many countries are experiencing an increasing productivity but a declining share of agriculture in GDP. In other words, the share of agriculture in GDP goes down in fast growing economies. China and India are the two illustrious examples. Therefore, the new paradigm sees agriculture not so much as a key sector of development. It considers that agriculture development is a necessary but not sufficient condition for development. Their view is much connected to globalization. For them old paradigm is more applicable to close economy rather than to open economy. For example, in Singapore, which is an open economy, agriculture has little to do with the successful development of Singapore. Thus globalization and free trade has affected the relationship between agriculture particularly in developing countries and growing economies. Yet, agriculture has a critical role to play from the point of view of food security, and still the food insecurity remains a key issue in many developing nations. The World Development Report 2008 on "Agriculture for Development" highlights that in much of the Sub-Saharan Africa, agriculture is a strong option for spurring growth, overcoming poverty and enhancing food security. In Asia, the focus of agriculture will be to generate rural jobs by diversifying into labour-intensive, high-value agriculture linked to a dynamic rural non-farm sector. The report considers that in the 21st century, agriculture continues to be a fundamental instrument for sustainable development and poverty reduction.

World Development Report-2008 addresses three main questions, which is critical from the standpoint of agriculture and development. Those are:

i) What can agriculture do for development?

Agriculture has served as a basis for growth and reduced poverty in many countries, but more countries could be benefited, if governments and donors were to reverse years of policy neglect and remedy their underinvestment and mis-investment in agriculture.

ii) What are effective instruments in using agriculture for development?

Top priorities are to increase the assets of poor households, make smallholders and agriculture in general- more productive and create opportunities in the rural non-farm economy that the rural poor can seize.

iii) How can agriculture-for-development agendas best be implemented?

By designing policies and decision processes most suited to each country's economic and social conditions, by mobilizing political support, and by improving the governance of agriculture.

The agriculture promotes development in the following ways:

i) Contribution of Agriculture to GDP and Employment

While agriculture accounts for around 2% of GDP and less than 4% of employment in developed countries, its share in the GDP of low-income countries is as high as 24%. Agriculture provides over 60% of total employment in South Asia and sub-Saharan Africa (Pal, 2006). Agriculture thus plays an extremely important role in developing countries, in providing livelihood and rural development. In most developing countries, agriculture is dominated by small and marginal farmers who are engaged in subsistence farming. Agriculture plays a major role in providing food security for the bottom level of the population. Developing countries consider domestic self-sufficiency in food grain as an important element of food security. For all these reasons, sustained growth in agriculture is considered essential for ensuring food security and alleviating poverty.

Table 1: Contribution of Agriculture to GDP and Employment in Agriculture of selected Countries, 2017

Countries	% of Male employed in agriculture	% of female employed in agriculture	% of GDP
Afghanistan	57	82	21.9
Australia	4	2	2.6
China	24	31	8.6
India	39	60	17.4
Ethiopia	78	62	37.2
Kenya	51	75	35.6
United Kingdom	2	1	0.6

Source: *https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS (accessed on 5/2/2018)*

Table 1 gives a clear picture that the roles of agriculture in the developed countries have declined and is very small as compared to its role in developing countries including India. In many Asian and African countries agriculture still play a vital role in terms of employment and its contribution to GDP. As far as employment

is concerned still in the underdeveloped economies of Asia and Africa more than 50 percent of population is engaged in agriculture. In the developing countries percentage of female employed in agriculture is higher than the male.

i) **Important economic activity**: Agriculture is an important economic activity. The promotion of public private partnership in agriculture has promoted private investment in agriculture. Most of the private sector investors are investing in agriculture, and contract farming promoted through the private company is one of the illustrious examples of private investment in agriculture. According to the World Development Report-2008, agriculture based countries generate on an average 29 percent of gross domestic product (GDP), and employ 65 percent of the labour force. Still in many developing countries agriculture is the main source of livelihood.

ii) **Food security and hunger**: Agriculture production is important for food security. It is a major source of income of the rural people. Agriculture is one of the important sector which has been fighting with the poverty and hunger in the developing countries. Agricultural income helps the rural population in overcoming poverty. Many agricultural labourers earn their livelihood in working with houses of large and medium scale farmers in the rural areas. In the green revolution belt it has helped in the removal of hunger death.

iii) **Environmental services**: Agriculture is a good source of environmental promotion. The judicious use of water sources, water harvesting, and preserving bio-diversity would lead to environmental promotion. Therefore, managing the connections between agriculture, natural resource conservation, and environment must be an integral part of using agriculture for development.

iv) **Agriculture can reduce poverty and unemployment**: Agriculture is playing an important role in reducing poverty in both developed and developing countries. In China, aggregate growth generating from agriculture is 3.5 times effective in reducing poverty than growth outside agriculture. In India agriculturally advanced states have lesser percentage of population living below the poverty line as compared to their counter parts. According to the World Development Report 2008, in Ghana, rural households accounted for a large share of a steep decline in poverty, partially induced by growth of agriculture.

v) **Agricultural development promotes industrial development:** The agricultural sector plays an important role in providing market for the products of industrial sector. Thus the speed of industrial sector depends on how rapidly agricultural income are rising. The rising income in the agricultural sector will enable the rural people to buy not only agriculture related technology but also the lighter industrial products like radios, television, motorcycles, refrigerators, etc. Thus the development of agriculture and industry are interrelated.

vi) **Agriculture and international trade:** In the developing countries agricultural products are important items of international trade. Therefore, from the point of view of balance of trade and payment, agriculture is vital to the developing countries. Moreover, in the developed countries also

agricultural products are being exported to other countries. In the USA more than 20% of farm and food products are exported.

vii) **Agriculture and social development**: Agriculture since centuries has provided great support to the social development such as education and health care in the developing countries. The income from agriculture has enabled the impoverished people to bear the expenses of education and health care in rural areas. Without the support of agriculture it is very difficult on the part of the countryside people bear the expenses pertaining to health care. Without the support of agriculture the infant and maternal mortality rate might have been high in rural areas. It has been observed that the large and medium scale farmers are only able to support the higher education of their children in the villages out of their income earn from agriculture and those who dropped out are the children of the landless families.

Dear learner, in this section we discussed about the importance of agriculture in development. Now try and answer the following question in *Check your progress-1*.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Explain briefly how agriculture promotes development of any economy.

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2) Discuss the contribution of agriculture to the GDP of any economy.

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1.3 MAJOR ISSUES IN AGRICULTURAL DEVELOPMENT

Some of the major issues in agricultural development are discussed as under.

i) Land issues

Indian agriculture is dominated by small and marginal holders. Such small holdings are not only uneconomical but also the root cause of many difficulties in the way of agricultural development. Unregistered cultivators,

tenants and tribal cultivators who do not have land titles face difficulties in accessing institutional credit and other facilities. This calls for registration of actual cultivators, tenants and women cultivators on priority basis. There is also a need to free the lease market to ensure availability of land for cultivation to the marginal and small farmers. The land rights of tribals should also be protected. There is ample scope for further redistribution of land when waste and cultivable lands are taken into account. Considering the fact that about 42 percent of the agricultural workers are female, the future assignment of land should take women into consideration while making land redistribution. Two major considerations for any land reform are i) security of tenure for tenants for the period of contract and (ii) the right of the land owner to resume land after the period of contract is over.

ii) Subsidies and investment

Though subsidies are effective in pushing agricultural growth to a certain extent, it is important to make sure that they do not become a permanent feature of any economy. The availability of subsidized inputs during the Green Revolution period has led to indiscriminate use of inputs. This in turn has led to degradation of land, and water, adverse NPK ratio in soil, wasteful use of water, soil salinity, pollution, excessive use of electricity, etc. Moreover, the benefits of such subsidies have been reaped mainly by the farmers of irrigated area leading to large regional disparities. The present system of fertilizer subsidy is irrational, and has become counter-productive. Fertilizer is sold at almost the same controlled price throughout the country. However, because the nitrogenous fertilizers are subsidized more than the potassic and phosphatic fertilizers, the subsidy tends to benefit more the crops and regions which require higher use of nitrogenous fertilizer as compared to the crops and regions which require higher application of potassic and phosphatic fertilizers. The imbalance in the use of nitrogen–phosphorus– potassium (NPK) brought about by distortions in price ratio in favour of nitrogenous fertilizer is creating serious problem of soil degradation and adversely affecting productivity.

The public investment in agriculture has declined in the past two decades which in turn has slowed down the pace of technological change, adversely affecting productivity. Since the early 1980s public investment in agriculture has experienced a secular decline, while input subsidies (on fertilizers, power, and canal irrigation) have been rising. In the early years of economic reforms, an attempt was made to arrest and reverse these trends, but this effort could not be sustained. As a result the gap between investments and subsidies kept widening. Today input subsidies, together with food subsidies, amount to roughly five to six times the public investment in agriculture.

iii) Irrigation and water management

Water is the main input in agriculture. India is endowed with abundant water resources and the second largest irrigated area in the world, however, the contribution of water towards productivity in agriculture is very low. To cite a single example, cotton farmers in Tamil Nadu consume approximately seven times as much water and generate about 1/5th the yield as their counterparts using extensive cultivation and furrow irrigation methods in California. That means that the productivity of each litre of water used for

cotton cultivation in California is 35 times higher than in Tamil Nadu.

In India around 40 percent of the country's cultivated area is irrigated. The irrigation potential of the country has not been exploited fully. Rain-fed areas constitute about 60 percent of the net sown area of the country. The decline in the public investment in irrigation is an important reason for not being able to use the irrigation potential to its full capacity. Capacity utilization of ground water resources also depends on the availability of electric power for pumping water. Rain-fed agriculture is characterized by low productivity due to low input use. A large majority of the rural poor in the developing countries live in the rain-fed areas.

Considering the importance of water in farming, conservation of surface and groundwater for appropriate recharging of groundwater has become imperative.

iv) Agricultural credit

Agricultural credit plays an important role in augmenting use of agricultural law for cultivation, adoption of technology in agriculture and also use of HYV seeds. Ironically, informal credit which is too costly to repay still occupies an important place than the institutional credit. One of the reasons for rural indebtedness and farmers' suicide is credit from money lenders.

The public policies for agricultural credit should aim to reduce the role of informal sector credit. Some of the hurdles created in expanding credit in rural areas include:

i) Narrowing of branch network in rural areas.

ii) Fall in credit deposit ratios in rural areas.

iii) Disproportionate decline in agricultural credit to vulnerable groups specially small and marginal farmers.

iv) Political interference like loan wavers leading to sickness of some of the formal credit institutions.

In spite of the vast network of rural financial institutions, one of the major impediments in the adoption of new technological practices, land improvements and building up of irrigation and marketing infrastructure has been the inadequacy of farm investment capital. Farmers in India seem to borrow short term credit to maintain the continuity in agricultural operations.

The flow of investment credit to agriculture is constrained by host of factors such as high transaction costs, structural deficiencies in the rural credit delivery system, issues relating to credit worthiness, lack of collaterals in view of low asset base of farmers, low volume of loans with associated higher risks, high manpower requirements etc.,

Another cause of concern is the growing disparity in the credit disbursement among marginal, small and large farmers. This may be mainly because the bankers have a risk aversion tendency towards small and marginal farmers as compared to large farmers, who are better placed in offering collaterals.

v) Risk and insurance in agriculture

Farmers are generally exposed to two types of risk – yield risk and price risk. The yield risk is mainly attributed to the vagaries of nature and price risk is owing to price volatility. In order to shield the farmers from either or both the risks, agricultural insurance assumes significant importance. The importance of Agricultural insurance is widely accepted all over the globe. In most economies governments assume significant role towards protection of the farmers against all type of risks. The private companies also have an important role in public private partnership mode. As a business proposition, agricultural risk insurance is associated with high loss ratios and hence subsidization plays a crucial role. It is difficult, if not impossible, to ensure 100 percent coverage, either in terms of farmers or area. In the case of Spain, for instance, subsidization is to the extent of 45% of the programme and private insurance companies are made to work as a group under a state-sponsored lead agency, so that the state can control pricing of the product. Generally speaking, this is true even in the case of USA, where formulation of risk insurance policy is essentially a responsibility of the individual states.

The issue of introduction of crop insurance in India was taken up in 1947 and homogenous area approach was favoured as a basis for implementation. In 1965, crop insurance bill was introduced and a model scheme was circulated which was not favoured by any of the states due to huge financial obligations. Later in August 1971, the Expert Committee headed by Dharam Narain concluded that it would not be advisable to introduce crop insurance in near future even on pilot basis.

An all risk Comprehensive Crop Insurance Scheme (CCIS) for major crops was introduced in April 1985 and was linked to short term credit and implemented on homogenous area approach. The AIC introduced Rainfall Insurance Scheme in 27 districts of four states from Rabi 2004 season. The scheme was introduced as a pilot programme in 20 rain gauge stations spread over Andhra Pradesh, Karnataka, Rajasthan and Uttar Pradesh. The three options provided under this scheme include Seasonal Rainfall Insurance, Rainfall Distribution Index and Sowing Failure. This scheme anticipated shortfall in yield on account of deficit rainfall.

Beginning 2003-04, we also see further development with the entry of some private insurance companies. Yet they are to make any visible impact on the overall agricultural insurance. ICICI–Lombard General Insurance Company had introduced rainfall insurance, a move which was followed by IFFCO-Tokio General Insurance Company with its “Baarish Bima”. For the private sector insurance companies, with their primary business being in various general insurance foray into agriculture risk insurance is experimental first time business, and it is too early to comment on the effectiveness of their operations.

There are more schemes on the float that go beyond crop insurance .The Farm Income Insurance Scheme (FIIS) was started during 2003-04 to provide income protection to the farmers by integrating the mechanism of insuring yield and market risk. Under this, the farmer’s income is intended to be insured by providing minimum guaranteed income. Similarly, livestock insurance is provided by public sector insurance companies for almost all livestock animals.

vi) Research and extension

There is a large gap between the yields in the research station and the farmers' field. The yields of most of the crops have almost stagnated showing no or very little increase over the years. This shows that the Indian agriculture has reached a technology fatigue. There has not been any major breakthrough in yield improvement especially because of the low allocation of funds to the Indian agricultural research system. There is a need to reorganize the priorities in the Indian agricultural research system by emphasizing on the needs of rainfed areas which cover nearly 60 percent of cultivated area. Adequate priority should also be given to emerging challenges particularly post harvest, marketing and environmental conservation. Since private sector participation in agricultural research is limited to profitable crops and enterprises taken up by resource rich farmers, the public sector research has to increasingly address the problems facing the resource poor farmers in the less-endowed regions. There is also a need to have biotechnological research suited to different locations of the country.

vii) Diversification and food security

There has been diversification of Indian diets wherein, the hi-value products have caught the fancy of the rapidly increasing middle-class population of the country. Increase in per capita income, increasing urbanization, increasing number of working women in urban India are largely responsible for diet diversification in India. There has been an increase in the per capita consumption of fruits and vegetables and edible oils. Diversification does not mean just diversification in agriculture related activities. Adequate importance should also be given to allied activities like animal husbandry and fisheries. Not only does the livestock sector contribute to more than 5 percent of the GDP but also engages many of the rural women in major livestock related activities. Specifically in Indian context where the ownership of livestock is more evenly distributed with landless labourers and marginal farmers, the development of this sector is important for the balanced development of the rural economy.

Recent trends that have raised concern regarding food security, farmers' income, and poverty are:

- Slowdown in growth.
- Widening economic disparities between irrigated and rain-fed areas.
- Increased vulnerability to world commodity price volatility following trade liberalization. This had an adverse effect on agricultural economies of regions growing crops such as cotton and oilseeds.
- Uneven and slow development of technology.
- Inefficient use of available technology and inputs.
- Lack of adequate incentives and appropriate institutions.

viii) Marketing

Since many farmers in most of the developing countries are small and marginal farmers, the produce of individual farmers is in such small quantities that it becomes difficult for them to market such small amounts. They also

face problems in getting inputs, credit and marketing. In such economies where small scale agriculture is widespread, contract farming arrangements are particularly useful. In India, contract farming is going on in several agricultural crops, however; it is not backed by an efficient legal system. There is a need to strengthen contract farming arrangements to strengthen small farmers. To avoid any kind of exploitation of the farmers, an effective legal mechanism needs to be in place. The real challenge is to organize the small and marginal farmers for marketing and linking them to more profitable high-value agriculture.

ix) Soil Health Card

Testing of the soil is one of the important aspects to raise productivity of various types of agricultural products. Because of lack of soil testing productivity of many areas are low in certain category crops . Certain soil varieties are suitable to specific category of agricultural product. Therefore from the time to time soil testing is required for raising agricultural productivity and farmers' income. The soil health card issued by government of India is a laudable one.

x) Effect of Globalization on Agriculture

With the opening up of the economy, the domestic agriculture is subjected to competition from products of other countries specially those of developed countries where agriculture is highly subsidized. There have been many instances in the recent past when the domestic prices of many commodities have gone higher than the international prices. To compete in the international market, there is a need to adopt both yield increasing and cost cutting technologies.

The ongoing negotiations on Agreement on Agriculture in the WTO provide the developing countries with the opportunity to rectify some of the inadequacies in the agreement. The developing countries are likely to benefit if the developed countries reduce agricultural subsidies. The overall trade distorting subsidies given by the developed countries need to be reduced to provide a level playing ground to all the countries.

xi) Agribusiness

Agriculture in the basic sense of produce of the field is hardly remunerative to the farmer. In other words, agricultural operations must now mark a shift in approach from being merely a field harvesting of crops to local *mandi* disposal operations to demand driven activity with an increased focused on processing and value addition. Value addition is to be created through diversification of use of produce and emphasis on quality production. Bold measures now need to be taken to encourage agri-business and industries based on agricultural produce so that producer gains significantly in returns. Any activity related to or associated with agriculture operations, before, during and after crop production is agri-business and includes-

a) **The input sector:** Input suppliers play a major role in the production of food and fiber, and the sector is currently recognized as a major phase of agribusiness. Agricultural input provides production agriculturalists with the feed, seed, fertilizer, credit, machinery, fuel, chemicals, and various other things that they need to operate.

b) **The output sector:** The output sector includes all agribusinesses and individuals that handle agricultural products from the farm to the final consumer. This includes agribusinesses involved in buying, transporting, storing, warehousing, grading, sorting, processing, assembling, packing, selling, merchandising, insuring, regulating, inspecting, communicating, advertising, and financing.

c) **The agri-service sector:** The agri-service sector of the agriculture industry is concerned with researching new and better ways to produce and market food and to protect food producers and consumers, and with providing special, customized services to all the other phases of agriculture. Public agencies have played a dominant role in the agri-services area, but private agencies are rapidly increasing their offerings of farm services.

Agribusiness is responding to the strong consumer demand for high-value commodities, processed products and pre-prepared foods. There is in fact expansion of demand for farm products. It provides new opportunities to farmers for value addition, while agro-processing firms provide them with crucial inputs and services and also cover a part of their risk. If properly used and understood, it should turn out to be bonanza for the farmers. Investment is flowing thick in agribusiness, and agribusiness and super market retail boom is a new mantra. Many companies have already invested billions either directly or through local partnerships. There is likelihood of agribusiness firms with all their managerial abilities, finding new ways to use the demand opportunities. However, fears are being expressed that, by virtue of their capital and scale operations, these firms may space out small traders, processors and retailers. In this context, two most important issues today relate to (a) expansion of organized retail segment, and (b) entry of global players in the retail sector.

xii) Agriculture and Climate Change

The unimpeded growth of greenhouse gas emissions is raising the earth's temperature. The consequences include melting glaciers, more precipitation, more and more extreme weather events, and shifting seasons. The accelerating pace of climate change, combined with global population and income growth, threatens food security everywhere. Agriculture is extremely vulnerable to climate change. Higher temperatures eventually reduce yields of desirable crops while encouraging weed and pest proliferation. Changes in precipitation patterns increase the likelihood of short-run crop failures and long-run production declines. Although there will be gains in some crops in some regions of the world, the overall impacts of climate change on agriculture are expected to be negative, threatening global food security. Populations in the developing world, which are already vulnerable and food insecure, are likely to be the most seriously affected. The results of an analysis by IFPRI, 2009 suggest that agriculture and human well-being will be negatively affected by climate change:

- In developing countries, climate change will cause yield declines for the most important crops. South Asia will be particularly hard hit.
- Climate change will have varying effects on irrigated yields across regions, but irrigated yields for all crops in South Asia will experience large declines.

- Climate change will result in additional price increases for the most important agricultural crops–rice, wheat, maize, and soybeans. Higher feed prices will result in higher meat prices. As a result, climate change will reduce the growth in meat consumption slightly and cause a more substantial fall in cereals consumption.
- Calorie availability in 2050 will not only be lower than in the no–climate-change scenario—it will actually decline relative to 2000 levels throughout the developing world.
- By 2050, the decline in calorie availability will increase child malnutrition by 20 percent relative to a world with no climate change. Climate change will eliminate much of the improvement in child malnourishment levels that would occur with no climate change.
- Thus, aggressive agricultural productivity investments of US$7.1–7.3 billion 2 are needed to raise calorie consumption enough to offset the negative impacts of climate change on the health and well-being of children.

In this section we discussed about the major issues in agricultural development. Now, try and answer the following questions in *Check Your Progress 2*.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What is the role of subsidies and investment in the agricultural growth of any country?

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2) What are the types of risks faced by farmers? How can the farmers avert these risks?

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1.4 SUSTAINABLE AGRICULTURE

1.4.1 Meaning Sustainable Agriculture

Several definitions have been formulated to describe sustainable agriculture. However, these are often tailored to fit specified circumstances. Some of the definitions are as follows:

i) Sustainable agriculture is a way of farming that can be carried out for generations to come. This long term approach to agriculture combines efficient production with the wise stewardship of the earth's resources.

ii) A sustainable agriculture is one that, over the long term, enhances environmental quality and the resource base on which agriculture depends; provides for basic human food and fiber needs; is economically viable; and enhances the quality of life for farmers and society as a whole.

After reading these two definitions, it is important to know various characteristics of sustainable agriculture.

1.4.2 Characteristics of Sustainable Agriculture

By the definitions of sustainable agriculture, a farm that emphasizes short run profit but sacrifices environmental quality would not be sustainable in the long run. From the other perspective, pursuing environmental quality without ensuring viability of short-run returns also would be unsustainable.

- Meet human needs with a safe, high-quality, and affordable supply of food and fiber;
- Provide access for everyone to nutritious, healthful and affordable food, while ensuring a safe and secure supply of food;
- Produce quality food while preserving open space, abundant wildlife, and other forms of biodiversity;
- Protect the natural resource base and prevent the degradation of air, soil and water quality, while using natural biological cycles and controls;

1.4.3 Components of Sustainable Agriculture

- Use of resistant cultivars.
- Management of soil to maximize biological activity.
- Establishment of conditions to attract natural pest control agents, such as the use of certain flowering plants to attract parasitic and predatory wasps.
- Use of insect traps for monitoring and even controlling pests.
- Management of the ground cover and field borders to promote the predators and parasites of pests.
- Release of specific biological control agents.
- Use of low-toxic biodegradable/ botanical pesticides.

1.4.4 Sustainable Agriculture vs. Organic Agriculture

Sustainable agriculture should not be confused with organic farming as both are very different form each other. Sustainable agriculture means not only the withdrawal of synthetic chemicals, hybrid-genetically modified seeds and heavy agricultural implements; it also tries to simulate the conditions found in nature. Sustainable agriculture involves intercropping, use of farmyard manure and remnants, mulching and application of integrated pest management. If this is followed then there is no reason why agriculture cannot be an economically viable activity in addition to being environmentally sustainable.

1.4.5 Inclusive Agriculture

Inclusive agriculture means promotion of agriculture in those areas among those farmers who have been grossly excluded from the agricultural incentives, subsidies and similar other benefits. The focus of inclusive agriculture would largely be on:

- Promotion of agriculture in dry land and hilly and sub-mountainous and desert zones.
- Small, marginal and landless agricultural labourers who really take care of agriculture but hardly enjoy the benefit.
- Role of women in agriculture as a cultivator, entrepreneur, extension agent and farm labourers.
- Incentives to all kind of agriculture both food crops and cash crops; livestock sector, fruits and vegetables and horticulture activities.
- Access to credit from the organized institutions and marketing facilities for the farmers in disadvantaged conditions and areas.

Government of India (2007) has also emphasized that the growth to be all inclusive, the agricultural strategy must focus on the 85 percent of farmers who are marginal, increasingly female and who find it difficult to access inputs, credits and extension or to market their output.

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What do you understand by organic agriculture?

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1.5 GLOBAL FOOD CRISIS

Long time neglect of agricultural sector has led to the current food crisis which has affected both the rich and the poor alike. Food shortages have affected billions of people all over the world especially the poor in the developing countries. Some call it to be the result of the market oriented and liberalising policies adopted by choice or compulsion by most of the countries. These policies have either neglected agriculture for over a decade or led to shift in global prices which in turn have led to a major shift in the cropping pattern in most of the countries. Agriculture in developed countries is highly subsidised. Due to opening up of markets, the cultivators of the developing countries have to compete with the cheap imports from the developed countries.

IMF data shows more than 40 percent rise in global food prices since 2007.The increase has been mainly in essential food grains. In 2007, the global prices of wheat increased by 77 percent and rice prices increased by 20 percent. In 2008, wheat prices have been highly volatile, whereas rice prices soared up by nearly 150 percent in the first quarter of 2008. The price of corn which is a staple food in Latin America more than doubled in the past 2 years. The prices of other food items like vegetable, meat and edible oils have also gone very high.

The impact of rising food prices has been more pronounced in the developing and less developed countries where a major share of family budget is spent on food items. There have even been food riots in many countries. World Bank estimates that such high food prices could lead to more than 100 million people in low income countries to slip to deeper poverty.

Let us now look at the reasons which have led to such sudden rise in prices of essential food items. Though the rise in prices may look sudden, but it has been a result of long term and continuous neglect of agriculture sector world over. The explanation endorsed by the then Bush Administration is that the spurt in food prices is essentially demand driven due to several years of rapid economic growth, rising income and therefore growing demand for food in India and China. However five major factors which have played a crucial role in rise in world food prices are as follows:

i) Energy is an important input in agriculture especially in cultivation and transportation of food. The rising prices of oils have hence affected the agricultural costs both directly and indirectly.

ii) Due to high dependence on OECD countries for oil and other petroleum products and because of the rising oil prices, the governments in many countries have promoted bio-fuels as an alternative to petroleum. This has led to shift in cropping pattern of many countries in favour of bio-fuels. In 2006, US diverted its 20 percent area under maize production, Brazil used half of its sugarcane production and EU used a large part of its vegetable oilseed production to make bio-fuel. According to IMF, ethanol production using corn in US has been the major reason for at least half of the increase in corn output since 2006.

iii) Policy neglect of agriculture over the past two decades, the world over has also been one of the major reasons for food shortages and rising prices.

There has been a lack of public investment in agriculture and agricultural research. There has also been a shift from traditionally grown food crops to cash crops. Besides, increasing urbanization also leaves less land for agriculture.

iv) Climate change in almost all parts of the world has also caused poor harvest due to increased draughts, floods, cyclones, tsunamis etc.

v) Changes in market structures wherein a small number of agribusiness companies increasingly control all aspects of cultivation and distribution result in producers not getting the benefits of price increase. Public holdings of stocks have also generally reduced. This has reduced the capacity of public intervention to prevent speculative activities.

1.6 AGRICULTURAL DEVELOPMENT IN INDIA

The post independence marked a turning point for agriculture in India. The agricultural growth rate, which was less than 0.5 percent per annum during the period 1904-05 to 1944-45, recorded an annual growth rate of 2.7 percent during 1949-50 to 1983-84. The land reform and the green revolution are the two main strategies that helped to augment agricultural development in India. The agricultural scholars have divided agricultural development phases into periods ie. 1950-51 and 1966-67 and that between 1967-68 and 1983-84 and have charecterised these as the land reform strategies adopted during the mid fifties and the green revolution strategy adopted since the mid-sixties. These two strategies of agricultural development are discussed below:

1.6.1 Land Reforms

During British colonization, land ownership and land use patterns were changed to make it easier for the British to buy land at low prices for mines, plantations etc. The British did not introduce this system to India, but they popularised it. With the introduction of the land tax under the Permanent Settlement Act 1793, the British popularized the ‘zamindari’ system (where landowners collect tax from the peasants) at the cost of the ‘jajmani’ system (where everybody shares the land).

At independence, ownership and control of land was highly concentrated in a few landlords whose main intention was to get maximum rent from their tenants. Under this arrangement, the tenant farmer had little economic motivation to develop farmland for increased production (because they would not make any money out of it). At the same time, the landlord wasn’t particularly concerned about improving the economic condition of the farmers (because the landowner would lose money). As a result, agricultural productivity suffered and the tenants’ situation deteriorated.

In the years immediately following India’s independence, land ownership was recognised as crucially important. India was extremely poor, and in order to try and abolish poverty, progress was needed on two fronts: high productivity and sharing equally. The most important event in the agricultural history of India is the land reforms enacted and implemented during the mid-fifties. The objectives of land reform are:

i) Reordering agrarian relations to achieve social equity.

ii) Curtailing exploitation and enlargement of land base of the rural poor; and

iii) Increase agricultural productivity.

Major issues covered in land reforms are

i) Abolition of intermediaries

ii) Settlement and regulation of tenancy

iii) Regulation of size of holdings.

A historical background of land reforms in India is given as under:

At the time of independence, there existed three types of proprietary land tenures in the country. The term land tenure is used to refer to the terms and conditions on which land is held and used.

i) Abolition of Intermediaries

a) The Zamindari or Landlord Tenure: Under this system, the land was held by a person who was responsible for the payment of land revenue. Landlords never cultivated the land they owned and rented them out to the cultivators. In this system between the actual state and the tiller there grew an intermediary who was interested in the land only to the extent of extraction of exorbitant rent.

b) Ryotwari System: Under this system, the responsibility of paying land revenue to the Government was of the cultivator himself and there was no intermediary between him and the state. The ryot had full right regarding sale, transfer and leasing of land and could not be evicted from the land as long as he pays the land revenue. But the settlement of land revenue under ryotwari system was done on a temporary basis and were periodic, after 20, 30 or 40 years.

c) The Mahalwari or The Joint Village Tenure: Under this system, the village communities held the village lands commonly and it was joint responsibility of these communities to make payments of the land revenue.

Thus the overall system of collection of revenue was based on exploitation. The British government snatched away whatever surplus above the minimum subsistence the cultivator produced. The latter were forced to lead a wretched life of slavery and deprivation. Under the above-mentioned systems the practice of cultivation by tenants became widely prevalent. These tenants were also exploited in a number of ways. It was basically to stop the exploitation of the actual tillers of the soil and pass on the ownership of the land to them that land reforms introduced in the post-independence period in India.

ii) Settlement and Regulation of Tenancy

These are of four types:

a) Measures of Tenancy Reforms: The legislation for abolition of intermediaries was aimed at providing land to the tiller but it did not put an end to the problem of tenancy. Measures taken to minimize the

evils of tenancy cultivation and to safeguard the interest of the tenants are as follows

b) **Regulation of rents**: during the pre-independence period, rents were fixed either by the custom or were the result of the market forces of demand and supply. Supply of land being fixed, the demand of land rowing with an increasing population, there has been a continuous tendency for rents to rise. It was, therefore, imperative that rents should be fixed by enacting legislation. The rates of rent prevalent were one half of the produce or more. Considering the return on investment in other sectors of economy, these rents were excessive by any standard of social justice.

Consequently, the First and the Second five-year plan recommended that rents should not exceed one fourth or one fifth of the gross produce. Various states have passed necessary legislation regulating rents, but there were large variations in the rents fixed in different states. In Gujarat, Maharashtra, and Rajasthan, one-sixth of gross produce was fixed as maximum rent. In Assam, Karnataka, Manipur and Tripura, maximum rents varied between one-fourth to one-fifth of the gross produce. In Punjab, one-third of produce was considered as fair rent, while in Tamil Nadu it was between 33.3 and 40 percent of the gross produce. In Andhra Pradesh one-fourth of the gross produce for irrigated land and one-fifth in other cases had been fixed as rent.

c) **Security of Tenure:** the security of tenure was aimed to provide some incentives to tenants to make certain improvements of permanent nature on the land they cultivate. Many states, therefore, enacted legislation providing for the security of tenure so long as they continue paying the rent.

d) **Right of Ownership of Tenants:** A very important feature of the land reform is the provision of the right of ownership of tenants. The Second plan considered it very desirable to bring tenants in non-resumable area in direct contact with the state. Earlier the right to purchase was optional to the tenants but this did not prove to be effective. Thus, the third plan suggested the optional clause to be removed and peasants be required to purchase land. Legislation for this purpose was enacted in various states. For instance, in West Bengal the tenants and sub-tenants were brought into direct relationship with the state by the conferment of full ownership rights. In Punjab, the right to purchase was optional. Legislation had been enacted in Gujarat, Kerala, Madhya Pradesh, Maharashtra, Karnataka, Orissa, Rajasthan, Uttar Pradesh, West Bengal and the Union Territories. Whereas in Assam, Jammu and Kashmir and Tamil Nadu, no provisions existed even for an optional right of purchase. While the state can facilitate the transfer of ownership rights from the landlords to the tenants, no financial burden is imposed on the state.

iii) Regulation of Size of Holdings

a) **Consolidation of Holdings:** Consolidation of fragmented agricultural land holdings forms an integral part of the Land Reform Policy.

Successive Five Year Plans have accordingly been laying stress on consolidation of fragmented land holdings for planned development of villages and increased agricultural output. Consequently, many States enacted legislations and had taken up the work relating to consolidation of land holdings. The States of Uttar Pradesh, Haryana and Punjab have achieved commendable success. In Uttar Pradesh, even now, consolidation of land holdings is in operation in about 9000-10,000 villages. In other States, work was continued for some years but lost momentum thereafter.

Consolidation of holdings was also advocated to group together the numerous tiny and scattered holdings of poor cultivators in order to form bigger tracts, susceptible to more efficient management. Cooperative farming on these would increase productivity and employment through economies of scale. The large, economical units of consolidated land, it was opined, would mitigate the problem of poor yield and enhance productivity through economies of scale and also increase employment.

Other important reforms include:

i) Distribution of ceiling surplus land

ii) Distribution of Government wasteland and Bhoodan land

iii) Prevention of alienation and restoration of alienated tribal land

iv) Central Sector Scheme for Computerization of Land Records

v) Centrally Sponsored Scheme for Strengthening of Revenue Administration and Updating of Land Records.

1.6.2 Green Revolution

The Green Revolution is a good example of a planned development initiative that brings out all the essential features of the development process. The Green Revolution is usually described as the introduction of hybrid varieties of wheat and rice, but the adoption of hybrids alone is not sufficient to explain the phenomenal achievements of the Green Revolution. Success was made possible by a comprehensive and well-coordinated program involving multiple changes in the way society managed the production of food.

The Green Revolution led to sizable increases in returns to land, and hence raised farmers' incomes. Moreover, with greater income to spend, new needs for farm inputs, and milling and marketing services, farm families led a general increase in demand for goods and services. This stimulated the rural non-farm economy, which in turn grew and generated significant new income and employment of its own. In India, the percentage of the rural population living below the poverty line fluctuated between 50 and 65 percent before the mid-1960s but then declined steadily to about one-third of the rural population by 1993. Research studies show that much of this steady decline in poverty is attributable to agricultural growth and associated declines in food prices. Big increases occurred in per capita consumption of vegetable oils, fruits, vegetables, and livestock products in Asia.

Major Factors behind the Success of Green Revolution

a) **Mechanization of Farming**: Intensive agriculture demands the use of diverse machinery that saves the farmer time and labour. Farm mechanization means use of various types of machines and other agricultural implements during the production, transportation and processing of agricultural products. Farmers in the countries adopted farm mechanization for fast growth of agriculture, leading to increased production. This has helped to increase cropping intensity, diversification of agriculture, better usage of available irrigation facilities, timely sowing and harvesting and transportation of inputs to the fields. This has helped the farmers to get better prices for their products as they can easily access the nearest market outlets.

b) **Adoption of High Yielding varieties:** The adoption of HYVs occurred quickly. By 1970, about 20 percent of the wheat area and 30 percent of the rice area in developing countries were planted to HYVs, and by 1990, the share had increased to about 70 percent for both crops. Yields of rice and wheat virtually doubled. Higher yields and profitability also led farmers to increase the area of rice and wheat they grew at the expense of other crops. And with faster-growing varieties and irrigation, they grew more crops on their land each year. These changes more than doubled cereal production in Asia between 1970 and 1995, while population increased by 60 percent. Instead of widespread famine, cereal and calorie availability per person increased by nearly 30 percent, and wheat and rice became cheaper.

Achievements of Green Revolution in the Indian Economy

- Crop areas under high-yield varieties needed more water, more fertilizer, more pesticides, fungicides and certain other chemicals. This spurred the growth of the local manufacturing sector. Such industrial growth created new jobs and contributed to the country's GDP.
- The increase in irrigation created need for new dams to harness monsoon water. The water stored was used to create hydro-electric power. This in turn boosted industrial growth, created jobs and improved the quality of life of the people in villages.
- India paid back all loans it had taken from the World Bank and its affiliates for the purpose of the Green Revolution. This improved India's creditworthiness in the eyes of the lending agencies.
- Some developed countries, especially Canada, which were facing a shortage in agricultural labour, were so impressed by the results of India's Green Revolution that they asked the Indian government to supply them with farmers experienced in the methods of the Green Revolution. Many farmers from Punjab and Haryana states in northern India were thus sent to Canada where they settled (That's why Canada today has many Punjabi-speaking citizens of Indian origin). These people remitted part of their incomes to their relatives in India.
- Prior to the launch of the Green Revolution, Indian agriculture was largely based on subsistence-level farming which did not generate sufficient production to meet the country's food requirements. In the past this had led to periodic food shortages and famines which were managed by huge imports

from abroad. Green Revolution was an attempt to break out of this condition and increase food production to make the country self-sufficient.

1.6.3 Rainbow Revolution

Technology led development in agriculture have made India self sufficient in foodgrains and a leading producer of several commodities in the world. The Green revolution in crops, Yellow revolution in oilseeds, white revolution in milk production, blue revolution in fish production and golden revolution in horticulture improved the status of Indian agriculture. Rainbow revolution encompassing an all round growth in production of foodgrains, edible oil, fruits, vegetables and animal and fish products and evergreen revolution in agriculture through diversified agriculture, precision farming, resource conservation and value addition to provide in real sense the required food, nutrition and environmental security are the hopes of future.

In this section you read about the agricultural development in India. Now answer the following question in *Check your Progress 4.*

Check Your Progress 4

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are the major factors that led to the success of Green Revolution?

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2) Write short note on Rainbow Revolution.

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1.7 LET US SUM UP

Agriculture plays an important role in providing food and livelihood security to majority of the population in the developing countries. Agriculture was seen as a low productivity, traditional sector that only passively contributed to development by providing food and employment. The importance of agriculture is expected to decline as development advances. In India there has been a continuous decline in the contribution of agriculture to the GDP but there has not been a commensurate decline in the share of workforce which has been a cause of concern. Some of the problems typical to Indian agriculture include small

holdings, low yield, high regional disparities and rise in food prices. Although Green Revolution led to a sizeable increase in the returns to land, the ill effects of the revolution have faced up in the form of excessive use of inputs leading to soil degradation, depletion of groundwater table and increasing regional disparities. Continuous policy neglect of agriculture has led to rising food prices, increasing indebtedness of farmers and other such effects. This calls for a policy shift in favour of the agricultural sector which is still a major contributor of livelihood security of majority of the population in India.

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1.9 CHECK YOUR PROGRESS - POSSIBLE ANSWERS

Check Your Progress 1

1) Agriculture promotes development of an economy by

   - By supplying foodstuffs and raw materials to other expanding sectors in the economy;
   - By providing an “investable surplus” of savings and taxes to support investment in another expanding sectors;
   - By selling for cash a “marketable surplus’ that will raise the demand of the rural population for products of other expanding sector;
   - By relaxing the foreign exchange constraints, by earning foreign exchange through exports or by saving foreign exchange through import substitution.

2) While agriculture accounts for around 2% of GDP, and less than 4% of employment in developed countries, its share in the GDP of low-income countries is as high as 24%. Agriculture provides over 60% of total

employment in South Asia and sub-Saharan Africa. Agriculture thus plays an extremely important role in developing countries, in providing livelihood and rural development. In most developing countries, agriculture is dominated by small and marginal farmers who are engaged in subsistence farming. Agriculture plays a major role in providing food security for the bottom level of the population. Developing countries consider domestic self-sufficiency in food grain as an important element of food security. For all these reasons, sustained growth in agriculture is considered essential for ensuring food security and alleviating poverty.

Check Your Progress 2

1) Though subsidies are effective in pushing agricultural growth to a certain extent, it is important to make sure that they do not become a permanent feature of any economy. The availability of subsidized inputs during the Green Revolution period has led to indiscriminate use of inputs. The public investment in agriculture has declined in the past two decades which in turn has slowed down the pace of technological change, adversely affecting productivity. Since the early 1980s public investment in agriculture has experienced a secular decline, while input subsidies (on fertilizers, power, and canal irrigation) have been rising.

2) Farmers are generally exposed to two types of risk – yield risk and price risk. The yield risk is mainly attributed to the vagaries of nature and price risk is owing to price volatility. In order to shield the farmers from either or both the risks, agricultural insurance assumes significant importance. The importance of Agricultural insurance is widely accepted all over the globe. In most economies governments assume significant role towards protection of the farmers against all type of risks.

Check Your Progress 3

1) Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions rather than use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationship and a good quality of life for all involved.

Check Your Progress 4

1) Mechanization of farming and adoption of high yielding varieties are the major factors that have led to the success of Green Revolution in India. For details refer section 2.6

2) Rainbow revolution encompasses an all round growth in production of food grains, edible oil, fruits, vegetables and animal and fish products.

UNIT 2 INDUSTRY

Structure

2.1 Introduction

2.2 Industry: Concept and Significance

2.3 Industrialization in Europe and America

2.4 Industrialization in Asian Countries

2.5 Issues and Challenges of Industrialization

2.6 Measures to Promote Industrialization

2.7 Let Us Sum Up

2.8 References and Suggested Readings

2.9 Check Your Progress-Possible Answers

2.1 INTRODUCTION

Primary, Secondary and Tertiary sectors are the three important sectors of an economy. The economic growth and development of an economy depend on the contributions of these three sectors towards the economy. The secondary sector which constitute, industry and manufacturing is considered as one of the important sectors of economic development. Industrialization has been suggested as one of the instruments of structural changes approach to economic growth and development of the developing economies. It is believed that industrialization will enable a nation to effectively utilize its human and natural resources and smartly deal with poverty and unemployment in an economy. According to UN Committee Report (1963) industrialization is a process of economic development in which growing part of the national resources is mobilized to develop technically up-to-date, diversified, domestic economic structure characterized by dynamic manufacturing sector having the producing means of production and consumer goods and capable of assuring high rate of growth for the economy as a whole and of achieving economic and social progress. This unit on "Industry" will give you a holistic perspective on role of secondary sector in development of developed as well as developing countries. After reading this unit, you will be able to:

- Define the concept and significance of sector to economic development;
- Explain the industrialization process in Europe and America;
- Discuss the industrialization process in Asian countries with specific focus on India; and
- Narrate the issues and challenges of industrialization and measures to promote industrialization.

2.2 INDUSTRY: CONCEPT AND SIGNIFICANCE

2.2.1 The Concept

The term 'industrialization' is large4ly being use to highlight the growth of manufacturing industries in an economy. The Business Dictionary defines

'industry' as the manufacturing or technically productive enterprises in a particular field, country, region or economy viewed collectively or one of these individually. As H.B. Chenery has remarked "industrialization is the main hope of most poor countries trying to increase their levels of income". Kaur (1997) considered industrialization as the hub of economic development because it has the employment potential for raising workforce, is typically associated with the creation of external and internal economies and with the rise of factor productivity, and hence with rising per capita income and living standard. The industrialization process in developed as well ass developing countries started through "industrial revolution". The modern historians have described industrial revolution into two types: the initial industrialization which started in 1700 in Great Britain and continued up till 1870 is called as the period of "First Industrial Revolution" characterized by developments in textiles, iron and steam led by Great Britain. The "Second Industrial Revolution" triggered off from 1950s onwards, characterized by steel, electrics and automobiles led by the USA and Germany. The "Third Industrial Revolution" covered the Asian Tigers i.e. Hong Kong, Singapore, Taiwan and South Korea and it also spread through in the countries like Argentina, Mexico, Brazil, China and India, Malaysia. According to Sutcliffe (1977) a country may be regarded as industrialized if at least 25 per cent of GDP arises in industries of which 60 per cent should be in the manufacturing and which had at least 10 per cent of its population employed in industry.

2.2.2 The Significance of Industry and Industrialization

The industry and industrialization both directly and indirectly help in socio-economic development by fulfilling various socio-economic objectives such as employment creation, poverty eradication, gender equality, improved labour standard and improved access to education, health and basic amenities. Industrialization plays an important role in the economic development of the underdeveloped countries. The Industrial Development Report 2009 of UNIDO envisaged that "industrialization is integral to economic development. Scarcely any countries have developed without industrializing and rapidly growing economies tend to have rapidly growing manufacturing sectors". While United Nations Department of Economic and Social Affairs (2007) noted that " the past several decades have witnessed a major restructuring of the global economy, one in which more and more industrial output and employment is now located in emerging developing countries, while the developed countries have become even more service oriented economies. Some of them are discussed below:

i) **Increases National Income/ Growth Rate:** Industrialization is required for the developing countries in order to enhance their economic growth rate. The European nations and the USA have achieved higher economic growth rate and development in their initial phases because of industrialization. The developmentalists widely believed that the development of the underdeveloped countries can be possible through structural changes that are movement from an agriculture dominated economy towards industrialization. In China, industrialization has significantly increased per capita income of the people belonging to the eastern coastal region of the country. In India also, per capita income of the more industrialized states like Maharashtra and Gujarat is higher as compared

to the least industrialized states i.e. Bihar and Chhattisgarh. Besides, the industrialization has enabled the countries to enhance their growth rate. The experience of rapid economic growth in Taiwan, South Korea, Hong Kong and Singapore during the past two or three decades was because of industrialization, which depicts contribution of industrial sector to economic growth of these nations.

Table 1: Contribution of Industry Sector to GDP of selected Countries, 2016

Countries	% of GDP
Afghanistan	22.7
Australia	24.3
China	39.8
India	28.8
Ethiopia	21.3
Kenya	19.0
United Kingdom	20.2

Source: https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS (accessed on 5/2/2018)

ii) **Improvement in Balance of Payments:** Industrialization gives a solid base to national income. Development of industrial and manufacturing sector helps a nation to improve their balance of payment situation. Largely it is seen that the underdeveloped countries do not have a favorable balance of payment situation because they are primarily exporters of primary goods and agricultural products and importers of finished industrial good products from the developed countries. China is an illustrious example where the growth of manufacturing sector has enabled it to have strong balance of payment situation.

iii) **Provides Higher Standard of Living:** Industrialization enhances productivity and per capita output per worker as a result the income of the workers increases. It is obvious that the workers employed in the manufacturing sectors get more wage and income compared to their counterpart in agriculture sector. Therefore Gunnar Myrdal (1956) emphasized on the indispensability of industrialization to achieve higher productivity, higher per capita income and standards of living. In his words "Manufacturing industry represents, in a sense, a high stage of production. In advanced countries, the development of manufacturing industry has been concomitant with these countries' spectacular economic progress and rise in levels of living; many of its products are indeed almost symbolic of a high standard." Chenery and Taylor (1980) found that a statistically significant relationship exists between per capita income and the degree of industrialization.

iv) **Increased Employment Opportunity:** Industrialization plays an important role in enhancing employment opportunities in an economy. The establishment of small scale and cottage industries in the rural areas of developing countries would enhance rural employment opportunities. The countries like China and South Korea which are emphasizing on industrial and manufacturing sector in their model of economic development are found to be employing more in manufacturing sector compared to India, Pakistan and Bangladesh. The only way to promote sustainable development through assured employment is to emphasize on industrial development. The Industrial Development Report 2009 of UNIDO envisaged that "industrialization in integral to economic development. Scarcely any countries have developed without industrializing, and rapidly growing economies tend to have rapidly growing manufacturing sectors." While United Nations, Department of Economic and Social Affairs (2007) noted that "the past several decades have witnessed a major restructuring of the global economy, one in which more and more industrial output and employment in now located in emerging developing countries, while the developed countries have become ever more service oriented economies." The employment trend shows that the developing countries have higher scope to enhance employment in the industrial sector as compared to the developed countries where the employment in industrial sector has started declining (Table-2).

Table 2: Employment in Industry (% of total employment) of selected Countries

Region	Year	
	1991	2017
Afganisthan	7	7
Australia	24	19
China	27	27
India	15	24
Japan	35	26
Pakistan	20	24
United Kingdom	31	18
United States	25	19

Source: https://data.worldbank.org/indicator/SL.IND.EMPL.ZS(accessed on 26/6/2018)

v) **Enhances Scope for Technological Progress:** Industrial development entices a nation to produce more number of skilled workers in the country. It enhances the scope for continuous technological development. The technological progress through industrial development also promotes technological progress in agriculture and allied sector. This enhances

productivity in the economy. Besides, the technological upgradation in industrial sector also enhances technological progress in services sector.

vi) **Increase Capital Formation:** Industry is an important source of capital formation. Industry ensures higher income to its employees and higher profits to the industrialists which can promote higher saving and investment leading to higher capital formation. Promotion of manufacturing in private sector will lead to more savings and investment. Private investment in any economy has the advantage of not been associated with corruption and wasteful spending but largely associated with efficient and effective resources use.

In this session you read about the concept and significance of industrialization and now answer the question given in Check Your Progress-1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are the different phases of industrialization in global context?

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2) Industrialization in key to capital formation-Discuss

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2.3 INDUSTRIALIZATION IN EUROPE AND AMERICA

2.3.1 Industrialization in Europe

The industrialization process in the Western countries was initiated in Great Britain during 1700. The revolution in agriculture sector in the 1700s created a favorable condition for industrial revolution in Great Britain. At the out set industrialization triggered off in the textile industry, where a series of innovations produced new machines and created demand for labourers. The new machines tools produced in the process are spinning jenny, and water-powered loom. Great Britain took the lead in early industrialization because of its advantage of being having an adequate amount of iron ore and coal resources and a very good rail and road transport system. After the 1850s, the industrialization spread to other parts of the Europe such as Belgium, France and Germany.

One of the important benefits of industrialization in the Europe is the increase in job opportunities. The creation of power machines and factories provided many new job opportunities. The employment in factories and industries enabled them to earn higher wages and salaries and thus enhanced their quality of life. The GDP per capita of a few European Countries enhanced because of industrialization.

Another important angle of industrialization in Europe is that the Industrialization in Europe spread among different countries through international economic relationship. The import of cotton product by German from England enticed the Germanian to go for industrialization and development of export market in Europe. The similar changes took place in other countries of Europe such as Belgium, France and Switzerland although the industrial structures in each of these countries developed differently. Besides, the Intra-European trade between industrialized countries of the European "periphery" such as Greece, Portugal, Russia or Sweden further injected fresh industrial revolution in Europe. Thus industrialization process in Europe is an expansionist endeavor spearhead by Great Britain. Industrialization enhanced the process of urbanization in European countries and ultimately raised the quality of life of European population.

2.3.2 Industrialization in USA

The Second Industrial Revolution in the world was started in America in the mid eighties. It is pertinent to mention here that when Great Britain initiated industrial revolution in the early seventies, America was deeply engaged in agriculture sector in 1790. However, in 1851 producers from many developed nations gathered at the Crystal Palace in London, to display the triumphs at the First World's fair. In this fair, America's work in the manufacturing sector attracted the attention of other countries. By the end of the century, United States became the World leader in manufacturing.

The critical advantage of effective industrialization in the USA was not only endowment of natural resources, but also availability of technical, skilled and knowledgeable manpower. The availability of tele-communication and surface transport facilities further strengthened the industrial and manufacturing sector.

The availability of abundant water supply resources helped to generate power for industry. However, the industrialization in the USA was concentrated mostly in Northern part of America. One of the unique features of America's industrialization is continuous-process manufacturing. This helped mechanization of continuous processing of yields with uniform quantity of production by the help of minimum human labour. Another positive feature of America's industrial development is the standardization of product, where by, industries used special purpose machines to produce large quantities of similar or even interchangeable parts for assembly into finished goods. The advancement in agricultural equipment through industrialization in India enhanced agricultural productivity and raised the farmer's incomes. In nutshell, American industries have emphasized division of labour, specialization of standardization of work, clear job demarcation, and use of the market mechanism, while minimizing coordination efforts.

2.4 INDUSTRIALIZATION IN ASIAN COUNTRIES

Industrialization process in Asian countries started in the 19th century except Japan where it was triggered off in the mid-eighties. The Asian Countries as far as industrialization is concerned can be categorized from the industrialization perspectives as follows: Japan is the only country which has achieved status of advanced industrialized countries; the countries such as South Korea, Singapore and Taiwan are in the second tier status in industrialization process; while China and India opened their door to industrialization during 19th century are categorized as third tier industrialized nation. Here is this section we will discuss the industrialization process of four countries: Japan, South Korea, China and India.

2.4.1 Industrialization in Japan

Japan's industrialization process started during mid eighties with the restoration of Meji government. A ministry of industry was created in 1870 to establish overall economic policy and operate certain industries. As a result, modern factories were created to provide industrial experience and an expanded technical education system offered technical training. During the initial phase of industrialization, Japan chooses to dependent on export-oriented industries, and set up a model for other industries. According to Masayuki Tanimoto (2004) technology transfer from industrialized western countries such as the United Kingdom and France has played foremost role in directing Japan's early industrialization process. While Mark Mauson (1987) mentioned that in the early times, many foreign or multi-national farms set up in Japan and they provided the host country not only advanced technologies but also the way and approach of management, which be named as knowledge transfer. The speed of industrialization process in Japan started around 1945 and by the year 1970, Japan's situation changed and Japan technology and industrial organization caught worldwide attention.

Another important feature of Japan's industrialization process is trade-protection to infant industries. At the very beginning of Japan's industrialization, trade-protection played a prominent role in order to provide its fragile industry an opportunity to grow and prosper. According to G.C Allen (1981) the main industrial policy for Japan is protectionism, and carefully chose industries, in

order to present ruinous competition at the infancy stage, and nurse them up to a competition status and then expose them to outside competition.

During the process of industrialization in Japan, FDI played a negligible role. According to OECD (2003), Japan's inward FDI is extremely low compared to outward FDI. Some other analyst of Japan's industrialization said that FDI did not play a major role in post-war Japan in terms of technology transfer. However, it played an important part to make the market more competitive and inspire the local development of technology.

One of the most important features of Japan's industrialization is role of R&D in industrial development. Japan invested a lot of resources in R&D in industry. According to OECD (2007), Japan owns the highest ratio of researchers to total employment. The R&D expenditure pushed up the rapid process of industrialization. According to peck and Tamura (1976) the expenditures of Japan on R&D focused on improving the quality and lessening the costs of product more successfully.

2.4.2 Industrialization in China

China's high economic growth rate was a product of rapid transfer from agriculture to manufacture and export-oriented industry. China initiated industrialization process far behind Japan. China's economic reforms and a shift from agriculture to industrialization process started in the late 1970s and early 1980s. China followed the industrialization model of other East Asian countries and the emphasis for promotion of growth through rapid industrialization, increased trade openness and exports and general liberalization of financial markets. To Dutta (2005) growth was import-export led; technology and know-how have been imported from abroad and adopted to the domestic resources, in particular to the abundant labour force. It is remarked that what China has achieved during the three decades, the same degree of industrialization took two centuries to occur in Europe (Summers, 2007).

Some of the important features of industrialization in China are: (i) in the planned economy of China, 'heavy industries' were concentrated in a few location and small and medium scale industries were developed through clustering approach or cluster based industrialization; (ii) the emphasis on rural industrialization is another important feature of China's industrialization process; (iii)the industrialization laid emphasis on R&D in China. According to OECD (2007), China has increased its expenditure on research and development rapidly; and (iv) one of the important features of China's industrial development is role of FDI in manufacturing sector and dominance of manufacturing sector in China's FDI inflow.

2.4.3 Industrialization and Industrial Policies in India

The industrialization process in India started much before the independence and even before the British. The textile industries were the first one to trigger up the process of industrialization in India. The industrialization process initiated laid emphasis on the modernization of textile industries with the use of spindles, looms, and spinning mills. Before independence, different types of industries established in India with private initiative were automobiles, and iron and steel.

Jamshedji Tata was the pioneer in the field of modern industry in India in automobile sector in the private sector. Tata Steel was started in the year 1907.

The government of India placed emphasis on the industrialization for acceleration of economic growth of the country since the Second Five Year Plan. During the Second Five Year Plan, the industrialization strategy articulated by Mahalanobis placed emphasis on the establishment of heavy industry under the public sector. Besides heavy industries, the government of India has also given adequate emphasis on the growth of cottage and small scale industries particularly in rural areas. The IPR of 1948 stated that "cottage and small scale industries have a very important role in the national economy. Offering as they do scope for individual, village or cooperative enterprise and means for the rehabilitation of displaced person. These industries particularly suits for the better utilization of local resources and for the achievement of the local self-sufficiency in respect of certain types of essential consumer goods like food, cloth and agricultural implements." From time to time, government of India has come out with industrial policies in order to give a direction to the process of industrialization in the country. The objectives of the industrial policies launched during different period are to achieve: a high growth rate, national self-reliance, reduction of foreign dominance, building up of indigenous capacity, encouraging small scale industries, brining about balanced regional development, prevention of concentration of economic power, reduction of income inequalities and control of economy by the state. The key features of various industrial policies formulated at different point of time by the Government of India are given below:

i) Features of Industrial Policy 1948

The first industrial policy of government of India was formulated in the year 1948. The key features of the Industrial Policy of 1948 are:

a) The industrial policy resolution of 1948 contemplated a mixed economy with role of both public and private sector.

b) The industries were divided into four broad categories viz:

- Defence industries and atomic energy. The ownership and management of industries belonging to these categories to be the exclusive monopoly of the Central Government.
- Coal, iron and steel, ship building, telephone and telegraphs were to be owned by the state.
- Basic industries-fertilizers, electro chemicals, non-ferrous metals, woolen textiles, minerals etc. would be subject to the regulation of central government.
- Remaining industries other than the above mentioned were open to the private sector.

ii) Features of Industrial Policy 1956

Important features of Industrial Policy 1956 are:

a) New classification of industries are categorized as:

Schedule A Industries: Exclusive responsibility of the state.

Schedule B Industries: State owned industries, but the private enterprises could supplement the effort of the state.

Schedule C Industries: All other remaining industries could be owned by private sector.

b) Fair and non-discriminatory treatment of private sector

c) Encouragement to village and small scale industries

d) Removing regional disparities

e) Provision of amenities for labour

iii) Features of Industrial Policy 1977

The important features of the Industrial Policy of 1977 are:

a) Development of small scale sector. Small scale sector was classified into three categories i.e.:

- Cottage and household industries
- Tiny sector with less than one lakh investment
- Small scale sectors with investment up to 10 lakh.

b) District industrial centers were to be setup in each district to support small scale and cottage industries.

c) Programmes for the enlargement of the areas of operation of *khadi and village* industries.

d) Special arrangements to be made for the application of technology to improve the productivity of small and village industries.

e) Large scale sectors should devise programme for small scale and village industries.

f) Approach towards sick units should be selective and public funds should be pumped into sick units.

g) Framing policies encouraging worker's participation in management.

iv) Features of Industrial Policy 1980

The objective of Industrial Policy 1980 was to strengthen the economic infrastructure for the industrialization. Some of the important features of Industrial Policy 1980 are as follows:

a) Socio-economic objectives:

- Optimum utilization of installed capacity
- Maximizing production
- Higher productivity
- Higher employment generation
- Correction of regional imbalance
- Preferential treatment to agro-based industries
- Promoting economic federalism

b) Revival of the economy

c) Effective operational management of the public sector

d) Integrating industrial development in the private sector by promoting the concept of economic federalism

e) Promotion of industries in rural areas

f) Removal of regional imbalances

g) Industrial sickness and state policy

This industrial policy stated that industrial units found guilty of mismanagement leading to sickness would be dealt firmly.

All the above industrial policies recognized the role and need for securing participation of foreign capital and foreign enterprises. But there was no encouragement for foreign ownership and control. These policies failed meet the requirement of liberalized economy and foreign investments. Hence another new policy was framed in 1991.

v) Features of Industrial Policy 1991

Some of the important features of industrial policy of 1991 are narrated below:

A) Structural Reforms: With the introduction of new industrial policy a substantial programme of deregulation has been undertaken. Industrial licensing has been abolished for all items except for a short list of six industries, viz.:

a) Distillation of alcoholic drink

b) Cigars and cigarette.

c) Aerospace and defense equipments.

d) Industrial explosives.

e) Hazardous chemicals

f) Drugs and pharmaceuticals.

MRTP Act has been amended in order to eliminate the need to seek prior government approval for expansion of the present industrial units and establishment of new industries.

A significant number of industries had been reserved for the public sector. Some areas reserved for the Public Sector are:

a) Arms and ammunition

b) Atomic energy

c) Defense air craft

d) Railway transport.

B) Foreign Direct Investment: The government has been committed to promoting accelerated growth of the industrial sector. The role of foreign direct investment as a means to support domestic investment for achieving a higher level of economic development was encouraged. It was assumed that FDI would benefit domestic industry as well as the Indian consumers by providing opportunities for technological up gradation and access to global managerial skills and practices.

In order to reduce the delay in setting up the industries by the private entrepreneurs through the help of a simplified approval mechanism for FDI proposals have been put in place via:

a) Automatic approval by RBI to specified industries.

b) Other proposals which do not confirm to the guide lines for automatic approval are being considered by the Foreign Investment Promotion Board (FIPB). The FIPB makes recommendations to the government.

C) Major Initiatives:

The following major initiatives have been taken up:

a) De-licensing of some industries such as:

- Coal and Lignite
- Petroleum and its distillation
- Sugar industry
- Bulk drugs.

b) Foreign equity up to 100% in

- Power sector
- Electric generation

c) Requirement of prior approval by RBI for bringing FDI / NRI / OCB investment.

d) The RBI has delegated powers to regional office at the state level.

e) The number of industries reserved for private sector has been reduced and entry level barriers have been removed.

f) Foreign exchange rate policy has been changed. Restriction on current account transaction has been removed.

g) Industrial policy has brought reforms in related areas such as export, import, etc. for the integration of the Indian economy with the world economy. Tariffs have been reduced on imports.

In these sessions you read about the industrialization process in Europe, America and a few Asian countries and now answer the question given in Check Your Progress-2.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe the industrialization process of China

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2) Write a short note on the Industrial Policy of 1948 of India

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2.5 ISSUES AND CHALLENGES OF INDUSTRIEALIZATION

In their attempts to accelerate the pace of industrialization, developing countries in particular are facing a lot of challenges which are as follows:

i) The first and foremost challenges which the industrialists and particularly the SMEs (Small and Medium Entrepreneurs) are facing are the access to adequate institutional finance. Finance is the lifeblood of industrial development, as formulation of industrial establishment requires big financial investments. Many SMEs are incapable to fulfill the collaterals required by the private banking institutions. Capital crunch is a fundamental problem of industrialization particularly for the individual and tiny and small entrepreneur.

ii) Simple, honest and non-politicized bureaucracy is an important requirement of industrialization. Red-tappism in the movement of files and unnecessary harassments cause a lot of frustration among the budding entrepreneurs. Speedy disposal of licenses and other bureaucratic hassles will entice more and more single and joint venture entrepreneurs to go for establishment of industries. The role of proactive bureaucracy was an important factor for industrialization in Japan and South Korea. Formulation of industrial policy is alright but putting it into practice is an arduous task. Most of the developing nations in Asia, Africa and Latin America fail in this respect.

Table 3: Competitive Industrial Performance (CIP) Index 2015

Economy	CIP Index	Rank
Germany	0.541	1
Japan	0.406	2
China	0.401	3
USA	0.394	4
Koera, Republic	0.393	5
Switzerland	0.339	6
Belgium	0.288	7
India	0.086	39
Nepal	0.004	129

Source:https://www.unido.org/sites/default/files/files/2017-11/ IDR2018_FULL%20REPORT.pdf(accessed on 26/6/2018)

iii) Creating an appropriate investment climate for industrial development in a country is the biggest issue and challenges for developing countries. The tax rebate and export and important policies are crucial factors in this direction. David (2003) found that a sound investment climate as reflected

in low customs clearance times, reliable infrastructure and good financial services attract foreign forms generally bring superior technology and management and hence raise the average productivity of firms. UNIDO has developed the Competitive Industrial Performance (CIP) index, which assess industrial performance using indicators of an economy's ability to produce and export manufactured goods competitively (UNIDO, 2003).The Table-3 depicts the CIP of selected countries.

iv) One of the greatest challenges of industrialization is its impact on the environment. Industrialization produces adverse impact on environment and also produces negative impact on the health status of the population. Environment supportive industrialization programme is essential for development. The establishment of heavy industries in rural areas has affected the health of rural area population. For example it is observed that the nearby villagers of tobacco plants are being affected with tuberculosis and asthma problems.

v) Clustering of industries as it is being done in China is suitable for other developing countries indenting to promote industrialization. Clustering promotes division of labour and networking among various industries established within the cluster, hence is more cost-effective.

vi) One of the important inputs of industrialization which is largely being neglected by most of the developing nations is investment on research and development. The industrialization is linked with technological development and technology can not be improved without input of R&D. Therefore, increased investment on R&D and inputs received from R&D can push industrialization logically.

vii) Attraction of foreign direct investment is also important for the promotion of industrialization in developing countries. In recent years, countries like China and India are attracting more FDI in industrial sector. The FDI will not only provide financial capital but also skill and management inputs for the establishment of new industries and effective functioning of the existing industries. Many scholars and researchers believe that FDI effects China's economic development positively.

viii) Formulation of appropriate industrial policy is also a challenge before the countries having development planning system. India assigned highest priority to industrial sector during Second Five Year Plan resulting in establishment of big industries in the steel sector. Many African countries are now a day placing adequate emphasis on industrialization in their plan and policy documents.

ix) It is not a flight of fancy, but delicately the establishment of big industries led to displacement of population. Therefore, there is a great deal of resentment by the NGOs, activists and civil society groups against the ruthless industrialization. Therefore, it is a great challenge before the government and development administration to rehabilitate people displaced because of establishment of industry.

2.6 MEASURES TO PROMOTE INDUSTRIALIZAITON

Industry is the king pin of development and industrialization has played a key role in the development of the most of the developed countries of the world since its inception. Industrialization provides impetus to the development of agriculture as well as service sector. Therefore, measures to promote industrialization are very essential for the development of the developing countries. A few important measures to promote industrialization particularly in the developing countries are discussed below.

1) At the outset, a proactive and constructive role of the government is very essential for the development of industrial sector in any country. In the industrialized countries like Japan and South Korea, in the initial stage of industrialization, government has played an important role in the promotion of industry sector in the economy. The government assistance can encourage private industrialists to undertake new projects by reducing the risk they face.

2) The human resources capital is considered as an asset for faster industrialization of any country. That has happened in countries like Japan, South Korea and Singapore. Therefore, countries intending to industrialize have to create good technical institutions and manpower, which can play important role in the industrialization.

3) A well developed financial market is a sine-qua-non for the industrial development of any nation. In South Korea, during initial phase of its industrialization process, government banks gave finance to the private entrepreneur for opening of industries. India also nationalized its commercial bank and opened up industrial promotion specific banks like IDBI (Industrial Development Bank of India) for the proliferation of industries.

4) The formulation of appropriate Export and Import policy is critical to industrial development. The export promotion policy of the East Asian countries like South Korea, Taiwan and Japan are helpful in their industrialization. In recent years also Chinese industrial products are found in the markets of many developing countries. Marketing of industrial product is vital for the sustenance of the industries in general and SMIs (Small and Medium Industries) in particular.

5) For speedy industrialization, countries should focus on infrastructure development such as good road and electricity facilities. In developing countries, it is found that for the operation of industries, in many countries, the government restricts the use of electricity in the household sector and even promotes solar energy for the household sector consumption.

6) The developing countries in order to promote faster industrial development have to formulate and implement strong industrial policy. The industrial policy needs to clearly delineate the role of public and private sector in industrial development. However, a road map for the public-private partnership in industrial development has also to be prepared in the policy

and plan document.

7) Small Scale and Cottage industries hold key to the industrial development of the developing countries. Through the emphasis on small scale and cottage industries, the developing countries can create an army of entrepreneurs for the rural industrial development. A balanced rural and industrial development can take place only when industrialization proceeds in both rural and urban areas equally.

8) The Foreign Direct Investment in industrial sector is critical to industrial development of the developing countries. India during the Second Five Year Plan period took the help of Germany and USSR for the establishment of heavy industries in the steel sector in India. In recent years, it is observed that in many developing countries, the FDI are invested in the urban areas and hardly invested for the industrial development of the rural areas. China and Taiwan have tried to channelize FDIs to rural areas. Therefore, FDI in the rural industrial sector is considered to be the key for balanced industrial development.

9) Research and Development is the key to industrial promotion in any nations. European nations are divesting a lot of resources for the R&D in industrial sector. A gigantic share of R&D is invested by the government and therefore the governments of the developing countries have to promote industrial research, so that new innovations can take place.

These are a few measures among other measures which the developing countries have to initiate for the promotion of industrialization in the developing countries.

In these sessions you read about the key issues and challenges of industrialization as well as measures to promote industrialization and now answer the question given in Check Your Progress-3.

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe two key challenges of industrial development.

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2) Explain two important measures to promote industrialization in developing countries.

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2.7 LET US SUM UP

Industrial sector which is well known as the secondary sector plays an important role in the development of the developed as well as developing countries. The process of industrialization triggered off in Great Britain during mid-seventies, gradually spread across European nations and American and later Asian country of Japan. All other nation states experienced industrialization during nineties. In this unit we have discussed the industrialization in Europe and America as well as in a few Asian countries including India. The challenges before the developing countries are many which have hindered industrialization in them. However, the developing countries can initiate measures to promote industrialization, which would enhance their economic growth and development.

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2.9 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress-1

1) What are the different phases of industrialization in global context?

Answer: The three phases of Industrial Revolution in modern world history, based on various countries and regions went through the following phases:

i) The First Phases (1770s to 1860s) started with Britain and then spread to other countries in Northern and Western Europe and the United States;

ii) The Second Phase (1870s to 1950s) brought in Russia, Japan, Other parts of Eastern and Southern Europe, Australia and New Zealand; and

iii) The Third Phase (1960s to present) brought in the so called Asian Tigers (Hong Kong, Singapore, Taiwan, South Korea) and has seen tentative development in key economic sectors in Turkey, India, Brazil, Chile and Argentina.

2) Industrialization in key to capital formation-Discuss

Answer: Industry is an important source of capital formation. Industry ensures higher income to its employees and higher profits to the industrialists which can promote higher saving and investment leading to higher capital formation. Promotion of manufacturing in private sector will lead to more savings and investment. Private investment in any economy has the advantage of not been associated with corruption and wasteful spending but largely associated with efficient and effective resources use.

Check Your Progress-2

1) Briefly describe the industrialization process of China

Some of the important features of industrialization in China are: (i) In the planned economy of China 'heavy industries' were concentrated in a few location and small and medium scale industries were developed through clustering approach or cluster based industrialization. It is said that China's rapid industrialization "specially cities" Clustering helped in cost-reduction, sharing of technical know how and thereby enhanced productivity and profit margin of the entrepreneurs; (ii) The emphasis on rural industrialization is another important feature of China's industrialization process; (iii)The industrialization laid emphasis on R&D in China. It was believed that industrialization is inextricably linked with technological development and

technology can not be improved without input on R&D; (iv) one of the important features of China's industrial development is role of FDI in manufacturing sector and the manufacturing sector has dominated China's FDI inflow.

2) Write a short note on the Industrial Policy of 1948 of India

1948 Industrial Policy was the first industrial policy formulated by the government of India. The Features of Industrial Policy 1948 are as follows:

a) The industrial policy resolution of 1948 contemplated a mixed economy reserving a sphere for both public and private sector.

c) The industries were divided into four broad categories viz:

- Defence industries and control of atomic energy. The ownership and management of these industries was the exclusive monopoly of the Central Government.
- Coal, Iron and Steel, Ship Building, Telephone and Telegraphs were to be owned by the state.
- Basic industries-Fertilizers electron chemicals, non-ferrous metals woolen textiles, minerals etc. were subject to the regulation of Central Government.
- Remaining industries other than the above mentioned were open to the private sector.

Check Your Progress 3

1) **Briefly describe two key challenges of industrial development.**

Answer: The two important challenges are: (i) access to adequate institutional finance. Many SMIs are incapable to fulfill the collaterals required by the private banking institutions. Capital crunch is a fundamental problem of industrialization; and (ii) simple, non-corrupt and non-politicized bureaucracy is an important requirement of industrialization. Speedy disposal of licenses and other bureaucratic hassles will entice more and more single and joint venture entrepreneurs to go for establishment of industries. The role of proactive bureaucracy was an important factor for industrialization in Japan and South Korea.

2) Explain two important measures to promote industrialization in developing countries.

Answer: The two important measures, the developing countries have to take for strengthening industrialization are: (i) a well developed financial market is a sine-qua-non for the industrial development of any nation. In South Korea during initial phase of its industrialization process, government banks gave finance to the private entrepreneur for opening of industries. India also nationalized its commercial bank and opened up industrial promotion specific banks like IDBI (Industrial Development Bank of India) for the

proliferation of industries; and (ii) secondly, the formulation of appropriate Export and Import policy is critical to industrial development. The export promotion policy of the East Asian countries like South Korea, Taiwan and Japan are helpful in their industrialization. In recent years also Chinese industrial products are found in the markets of many developing countries. Marketing of industrial product is vital for the sustenance of the industries in general and SMIs (Small and Medium Industries) in particular.

UNIT 3 SERVICE

Structure

3.1 Introduction

3.2 Meaning and Role of Service Sector in Development

3.3 Types of Service Sector

3.4 Issues and Challenges of Service Sector

3.5 Service Sector in India: Types and Challenges

3.6 Measures to Promote Service Sector

3.7 Let Us Sum Up

3.8 References and Selected Readings

3.9 Check Your Progress-Possible Answers

3.1 INTRODUCTION

Any economy is conventionally classified in to three sectors i.e. agriculture: comprising farming, forestry, animal husbandry and fisheries; the industry sector: consisting of mining, construction and manufacturing and all other activities excepts these two are included in the service sector, generally include services provided for the promotion of agricultural and allied sector activities i.e. supply of water, electricity and gas, transport and communications, wholesale and retail trade, finance and insurance, business and personal services, and community and social services. Customarily, the list in the service sector is so long that it is difficult to list out them easily. As it is remarked that compared to agriculture and manufacturing sector, the service sector occupies a diminishing place not only in public imagination but also in economic research. In this unit you will be able to learn about the service sector. After reading this unit, you will be able to:

i) Describe the role of service sector in development.

ii) Explain different types of service sectors and their role in development.

iii) Discuss the various challenges the service sector facing in developing countries.

3.2 MEANING AND ROLE OF SERVICE SECTOR IN DEVLEOPMENT

3.2.1 Meaning of Service Sector

Service sector is an important component of any country's economy both developed as well as developing. Service sector plays an important role in developing countries after the globalization. Griliches (1992) defines services as anything that is the result of labour that does not produce a tangible commodity. The National Classification of Economic Activities (NCEA) uses the methodology of classification of services defined by International Standard Industrial Classification (ISIC) formulated by the United Nations. It includes four categories

of services: (i) Distinctive service: include the physical distribution of goods, wholesale and retail trade, distribution of people and cargo (transport) and distribution of information (communications); (ii) Non profit services: those are public administration and other organizations such as unions, religious temples, welfare institutions, clubs; (iii) Business Services: consisting of intermediary services to other sectors, which includes financial activities, advisory services, legal, accounting, information technology, and real estate brokerage; and (iv) Customer Services: consists of wide range of social and personal services offered to an individual, mostly to emphasize the quality of life such as health services, education, restaurant, leisure services and other personnel and family (UN, 2008).

3.2.2 Role of Service Sector in Development

In recent year, service sector play an important role in the development of the developed and developing countries. In the developed countries, it contributes significantly to its economic growth, while its contribution to economic growth rate in the developing countries is on rise. Some of the important role service sector plays in economic development of a nation are discussed below:

i) Service sector is an important contributor to GDP both in developed as well as developing countries. Services constitute an increasing percentage of GDP in nearly all developing countries. On an average, the contribution of service sector towards GDP is 50%. The contribution of service sector to the economies of Afghanistan and Bangladesh are 55 and 53 percent respectively. However, in the developed countries it is more than 70 percent. In the USA, it is 79.6 percent, while in Japan it is 71.6 percent.

Table 1: Contribution of Service Sector to GDP in Selected Countries

Countries	Contribution of Service Sector to GDP2015
Afghanistan	55
Bangladesh	53
China	43.1
Germany	70.6
India	56.4
Japan	71.6
USA	79.6

Source: *https://en.wikipedia.org/wiki/List_of_countries_by_GDP_sector_composition(accessed on 12/2/2018)*

ii) Service sector is an important source of employment in developed countries like USA and other European countries. The Table 2 shows that the percentage of employment in the services sector to the total employment in the USA is 81, while in the underdeveloped countries of Afghanistan and Bangladesh it is 29 and 40 percent respectively.

Table 2: Employment in Service Sector in Selected Countries

Countries	Service Sector2017
Afghanistan	29
Bangladesh	40
China	49
Germany	71
India	31
Japan	70
USA	81

Source: *https://data.worldbank.org/indicator/SL.SRV.EMPL.ZS(accessed on 12/2/2018)*

The employment in the service sector in the developing countries having mixed economy system is gradually picking up after the globalization. It is one of the leading sectors providing employment with better wage rate in developing countries as compared to agriculture sector.

People employed in the service sector are having higher per capita income than their counter parts employed in the agriculture sector. Certain sectors of the service sectors i.e. IT, banking and financing pay more salaries to their employees as compared to the other sectors such as tourism, hotel industries, education and health. A study on the OECD economies reveals that, relative to the industrial sector, the services sector is characterized by higher earnings, longer average job tenure and higher job satisfaction. The people engaged in service sectors are better financially empowered to afford to quality of life necessities compared to other two sectors. The development of the agriculture and industrial sector also depends on the development of a strong service sector. It is said that development of service sector is a pre-requisite for the development of the agriculture and industrial sectors

iii) The growth of service sector has effected in reduction of poverty and inequalities in the developed as well as developing economies and more particularly in developing economies. The services sector employment in many sub-sectors is featured with knowledge, skill and practices. Therefore, people employed in the service sector usually get more salaries compared to their counterpart. Service sector directly or indirectly promotes the efficiency and effectiveness of education and health sector. The higher education system becomes more skill and practical oriented with the growth of service sector. Demand for engineering and management programme and mushrooming growth of institutions imparting engineering and management education in the private sector for example in India is an outcome of this.

iv) Service sector promotes sustainable development of an economy. The service sector helps to promote the efficiency of both agriculture and manufacturing sector through value additions. The value addition to these two sectors i.e. primary and secondary sector through service sector will help to promote sustainable economic development of an economy. The aim of sustainable development is to make the economy self-sustainable without depending much on the others. The immense contribution of service sector towards

economic growth and development in the developed economies of America and Europe foretells the role of service sector in sustainable development.

v) One of the important advantages of services sector is that it promotes public private partnership in development. The important sectors which have attracted a lot of investment in public private partnership are education and health. The governments of the third world countries have assigned adequate emphasis on public private partnership in these two sectors. A lot of financial institutions such as banking and insurance in the service sector in recent years found to be left to the private sector.

vi) Growth of service sector helps an economy to overcome balance of payment problem. The export of products relating to service sectors gives earning to the exporting nations and thus reduces their balance of payment deficits if any. The export of IT related services has improved the balance of payment position of many European and Asian nations. The export of India's service trade has increased astoundingly from a meager 11.7 billion dollar during 1998 to 102.9 billion dollar during 2008. This veritably explains the rising contribution of service sector to international trade and balance of payment.

vii) Service sector lead to urbanization. It is seen that growth and proliferation of service sector has lead to expansion of urban areas and number of cities in developing countries is increasing.

viii) It is one of the vital contributors to social sector development both in rural and urban areas. The two sub-sectors of the service sector such as education and health play important role in the social development of the nation. These two sub-sectors in the service sector are also creating a lot of opportunities at the grassroots level in the developing countries. With the liberalization, the education and health sector is proliferating in the urban areas by the private and corporate actors.

3.3 TYPES OF SERVICE SECTOR

The list of sub-sectors in the services sector is large as compared to the other two sectors such as agriculture and industry. However, it is important to analyze a few important service sector and their role in development. A few important service sectors are:

a) Education

b) Health Care Service

c) Tourism Service

d) Financial Sector

e) The ICT sector

3.3.1 Education

Education is a potentially important determinant of access to employment because it converts individuals into a different kind of 'labour'. It is the most important service sector amongst all the sectors. Its product is investment in human capital. The effects of formal schooling on income endure throughout the lifetime of an educated individual. Education's utility enhances outside the labour market, such

as parenting and the enjoyment of leisure time. It is needless to mention that the crucial role of education fostering economic growth, personal and social development, as well as reducing inequality is well recognized. It provides employment to large number of people in educational institutions existing both in public and private sector across different countries in the world. Indirectly, the various types of general and technical education offered through education sector also opened up opportunity in various other sectors.

The Education services are basically divided into four categories:

i) Primary Education Services

ii) Secondary Education Services

iii) Higher (Tertiary) Education Services

iv) Adult Education and Extension.

Through education, populations are well equipped to contribute to and participate in the process of social and economic development. The education/employment link has resulted in numerous governmental initiatives aimed at promoting human capital development. The developed nations spend approximately 5.0 percent of GNP on education, while in developing nations it is around 4.0 percent.

3.3.2 Health Care Services

ODI (Oversees Development Institute) has noted that an efficient and equitable health services sector is not only a development objective *per se*, but it is also a fundamental driver of growth and poverty reduction at the macro and micro level. Although the primary health care service which provides basic health care services relating to common illness, preventive and promotive health care services to women and children at the grassroots level are offered by the government, yet the secondary and tertiary health care services are largely open to the private sector in developed as well as developing countries. The health care service provides employment to the paramedical and medical personnel and enables many families to come out of poverty. Health also directly and indirectly enhances productivity of a nation, as healthy individual can work more number of hours compared to their counterparts who are morbid and diseased. Inter and intra country migration of nursing and health personnel not only enhances individual income but also enables the immigrating nation states to gain from migration. Developing countries like India, China, Brazil and South Africa are increasingly important players in the international health services markets. Filipino nurses constitute 76% of foreign nurse graduates in the United States. In India, nurse from Kerala are found in almost all other states and in the private and corporate sector nursing homes and hospitals across the nation. The migration and export of health personnel is an important source of foreign earnings for the out-migrating nations/states. Regulation of health services can play an important role for a country's development by affecting the efficiency and equity of the domestic health system as well as the economy directly.

The Public Private partnership in health care and implementing government health care projects through NGOs has created a lot of employment opportunities in health sector. Besides, international NGOs and bilateral and multi-lateral organizations are also implementing a lot of health projects in health service sector. The growth of health sector also can accelerate the job opportunities in

informal and self employment sector. The rise of business in supplying requirements for health care institutions and opening up hotels, small shops in and around the big hospitals are examples. The liberalization of health care system can enhance the capabilities of the developing countries in the health sector which will enable them to earn more income from the health sector.

3.3.3 Tourism Services

Tourism is one of the leading service sectors in the developing countries. Tourism and travel-related service customarily includes services provided by hotels and restaurants, travel agents, and tour operator services, tourist guides services and other related services. It is also recognized that tourism is the biggest export service sector in many low-income developing countries (ODI, 2008). World Tourism Organization member countries put emphasis on tourism, especially in terms of its contribution to employment and generating foreign exchange. According to UN World Tourism Organization tourism receipts have more than doubled in the past 15 years, to 700 billion US dollar and tourist arrivals nearby doubled to 800 million in 2005. The World Tourism and Travel Council (WTTC) found that tourism contributes 15 percent to GDP and 16 per cent to employment in the Caribbean region. Tourism sector employees semi-skilled and casual workers, small and medium size enterprises and gives immerge employment opportunities to women thus influencing the household per capita income to a great extent. Eco-tourism and rural tourism in recent years created job opportunities in the semi-urban and rural areas. Considering its contribution the tourism services needs to be strengthened in developing countries.

3.3.4 Financial Sector Services

Financial sector is a leading service sector in any economy. ODI (2008) said access to financial services contributes to poverty reduction, enabling poor households to strengthen their livelihoods, i.e. by investing in micro-enterprises, and to better manage the risks they face. Opening up financial sector to trade can improve a country's financial health and balance of payment position. In recent years opening of the financial sector to international market has resulted in opening up foreign bank branches in many part of the developing countries. Informal financial market in India has provided self-employment opportunities to petty entrepreneur in India. The Garmin Bank in Bangladesh is an illustrious example of role financial sector has played in the women economic empowerment. The financial liberalization would open up many investment opportunities in the developing countries. The opening of banking and insurance sector to external players will not only leverage investment opportunities but also create job opportunities for skilled, semi-skilled and low-skilled individuals.

3.3.5 ICT Services

One of the important service sectors in the globalized era is the Information and communication Technology (ICT) sector. A few developing countries particularly India is getting rich dividend from the proliferation of ICT sector. Evidence suggests that a well developed ICT sector contributes to faster growth, better economic performance at the firm level and improved household welfare because if helps actors to engage in activities more efficiently (ODI, 2008). ICT hold tremendous promise as an enabler of social and economic development. ICT are increasingly being used to deliver health case services in the developing world,

especially to patients in remote areas where the health care services are neither available nor accessible. As far as education nor accessible. As far as education sector is concerned, ICTs are increasingly being used as tool to supplement and complement the curricula and teaching learning pedagogy and has opened new opportunities for skill training. Besides, ICT is being used for enhancement of efficiency of the industrial sector and for the protection of environment and sustainable development.

In these sessions you read about the role of various services sector in development, now answer the question given in Check Your Progress-1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe meaning and various subsectors of service sector.

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2) Narrate two important role of service sector.

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3.4 ISSUES AND CHALLENGES OF SERVICES SECTOR

A few important issues and challenges, the service sector confronting are discussed below:

i) Infrastructure is vital to the proliferation of service sector. The infrastructure like electricity, telecommunication net work, and other basic utilities are required to be available by the government both for public and private sector in order to enhance contribution of service sector to economic growth. Marketing complexes, go-downs, and similar other infrastructure are required to be constructed for enhancing the effectiveness of service sector in an economy.

ii) The effective operation of service sector requires skilled manpower. Therefore, in recent year demand for management and IT professional is on the rise because of the rise in service sector in the economy. In the developed countries, service sector provides employment to more than 75% of the

total employment in their economies. The developing countries are required to generate skilled manpower for the proliferation of service sector in their economies. To produce required amount of skilled manpower for the effective proliferation of the service sector is a challenge before the developing economies.

iii) Tax administration, governance and corruption are challenges to services sector. A simple taxation system with minimum hassle will entice the entrepreneurs to venture into service sector activities. The corruption in the developing countries is the main hurdle in the path of growth of service sector. Good governance is necessary pre-requisite and bad governance a challenge for service sector.

iv) Low wages and less employment are features of services sector in the developing economies. Despite its enhanced contribution to GDP, the rate of employment in the service sector particularly in developing countries has not been substantially enhanced as it is happening in developed countries of North America and Europe. Another woe of service sector in developing countries is low wage rate for people employed in the service sector. The low wage rate particularly in the service sector operating in urban areas is affecting the quality of life of people engaged in service sector.

v) Formation of appropriate regulatory mechanism is also a challenge before the government of developing countries. Urban management is a big problem. The functioning of local self-government institutions and effective implementation of urban development programmes are also a big challenge for effective administration of urban development projects and programmes.

vi) One of the important challenges before the service sector is the measurement of the performance of service sector. Unlike the two other sectors like agriculture and industry, it is very difficult to measure service sector output. Therefore, the performance of service sector in the economic development progress is scantly known to the lay man.

3.5 SERVICE SECTOR IN INDIA: TYPES AND CHALLENGES

After globalization service sector in India occupies an important place in India economy. At present, it is the fastest growing sector in India, contributing significantly to GDP, GDP growth, employment, trade and investment. Labour productive of services sector in India is the higher and has increased over the period of time. According to a UNCTAD statistics, service sector has facilitated India's integration with the world economy and market through trade and investment. The services sector in India has grown from less than $10 billion to over $90 billion by 2009. India's share in global services export has risen from a meagre 0.5 per cent in 1995 to over 2% in 2009. The National Income Accounting in India has included following areas into service sector.

1. Trade, Hotels and Restaurants (THR)

   1.1 Trade

   1.2 Hotels and Restaurants

2. Transport, Storage and Communication
   - 2.1 Railways
   - 2.2 Transport by other means
   - 2.3 Storage
   - 2.4 Communication
3. Financing, Insurance, Real Estate and Business Service
   - 3.1 Banking and Insurance
   - 3.2 Real Estate, Ownership of Dwellings and Business Services
4. Community, Social and Personal Services
   - 4.1 Public Administration and Defence (PA&D)
   - 4.2 Other Services

The share of services sector to GDP in India during the period 2000-01 to 2009-10 is 53.7 percent, compared to it, the contribution of agriculture and industry sector are 21.8 and 24.5 percent respectively.

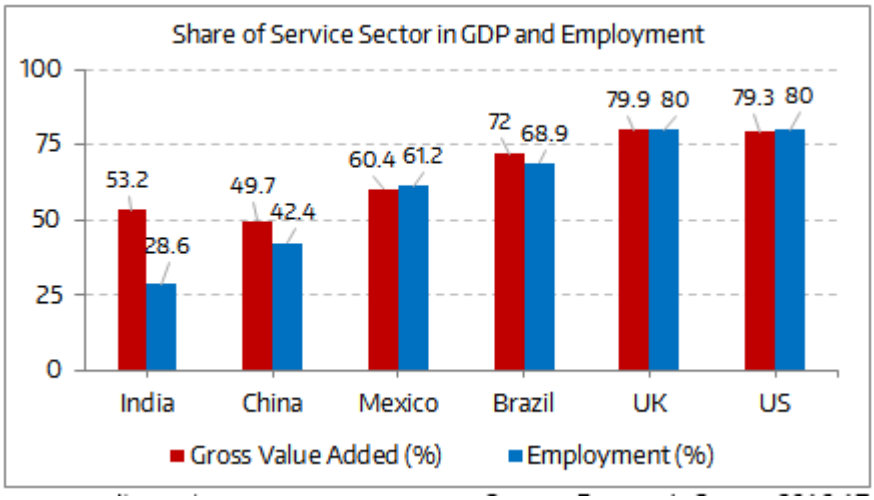
Table 3: Share and Growth of India's Services Sector (at factor cost)

	2000-01	2011-12*	2012-13*	2013-14"
Trade, hotels & restaurants	14.5(5.2)	17.4(1.2)	17.2(4.5	24.0 (3.0)*
Trade	13.2 (5.0)	15.9(1.0)	15.8(4.8	-
Hotels & Restaurants	1.3 (7.0)	1.5 (3.8)	1.4 (0.5)	-
Transport, storage & communication	7.6 (9.2)	7.3 (9.4)	7.5 (6.0)	-
Railways	1.1 (4.1)	0.7 (7.5)	0.8 (0.3)	-
Transport by other means	5.0 (7.7)	5.4 (8.6)	5.6 (6.6)	-
Storage	0.1 (6.1)	0.1 (2.9)	0.1 (8.6)	-
Communication	1.5 (25.0)	1.1 (11.2)	1.1 (6.5)	-
Financing, insurance, real estate, & business services	14.1 (3.5)	16.5 (11.3)	17.2 (10.9)	18.5 (12.9)
Banking & Insurance	5.4 (-2.4)	5.7 (12.9)	5.9 (11.8)	-
Real estate, ownership of dwellings & business services	8.7 (7.5)	10.7 (9.9)	11.4 (10.0)	-
Community, social & personal services	4.7 (4.6)	13.8 (4.9)	14.3 (5.3)	14.5 (5.6)
Public administration & defence	6.5 (1.9)	5.9 (4.2)	6.0 (3.4)	-
Other services	8.2 (7.0)	7.8 (5.4)	8.2 (6.8)	-
Construction	6.0 (6.1)	8.2 (10.8)	8.1 (1.1)	7.8 (1.6)
Total services	51.0 (5.1)	54.9 (6.6)	56.3 (7.0)	57.0 (6.8)
Total services (Including construction)	57.0 (5.2)	63.1 (7.1)	64.4 (6.2)	64.8 (6.2)
Total GDP	100.0 (4.1)	1000.0 (6.7)	100.0 (4.5)	100.0 (4.7)

Source: *Central Statistics Office (CSO)*

Notes: Shares are in current prices and growth in constant prices; Figures in parentheses indicate growth rate* first revised estimates, @second revised estimates, ** provisional estimate; # includes the combined share and growth of trade, hotels & restaurants and transport, storage & communication for 2013-14.

It is an irony that in comparison to growth of service sector, employment in the service sector has not been enhanced adequately. The Indian Economic Surve-2019-17 shows that employment in the service sector is 28.6 percent compared to 53.2 percent to GDP, while in the USA the contribution to GDP and employment are 79.3 and 80 percent respectively.



Source: *https://www.equitymaster.com/5minWrapUp/charts/index.asp?date=08/14/2017&story=1&title=Indias-Services-Sector-Growth-Not-in-Line-with-Employment-Growth (accessed on 7/3/2018).*

Some of the challenges which service sector is facing in India are narrated below:

1) At the outset, it is observed that there is no concrete policy on service sector, while there is policies agriculture and industrial sector. There is no nodal ministry to look after the service sector. Moreover, service sector deals with several ministries both at the centre and state level with conflicting interest. Multiplicity of regulatory bodies creates multiplicity of regulations and multiple clearances requirements.

2) There is no systematic collection, collation and analysis of data in service sector performance appraisal. In India, data on services is collected and collated by multiple agencies. Data should be collected on a yearly basis for understanding the trends and there should be a centralized system of data collection and collation. Available of proper data will enable the policy makers to take appropriate step for the promotion of services sector.

3) Attraction in service sector investment through FDI in India encounters several restrictions. India is considered more restrictive than Korea in terms of indicators such as equity restrictions, on foreigners, screening of foreign applicants, hiring of key personnel and operational conditions imposed on foreigners. According to Organization for Economies Cooperation and Development (OECD) FDI Restrictive Index, 2010, India is considered more restrictive that Korea but less than China and Japan.

4) The high corporate tax in India adversely affects the service sector. The corporate tax in India is 30-40% compared to around 17 percent in Singapore and up to 25 percent in China. India needs a radical tax reform which should also consider the charges in corporate tax which will motivate corporate sector to invest more and more in service sector.

5) The investment and availability of infrastructure facility is also poor as compared to other countries. The provision of infrastructure facilities like transport, ports and power in India by the government is low and needs to be improved in order to entice corporate houses to investment in service sector. It will also attract more and more FDIs. Lack of adequate infrastructure causes delay in project implementations.

6) It is seen that services sector in India works in isolation without adequate backing of primary and secondary sector. Therefore, in order to strengthen service sector coordination between these three sectors i.e. primary sector, secondary sector and service sector is essential.

7) There is lack of adequate research and development in service sector. In India, R & D expenditure is low, both in terms of its proportion to GDP and in comparison to rest of the world. India ranks below China and Brazil in terms of capacity for innovation. The India government needs to promote investment in R&D not only by government but also with the help of private and corporate sector.

8) The contribution of service sector to the total export of the country need to be enhanced. It is remarked that although India is portrayed as a major exporter of services, its rank among WTO member countries in services exports is lower than that of China's and its export competitiveness concentrate in few sectors and a few markets.

3.6 MEASURES TO PROMOTE SERVICE SECTOR

The contribution of service sector to GDP and employment is quite high in developed countries as compared to the developing countries. In many developing countries although the contribution of service sector to the GDP is increasing, yet its contribution to employment is not proportionately rising. Some of the measures to be taken for the promotion of service sector particularly in the developing countries are as follows:

i) The developing countries have to attract FDI in the service sector, so that its contribution not only in terms of GDP but also in terms of total employment will increase. The developing countries should have liberal FDI policy in service sector.

ii) The investment of the private and personal sector in the service sector activities has to be promoted. The private sector investment in service sector activities like banking, insurances, health, education, IT have to be given boost in the developing countries.

iii) The countries need to have integrated development corridor where all the sector such as agriculture, industry and service sector have to interface each other. Special service sector corridor will go a long way to promote service sector in the developing countries.

iv) Developing countries have to promote SMEs so that it will create external economies for the service sector activities.

v) The developing countries need to make appropriate ramifications in their education policy by giving more importance to skill education. As the service

sector is mostly skill oriented therefore the education system in the developing countries has to be tuned accordingly.

vi) Last but not the least developing countries need to have a Service Sector Policy which will give road map for the development of the service sector in the country.

In this session you read about the characteristics and challenges of service sector in India and now answer the questions given below in Check Your Progress-2

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe two important challenges of service sector.

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2) Narrate the role of service sector to India's economic development.

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3.7 LET US SUM UP

Service sector is an important component of any country's economy both developed as well as developing. Service sector plays an important role in developing countries after the globalization. However, the jobless growth of service sector in the developing countries in general and in India particular is a major challenge. However, many countries have not developed specific policy for the service sector although there are policies for the agriculture and industrial sector. Service sector contribute nearly and even more than one third to GDP in the developed countries and its contribution in the developing countries is increasing day by day. Therefore, the contribution of service sector to development is essential for overall development of the economy.

3.8 REFERENCES AND SUGGESTED READINGS

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3.9 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress-1

1) Briefly describe meaning of service sector and various subsectors of service sector.

Answer: Service sector plays an important role in developing countries after the globalization. Griliches (1992) defines services as anything that is the result of labour that does not produce a tangible commodity. The various sub-sector of the service sector are education, health tourism, banking, insurance, etc.

2) Narrate two important roles of service sector.

Answer: Service sector is an important contributor of GDP both in developed as well as developing countries. On an average, the contribution of service sector towards GDP is 50%. People employed in the service sector are having higher per capita income than their counter parts employed in the agriculture sector. Certain sectors of the service sectors i.e. IT, banking and financing pay more salaries to their employees as compared to the other sectors such as tourism, hotel industries, education and health.

Check Your Progress-2

1) Briefly describe two important challenges of service sector.

Answer: The infrastructure like electricity, telecommunication net work, and other basic utilities are required to be available by the government both for public and private sector in order to enhance contribution of service sector to economic growth. Besides infrastructure, availability of skilled manpower is also another important issue and challenge of service sector.

2) Narrate the role of service sector to India's economic development.

Answer: The share of services sector to GDP in India during the period 2000-01 to 2009-10 is 53.7 percent, compared to it, the contribution of agriculture and industry sector are 21.8 and 24.5 percent respectively. However, as compared to the role the service sector plays in the economic growth rate of the country, it has not been effective enough to accelerate employment in the service sector.

UNIT 4 INFRASTRUCTURE

Structure

4.1 Introduction

4.2 Meaning and Need for Infrastructure Development and Management

4.3 Exigencies of Infrastructure Development and Management

4.4 The Characteristics of Infrastructure Development and Management

4.5 How to Measure Infrastructure Development and Management

4.6 Some Important Sub- sectors of Infrastructure Development – An Indian Perspective

4.7 Perspective of Rural and Urban Infrastructure Development in India

4.8 Let Us Sum Up

4.9 References and Selected Readings

4.10 Check Your Progress- Possible Answers

4.1 INTRODUCTION

Infrastructure is a key factor in driving a country's growth and development. Infrastructure development can also help in narrowing development gaps between developed and lagging regions. Infrastructure, especially transport and communication, is crucial for regional cooperation and integration. In the absence of efficient physical connectivity, any initiatives taken towards regional trade liberalization will remain ineffective. The role of infrastructure in fostering economic development and integration has been supported by empirical literature. A number of studies have highlighted the importance of physical infrastructure as a determinant of economic growth. There are many categories of infrastructure such as transportation infrastructure which includes road networks, ports, and airports; and communication infrastructure covers telecommunication networks. Information infrastructure and energy availability are two other such categories etc..

After studying this unit, you should be able to:

- discuss the meaning and characteristics of infrastructure, and the factors affecting Infrastructural development
- discuss the rural and urban infrastructure strategies
- discuss the infrastructural development in different sub-sectors such as road, housing, sanitation, drinking water, and energy.

4.2 MEANING AND NEED FOR INFRSTRUCTURE DEVELOPMENT AND MANAGEMENT

4.2.1 Infrastructure- Meaning and History

Infrastructure can be defined as the basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function. The term typically refers to the technical

structures that support a society, such as roads, water supply, sewers, power grids, telecommunications, and so on. Viewed functionally, infrastructure facilitates the production of goods and services; for example, roads enable the transport of raw materials to a factory, and also for the distribution of finished products to markets. In some contexts, the term may also include basic social services such as schools and hospitals.

Infrastructure – What it means?

Infrastructure is often confused with the following overlapping or related concepts- Land improvement and land development. The terms land improvement and land development are a general terms that in some contexts may include infrastructure, but in the context of a discussion of infrastructure would refer only to smaller scale systems or works that are not included in infrastructure because they are typically limited to a single parcel of land, and are owned and operated by the land owner. For example, an irrigation canal that serves a region or district would be included with infrastructure, but the private irrigation systems on individual land parcels would be considered land improvements, not infrastructure. Service connections to municipal service and public utility networks would also be considered land improvements, not infrastructure.

The word infrastructure has been used in English since at least 1927 and meant: *The installations that form the basis for any operation or system*. Other sources, such as the Oxford English Dictionary, trace the word's origins to earlier usage, originally applied in a military sense. The word was imported from French, where it means *sub grade*, the native material underneath a constructed pavement or railway. The word is a combination of the Latin prefix *infra* meaning *below*, and *structure*. The military sense of the word was probably first used in France, and imported into English around the time of the First World War. The military use of the term achieved currency in the United States after the formation of the North Atlantic Treaty Organization (NATO) in the 1940s, and was then adopted by urban planners in its modern civilian sense by 1970.

The term came to prominence in the United States in the 1980s following the publication of *America in Ruins* (Choate and Walter, 1981), which initiated a public policy discussion of the nation's 'infrastructure crisis', purported to be caused by decades of inadequate investment and poor maintenance of public works. That public policy discussion was hampered by lack of a precise definition for infrastructure. A U.S. National Research Council panel sought to clarify the situation by adopting the term 'public works infrastructure', referring to: "...both specific functional modes - highways, streets, roads, and bridges; mass transit; airports and airways; water supply and water resources; wastewater management; solid-waste treatment and disposal; electric power generation and transmission; telecommunications; and hazardous waste management - and the combined system these modal elements comprise. A comprehension of infrastructure spans not only these public works facilities, but also covers the operating procedures, management practices, and development policies that interact together with societal demand and the physical world to facilitate the transport of people and goods, provision of water for drinking and a variety of other uses, safe disposal of society's waste products, provision of energy where it is needed, and transmission of information within and between communities." In subsequent years, the word has grown in popularity and been applied with increasing

generality to suggest the internal framework discernible in any technology system or business organization.

4.2.2 Need for Infrastructure Development and Management

The importance of infrastructure for sustained economic development is well recognized. High transactions costs arising from inadequate and inefficient infrastructure can prevent the economy from realizing its full growth potential, regardless of the progress on other fronts. Physical infrastructure covering transportation, power, and communication, through its backward and forward linkages, facilitates growth; social infrastructure including water supply, sanitation, sewage disposal, education and health, which are in the nature of primary services, has a direct impact on the quality of life. The visible signs of shortfalls in capacity and inefficiencies include increasingly congested roads, power failures, long waiting lists for installation of telephones, and shortages of drinking water illustrate the widening gap between demand and supply of infrastructure, and raise questions concerning the sustainability of economic growth in future.

The efficacy of private sector participation in infrastructure development would be contingent upon the capability to commercialize these projects whereby recovery of investments would be through a system of user charges. There is a potential for public private partnerships (PPPs) to contribute more and to help bridge the infrastructure gap in India. There has been considerable progress in the last ten years in attracting private investment into the infrastructure sectors; first in telecommunications, then in ports and roads, and in individual projects in other sectors. With the current GDP growth of 8 per cent, in which there is contribution of nearly 51 per cent from services, and 16 per cent from manufacturing sector, there is a need for proper alignment of resources. To sustain this growth, India needs to develop sound infrastructure so that the right input of a) skilled, qualified, and socially contented labour; b) visible and reliable supply chains; c) prompt and accurate information for decision making; and d) efficient process and updated technology can be given to the operations of manufacturing and services.

The need to provide world class infrastructure that keeps pace with 8 per cent economic growth is clear. City roads are choked with traffic, power cuts are a fact of life and passengers are routinely delayed as booming air travel tests airport capacity. The demand for infrastructural services has increased rapidly after industrial liberalization of the Indian economy. Unfortunately, infrastructural bottlenecks remain the biggest stumbling block of industrial progress in the country. By their very nature, infrastructure projects involve huge initial investments, long gestation periods and high risk. The resulting bottlenecks are beginning to pose serious impediments to enhancing productivity. Urban infrastructure includes water supply and sanitation which are important basic needs for improvement in the quality of life and enhancement of the productive efficiency of citizens. There has been a steady increase in the urban population on account of rapid industrialization, natural growth, and migration from rural areas. This has prompted the working out of alternative ways of meeting the increasing demand for transport given the constraints of land and capital, and the need to control energy consumption, pollution, and accidents. An input – output model of infrastructure is given below.

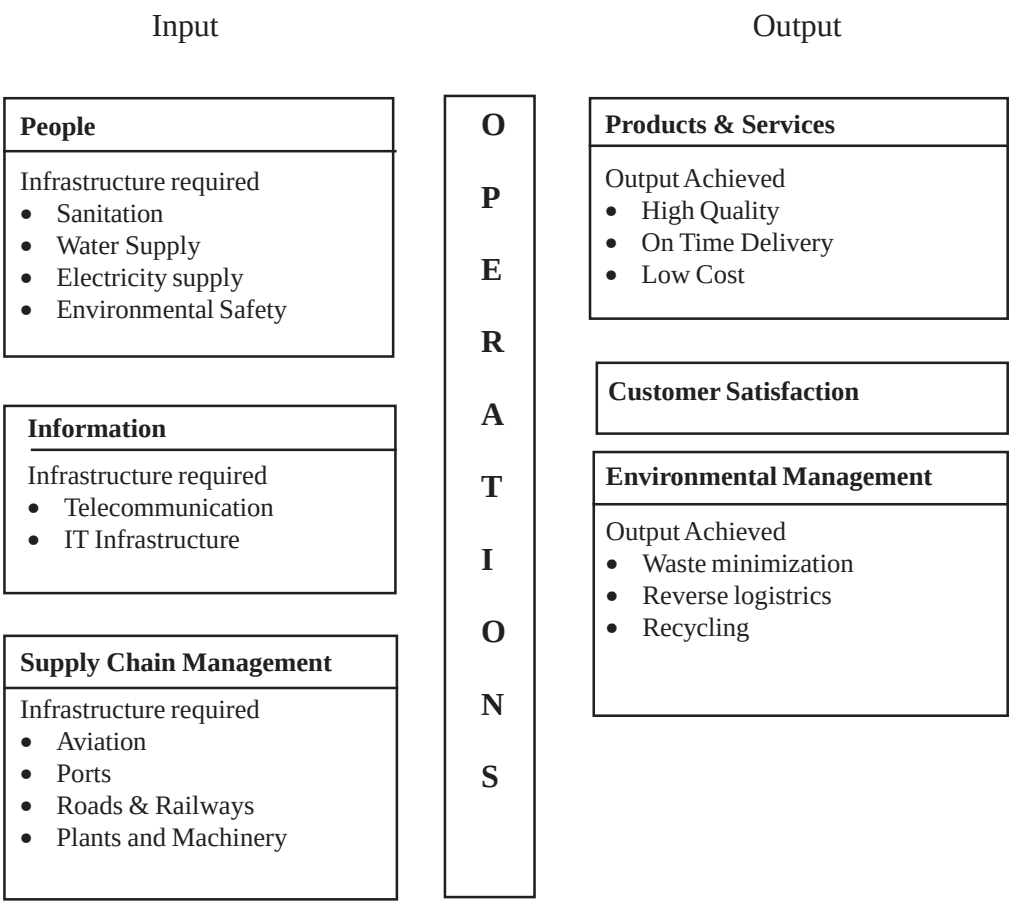

Figure 4.1.: Influence of various infrastructural factors on the operations of an organization, or a project.

Infrastructural development in a country helps to run the operations of any company efficiently and effectively. Since cost is a reality and price is a possibility, and, due to high competition, price is decided by the market forces, the cost control is imperative and within the scope of a company. Lowering costs can be achieved through better managed operations, backed by sophisticated infrastructure. Nowadays, the nature of operations management in India is changing. Customer demands for better services, growing dominance of technology, the view of the individual enterprise as just one component of the total value system, the increase in interconnectedness and globalization of business and economics, and the widening range of stakeholders to be satisfied are all factors contributing to the substantial operational challenges. There are many issues that the infrastructure or construction industry must take care of. One is correlating the project cost estimates with actual costs incurred. From our experience we have seen that the average cost of a project goes up by 30 per cent compared to the budgeted cost. If the project size is huge, an increase of 30 per cent means an additional burden of several crores of rupees to complete it. Monitoring and controlling costs of projects is a key concern due to their geographical spread as well as temporary or mobile offices. Centralized purchasing becomes difficult in such situation, resulting in the loss of volume discounts and a higher landing cost of materials. Subsequently, it becomes difficult to check the inventory and account for materials used.

Ideally, inventory levels need to be checked so that the budgeted project cost is constantly and automatically updated. In this way, at any phase of the project, an

estimate of the cost, per cost site, can be drawn up and compared to the current cost. The time for project execution is shrinking. Infrastructural projects have high upfront costs and long payback periods; there are real cost savings to be gained by executing projects rapidly - even a small overrun can mean the loss of crores of rupees. These gigantic projects require micro-monitoring of small individual projects across multiple locations, and this is done with the help of operations management. The availability of adequate, efficient and affordable infrastructural facilities both economic and social constitutes the core of development strategy and efforts. In the absence of infrastructure services, enterprises are forced to seek higher cost alternatives which impact profits and production levels adversely. In India, the demand for infrastructural services has increased rapidly since the industrial liberalization of the economy. Unfortunately, infrastructural bottlenecks remain the biggest stumbling block of industrial progress in the country. By their very nature, infrastructure projects involve huge initial investments, long gestation periods, and high risk.

In this session you read about meaning and need for infrastructure in development. Now answer the questions given in Check Your Progress-1

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe what do you mean by infrastructure?

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2) Why infrastructure is important for development?

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4.3 EXIGENCIES OF INFRASTRUCTURE DEVELOPMENT AND MANAGEMENT

The style of urban infrastructure provision that encourages more efficient patterns of resource consumption is the basis for the development of sustainable cities. The conventional approach to urban infrastructure management was based on the premise of facilitating infrastructure supply. The increased awareness of environmental issues and sustainability, coupled with a need to make our cities worth living, demand interventions in the provisions and management of urban

infrastructure that are being advocated. Demand side interventions broadly has two aspects –managing the existing demand, and channelling or monitoring the ever increasing demand. The increase in existing demand is correlated with the consumption pattern. The notion of modern consumerism has been deeply embedded in the present socio-cultural set up. In today's society, consumption can be seen as a set of social and cultural practices that serve as a way of establishing differences. This changing attitudinal behaviour mounts pressure on the existing infrastructural system and subsequently calls for sustainable management.

Hence, the management of existing demand requires network operators to understand the consumers and to develop more intimate relationships with them in order to modify the demand on the stressed parts of their network. On the other hand, channelling or monitoring of ever increasing demand covers the issues of regional planning, i.e., micro, as well as macro, planning, covering the intricacies of rural-urban interactions. The present section, however, encapsulates the demand side intervention in the planning process (both, micro and macro), with a critical analysis of the existing Indian planning approach to the urban infrastructure system, and, finally, suggests an alternate planning philosophy to the ongoing chaos.

4.4 THE CHARACTERISTICS OF INFRASTRUCTURE DEVELOPMENT AND MANAGEMENT

Broadly, following are the characteristics of infrastructure development and management.

4.4.1 Natural Monopoly Character of Infrastructure

The most general economic characteristic of modern infrastructure is the supply of services through a networked delivery system designed to serve a multitude of users. This is especially true for piped water, electric power, telecommunications, sewerage, and rail services. Many infrastructure facilities are characterised by declining costs, leading to what is known as a natural monopoly situation. It is important to remember that natural monopoly arises out of technological factors and not due to policy.

It may also be pointed out that the services of infrastructure will be non-tradable. To give an example: should there be insufficient demand for electricity in place A, its supply may be diverted to place B; however, one will not be able to do that for the transmission system that brings electricity to place A. Hence the transmission system is non-tradable even though electric power itself may be tradable.

4.4.2 Public Goods Character of Infrastructure

The demand for infrastructure services arises from both industry and individuals. However, since it is not possible to create infrastructure facilities in an incremental fashion – investments are lumpy – such facilities have to be built complete for a particular size. Hence, in the initial stage supply will be greater than the demand for such facilities while the reverse may occur over a period of time. This

characteristic of infrastructure services, generally, that supply is greater than demand, indicates that consumption of its services is non-rival. Such non-rivalness is a characteristic of public goods. The characteristic of non-rivalness implies zero marginal cost of providing benefits of a public good (infrastructure in this case) to an additional consumer. In this sense infrastructure creates external benefits or positive externalities. However, infrastructure services have one characteristic that is absent in the case of pure public goods namely, price exclusion, whereby the enjoyment of benefits is contingent on payment of charges.

4.4.3 Representation of Infrastructure in National Accounts

From the national accounts point of view, infrastructure would form part of the capital stock of the nation. However, in the year it is created the infrastructure facility would be part of production for that accounting period. Where the production spills over numerous periods, it may be necessary to recognise that output is being produced continuously and record it as a work-in-progress. This would be in keeping with the recommendations of SNA 1993 (United Nations: *System of National Accounts 1993*, p. 127).

Once the infrastructure is completed, its contribution is in terms of the services it provides by its usage. Thus, the output of transportation would be measured by the value of the amount receivable for transporting goods and persons. The volume of transport services would be measured by indicators such as tonne-kilometres or passenger-kilometres (United Nations: *System of National Accounts 1993*, p.136).

However, in the case of roads, the situation is different. For a long time the facility was provided by the Government, though now, there is private provision as well. However, services on roads are provided by different entities, both public and private.

4.4.4 Distinction between Physical and Social Infrastructure

Even though social infrastructure is not considered here, it will be appropriate to extend the notion of infrastructure proposed here to the social sector as well. Thus, a hospital or a school would constitute the infrastructure facility, which will provide services in the form of health care and education over a period of time. However, one will have to be careful not to attribute all the characteristics of infrastructure listed above to the social sector. For instance, it cannot be argued that a hospital facility is a natural monopoly even though a substantial amount of sunk costs may be involved. Further, as far as bestowing externalities is concerned, this is more likely to be true for basic health care, possibly preventive health care, while externalities may diminish in the case of higher end health care, and possibly curative health care.

4.5 HOW TO MEASURE INFRASTRUCTURE DEVELOPMENT?

What counts as a development result? Simply counting project outputs is no longer adequate. The focus, for example, is less on counting the kilometres of road built than on measuring the impact of crucial infrastructure on the lives of people down the road. Did access to health care improve? Did the cost of growing

vegetables go down? Did more goods get to market, and did the villagers' incomes increase?

Some of the ways to measure the infrastructure development are discussed below as done on World Bank guidelines.

i) Implementation Completion Reports (ICR)

When a project is completed and closed at the end of the loan disbursement period (a process that can take anywhere from 1-10 years) the World Bank or funding agencies, and the borrower government or developer, document the results achieved; the problems encountered; the lessons learned; and the knowledge gained from carrying out the project. The report, prepared by World Bank operational staff, is submitted to the Bank's Board of Executive Directors for information purposes. The knowledge gained from this results measurement process is intended to benefit similar projects in the future.

ii) Independent Evaluation Group (IEG)

An independent unit within the World Bank or Funding agencies strives to provide an objective basis for assessing the results of the Bank's work. The IEG assesses the performance of roughly one project out of four (about 70 projects a year). These project performance reports measure outcomes against the original objectives, sustainability of results and institutional development impact. From time to time, the IEG also produces impact evaluation reports to assess the economic worth of projects and the long term effects on people and the environment.

iii) Quality Assurance Group (QAG)

The Quality Assurance Group evaluates the operations work of the World Bank staff or funding agencies in developing countries, providing timely feedback that can help rectify project design and improve project supervision. The QAG publishes an Annual Report on portfolio performance which gives the Bank's Board of Directors and Senior Management a strategic overview of the size, composition and quality of the Bank's lending portfolio and analytical research program.

iv) Results Measurement System (RMS)

The International Development Association (the World Bank's fund for the world's poorest countries) tracks aggregated results. Its Results Measurement System (RMS) is designed to strengthen the focus of the IDA's activities on development outcomes and keep donors aware of the IDA's effectiveness. The system measures results on two levels.

a) Aggregate country outcomes including
   - Growth and poverty reduction
   - Governance and investment climate
   - Infrastructure for development
   - Human development.

b) The IDA's contribution to country outcomes, or agency effectiveness.

v) GIS Mapping

Due to the demanding need for infrastructure development, as well as to keep the existing infrastructure maintained in a proper condition, the multi sensor mobile mapping has become a critical need of many developing, as well as developed countries. It is well established that switching from static to dynamic mapping has increased the pace of infrastructure development manifold. Presently, there are a number of systems being deployed worldwide without any common standard for accuracy and performance. Automation, high accuracy, and budgets are the salient elements which will satisfy the demands of various segments of the infrastructure markets.

7.6 SOME IMPORTANT SUB - SECTORS OF INFRASTRUCTURE DEVELOPMENT - AN INDIAN PERSPECTIVE

Some of the important sub-sectors of infrastructure are discussed briefly for your understanding

4.6.1 Roads

The road sector can broadly be divided into the following

i) national highways

ii) state highways

iii) major district roads

iv) other district roads

v) rural roads

vi) general staff roads.

Currently, at 3.3 million km, India's road network is the second largest in the world. Road density in terms of population is only 2.75 km per 1,000 people compared to the world average of 6.7. The road density in terms of land at 770 km per 1,000 square km is also short of the world average of 841. Indian roads carry around 85 per cent of passenger traffic and 65 per cent of freight traffic.

The network comprises 68,354 km of national highways and 599,622 km of state roads, and rural and other roads. National highways constitute only two per cent of the total road length, but carry nearly 40 per cent of the traffic. State highways constitute about 13 per cent of the road length and carry 40 per cent of the traffic. The road network is grossly inadequate in capacity. Only 14 per cent of national highways and one per cent of state highways are four-lane. Further, only about 59 per cent of national highways and 22 per cent of state highways are double-lane. Due to poor surfacing, average vehicular speeds are around 50 km per hour.

Inadequacy of funds is a prime reason for the demand-supply gap. Experts estimate that the shortfall in terms of funding for developing and preserving assets has consistently remained at over 40 per cent. For state roads, the estimates state that only half of what is required annually is available. In addition, several roads that were designated national highways during the Ninth and Tenth Plans continue to

be substandard. Rapid traffic growth and overloading of vehicles adds to the problem.

Some other factors pose challenges for the sector. These involve land acquisition, encroachment on highways, environmental and forest clearances, shifting of utilities, railway approvals for rail over bridges, local law and order problems, poor performance by some contractors, etc. The 11th Five Year Plan assigns high priority to the expeditious completion of works approved under different phases of the NHDP.

In 2017, Government of India launched Bharat Malapariyjana a new umbrella program for the highways sector that focuses on optimizing efficiency of freight and passenger movement across the country by bridging critical infrastructure gaps through effective interventions like development of Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressways.

4.6.2 Housing

The policies of urban development and housing in India have come a long way since the 1950s. The pressure of urban population and lack of housing and basic services were very much evident in the early 1950s. In some cities this was compounded by migration of people from Pakistan. However, the general perception of the policy makers was that India is predominantly an agricultural and rural economy and that there are potent dangers of over urbanization which will lead to the drain of resources from the countryside to feed the cities. The positive aspects of cities as engines of economic growth in the context of national economic policies were not much appreciated and, therefore, the problems of urban areas were treated more as welfare problems and sectors of residual investment rather than as issues of national economic importance.

The Government through a National Agenda declared *Housing For All* as a priority area and has set a target of construction of 2 million houses every year with emphasis on the poor and deprived, out of which 0.7 million houses are to be constructed in urban areas. The government of India launched the "Housing for All by 2022" in 2016 aimed for urban areas with following components/options to States/Union Territories and cities:

a) Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource;

b) Promotion of affordable housing for weaker section through credit linked subsidy;

c) Affordable housing in partnership with Public & Private sectors and

d) Subsidy for beneficiary-led individual house construction or enhancement.

4.6.3 Sanitation

India is witnessing a high rate of population growth, and increasing urbanization. More than 28 per cent of India's population resides in urban areas; more than 80 million urban citizens are below the poverty line, with little or no access to basic infrastructure services such as water supply and sanitation (WSS). The cost of inefficient and unreliable WSS services is borne disproportionately by the urban

poor, who spend around US$15–20 billion annually on the treatment of waterborne diseases. Public private partnerships in delivering WSS services can assist in remedying this situation to a certain extent. However, given the challenges of affordability and lack of baseline information, structuring PPP in the WSS sector has been relatively more difficult than in other sectors. There are only a handful of PPP projects in the WSS sector in India as compared to power generation, roads and ports.

The Swatch Bharat Abhiyan, a flagship mission of the government of India and the government is providing toilet at homes, schools and public places and also sage disposal of garbage. The mass movement intends to create a Clean India. Some of the objectives of Swatch Bharat Mission**1** are:

- To eradicate the system of open defecation in India.
- To convert the insanitary toilets into pour flush toilets.
- To remove the system of manual scavenging.
- To make people aware of healthy sanitation practices by bringing behavioral changes in people.
- To link people with the programmes of sanitation and public health in order to generate public awareness.
- To build up the urban local bodies strong in order to design, execute and operate all systems related to cleanliness.
- To completely start the scientific processing, disposals reuse and recycling the Municipal Solid Waste.
- To provide required environment for the private sectors to get participated in the Capital Expenditure for all the operations and maintenance costs related to the clean campaign.

4.6.4 Drinking Water

Water is a prime natural resource, a basic human need and a precious national asset. Planning, development and management of water resources needs to be governed by national perspectives. As per the latest assessment (1993), out of the total precipitation, including snowfall, of around 4000 billion cubic metre in the country, the availability from surface water and replenishable ground water is put at 1869 billion cubic meters. Because of topographical and other constraints, about 60 per cent of this, i.e., 690 billion cubic meters from surface water, and 432 billion cubic meters from ground water can be put to beneficial use. Availability of water is highly uneven in both space and time. Precipitation is confined to only about three or four months in a year and varies from 100 mm in the western parts of Rajasthan to over 10000 mm at Cherrapunji in Meghalaya. Rivers and underground aquifers often cut across state boundaries. Water, as a resource is one and indivisible:

- rainfall, river waters, surface ponds and lakes, and ground water are all part of one system
- Drinking water (from tap to the mouth) supply, including the system of pipes, pumps, valves, filtration and treatment equipment and meters, including buildings and structures to house the equipment, used for the collection, treatment and distribution of drinking water

- Sewage collection and disposal
- Drainage systems (storm sewers, ditches, etc.)
- Major irrigation systems (reservoirs, irrigation canals)
- Major flood control systems (dikes, levees, major pumping stations, and floodgates).

4.6.5 Energy

Energy for cooking and lighting are vital for the quality of life of the people in the rural and urban areas. However, because of energy deficiency and poor energy management many households in particularly rural areas are deprived of 24 hour electricity and energy for cooking. Electricity- during the Eleventh Plan, the government aims to add power generation capacity of about 70,000 MW and provide electricity to all un-electrified hamlets and all rural households through the Rajiv Gandhi Grameen Vidyutikaran Yojna (RGGVY). Some of the features of RGGVY are:

- Electrical power network, including generation plants, electric grid, substations, and local distribution
- Natural gas pipelines, storage and distribution terminals, as well as the local distribution network
- Petroleum pipelines, including associated storage and distribution terminals
- Steam, or, hot water production and distribution networks for district heating systems.

Under Ujala Yojana launched in 2016, the government of India is providing cooking gas connection to the families in rural and urban areas. Moreover, under the scheme LED bulb a power saving mechanism is being provided at low cost. The main objective of scheme is to:

- promote efficient lighting,
- enhance awareness on using efficient equipment which reduce electricity bills and preserve environment.

In this session you read about the various types of infrastructure. Now answer the question asked in Check Your Progress-2

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Write the appropriate measurement method of infrastructure development.

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2) Based on your understanding and experience find out the major sectors of infrastructure development.

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4.7 PERSPECTIVE OF RURAL AND URBAN INFRASTRUCTURE DEVELOPMENT IN INDIA

The infrastructure development strategy in Indian context can be broadly categorised into rural and urban infrastructure development.

4.7.1 Rural Infrastructure

India's economic growth and development is predicated to a large extent upon the development of its 700-million strong rural population**.** A majority of the population lives in about 600,000 small villages and are engaged primarily in agriculture**,** directly or indirectly. A substantial portion of India's current agricultural labour force has to move to non-agriculture sectors for incomes in all sectors to go up. The challenge is to manage the transition of 80 per cent of the rural population from a village-centric agricultural-based economy to an industry based economy**.** Infrastructure development in rural India needs to be put on a fast track in order to tap the rural retail opportunity currently estimated at $34 billion, which, according to a Confederation of Indian Industry (CII) and Yes Bank study, is expected to touch the $58 billion mark by 2015. The study focuses only on FMCG, durables, agricultural inputs (including tractors) and two and four wheelers.

Grey Areas of India's Rural Infrastructure

- A set of basic facts define the constraints within which the economic growth and development of India's rural population must be addressed. Fundamentally, they relate to resource constraints, the nature of infrastructure, and the future trajectory of the geographical distribution of the population.
- These services include, at a minimum: market access, educational, health, financial, entertainment, transportation, and communications**.** Further, services depend on the availability of infrastructure.
- Infrastructure investment is irregular and inadequate to support 600,000 villages, and the average cost of providing infrastructure is inversely related to the scale of the operation.
- Limitations on the financial and other resources available for providing infrastructure made it impossible to provide infrastructure at every village in India. Even if they were provided at every village, it will not be commercially sustainable.

4.7.2 Urban Infrastructure

Global and Indian experience indicates that the urban sector has increasingly become an important driver of economic growth.. The urban population of India has rapidly increased in recent years. In 1961 about 79 million persons lived in urban areas of the country, by 2001, their number had gone up to over 285 million, an increase of over 350 per cent in the last four decades, which will increase to over 400 million by the year 2011 and 533 million by the year 2021.

In 1991 there were 23 metropolitan cities, which have increased to 35 in 2001. As a result, most urban settlements are characterized by shortfalls in housing and water supply, inadequate sewerage, traffic congestion, pollution, poverty and social unrest making urban governance a difficult task.

Urban infrastructure consists of drinking water, sanitation, sewage systems, electricity and gas distribution, urban transport, primary health services, and environmental regulation. Many of these services are in the nature of 'local' public goods with the benefits from improved urban infrastructure in a given city limited to the citizens living in that city.

Widespread urbanization is a twentieth century phenomenon. Rome was probably the first settlement to reach one million populations in 5 BC, while London became the second such city in 1800. In 1900, the total urban population of the world was not more than 250 million, less than 15 per cent of the total population. The Indian urban population today is itself greater than this number. In 2000, the world's urban population had increased to almost 2.9 billion, about 47 per cent of the total population. Today Asian countries have emerged as most populous countries. According to a United Nations Study (1995), by the year 2015, ten of the world's fifteen largest cities will be in Asia, three of these will be in India.

The structural reforms and the associated development strategies launched in 1991 are expected to accelerate rural urban migration and boost the pace of urbanization. The demographic and economic growth in India is likely to be concentrated in and around 50 to 60 large cities with population of about a million or more. There is migration from villages to town and cities which results in the growth of metropolitan cities since they provide multiple avenues, services and amenities, e.g., education, health care, employment, business, and entertainment options. People also migrate for economic opportunities and urban lifestyles. Though urbanization brings about development in the social, economic and cultural spheres of life, sometimes it disturbs the ecological system. Rapid and unplanned growth of urban agglomeration generates a series of negative environmental and social effects. Today, urban India presents a pathetic scene. Cities have become sites of rotting garbage, degrading drainage systems, and a shocking night soil removal system. Besides, the poor have practically no access to covered toilets, and in many towns and cities, the majority have to defecate in the open. The untreated sewage being dumped into the nearest water body leads to health hazards. India is one of the least urbanized countries in the world because between 1951 and 2001, the level of urbanization increased by just 13 percentage points. However, it has the second largest urban population in the world and more than two third of it lives in the 393 cities that have population of over 0.1 million. The four mega cities, viz., Mumbai, Kolkata, Delhi, and Chennai, with a population of more than 6 million each in 2001, account for almost one fourth of the total urban population living in cities. As per the 2001 census, 285 million

people, i.e., 27.8 per cent of the 1027 million total population of India resides in 4368 cities and towns in the country, whereas in 1991, 25.7 per cent of the population lived in urban areas. The decadal growth in urban population during 1991-2001 has been 31.2 per cent, whereas at the beginning of the 20th century, only 10.8 per cent of the total 218 million population of the country resided in cities and towns. The number of million plus cities has increased to 35 in 2001 from 12 in 1981 and 23 in 1991. These 35 million plus cities account for 107.9 million urban population of the country. As per the projections of Government of India, the urban population of the country in 2011 will be 405.26 million and 553.04 million in 2021. Thus, around one third population is expected to live in urban areas.

4.8 LET US SUM UP

Dear learner, in this unit we started by looking into the meaning and need for infrastructure development and understood that infrastructure is a key factor in driving a country's growth and development by narrowing development gaps between developed and lagging regions. Later we discussed exigency and characteristics of infrastructure development. We also discussed different measures of infrastructure development viz implementation completion reports, independent evaluation, quality assurance, results measurement system and GIS mapping. Later we discussed some important sub- sectors of infrastructure for development viz., roads, housing, sanitation, drinking water and energy. At the end we discussed the infrastructure development strategy with Indian perspective.

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4.10 CHECK YOUR PROGRESS - POSSIBLE ANSWERS

Check Your Progress 1

1) Briefly describe what do you mean by infrastructure?

Answer: Infrastructure can be defined as the basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function. The term typically refers to the technical structures that support a society, such as roads, water supply, sewers, power grids, telecommunications, and so on.

2) Why infrastructure is important for development?

Answer: There is no disagreement about the importance of infrastructure for sustained economic development is well recognized. Inadequate and inefficient infrastructure can prevent the economy from realizing its full growth potential, regardless of the progress on other fronts. Physical infrastructure covering transportation, power, and communication, through its backward and forward linkages, facilitates growth; social infrastructure including water supply, sanitation, sewage disposal, education and health,

which are in the nature of primary services, has a direct impact on the quality of life. The widening gap between demand and supply of infrastructure, and raise questions concerning the sustainability of economic growth in future.

Check Your Progress 2

1) Write the appropriate measurement method of infrastructure development.

Answer: There is no one method to measure infrastructure development. Broadly it the process of measurement follows- **Implementation Completion Reports (ICR),** Independent Evaluation Group (IEG), Quality Assurance Group (QAG), **Results Measurement System (RMS).** The International Development Association (the World Bank's fund for the world's poorest countries) tracks aggregated results. Its Results Measurement System (RMS) is designed to strengthen the focus of the IDA's activities on development outcomes and keep donors aware of the IDA's effectiveness. The system measures results on two levels.

2) Based on your understanding and experience find out the major sectors of infrastructure development.

Answer: The major sectors of infrastructure development are: roads and highways networks; housing; sanitation; drinking water and energy.

MDV 103: ISSUES AND CHALLENGES OF DEVELOPMENT

Block	Unit Nos	Unit Titles
1		**BASIC ISSUES IN DEVELOPMENT**
	1	Population
	2	Poverty
	3	Inequality
	4	Unemployment
2		**SECTORAL ISSUES IN DEVELOPMENT**
	1	Agriculture
	2	Industry
	3	Services
	4	Infrastructure
3		**SOCIAL ISSUES IN DEVELOPMENT**
	1	Education and Development
	2	Health and Development
	3	Gender and Development
4		**EMERGING ISSUES IN DEVELOPMENT**
	1	Energy and Development Nexus
	2	Natural Resource Management and Environment
	3	Sustainable Development
	4	Climate Change
5		**GOVERNANCE**
	1	Governance – An Overview
	2	Participatory and Decentralized Governance
	3	Good Governance: Attributes and Challenges
	4	E-Governance and Development

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School of Extension and Development Studies

MDV-103
Issues and Challenges of Development

Block

3

SOCIAL ISSUES IN DEVELOPMENT

UNIT 1
Education and Development 5

UNIT 2
Health and Development 28

UNIT 3
Gender and Development 54

ORIGINAL PROGRAMME DESIGN COMMITTEE

Prof. Amita Shah
Gujarat Institute of Development Research
Ahmedabad

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. J. S. Gandhi (Rtd)
Jawaharlal Nehru University, New Delhi

Prof. Gopal Krishnan (Rtd)
Punjab University, Chandigarh

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. Kumar B. Das
Utkal University, Bhubaneswar

Prof. Nadeem Mohsin (Rtd)
A.N.Sinha Institute of Social Sciences, Patna

Prof. P. Radhakrishan
Madras Institute of Development Studies, Chennai

Prof. Ramashray Roy (Rtd)
Centre for Study of Developing Societies
New Delhi

Prof. R. P. Singh (Rtd)
Ex-Vice-Chancellor, MPUAT, Udaipur

Prof. K. Vijayaraghavan
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Dr. Nilima Shrivastava, IGONU, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Dr. Nehal A. Farooquee, IGNOU, New Delhi

Dr. P. V. K. Sasidhar, IGNOU, New Delhi

REVISED PROGRAMME DESIGN COMMITTEE

Late Prof. T S Papola(Rtd)
Institute of Studies in Industrial Development
New Delhi

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. Preet Rustagi
Institute of Human Development, New Delhi

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Punjab University, Chandigarh

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Jawaharlal Nehru University, New Delhi

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Hindu College, University of Delhi, Delhi

Prof. Nadeem Mohsin (Rtd)
A.N.Sinha Institute of Social Sciences, Patna

Prof. Rajesh, Delhi University, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Prof. Nehal A. Farooquee, IGNOU, New Delhi

Prof. P. V. K. Sasidhar, IGNOU, New Delhi

Dr. Pradeep Kumar, IGNOU, New Delhi

Dr. Grace Don Nemching, IGNOU, New Delhi

Dr. Nisha Varghese, IGNOU, New Delhi

COURSE PREPARATION TEAM

Units Writers:

Prof. B.K. Pattanaik (Unit 1& 2)
IGNOU, New Delhi

Dr. Abha Ranjan (Unit 3)
Rani Durgavati University
Jabalpur

Editors:

Prof. Alak N.Sharma (***Content Editor***)
Mr. Praveer Shukla, New Delhi (Language Editor)

Prof. Nehal A. Farooquee, IGNOU, New Delhi

Prof. P.V.K.Sasidhar , IGNOU, New Delhi

Dr. Grace Don Nemching, IGNOU

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Programme Coordinators : Prof. P.V.K. Sasidhar, Prof. B.K. Pattanaik, Prof. Nehal A. Farooquee

Course Coordinators: Prof. B.K. Pattanaik, E-mail:bkpattanaik@ignou.ac.in

PRODUCTION TEAM

Mr. S. Burman
Dy. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. K.N. Mohanan
Asst. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. Babu Lal Rewadia
Section Officer (Publication)
MPDD, IGNOU, New Delhi

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BLOCK 3 SOCIAL ISSUES IN DEVELOPMENT

Block 3 on **'Social Issues in Development'** with three units deals with education, health and gender issues in development.

Unit-1 on **'Education and Development' gives** an account of the importance, benefits various theories of education as well as determinants of educational development. The unit also focus on the problems, challenges and emerging issues in education and development.

Unit-2 on **'Health and Development'** discusses the concept of health and its relationship with development with focus on the components of health care, indicators of health and the issues and challenges of health care system.

Unit-3 on **' Gender and Development'** deals with gender and its role in development. It also discusses issues like gender empowerment, gender adversaries as well as measures for engendering development. It also gives an account of gender development index and gender empowerment measures.

UNIT 1 EDUCATION AND DEVELOPMENT

Structure

1.1 Introduction
1.2 Importance and Benefits of Education for Development
1.3 Theories of the Contribution of Education to Development
1.4 Determinants of Educational Development
1.5 Problems and Challenges of Educational Development
1.6 Emerging Issues in Education and Development
1.7 Let Us Sum Up
1.8 Keywords
1.9 References and Suggested Reading
1.10 Check your Progress - Possible Answers

1.1 INTRODUCTION

Education, whether formal, informal and/or non formal, through change in knowledge, behaviour and practices, brings development. Education is an investment which brings development in the long run. According to Amartya Sen, the solution to all problems related to the economy, development, or population lies in education. The various determinants of education such as literacy, expenditure on education, technical education, etc., affect the educational development of a nation. Still, education, mostly in underdeveloped countries, is faced with a lot of problems. The globalization and education, inclusive education, sustainable education is emerging issues in education and development. Education is also an important tool for empowerment. This unit discusses the importance of education towards development.

After going through this unit, you would be able to:

- discuss the importance of education for development;
- explain the benefits of education to development;
- narrate determinants of educational development; and
- describe emerging issues in education and development.

1.2 IMPORTANCE AND BENEFITS OF EDUCATION FOR DEVELOPMENT

Like a lay man, you would know how an educated man is different from an uneducated man. Similarly, an educationally advanced state like Kerala, is different from educationally backward states of Bihar and Uttar Pradesh. Education is one of the important factors of development. The role of education in development has been recognized ever since the days of Plato, who believed that education, was indispensable to the economic health of a good society. The contribution of 'human capital' to economics was recognized long ago when Adam Smith, in *The Wealth of Nations* includes in the category, 'Fixed Capital', the acquired and useful abilities of all the inhabitants, or members of society. Alfred Marshall

also affirmed that the most valuable of all capital that is invested is in human beings. J.K. Galbraith also remarked that "when we think of education as a consumer service, it becomes something on which we should save, but when we think of education as investment, it becomes something, we should emphasize". He considered that human capital is more essential for developing countries than other forms of capital. According to Tadaro, it is the human resources that ultimately determine the character and pace of its economic and social development. Harbinson remarks that a country which is unable to develop the skills and knowledge of its people to utilize them effectively in the national economy will be unable to develop anything else. The general conference of UNESCO held way back in 1964 recognized that illiteracy is a grave obstacle to social and economic development. Education is a prerequisite for the successful implementation of national plans for economic and social development.

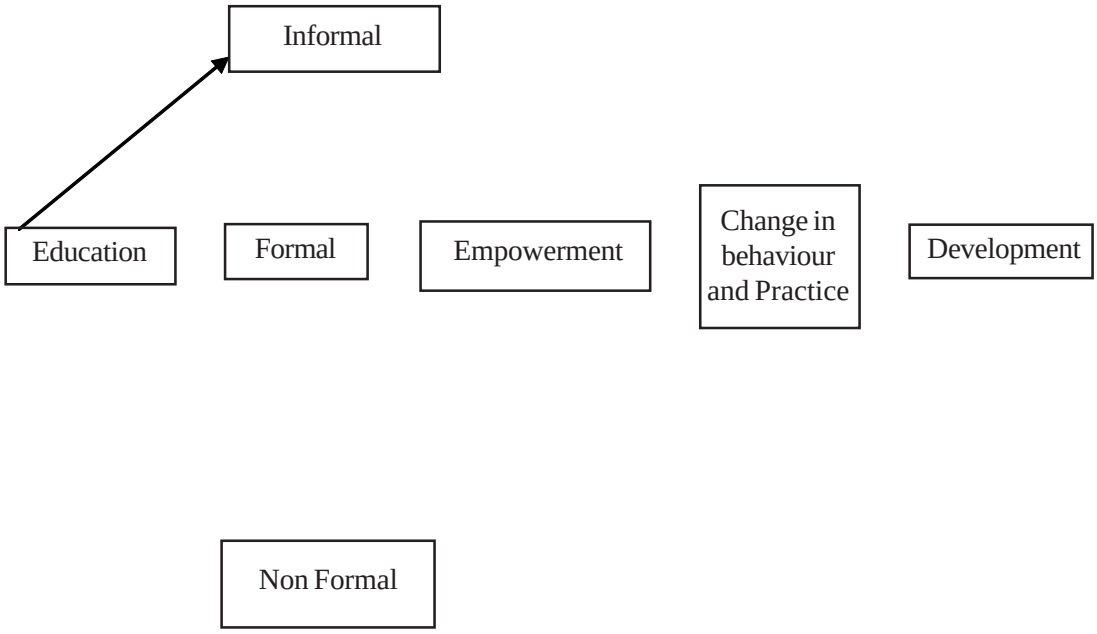

Figure 1 : Model of Education & Development

Education, whether formal, informal and /or non formal, effects changes in behaviour and practices and brings development. The informal education on development can be defined as a lifelong learning process by which every person acquires knowledge, skills, and attitude from daily experiences at home, at work, at play, and from life itself. Formal education is the education received from the educational institutions chronologically graded and hierarchical such as primary, secondary and tertiary education level. Non formal education is a type of organized and systematic educational activity taking place outside the framework of the formal system. A model of how education brings development is given in Figure 1.

1.2.1 Benefits of Education towards Development

Development benefits a great deal from education. A few benefits of education for development are outlined below.

i) Increases Productivity

Investment in physical capital stock such as land and machinery is essential but not sufficient for development. Investment in human capital would enhance

productivity. It has been adequately researched that two individuals, given the same physical capital but endowed with different levels of knowledge would operate in two different production functions and would have two different levels of productivity. Thus, education is vital for raising productivity. One reason for the Green Revolution in Punjab and Haryana is extension education imparted to the farmers in their field. By raising productivity both in agriculture and industries, education promotes economic growth. One of the World Bank's study (1993) found that enrolment in primary education in 1960 enabled the countries like Hong Kong, Thailand, Singapore, and South Korea to raise their economic growth by more than 50 per cent (see Table 1).

Table 1 : Percentage of Total Predicted Growth of Selected Countries

Countries	% of Predicted Growth
Hong Kong	86
Indonesia	79
Japan	58
South Korea	67
Malaysia	73
Taiwan	69
Singapore	75
Thailand	87

Source: *Cypher M James and Dietz, James L (2009) The Process of Economic Development, Routledge, London, pp. 406*

ii) Reduces Economic Inequality

Education provides widespread employment and income earning opportunities to the qualified and skilled people. There is a positive correlation between a person's education and his earning. Education is a powerful tool for the poor and the disadvantaged to raise their earning and come to par with their counterparts. Todaro says that if, for financial or any other reasons, the poor are effectively denied access to secondary and higher educational opportunities, then the educational system can actually perpetuate and even increase inequality in Third World Nations. However, recent studies have demonstrated that the education system of most developing countries act to increase rather than to decrease income inequalities. But, generally it is found that in developing countries like India, Bangladesh, Sri Lanka education has enabled the poor and the downtrodden to raise their income. Education helps in poverty reduction.

iii) Improves Health and Reduces Fertility

Education is a contributing factor in achieving developmental goals, such as increased life expectancy**, i**mproves health, and reduces fertility among educated mothers. Many studies have shown that parents with high school and higher education have fewer children compared to their counterpart who are illiterate. It has also been seen that fertility reduces with the increase

in the level of education. Education improves particularly the preventive health care status of women and children. It enables them to access quality health care services from qualified health personnel for themselves and for their children. Kerala and Tamil Nadu, where female literacy is higher than in Bihar and Uttar Pradesh, have lower fertility, lower infant mortality, higher immunization status of woman and children. Life expectancy in Kerala and Tamil Nadu is also higher, compared to Bihar and Uttar Pradesh. An example of female literacy and fertility is given in Table 2.

Table 2: Female Education and Health Indicators of a Few States of India

Sl. No.	Indicators	State			
		Bihar	UP	Kerala	Tamil Nadu
1	Female Literacy %(2011)	53.3	59.3	92	73.9
2	Infant Mortality Rate (2013)	42	50	12	21
3	Percentage of children under age 3 who are under weight (2005-06)	58	47	29	33
4	Percentage of children 12-23 month who have received all vaccinations (2005-06)	33	23	75	81
5	Total Fertility Rate (2013)	3.4	3.1	1.8	1.7

Source: 1. *National Family Health Survey III, IIPS, 2005-06*
2. *Census of India, 2001, 2011*

iv) Contributes to Democratization

Some political scientist believes that at least a minimum level of schooling is a prerequisite for the effectiveness of political democracy. Education strengthens democratic values in a society. It helps the people to caste their vote according to values and not the allurement offered by the contestants. Education, in general, and, of women in particular, is a vital requirement for the success of democracy. It is now believed that the success of democratic decentralization depends on the literacy rate. In India, Kerala is an illustrious example where a high literacy rate has enabled local self government institutions to function effectively in the state.

v) Promotes Rural Development

Educated people are *sine qua non* for the faster development of rural areas. Therefore, Mahatma Gandhi once said my 'Ideal Village' will contain intelligent human being. Educated people would bring faster agricultural, industrial, and social development in rural areas. Education can bring transparency and accountability into the system. There would be better implementation of rural development programmes as literate people could better ask the programme implementers the pros and cons of the programmes. They would actively participate in the process of need assessment, project formulation, implementation; monitoring and evaluation stages of the various developmental programmes implemented, both by the government and non governmental organizations. Rural entrepreneurship could be better promoted

with the help of literate and skilled manpower. An educated civil society is an essential requirement for development in general, and for rural development in particular.

vi) Promotes Peace and Stability

Education promotes peace in society. The teaching of peace and the value education in the classroom would create a sense of fellow feeling and brotherhood among the young generation. Peace education has become either an independent discipline or component of other related discipline like political science or history in many higher education institutions. Further, peace education would also reduce crime and all other social evils occurring in the society.

vii) Reduces Social Inequality and Promotes Gender Equity

Education is an instrument for social uplift. Illiteracy is one of the reasons for social discrimination. The social inequality persists largely because of illiteracy. With the rise in the level of education biases on the basis of social beliefs and values reduces. B.R. Ambedkar, therefore, mentions that the panacea for all social evil is education and encouraged people to be educated. Education, particularly, among women, promotes gender equality by enhancing their workforce participation rate *vis-a-vis* men. The Education Commission of India (1964-66) has highlighted, in Chapter IV (*Towards Equalization of Educational Opportunities*) that "One of the important social objectives of education is to equalize educational opportunities, enabling the backward or under-privileged classes and individuals to use education as a lever for improvement of their condition"

viii) Promotes Modernization

Modernization is directly linked to the pace of education development. One of the sure ways to modernize quickly is to expand education and produce skilled manpower. The Education Commission of India (1964-66) envisaged that modernization aims, amongst other things, at creating an economy of plenty which will offer to energise an individual, provide a larger way of life and a wider variety of choices. It is education, which can hasten the pace of modernization and development in an underdeveloped society. Modern society is governed by science and technology, and it is education which will enable a nation to achieve progress through scientific technology. The ICT education in India has hastened the process of modernization and development.

ix) Attributes to Knowledge Society

The establishment of a knowledge society is a formidable challenge before any nation in order to hasten its pace of development in economic, social, political, and cultural areas. The formulation of the Knowledge Commission in India is a significant step in this direction. The dream of a knowledge society can only be realized by articulating a strong and dynamic higher education system.

x) Social Equity: Education is a great equaliser. Education can promote social equity by empowering the socially backward section of the society. Education among women who are socially laggard as compared to men will promote

their social mobility and enhance their decision making power in the household. The education among women will further increase gender equity. It is not a flight of fancy but truly education among the SCs and STs will improve their social status and their access to other community in the society of India. B R Ambedkar, the architect of Indian constitution and one of the prominent *dalit* leader said "coming as I do from the lowest order of the Hindu society. I know what the value of education is. The problem of raising the lower order is deemed to be economic. This is a great mistake. The problem of raising the lower order is not to feed them, and to make them serve the higher order, as is the ancient ideal of this country. The problem of lower order is to remove from them that inferiority complex, which has stunted their growth and made them slaves to others, to create in them the consciousness of the significance of their lives for themselves and for the country, of which they have been cruelly robbed by the existing social order. Nothing can achieve this except the spread of higher education. This in my opinion is the panacea of our social trouble."

In this section, we discussed about the importance and contribution of education to development. Now, answer a few questions related to these aspects in Check Your Progress 1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe the importance of education to development.

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2) Can education can promote modernization and social equity. Discuss.

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1.3 THEORIES OF THE CONTRIBUTION OF EDUCATION TO DEVELOPMENT

In this section we will discuss a few theories relating to the contribution of education towards development. Mainly, there are two theories relating to the contribution of education to development. These two theories are

i) Human capital theory

ii) Screening theory.

1.3.1 Human Capital Theory

Human capital theory was initially developed in United States and Europe in the 1950s. Later, this theory was applied to undeveloped countries. The advocates of this theory were of the opinion that it is not only the physical capital stock, i.e., labour, which is important, but also human capital stock, such as education, which is critical to the growth and development of a nation. They argued that when people become more and more educated, they become more productive. There is a close relationship between the number of years of schooling and income level of a person. In other words, increasing the level of schooling would lead to higher earnings. In essence, the human capital theory believes that people are willing to invest in education, which is an investment for the future. In other words, the human capital theory considers expenditure on education as an investment and not as expenditure. Not only the individual, but also the whole society would gain out of investment in education. Besides, the country will gain from the external effect of education, i.e., lower fertility rate and higher maternal and child health. Such positive external effects are a justification for public subsidies to education. Therefore, in almost all countries, both developed as well as developing, the cost of education is subsidized by the government.

Another aspect of human capital theory is that, it provides a framework for the systematic evaluation of costs and benefits of education to the households.

i) **Cost of Education:** The cost of education includes direct cost, and opportunity cost:

   Direct cost, are school fees, cost of books, teaching materials, school uniforms, copies, etc. Opportunity cost is the income forgone while receiving education. Besides, it also refers to the income that an individual is losing from the labour market during the period he joins education institutions and, at the same time, bears the cost of education.

ii) **Benefit of Education:** The benefit of education is the gap between the lifetime income of an individual with a given amount of education and the lifetime income received if he had not this education. On the basis of cost and benefit, the role of return on investment on education is calculated. Research findings show that in developing countries, the rate of return on investment in education was higher compared to the rate of return in physical capital (Psacharopoulos and Patrinous, 2002).

Limitations of Human Capital Theory

Human capital theory has several limitations.

- The relationship between education and increase in income is difficult to measure. This is because the increase in personal income is influenced by

many factors other than education. Therefore, it is very difficult to measure marginal productivity, especially of human capital.

- It is difficult to measure cost and benefit analysis of human capital. Though the direct cost of education is easier to calculate, the opportunity cost and the estimation of income forgone are difficult to measure.
- The benefit of education is much more than economic and the social benefits of education.
- The demand for education does not only depend on costs and benefits, but on the ability to pay for education.

1.3.2 Screening Theory

The critics of Human Capital Theory and the proponents of Screening Theory believe that education is necessary, but not a sufficient condition to contribute to individual productivity. They argue that specific skills required in a profession are acquired on the job rather than at school. Screening theory states that it is very hard to predict future performance of an individual on the basis of her or his education. The educational qualification and diplomas are used as a screening mechanism. Schooling is an institution of trainability. But the real training starts on the job.

The radicalists of Screening Theory went to the extent of saying that education merely reproduced social inequality from generation to generation. According to Bowles and Gintis , the main function of education for the masses is to teach them discipline, respect for authority, particularly obedience, the ability to cooperate and to concentrate. The radicalists believe that education prepares labourers for inferior-level task in a productive organization. The proponents of screening theory suggest that much of education in developing countries is irrelevant. Expansion of education results in a higher diploma holder replacing lower diploma holder without producing any improvement in productivity.

Three key element of screening theory are:

- Learning by doing;
- Screening; and
- Diploma inflation

Criticisms of Screening Theory

Some of the criticisms of screening theory are as follows:

- The screening theory proposition that higher education does not adequately contribute to higher earning is not always correct. According to Wolpin, it is hard to explain why self employed people with a higher education usually have higher earnings than self employed people with less education.
- Screening, the real function of education, is somehow parochial and education really vitalizes one's ability to qualify for the test function of education is much more than screening.
- Szirmai remarked that the correlation between education and income persists throughout people's workings life. The argument given by the proponents of screening theory is that education boosts initial earnings, which is not always true.

In this section you have studied the theory of contribution of education to development. Now answer the questions in Check Your Progress 2.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are the key features of Human Capital Theory?

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2) What are the differences between the Human Capital Theory and Screening Theory?

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1.4 DETERMINANTS OF EDUCATIONAL DEVELOPMENT

In this section, you will study the various determinants of educational development. Some of the key determinants of educational development are discussed below.

1.4.1 Literacy

Literacy is one of the weighty parameters of educational development of a nation. UNESCO and United Nations place great emphasis on the removal of illiteracy. During the early years, between 1946 and 1958, one of the main objectives of UNESCO was fundamental education. The main aim of the fundamental education is that every person has a right to learn the three R's: reading, writing and arithmetic. According to Szirmai, fundamental education was not limited to literacy alone, it also included vocational skills, domestic skills, knowledge of hygiene, knowledge of the principles of science, artistic skills, an understanding of one's social environment, the development of personnel skills and moral traits. However, to the common man, literacy means formal school education. According to UNESCO (2002) a person is functionally literate, if he, or she, is able to engage in all those activities in which literacy is required for effective functioning of his, or her, group and community, and for enabling him to continue to use reading, writing, and calculation for his own and the community's development. Table-3 gives an account of the adult literacy of a few countries. The South Asian developing countries are lagging behind the Asian giant Singapore in adult literacy rate.

Table 3 : Adult Literacy of a Few Countries

Countries	Adult Literacy
Bangladesh	60(2013)
Nepal	60(2011)
India	69(2011)
Pakistan	57(2012)
Singapore	98(2013)
Tanzania	79(2013)
Zimbabwe	84(2011)
Ukraine	100(2013)

***Source**: World Development Indicators-2015*

***Note:** Figure in Parenthesis show the year*

Literacy is one of the vital instruments of women's empowerment as it enhances their access to employment, and enables them to take part in household decisions making.

1.4.2 Educational Environment: Enrolment and Dropout

The enrolment and dropout rates at various levels of education reflect the educational environment prevailing in the country. Enrolment in primary, secondary, and tertiary education is improving in the developing countries, but not substantially. As compared to developed nations, most of them are far behind. Particularly in GER (Gross Enrolment Ratio) in the secondary and tertiary sector, the rate is very low. The GER in secondary and tertiary education are 94 and 89 per cent respectively in the USA, but in India, it is 71 and 25 per cent respectively. Enrolment in primary education is a problem in sub Saharan Africa, where, on an average, 43 per cent of children between the age of 6 and 11 are not attending primary school. According to UNESCO (2002), household's surveys in sub Saharan Africa indicate that the number of pupils who actually attend school is substantially lower than the enrolment figures. The GER of a few countries is given in Table 4.

Table 4 : Gross Enrolment Ratio in a few Countries

Countries	Gross Enrolment Ratio		
	Primary	Secondary	Tertiary
Bangladesh	114(2011)	54(2012)	13(2012)
China	126(2011)	92(2013)	30(2013)
India	114(2012)	71(2012)	25(2013)
Pakistan	92(2013)	38(2013)	10(2013)
Sri Lanka	98(2013)	99(2013)	19(2013)
Tanzania	90(2013)	33(2013)	4(2013)
Nepal	133(2012)	67(2014)	17(2013)
USA	98(2013)	94(2013)	89(2013)
UK	109(2013)	129(2013)	60(2013)

Source: *World Development Indicator, World Bank, 2015*

Note: Figure in parenthesis show year

1.4.3 Educational Expenditure

The Education Commission, constituted by the Government of India in 1966, envisaged that we should strive to allocate the target proportion of GDP to educational development. The expenditure on education is fundamental to educational development. The expenditure is required for infrastructure building, supply of teaching and learning materials, salary of the teachers, and other subsidies provided to the disadvantaged section of population. It is a fact that the proportion of national income devoted to education in developing countries is small compared to developed countries. India spends 3.9 percent of GDP on education, while, in the USA, the expenditure on education is 5.2 percent of its GDP (Table-5). For example, the 2006 World Development Indicators, published by the World Bank has mentioned that Bangladesh spends only 2.2 per cent of its GDP on education, while the United Kingdom spends 11.5 per cent (nearly five times more than Bangladesh) of GDP on education.

Table 5: Government Expenditure on Education as % of GDP

Countries	Expenditure on Education
Bhutan	5.6 (2013)
Japan	3.8 (2013)
India	3.9 (2013)
Nepal	4.1 (2013)
Pakistan	2.5 (2013)
Sri Lanka	1.7 (2013)
Tanzania	3.5 (2013)
USA	5.2 (2013)
UK	5.8 (2013)

Source: *World Development Indicators 2015*

Figures in Parenthesis show year

1.4.4 Education Development Index

Now a day particularly after the formulation of Human Development Index, many nations have also developed an Education Development Index to assess the performance in education. An index, the Education Development Index (EDI) calculated for the all schools, that is, primary and upper primary, by the National University of Educational Planning and Administration (NEUPA) reveals that southern states rank higher than other states in India. The EDI was developed taking four broad parameters into account, such as access, infrastructure, teacher related indicators and outcomes. The EDIs of five high ranked States of the Indian union are given in Table 1.6.

Table 6: Rank of Different States in EDI, 2012-13

Top Five States			Lower Five States		
Rank	**States**	**EDI Score**	**Rank**	**States**	**EDI Score**
1	Lakshadweep	0.712	31	West Bengal	0527
2	Puducherry	0.696	32	Assam	0.527
3	Tamil Nadu	0.683	33	Goa	0.520
4	Sikkim	0.672	34	Uttar Pradesh	0.508
5	Karnataka	0.661	35	Jharkhand	0.452

Source: *http://schoolreportcards.in/media/m188.html(accessed on 20/05/2016)*

The Global Education Development Index ranks India, 102; Bangladesh, 107 and China,30 and Korea, 6 in positions.

Table 7 : Global Education Development Index,2006

Country	Rank
Korea	6
China	30
Indonesia	60
India	102
Bangladesh	107
Nepal	113

Source: *Educational Development Index in India-digitalLearningArticle.mht*

1.4.5 Non Formal Education

Non formal education plays an important role in spreading education in many developing countries. Studies conducted by UNESCO indicate an upward trend in enrolment in non formal education comprising of organized education that are not included in the regular school system. The two important forms of non formal education are adult education and distance education. VKRV Rao said that without adult education and adult literacy, it is not possible to have that range of economic and social development which is required, nor it is possible to have that content or quality or tone to our economic and social development that makes it worthwhile in terms of values and welfare. A programme of adult education and adult literacy should, therefore, take front place in any programme for economic and social development. The National Knowledge Commission of India has remarked that while formal education is useful in building human capital, not all individuals are able to participate in it. Therefore, enough resources must be invested to ensure that distance education is developed as a viable alternative to formal education. The distance education programme launched by IGNOU (Indira Gandhi

National Open University) and other open universities and correspondence courses launched by various other universities in India serves the purpose of non formal education in higher education. The National Open School in India also fulfils the need of secondary school education for school dropout and out of school children. These systems will embolden educational development.

1.4.6 Educational Technology

The use of educational technology is a sign of educational development in this globalization era. The use of ICT (Information Communication Technology) in education has made teaching-learning interesting and broad based. The launch of educational satellites has enhanced the use of ICT in education system. Extension education on various developmental programmes through the educational satellite is more cost effective than the face-to-face extension programme. APJ Abdul Kalam, former president of India, while acknowledging the role of EDUSAT, said that democratization of knowledge indicates knowledge for everyone, anytime, anyplace. EDUSAT will be extremely helpful in making this shift possible and decreasing the digital divides. The application of ICT in education is an important indicator of educational development.

1.4.7 Educational Ranking

The raking of the educational institution both nationally as well as internationally now a day being used for the educational development of the nation states. In the Times Higher Education World University Ranking 2018, the top university of the World are largely belonging to the USA and the UK. Eevn, the MHRD of government of India has recently ranked various universities in India.

Table 8: World University Ranking, 2018

Countries	Rank
University of Oxford	1
University of Cambridge	2
California Institute of Technology	3
Stanford University	3
Massachusetts Institution of Technology	5
Harvard University	6
Princeton University	7
Imperial College of London	8
University of Chicago	9
ETH Zurich-Swiss Federal Institute of Technology Zurich	10
University of Pennsylvania	10

Source: *https://www.timeshighereducation.com/world-university-rankings/2018/world-ranking#!/page/0/length/25/sort_by/rank/sort_order/asc/cols/stats(accessed on 23/4/2018)*

In this section, you studied the determinants of educational development. Now answer the questions given in Check Your Progress 3.

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) How is non formal education vital to development?

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2) Explain three important determinants of educational development.

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1.5 PROBLEMS AND CHALLENGES OF EDUCATIONAL DEVELOPMENT

Education plays an important role in the formation of human capital of a nation. It produces skilled manpower, capable of driving the nation towards the path of sustainable development. There is a close link between education and development. However, education is vexed with a number of problems in many countries, particularly in developing countries. Some of the problems are the poor quality of education, lack of public expenditure on education, disparities between caste, class, and gender, and between regions, and a deficiency of trained teachers, teaching materials, and physical infrastructure.

1.5.1 Poor Allocation of Resources

Education is one of the vital sectors of social development. In most countries education is a public good. However, globalization and privatization has enhanced investment on education, largely in the tertiary sector. But still the expenditure on education as a percentage of GDP in developing countries is low compared to developed countries. For example, public expenditure on education is 2.2 per cent of GDP in India, while in USA it is 5.7 per cent. The low public investment in education has resulted in poor performance in infrastructure, teaching and research in education. The gap between the demand for education and allocation of resources is widening in developing countries, because of the high population. This gap is high in South Asia and subSaharan Africa. UNESCO has calculated that there is a shortfall of 5.6 billion US dollar to meet the external finance requirement to achieve the goal of Education for All by 2015 (UNESCO, 2002).

1.5.2 Quality of Education

The quality of education is of great concern in developing countries. The poor quality of teachers, teaching-learning materials, teacher-pupil ratio, pupil-class room ratio, and outdated curriculum, greatly affect the quality of education in developing countries. According to the World Development Indicators (2006) data, the teacher-pupil ratio in primary schools in India, is 41 as against in USA and UK which is 15 and 17 respectively. As far as the pupil-classroom ratio is concerned, in many primary schools two or three classes are held in a single class room. This has resulted in student absenteeism, dropout and grade repetition even at the primary level of education. Improving educational quality was included among six major educational goals formulated for 2015 at the World Education Forum held at Dakar (UNESCO, 2002).

1.5.3 Educational Disparities

According to Coombs, the access to educational facilities is distributed inequally. Educational disparities are observed in following fields:

i) rural-urban

ii) male and female

iii) among different regions

iv) between different castes and ethnic groups.

The rural people have poor access to education facilities particularly to secondary and post secondary education. Customarily, all the tertiary educational institutions are found to be situated in semi-urban and urban areas, thus, depriving the rural area children of their right to tertiary education in many developing countries.

The second significant inequality in educational attainment is gender disparities, i.e., differences between males and females. In traditional societies, the education of girl children is generally restricted. Among economically weaker families, people generally prefer to spend on the education of the male child rather than the female child. The Gender Parity Index (defined as female enrolment divided by male enrolment ratios) was 0.93 worldwide, the lowest being in southwest Asia, 0.84; the Arab States, 0.88 and sub Saharan Africa, 0.89 (Szirmai, 2005).

The third inequality observed in education development is the disparities between the nations, and, within a nation, between the regions. Around the globe, the educational disparities are observed between Europe, Asia and USA. Literacy also varies between the nations in Asian countries. In the same country, literacy varies from one region to the other, for instance, in India, the literacy rate and educational development is high among southern region states such as Kerala, Tamil Nadu, Karnataka, and Andhra Pradesh as compared to the central region states of Uttar Pradesh and Madhya Pradesh. Various factors, such as educational governance, peoples' participation, expenditure on education, etc. are responsible factors for regional educational disparities.

Inclusive education is a buzz word in this globalized era. Inclusive education should include both the socially and physically handicapped, who are excluded groups in the educational mainstream. In India, the literacy and level of education among the Scheduled Castes, Scheduled Tribes and the disabled are the lower compared to other group of population. The Education Commission Report (1964-

66) of Government of India has envisaged that "One of the important social objectives of education is to equalize educational opportunity, enabling the backward or under-privileged classes and individuals to use education as a liver for improvement of their condition."

1.5.4 Lack of Strong Educational Policy

The developing nations need to have strong education policies. The policy need to establish strong linkages between education and development. It should also be amended from time to time incorporating the changes taking place around the world. However, most of the developing countries do not have strong education policies. Even if some countries do have strong education policies, they do not amend them regularly. Most of the policies are archaic in nature and lack dynamism. For instance, India's New Education Policy was formulated in 1986 (revised in 1992).

1.5.5 Week Public-Private- Partnership in Education

Education in general and primary education in particular is a social good. It is observed that the private sector's educational investments are guided by profit motive and mostly investments are in tertiary education. The public-private partnership for the universalization of primary education is clearly lacking. Therefore, the globalization has created another disparity, where the percentage of expenditure to GDP in tertiary education is comparatively higher than the primary and secondary education. This is because of higher private expenditure in tertiary education.

1.5.6 Poor Community Participation

In developing countries, people are dependent on government grants for educational development of their locality. They consider government as the active provider and communities as the passive beneficiaries. This attitude is detrimental to the proliferation of education at the grassroots. In Bangladesh, the women's self help groups and in India in many states, panchayati raj institutions are playing important roles in the development of education in their villages and panchayats. The Village Education Committees formulated at each panchayat level actively support the 'Education for All' movement in the countryside of India. Therefore, community participation is one of the key issues in educational accessibility to the unreached masses.

1.6 EMERGING ISSUES IN EDUCATION AND DEVELOPMENT

A few emerging issues in education and development are:

i) education for sustainable development

ii) globalization and education

iii) decentralization, education and development

iv) inclusive education.

v) vocational and skill education

vi) educational disparities

1.6.1 Education for Sustainable Development

The United Nations General Assembly in its 57th meeting in December 2002 declared the decade 2005-14 as the UN Decade of *Education for Sustainable Development*. The vision of Education for Sustainable Development (ESD) is of a world:

- Where everyone has the opportunity to benefit from quality education and learn the values, behaviour and lifestyles required for a sustainable future and for positive societal transformation.
- It is for everyone, at all stages of life and in all possible learning contexts.
- It engages multiple sectors and stakeholders including media agencies and private sector.
- It utilizes all forms and methods of public awareness raising, education and training to promote broad understanding of sustainable development.
- It addresses all three pillars of sustainable development- society, environment, and economy.
- It enables all individuals to fully develop the knowledge, perspectives, values and skills necessary to take part in decision to improve the quality of life.

1.6.2 Globalization and Education

Customarily, globalization is defined as a set of processes by which the world is rapidly being integrated into a single space. Globalization has touched upon all aspects such as economic, political, social and cultural of life of an individual, community, society and a nation. Therefore, globalization in a holistic sense can be called economic globalization, political globalization, social globalization, and cultural globalization. According to UNCTAD (1993), the essence of globalization is not contained strictly in trade and investment figures nor in the percentage of a national economy that is national, but a new way of thinking about economic and social space and time. Globalization has affected education in many ways.

- With globalization, there is an expansion of science education across the globe. The policy makers, worldwide, regarded economic growth as dependent on the scientific and technological capabilities of their labour force and science education fulfil that requirement.
- There is a pressure on reduce the growth of public spending on education and rise in other sources of funding.
- There is growing emphasis on tertiary education.
- The notion of education is compared internationally and, therefore, there is growing emphasis on quality education.
- Explosion of information and communication technology.
- Globalization has affected the enrolment, governance of education structure, functions and roles, and delivery of higher education across the nation.

1.6.3 Decentralization, Education, and Development

Decentralization of functions, functionaries and funds to the local self government has been proved an effective strategy of development in many countries. The Local Government Declaration to the World Summit on Sustainable Development held in 2002 envisaged that "We live in an increasingly interconnected, interdependent world. Local government cannot afford to be insular and inward looking". In the Indian context, Gandhiji maintained that "Independence must begin at the bottom and every village will be a republic of Panchayats having full powers. It is therefore, that every village has to be self sustained and capable of maintaining its affairs even to against the whole world. It will be trained and prepared to perish in the attempts to defend itself against any onslaught." The decentralized model adopted by the Scandinavian countries in Europe, and in Kerala, India, has enabled these nations and states to achieve all round development. The committee appointed by the government of Rajasthan way back in 1964 (Committee Report, 1964) has made the following observations "the Panchayats and Panchayat Samitis have made considerable efforts for enrolment of boys and girls. The attendance of teachers in village schools has significantly improved due to close watch and supervision. People have constructed a large number of school buildings, despite reduction in government assistance." The decentralization of economic decision-making and implementation would not only reduce the cost of development but would also ensure more equitable distribution of fruits of development.

In India, the panchayati raj institutions, after the implementation of the 73rd constitutional amendment, are playing an important role in the educational development. Some of the duties and responsibilities assigned to them under the 11th Schedule of the constitution are

- education, including primary and secondary schools
- technical training and vocational education
- adult and non formal education.

1.6.4 Inclusive Education

Inclusive education, in recent years, occupies an important place in the national, as well as international organizations, helping the developing countries to spread education. In common parlance, inclusive education means the right of all learners irrespective of caste, colour, creed, gender, and disabilities to receive quality education which meets basic learning needs and enriches lives. It focuses particularly on entitlement of education to vulnerable and marginalized, who, largely, are excluded from mainstream education. The ultimate goal of inclusive education is to end all forms of discrimination and foster social equity. The Education for All Global Monitoring Report, 2008 says, " inclusion means encompassing, the marginalized and disadvantaged, whether they be poor, belong to rural and urban slums, ethnic and linguistic minorities or the disabled; all age groups from early childhood education (ECCE) to adults (especially literacy)."

1.6.5 Vocational and Skill Education

Vocational education has occupied an important place in the present-day era of privatization and globalization. Modernization and industrialization have enhanced the demand for vocational education. The National Knowledge Commission of

the Government of India has noted that "there is a growing demand for skilled workers, but data suggests that this demand is not met by the existing system, since the skills imparted do not match employer's needs. In order to become more relevant in the changing context and to exploit this demographic advantage in future, there is a need to create a model of imparting vocational education that is flexible, sustainable, inclusive and creative." Vocational education prepares the learners for career and profession that are directly related to specific trade and vocation. The labour market has become more diversified and skill driven and requires skilled manpower. Therefore, there is a need for investing in quality vocational education institutions. In the Indian context, as nine out of ten people work in the unorganized sector, the role of vocational education has become more significant. Vocational education in India is imparted mainly through the ITIs (Industrial Training Institutions) and polytechnic institutions. Many private educational institutions and Non-Governmental Organizations are also now a day's providing vocational education in India. Vocational education has a key role to play in the development of the nation.

1.6.6 Educational Disparities

Educational disparity is one of the key issues in educational development in most of the developing countries. Educational access and achievement varies across the gender, caste, class and ethnicity. In India, the literacy rate for male is higher than the female and the literacy rate of general caste group of population is higher than the Scheduled Castes and Scheduled Tribes population. Moreover, the educational status also varies across the region. The educational achievements of the people belonging to the Southern part of India are higher than the eastern and central part of India. The greatest challenge is to establish educational equity in the developing nation states.

In this section, you studied about emerging issues in education. Now, answer the questions given in Check Your Progress 4.

Check Your Progress 4

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) How has globalization affected educational development?

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2) What do you mean by inclusive education?

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1.7 LET US SUM UP

Education is one of the important factors of development. There is a strong relationship between education and development. Besides the relationship between education and development, this unit has focused on the determinants of educational development and various problems and issues in educational development. This unit also outlines two important theories about the contribution of education to development. Thus, education and development complement and supplement each other. Without education, there cannot be faster development. However, globalization has affected the education of a nation to a great extent and the emphasis is largely from literacy to higher education. Like globalization, education is also faced with a lot of problems and challenges which have been discussed in detail in this unit.

1.8 KEY WORDS

Adult Literacy Rate : The literacy rate among people ages 15 and older.

Gross Enrolment Ratio (GER) : The ratio in a given year of the total enrolment at a given educational level (Primary, secondary and tertiary) and the total estimated population in the corresponding age bracket.

$$\textbf{GER (Primary)} = \frac{\text{Enrolment in Primary School}}{\text{Children in the age group (6-11)}} \times 100$$

$$\textbf{GER (Secondary)} = \frac{\text{Enrolment in Secondary School}}{\text{Children in the age group (12-17)}} \times 100$$

$$\textbf{GER (Tertiary)} = \frac{\text{Enrolment in Post Secondary School Education}}{\text{Children in the age group (20-24)}} \times 100$$

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1.10 CHECK YOUR PROGRESS-POSSIBLE ANSWER

Check Your Progress-1

1) Briefly describe the importance of education to development

Answer. Education, whether formal, informal and/or non formal, through change in knowledge, behaviour, and practices brings development. Education is an investment, which brings development in the long run. According to Amartya Sen the solution to all problems related to the economy, development, or population lies in education. Education, in general, and vocational educational in particular, enhances productivity both in the industrial sector and the agricultural sector as well.

2) Can Education promote modernization and social equity?

Answer. The Education Commission of India (1964-66) has highlighted (Chapter-IV) in *Towards Equalization of Educational Opportunities* : "One of the important social objectives of education is to equalize educational opportunities, enabling the backward or under-privileged classes and individuals to use education as a lever for improvement of their condition" Besides, education helps in the modernization of society. Educated persons could easily adopt modern values of society as compared to illiterate persons who are largely guided by the traditional believes and values.

Check your Progress-2

1) What are the key features of Human Capital Theory?

Answer. The key features of Human Capital Theory are:

- It is not only the physical capital stock that is labour which is important, but also human capital stock, such as labour, which is critical to the growth and development of a nation.
- When people become more educated, they become more productive. There is a close relationship between the number of years of schooling and the income level of a person. In other words, increasing the level of schooling would lead to higher earning.
- The human capital theory believes that people are willing to invest in education, which is an investment for the future. Not only the individual, but also the whole society would gain out of investment in education.

2) What are the differences between the Human Capital Theory and Screening Theory?

Answer. The differences between the human capital theory and screening theory are narrated as follows. The advocates of human capital theory were of the opinion that it is not only the physical capital stock, that is labour is important, but also human capital stock such as education of labour is critical to growth and development of a nation. They argued that when people become more and more educated, they become more productive.

Screening theory believes that education is necessary but not a sufficient condition to contribute to individual productivity. It argues that specific skills required in a profession are acquired on the job, rather than at school. Screening theory states that it is very hard to predict future performance of an individual on the basis of her or his education.

Check your Progress-3

1) How is non formal education is vital to development?

Answer. Non formal education plays an important role in development. For example, the extension education which is largely a non formal education given to the farmers and the education given to the family regarding their health by the health extension workers, contributes to development in the respective fields. VKRV Rao said that without adult education and adult literacy, it is not possible to have that range of economic and social development which is required, nor it is possible to have that content or quality or tone to our economic and social development that makes it worthwhile in terms of values and welfare. A programme of adult education and adult literacy should, therefore, take a front place in any programme for economic and social development.

2) Explain three important determinants of educational development.

Answer. The three important determinant of educational development are literacy rate, educational environment (in terms of enrolment and dropouts), and educational expenditures.

Check Your Progress 4

1) How has globalization affected educational development?

Asnwer. Globalization has affected education in the following ways.

- With globalization, there is an expansion of science education across the globe. Policy makers, worldwide, regard economic growth as dependent on the scientific and technological capabilities of their labour force and science education fulfils that requirement.
- There is a pressure to reduce the growth of public spending on education and rise in other sources of funding.
- There is a growing emphasis on tertiary education.

2) What do you mean by inclusive education?

Answer. In common parlance, inclusive education means the right of all learners irrespective of caste, colour, creed, gender and disabilities to receive quality education which meets basic learning needs and enriches lives. It focuses particularly on the entitlement to education by the vulnerable and marginalized, who largely are excluded from the mainstream education. The ultimate goal of inclusive education is to end all forms of discrimination and foster social equity.

UNIT 2 HEALTH AND DEVELOPMENT

Structure

2.1 Introduction

2.2 Health: Concept and Relationship with Development

2.3 Components of Health Care

2.4 Indicators of Health

2.5 Health Care System: Issues and Challenges

2.6 Let Us Sum Up

2.7 Key words

2.8 References and Suggested Readings

2.9 Check Your Progress - Possible Answers

2.1 INTRODUCTION

Health is considered an important aspect of development. It is one of the primary social needs which every nation has to ensure to its citizen in order to meet its development goal. Healthy individual can make a healthy nation. They are more productive than unhealthy individuals. Therefore, investment in health can be regarded as an investment in human capital, which ultimately promotes development.

After reading this unit, you will be able to

- establish the relationship between health and development
- define health and describe various components of health
- analyze various indicators of health
- explain measurement and the consequences of malnutrition
- list various problems of the health care system.

2.2 HEALTH: CONCEPT AND RELATIONSHIP WITH DEVELOPMENT

You might have heard the proverb, 'health is wealth'. Of course, health is a frequently used term. For the common man, its meaning is to have a well-toned, well –built body. It is usually said that the people of Punjab are healthier than people from other states, but this does not reflect the true health status of the state and there are other heath indicators such as maternal mortality, infant mortality, etc. in which the state might be lagging behind compared to other state.. Let us now discuss a few definition of health.

The word "health" is derived from an old English word "heal" which means "whole", which signifies the whole person and his well-being. A few definitions of health are given below:

According to the World Health Organization, health is "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity".

Dubos says, "Health is the expression of the extent to which the individual and the social body maintain in readiness the resources required to meet the exigencies of the future".

Parsons said that "health is a state of optimum capacity of an individual for the effective performance of that roles and tasks for which he has been socialized".

2.2.1 Importance of Health

The World Health Assembly in its historic Alma Ata Ata Declaration (1978) advocated that the main social target for countries should be to have all citizens of the world attain a level of health that will permit them to lead a socially and economically productive life. The guiding principles of UN ICPD conference (1994) also state that "everyone has the right to enjoyment of the highest attainable standard of physical and mental health. States should take appropriate measures to ensure on a basis of equality of men and woman universal access to health care services". The enjoyment of good health needs to be one of the fundamental aims of every nation.

2.2.2 Relationship between Health and Development

Many social scientists have noted that there is both direct and indirect relationship between health and development. According to Szirmai, improving the state of health contributes to the realization of other developmental objectives such as economic development, labour productivity growth, responsiveness to innovation, and future oriented-ness. Gills and others said that the relationship between health and development is a reciprocal one. Economic development tends to improve health status, while better health contributes to economic development. Health has a direct association with labour productivity. Illlness and malnutrition lead to loss of strength and energy and productivity capacity which, ultimately, has a negative effect on labour income. Basta et. al., found that in Indonesia men with anaemia were 20 per cent less productive than men without anaemia. Gallup and Sachs found a significant negative relationship between the incidence of malaria and economic growth. According to Chambers, illness leads to reduced production in subsistence agriculture.

From all these arguments it could be deduced that health is closely associated with labour productivity, income, and economic growth. Poor health leads to loss of stamina, which further results in less hour of work and less productivity and less income. Less income leads to poor consumption, which further affect health, and this vicious circle continues. In a historical research, Fogel claimed that about one third of economic growth in England in the past 200 years is due to improvements in nutrition and health. It is remarked that investments in healthcare make substantial positive contributions to economic growth and development. The circle of relationship between health and development is given in Figure 1.

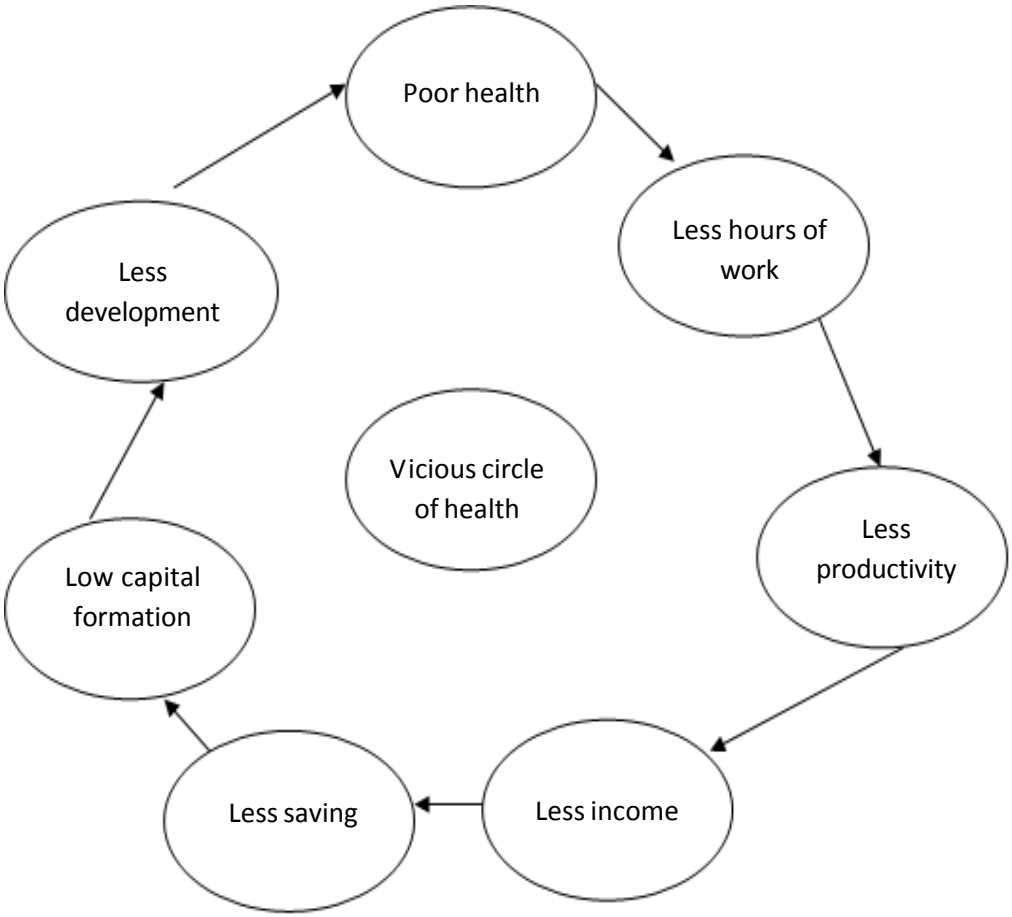

Figure 1: Circle of Health and Development Relationship

Health is regarded as one of the important components of development. The Millennium Declaration by the United Nations in September 2000 has accepted health in general and health care of women and children in particular as important component of development.

The eight Millennium Development goals are:

i) Gender equality and women empowerment

ii) Reduction in child mortality

iii) Improvement in maternal health

iv) Combating HIV/AIDS, malaria and other diseases

v) Ensuring environmental sustainability

vi) Developing a global partnership for development

vii) Eradication of extreme poverty and hunger

viii) Universal primary education

Among the eight Millennium development goals, three goals are related to health. These are: reduction in child mortality, improvement in maternal health, and combating HIV/AIDS, malaria and other diseases.

In this section, we discussed health and its relationship with development. Now, answer the questions given in Check Your Progress 1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What do you mean by health?

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2) How the health and development are vcrelated?

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2.3 COMPONENTS OF HEALTH CARE

In the earlier section, you studied the meaning of health and its relationship with development. In this section, you will find discussion on various components of health care. Health care consists of various aspects such as

i) Primary health care

ii) Health care programmes and policies

iii) Occupational health care

iv) Mental health care

The important components of health care are discussed below.

2.3.1 Primary Health Care

In the Alma Ata Ata Declaration, Primary Health Care was accepted as the key approach to ensure health care for achieving the goal of 'Health for All' by 2000. The World Health Organization advocated that primary health care should at a minimum include:

- education concerning prevailing health problems
- promotion of food and proper nutrition
- basic sanitation and adequate supply of safe water
- maternal and child health care including family planning
- immunization against major infectious diseases
- prevention and control of locally endemic diseases
- appropriate treatment of common diseases and injuries

- provision of essential drugs.

From these points, it could be identified that some of the key components of primary health care are :

i) maternal and child health care

ii) safe drinking water and sanitation

iii) control of diseases

iv) health education and communication

The Key features of Primary Health Care

i) essential

ii) scientifically sound and socially acceptable

iii) accessible to individual and community through their full participation

iv) it is affordable and cost effective

v) it encompasses preventive, curative, promotive and rehabilitation services

vi) it is delivered through the existing health structure easily

vii) it takes care of all common health problems of the community

Maternal and Child Health care

In India, Primary Health Care services are delivered through health sub centres, Primary Health Centre (PHCs), and Community Health Centre (CHCs),district hospitals, and dispensaries situated at the village, Block and District level.

Maternal and child health care means taking care of the health of the mother and children**.** Maternal and child health care is an essential component of primary health care. WHO (World Health Organisation) has envisaged that maternal health care should ensure that every expectant and nursing mother should maintain good health, learn the art of child care, has a normal delivery, and bears healthy children. As far as child health care is concerned, the WHO has said that every child, wherever he, or she, lives and grows up in a family unit, with love and security, in healthy surroundings, receives adequate nourishment, healthy supervision and efficient medical attention and is taught elements of healthy living.

Key Components of Maternal and Child Health Care

- care for antenatal woman, i.e., care during pregnancy
- provision of institutional delivery, i.e., delivery should be conducted in health care institutions
- post natal care - care of lactating mother after delivery
- nutritional care of ante natal and post natal mother
- care of the new born
- immunization of children
- nutritional care of children
- health education to women and children
- prevention of maternal mortality, infant and child mortality.

The Maternal and Child Health Care has been renamed as Reproductive and Child Health Care. The important aspects included in the Reproductive Child Health Care programme of which maternal and child health care is a component are

- checking of abortion related maternal mortality
- checking HIV/AIDS among the women and new born child, virus transmitted from infected mother to new born child
- checking sexually transmitted diseases (STDs).

The International Conference on Population and Development held in Cairo, 1994, recommended the implementation of the Reproductive and Child Health (RCH) Programme. The important points highlighted at the conference are given below.

a) The empowerment of women and improvement of their status are important ends in themselves. Reproductive health including family planning should, therefore, be promoted within this context in which woman would be provided with greater choices through expanded access to education, health services, skill development and employment.

b) Family planning programmes should not be viewed as instruments for achieving demographic goals but as part and parcel of providing reproductive health care to woman and couples.

c) At no stage in the programme of reproductive health and family planning are women's rights to be violated by incentives or coercion directly or indirectly. There should not be compulsion of any sort regarding the family size and choice of a contraceptive method. Both men and women should be adequately informed and the widest possible choices should be available in the selection of safe contraceptive methods.

Safe Drinking Water and Sanitation

Access to portable drinking water and sanitation is closely related to the health status. Diseases associated with contaminated water supply and/or poor sanitation can be classified as follows.

- Water washed diseases - insufficient water use and poor personnel hygiene lead to diseases, these can be scabies, skin infections, typhoid and it also includes certain intestinal infections related to poor excreta disposal that is dysentery, these can be controlled by increasing water quality and improved personal hygiene and sanitation.
- Water related vector-borne diseases - spread by insects that breed in water or bite near it and unrelated to excreta disposal such as yellow fever, filariasis, malaria, and dengue. Can be controlled by providing reliable water supply and sociological management such as clearing of bush, draining out stagnant water.
- Excreta disposal diseases - spread by improper disposal of excreta and open defecation. Associate diseases are hookworm, tapeworm and roundworm.

Another type of environmental sanitation problem which the developing countries are facing, particularly in their rural and urban slum areas, is housing with

insufficient space, ventilation, and access to sunlight. This promotes the spread of airborne diseases such as tuberculosis and asthma. In developed countries, improvement in sanitation has reduced the occurrences of diseases. However, in developing countries it has not been given due importance for a long period. Therefore, the proponents of healthcare programmes have urged that development should not only emphasize on reducing mortality and morbidity; special attention has to be given towards nutrition, healthcare and environmental sanitation.

Table 1: Status of Portable Water and Sanitation in selected Countries, 2015

Countries	% of population using safely managed sanitation	% of population using safely managed drinking water
US	89.5	99.0
UK	97.6	95.7
Japan	94.5	97.2
China	59.7	-
India	-	-
Pakistan	-	35.6
Nepal	-	26.8
Nigeria	-	19.4
Uganda	-	6.4

Source: *World Development Indicators, 2016*

Water and sanitation related diseases are governed by the host-agent-environment triad, shown in Figure 2.

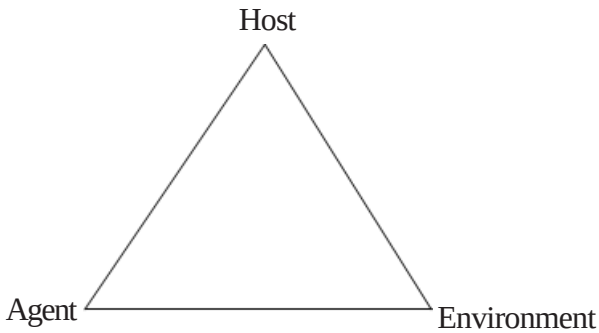

Figure 2 : The Host –Agent-Environment triad

For example, tuberculosis requires an agent - the micro-organism mycobacterium tuberculosis; a susceptible host (the patient who may be a malnourished alcoholic) and an environment (perhaps, sharing an overcrowded shelter for the homeless with others who may have been infected).

Heath Education and Communication

Health education is important for creating awareness and generating demand for health care services by the people for a healthy living. The health education is a process that informs, educates, motivates and helps people to know, adopt and

maintain healthy practices for better quality of living. The Alma Ata Declaration (1978) has given a dynamic definition of health education in following words "a process aimed at encouraging people to want to be healthy, to know how to stay healthy, to do what they can individually and collectively do to maintain health and to seek help when needed." Some important aspects that need to be covered in health education are maternal health care, child health care, family planning, nutrition, environmental sanitation, disease prevention and control, mental health, use of health services and health care delivery system, and community participation. However, the content of health education can vary from area to area and from one target group to another. Health education has been integrated into the school curriculum in many countries. Health awareness among the children and adults would promote healthy future parenthood.

Health education can be imparted to the people through various approaches and methods such as, individual, group, and mass approaches. The individual approach includes personal contact, home visits, personal telephone calls, and e-mails. The group approach includes lecture-demonstration, focus group discussion, panel group discussions, role play, folk dances, and dramas. The mass education approach includes television, radio, news paper, posters, and wall painting.To be effective, health education strategy needs to apply certain principles. It should be interesting, create participation among the people, it should be from the known to unknown, it should be motivating, and it should create enthusiasm among the people.

Health and Wellness

In recent year the primary health care centres in India have also focused on the health and well aspects. The rise in life style diseases in both rural and urban areas have necessitated how to health life style practices in order to promote not only health but also wellness of the individual so that he or she remains tension free and free from life style diseases such as sugar, bold pressure, etc. The Health and Wellness centre establish under the Ayushman Bharat Yojana of the government of India has following features:

i) **Maternal and Child Health Care:** pregnancy and child birth, childhood and adolescent health, and reproductive health.

ii) **Common Illness and Health Care**: common ophthalmic and ENT problem, oral health, mental health ailments, elderly and palliative health and emergency medical services

iii) **Diseases Care**: management of communicable and non-communicable diseases.

iv) **Supporting Services**: health promotion including Yoga, free essential medicines and diagnostics, tele-consultation, robust IT system and electronic health records.

2.3.2 Health Programmes and Control of Diseases

The government and international agencies in different countries are spending a lot of money on health programmes for the control of diseases. For example, important health programmes launched in India for the control of specific diseases are

i) National Malaria Eradication Programme

ii) National Leprosy Eradication Programme

iii) National Tuberculosis Programme

iv) National AIDS control Programme

v) National Programme for Control of Blindness

vi) Universal Immunization Programme

vii) Reproductive Child Health Programme.

The National Malaria Eradication Programme was launched in 1958. It was based on indoor residual spraying of DDT (Diclorodiphenyl trichloroethare). It helped to control malaria, although, it could not eradicate it from the country. The National Filarial Control Programme has been underway since 1955. Under this programme, in rural areas, anti-filarial medicines and morbidity management services were provided through primary health care system. The National Leprosy Control Programme has been underway since 1953.The strategy is based on early detection of cases, short term multi drug therapy, health education, ulcer and deformity care, and rehabilitation activities. The National Tuberculosis Programme has been in operation since 1962 and it aims at reducing the tuberculosis in the community. The programme includes vaccination of children against tuberculosis and care of tuberculosis case through DOTs (Direct Observed Therapy). The National Programmes for Control of Blindness was launched in 1976 for providing eye care facilities and control of corneal blindness, refractive errors among school going children and control and management of cataract cases. The National AIDS Control Programme was launched in 1985. The programme aims at prevention, care and surveillances, and, because of the seriousness of the disease, the Government of India has formulated a National AIDS Prevention and Control policy in 2002.

The Universal Immunization Programme (UIP) was launched in 1985 by removing the previous Expanded Programmes on Immunization (EPI). Its aim was to ensure immunization facilities to pregnant and lactating mothers and children below five year against vaccine preventable diseases. It is ensured through the existing health care system. The Reproductive Child Health Programme was launched in 1977. The programme incorporated the components of Child Survival and Safe Motherhood and includes two additional programmes such as STD (Sexually Transmitted Disease) and RTI (Reproductive Tract Infections). The National Rural Health Mission (NRHM) is a recent programme, launched in 2005, which aims at delivery of maternal and child health care services and ensures other capacity building and infrastructure development in the health care system through active community participation. These are a few important health programmes, ongoing in India, for improving the health status and quality of living of people.

Considerable advancement has been made in health and medical sciences. But at the same time, developing countries have not been successful in controlling diseases and disease related deaths. Communicable diseases like tuberculosis are responsible for 30 per cent of deaths. More than 20 million people died of AIDS and many more are suffering. Adding to this, non communicable diseases and injuries have surpassed the burden imposed by communicable diseases which accounted for 33.5 million and 5.2 million deaths respectively out of global mortality of 57 million.

Table-2 : Incidence of Tuberculosis per 1, 00,000 people in Selected Countries

Countries	Incidence of Tuberculosis
Bangladesh	227 (2014)
Botswana	385 (2014)
China	68 (2014)
Ethiopia	207 (2014)
Germany	6 (2014)
Japan	18 (2014)
India	167 (2014)
Sri Lanka	65 (2014)
UK	12 (2014)
US	3 (2014)

Source: *World Development Indicators, World Bank, 2015*.
Figures in parenthesis show year

Non communicable diseases are emerging as the major cause of mortality and morbidity. The global burden of cardiovascular diseases, diabetes, cancer, and stress and associated medical disorders are on rise. The risk associated with medical disorders is on rise. The risks associated with the non-communicable diseases have raised blood pressure, high cholesterol, obesity or overweight, and physical inactiveness.

2.3.3 Occupational Health

Occupational health aims at the prevention of diseases and maintenance of the highest degree of physical, mental and social wellbeing of workers in all occupations. Workers in all types of occupations are it in agriculture, or industry, or in the construction sector, and other unorganized sectors are liable to physical, chemical, biological, mechanical, and psychosocial hazards. The workers in the tobacco factories are more likely to be affected by asthma and tuberculosis. The health of the workers needs to be protected, not only to raise their work capacity, but also their well being. Some occupational diseases are cancer, tuberculosis, leukaemia. Medical maternity, disability, and sickness benefits should be given to the workers employed in various occupations by the government and by private employers. The government of India in its directive principles of state policy has mentioned that “the state shall, in particular directs its policy towards securing that the health and strength of the workers, man, woman and the tender age of the children are not abused and citizen are not forced by economic necessity to enter vocations unsuited to their strength”.

2.3.4 Mental Health

According to WHO statistics, about 500 million people in the world are believed to suffer from neurotic, stress related, and somatoform (psychological problems which present themselves as physical complaints) ailments. The causes of mental illness may be due to organic conditions, heredity, and social causes. The mental health services include early diagnosis and treatment, rehabilitation, group and

individual psychotherapy. Mental health affects the family health. Globalization and modernization and growing aspirations have heightened the mental health problems. The tension in the workplace and in the family day by day enhancing the number of people suffering from mental problems. If the situation is not tackled, it will be a major health problem in the years to come.

2.3.5 Life Style Diseases

In recent years life style diseases are considered as important barometers of health status. The increase in family pressure and work pressure has given rise to increase in the cases of blood pressure, sugar in both developed as well as developing countries.

In this section, we discussed the components of health care: primary health care, maternal and child health care, health programmes and control of diseases, occupational health, mental health, health education and communication, indigenous system of medicines. Now, answer the questions in Check Your Progress 2.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What is the focus of the National Tuberculosis Programme?

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2) What is the aim of National Rural Health Mission?

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3) Write a short note on mental health.

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4) Write a short note on occupational health.

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2.4 INDICATORS OF HEALTH

In the previous section, you read about various components of health care. In this section, you will study about the various indicators of health.

The various types of indicators which are used to assess the health development of a nation follow.

2.4.1 Health Services Indicators

Health services indicators such as the number of health care delivery centres and the number of medical and paramedical staff posted per centre, influences the delivery of health care services. Per patient availability of doctors, nurses, and other paramedical staff and hospital beds are also determinants of the effectiveness of health care delivery system. The expenditure on health care influences the health care services provision. Countries which spend more money have better provision of health care services than their counter parts. The per capita health care expenditure of the developed nations is much higher as compared to the developing nations. You will find the expenditure on health care by a few countries, both developed and developing in Table-4. By this figure you can see how the developed countries are more serious about the health care of their citizenry.

Table 3: Health Care Facilities in selected Developed and Developing Countries

Country	Birth attended by skilled health personnel (2008-2016)	Physician (per 1000 people) (2008-2016)
US	99	2.6
UK	-	2.8
Japan	100	2.3
China	100	1.9
India	81	0.7
Nepal	56	-
Pakistan	52	0.8
Sri Lanka	-	0.7
Nigeria	35	0.4
Zambia	63	0.2

Source: *Human Development Indicators, 2016*

Table 4: Health Expenditures in Selected Developed and Developing Countries

	Health Expenditure % of GDP
Bangladesh	3.7 (2013)
Botswana	5.4 (2013)
China	5.6 (2013)
Ethiopia	5.1 (2013)
Germany	11.3 (2013)
Japan	10.3 (2013)
India	4.0 (2013)
Sri Lanka	3.2 (2013)
UK	9.1 (2013)
USA	17.1 (2013)

Source: *World Development Indicators*, World Bank, 2015

Note: Figures in parenthesis show year

2.4.2 Mortality Indicators

Maternal Mortality Rates and Infant Mortality Rates are largely used as indicators of health development by different nations, and by agencies involved in assessing and promoting health care. The infant mortality rate of India is more than ten times higher than that of U K. The infant mortality rates in developing countries are astoundingly high as compared to the developed countries. The definition and calculation of maternal mortality and infant mortality is given in the keyword at the end of the unit.

Table 5 : Maternal Mortality Rate and Infant Mortality Rate, 2015

	MMR	IMR
Bangladesh	176 (2015)	31 (2015)
Botswana	129 (2015)	35 (2015)
China	27 (2015)	9 (2015)
Ethiopia	353 (2015)	41 (2015)
Germany	6 (2015)	3 (2015)
Japan	5 (2015)	2 (2015)
India	174 (2015)	38 (2015)
Sri Lanka	30 (2015)	8 (2015)
UK	9 (2015)	4 (2015)
USA	14 (2015)	6 (2015)

Source: *World Development Indicators*, World Bank, 2015

Note: Figures in parenthesis show year

2.4.3 Morbidity Indicators

The number of people suffering from various diseases is also used as indicators of health. The WHO has devised a new parameter to assess the global burden of diseases called Disability Adjusted Life Year (DALY). DALY is a time based measure that combines the year of life lost (YLL) due to premature mortality and years of life with disability (YLD) or years of life lost due to time lived in states of less than full health. The definition and calculation of maternal mortality and infant mortality are given in the keywords at the end of the unit. Morbidity varies from country to country, and particularly from developed to underdeveloped countries. According to WHO (1987) in poor developing countries infectious intestinal and respiratory diseases are the most important cause of death, while in rich countries neoplasms (cancer), cardiovascular diseases and degenerative diseases rank high among the causes of death. The AIDS-related mortality is quite high in poor African countries, as compared to others developed countries. One of the statistics shows that AIDS is seen as accounting for no less than 22.6 per cent of total mortality and including AIDS, infectious disease accounts for 63.8 per cent of mortality in Africa. The money which could have been spend for other development purposes is used in controlling STD, HIV and AIDS in these countries. According to WHO (2001) in recent years, morbidity which is receiving more attention is mental disorders. Worldwide, 45 million are affected by schizophrenia, 29 million people suffer from dementia and 40 million people suffer from different types of epilepsy (WHO, 1997). Thus, morbidity eats away the countries resources which could have been utilized for developmental purposes, such as essential infrastructure, provision of basic amenities, education, and primary health care.

Table 6: HIV Prevalence % of Population ages 15-49 in Selected Countries, 2016

Country	% of Population
Bangladesh	0.1
Mozambique	12.3
Pakistan	0.1
South Africa	18.9
China	-
India	0.3
U K	-
USA	0.5

Source: *World Development Indicators*, World Bank, 2016

A recent World Development Report has mentioned that 18.1 per cent of the population is affected with HIV in South Africa, as against 0.9 in India and only 0.2 percent in U K.

2.4.4 Demographic Indicators

Demographic indicators such as birth rate, death rate, and life expectancy rate are also used for assessing the health status of a nation. Both the birth rates and death rates are high for developing countries as compared with developed countries. The quantity and quality of health care services influences birth and death rates. The propensity to enjoy higher standards of living and good health and to remain in workforce participation are among many factors responsible for lower fertility. Frequent pregnancies restrict the workforce participation of woman. Besides the birth rate, death rate, and fertility rate, life expectancy in developing countries is lower compared to developed countries (Table-7). The life expectancy for males and females in Japan is 85.7 and 78.7, respectively, while in India, the rates are 65.3 and 62.3 for males and females. Immunization is nearly universal in developed countries.

Table 7: Life Expectancy at Birth of Selected Countries 2013

	Life Expectancy
Bangladesh	71 (2013)
Botswana	64 (2013)
China	75 (2013)
Ethiopia	63 (2013)
Germany	81 (2013)
Japan	83 (2013)
India	68 (2013)
Sri Lanka	74 (2013)
UK	81 (2013)
USA	79 (2013)

Source: *World Development Indicators, 2015.*

Note: Figures in parenthesis show year

2.4.5 Immunization Indicators

The demographic and health surveys conducted by various international agencies, nowadays, use immunization as one of the indicators of the health status of a nation. Various immunization packages used by countries are BCG, polio, measles, and hepatitis. There is a direct relationship between immunization and child survival rate. Samuel studied the relation between average per capita income and life expectancy and found that there is a positive relation between per capita income and life expectancy. Immunization is one of the primary steps to prevent infant and child mortality. Improved immunisation status has reduce the incidences of vaccine preventable diseases both in developed as well as developing countries.

Table 8: Immunization against Vaccine Preventable diseases in selected Countries, 2016

Countries	% children ages 12-23 months received measles	% children ages 12-23 months received DPT3
US	95	95
UK	92	94
Japan	96	99
China	99	99
India	88	88
Nepal	83	87
Pakistan	61	72
Bangladesh	94	97
Sri Lanka	99	99
Nigeria	51	49
Zambia	93	91

Source: *World Development Indicators, World Bank, 2016*

The percentage of immunization influences the maternal and infant mortality rate. Immunization also enhances the access to health care services particularly of children and woman

2.4.6 Nutrition Indicators

Malnutrition is one of the important causes of mortality and morbidity in developing countries. Almost all developing countries are facing this problem and it is more pervasive in rural areas, among the impoverished sections of society, and, particularly, among woman and children. There is considerable evidence that workers who receive higher caloric intake outperform their counterparts who do not consume the required calories. Malnutrition is considered as a primary cause of deaths among children under five in low income countries. The most common form of malnutrition is known as protein calorie malnutrition (PCM). The deficiency of these specific nutrients resulted in diseases like rickets, scurvy and beriberi. Among the others, deficiency in Vitamin A causes blindness and iron deficiency anaemia. The percentage of population suffering from malnutrition is quite high in South Asia and sub Saharan Africa as compared to other developed countries. Rentlinger and Selowsky remarked that in Asia, the Middle East and Africa, there were shortfalls ranging from 135 to 230 calories per day. To bring the averages for these regions up to the standards would require an additional 269 thousand million calories daily or, approximately 25 million metric tons of food grains annually.

Malnutrition has serious consequences on the health of a population in general, and on woman and children in particular. Some of the consequences of malnutrition are

i) malnutrition among the toiling masses reduces their labour capacity and consequently affects productivity

ii) malnutrition in women results in spontaneous abortion, poor conception, and even infertility

iii) malnourished women may give birth to low birth weight babies, infants that weight less than 2.5 kg, and premature delivery

iv) Malnourishment among women sometimes results in still birth and spontaneous abortion

v) Malnourishment among children is one of the causes of infant and child mortality

vi) Malnourishment leads to loss of memory among school going children

vii) Malnourished children are lethargic compared to normal children, and are less likely to take part in sports and scout activities

Table 9: WHO cut off Criteria for Anaemia

Year	Haemoglobin
Children 6 months- 6 years	119/dl
Children 6 -14years	129/dl
Adult male	139/dl
Adult female (Non pregnant)	129/dl
Adult female (Pregnant)	119/dl

Source: *Gupta, P and Ghai OP, Text Book of Preventive and Social Medicare, Second Edition, CBS Publisher & Distributors, New Delhi, 2007, P.147.*

Table 10: Prevalence of Anaemia among Children and Pregnant Women, 2016

Countries	% Prevalence of anaemia among children <5, 2016	% Prevalence of anaemia among pregnant women,2016
US	9	16
UK	12	22
Japan	13	34
China	21	32
India	57	50
Nepal	43	40
Pakistan	59	51
Bangladesh	40	46
Sri Lanka	26	35
Nigeria	68	58
Zambia	54	39

Source: *World Development Indicators, World Bank, 2016*

The status of malnutrition of a few countries is given in Table-9 which reveals that the percentage of malnourished people living in developing countries like India, Nepal and Pakistan is eight times higher than in the developed countries like USA, UK, and Japan.

In this section, we discussed the indicators of health, like mortality, morbidity, demographic, immunization, and malnutrition. Now, answer the questions in Check Your Progress 3

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Why is immunization an indicator of health?

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2) Write a short note on demographic indicators of health.

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2.5 HEALTH CARE SYSTEM: ISSUES AND CHALLENGES

The performance of a health care system varies from country to country, and even within the country, from region to region. This performance influences the health indicators. Some of the problems which affect their performances are described below.

2.5.1 Insufficient Allocation of Resources

The percentage of money spend on health to GDP in developing countries is low compared to developed countries. Besides, there is also a gross imbalance in spending in different activities, such as expenditure on service delivery, salary

of the staff, construction of health institutions, etc. A major share of health care expenditure goes to the salary component, followed by infrastructure building, and a meager amount of money is spend on the provision of services and capacity-building of health care delivery personnel. Thus, low provision and erratic distribution of health care expenditure is a major problem of a health care system in many developing countries.

2.5.2 Inequity

Inequity is another important feature of health care system in many countries which are facing problems of inefficiency and ineffectiveness of their health care system. Reaching out to the unreached must be the motto of public health care services. However, the people living in the rural areas and belonging to economically weaker sections of society are largely devoid of quality health care facilities. Government spending disproportionately goes into upgrading health care facilities in the urban, sophisticated tertiary care hospitals. The health care delivery units situated in inaccessible, sub mountainous, and rural areas have poor health infrastructure and manpower facilities. Even if posted, many health personnel particularly medical and paramedical staffs are not adequately motivated to work in inaccessible areas. This inequity promotes a health dualism, where modern health care facilities are enjoyed by economically stronger sections, while the poor receive most of their health care services from unqualified private practitioners.

2.5.3 Inefficiency

Inefficiency in spending money and inefficient health care delivery by personnel are largely observed in a country which has poor health status. Ineffective allocation of resources leads to inefficiency in delivery of services by the health centre. Sometimes improper selection of health manpower affects the efficiency of the system.

2.5.4 Inadequate Community Participation

The state led health care services are a one-sided government driven programme, where community is treated as beneficiaries. There is lack of feeling of ownership and participation among the community. Community participation is a process by which individuals and families assume responsibility for health and family welfare for themselves and for the community in which they live. In this way, they become the participants as well as beneficiaries of health care system. The Community Based Organization's (CBO) role is key to successful implementation of health care services at the grassroot level. They will not only motivate people to use and contribute to health care services, they will also help the health care service providers for effective delivery of services. They would act as go-between the people and the health services providers. Therefore, Simone has remarked " community participation is not just about getting together with a common goal and the desire to make it happen…they are sharing time, space and common path, but no community participation takes place unless they connect with each other in the experience they share. The sense of belonging and feeling related to a larger whole does not happen when each person remains within a separate self-reality even though the physical circumstance is shared. To be able to participate and communicate to each other people need to connect". A relationship of community participation with the local organization is given in Figure 2.3.

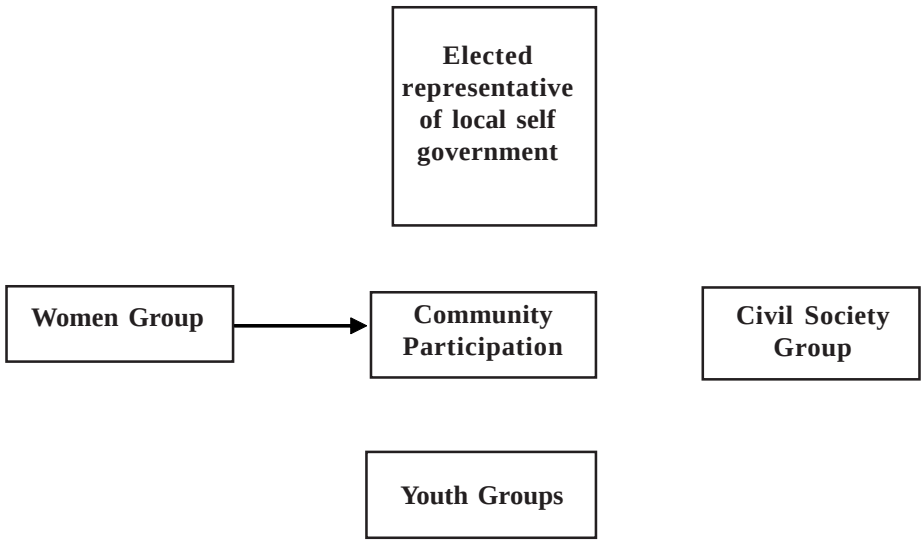

Figure 3 : Community Participation Chart

2.5.5 Poor Information Education and Communication (IEC) System

IEC systems are inadequate in rural areas and, particularly in unreached areas in the developing countries. IEC systems are important for countries having low literacy rate. The aim of an IEC system is to inform and educate the people regarding various health and family welfare issues through different communication techniques, and to motivate them to adopt various practices for their health and well being and of their families. Commonly used IEC methods are lecture discussion, radio talk and advertisement, film show, posters, charts, wall paintings, television show etc and face-to-face communications, such as focus group discussions (FGDs), individual counselling , etc. IEC methods are the most effective and appropriate means to promote health care delivery. However, it is very weak in many places and, as a result, the use of health care services has been affected. You will come to know some of the IEC methods used in LIP (local Initiative programmes are one of the innovative project launched for the health care of women and children in the villages of Punjab, Himachal Pradesh and Uttaranchal and urban slums of Kolkata with financial help from the Bill and Milenda Gates Foundation)is given in the box below.

Innovative IEC Practices

- Procuring, developing and distributing BCC (Behavioural Change communication) materials such as posters, charts, pamphlets, etc
- Capturing the attention of the people through wall paintings in every village
- Holding cluster meetings and focus group discussions with ante natal mothers and community members
- Promoting awareness by holding health *melas*
- Holding focus group discussions and organizing lecture in schools with the adolescents.

***Source**: Management Science for Health, Boston, USA; Technical Assistance Incorporated, Dhaka, Bangladesh; Centre for Research in Rural and Industrial Development (CRRID), Chandigarah, India, 2003* www.india-lip.org

2.5.6 Lack of Inter-sectoral Coordination

Inter-sectoral coordination means the health sector has to coordinate with other related sectors such as public health, woman and child welfare, rural development, and local self government and education for the effective implementation of its various programmes. The coordination with public health department which largely deals with the provision and maintenance of sanitation and drinking water, is essential for controlling diseases associated with water and sanitation. Health and the public health department and its personnel have to be strategically linked for the effective delivery of services of both the departments for their mutual benefit and for the wellbeing of the people. Health development linkages with the woman and child health department and education department would improve the health status of women, children, and adolescents. An example of inter sectoral coordination is given in Figure2.4

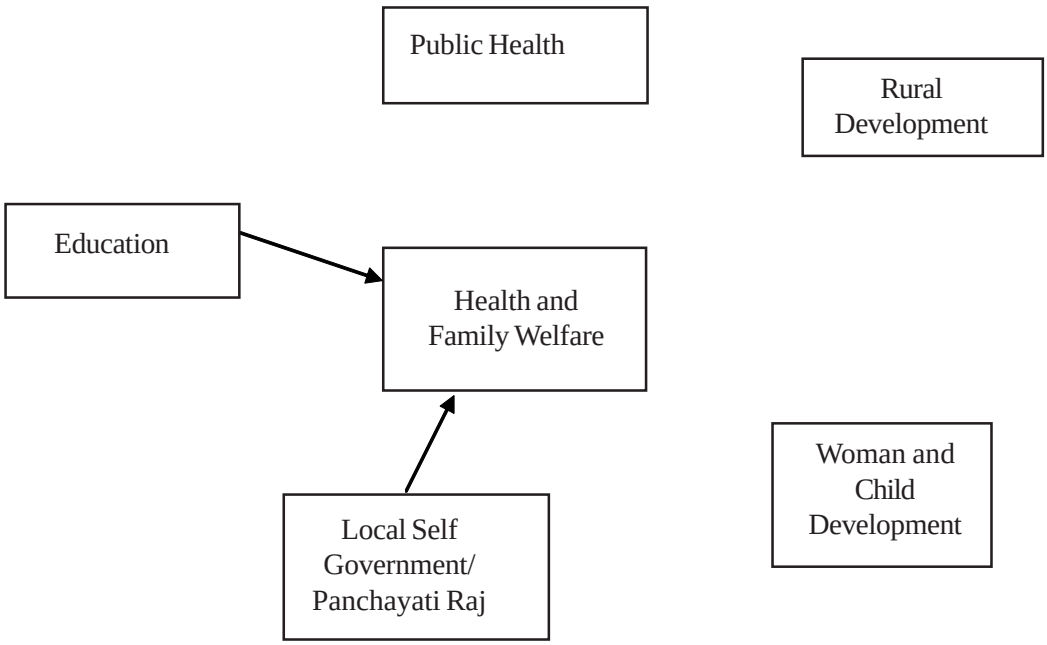

Figure 4 : Inter-sectoral Coordination Chart

The linkages of health with the health related departments are weak in many countries, which is adversely affecting the performance of health sector.

2.5.7 Poor Health Security and Health Insurance Facility

In developing countries, there is poor provision for health security, particularly for those who work in the unorganized sector. The impoverished families are even unable to pay paltry insurance premium. The cost of medical services and drugs are increasing day by day, therefore, the economically weaker families in rural and urban slum areas are dependant on low cost and poorly qualified private practioners. Even the critical pregnancy cases are being handled by traditional birth attendants, some of the practices even leading to maternal mortality. Health security is essential in the workplace and for the common man for the enhancement of the health status of the population.

2.5.8 Illiteracy

Education is an important determinant of health. Countries with high literacy rate perform better in health indicators as compared to the countries having low literacy

rate. For example, the health indicator of Sri Lanka is better than those of Bangladesh, India and Pakistan. The literacy rate of Sri Lanka is quite high as compared to other South Asian Countries. In India, the health indicator of Kerala which has a literacy rate more than eighty per cent is much higher as compared to Madhya Pradesh, Bihar, Rajasthan and Uttar Pradesh. Lower literacy in general, and women's literacy in particular, affect health and the family welfare status. The relationship between health and literacy is well established in many research studies.

In this section, we discussed the issues and challenges of the health care system. Now, answer the questions in Check Your Progress 4.

Check Your Progress 4

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Write in brief five problems of the health care system.

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2) What is IEC?

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2.6 LET US SUM UP

Health is one of the important indicators of development. This unit has discussed the relationship between health and development. The unit also comprises discussions on important components of health care and health care indicators. Malnutrition has an adverse impact on health as well as development. The health care system suffers because of some problems in health care delivery system. These are inequity, inefficiency, inadequate community participation, lack of intersectoral coordination, etc. Health and development are deeply interrelated. Healthy people are necessary for the promotion of development.

2.7 KEY WORDS

Birth Rate = $\frac{B}{P} \times 100$

B = Number of birth occurred in a given period

P = Mid-year population during the given period

$$\textbf{Death Rate} = \frac{D}{P} \times 100$$

D = Number of death occurred in a given period

P = Mid-year population during the given period

Total Fertility Rate = is an estimation of the average number of children that would be born alive to a woman throughout her reproductive age span as per prevailing specific fertility rates. TFR = sum of ASFRs

$$\text{ASFR} = \frac{\text{Number of live births to mothers of a specified age group}}{\text{Mid-year female population of the same age-group}} \times 1000$$

$$\textbf{MMR} = \frac{\text{Number of deaths due to puerperal causes in women}}{\text{Number of live births}} \times 100{,}000$$

IMR = Number deaths of infants under one year of age in a given year per 1000 live birth in that year

$$\textbf{IMR} = \frac{\text{Number of deaths under 1 year of age in a year}}{\text{Number of live births in that year}} \times 1000$$

Life Expectancy at Birth- The average number of years a new born could expect to live if he, or she, were to pass through life subject to the age specific death rates of a given period.

2.8 REFERENCES AND SUGGESTED READINGS

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2.9 CHECK YOUR PROGRESS-POSSIBLE ANSWER

Check Your Progress-1

1) What do you mean by health?

Answer: The word "health" is derived from an old English word "heal" which means "whole", which signifies the whole person, and his wellbeing. It has been defined differently by different organizations and individuals. According to the World Health Organization (WHO, 1947) it is "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".

2) How are health and development related?

Answer: Many social scientists have noted that there is a positive relationship between health and development. Economic development tends to improve health status, while better health contributes to economic development. Health has a direct association with labour productivity. Illness and malnutrition lead to loss of strength and energy and productivity capacity; and, which ultimately have a negative effect on labour income. According to Szirmai (2005) improving the state of health contributes to the realization of other developmental objectives, such as economic development, labour productivity growth, responsiveness to innovation, and future oriented-ness.

Check Your Progress 2

1) What is the focus of the National Tuberculosis Programme?

Answer: The main focus of the National Tuberculosis Programme is to reduce tuberculosis in a community. The programme includes vaccination of children against tuberculosis and care of tuberculosis cases through DOTs (Direct Observed Therapy).

2) What is the aim of the National Rural Health Mission?

Answer: The National Rural Health Mission (NRHM), a recent programme launched in 2005, aims at the delivery of maternal and child health care services, and ensures other capacity building and infrastructure development in the health care system through active community participation.

3) Write a short note on mental health.

Answer: According WHO statistics, about 500 million people in the world are believed to suffer from neurotic, stress related, and somatoform (psychological problems which present themselves as physical complaints). The causes of mental illness may be due to organic conditions, heredity, and social causes. The mental health services include early diagnosis and treatment, rehabilitation, and group and individual psychotherapy. Mental health affects family health. Globalization and modernization and growing aspirations have enhanced the mental health problem.

4) Write a short note on occupational health.

Answer: Occupational health aims at the prevention of diseases and maintenance of the highest degree of physical, mental, and social wellbeing of workers in all occupation. Workers in all types of occupations, be they in agriculture, or industry, or in construction, and in the unorganized sectors are liable to physical, chemical, biological, mechanical and psychosocial hazards. The workers working in the tobacco factories are of greater chance to be affected by asthma and tuberculosis.

Check Your Progress 3

1) Why is immunization an indicator of health?

Answer: Immunization is considered one the important indicators of health because in developing countreis it plays an important role in the survival of infants and children. The polio vaccination programme has checked occurrences of polio to a great extent in India. It also influences the maternal mortality of pregnant and lactating women.

2) Write a short note on demographic indicator of health.

Answer: Demographic indicators, such as birth rate, death rate, and life expectancy rate are also used for assessing the health status of a nation. Both the birth rate and death rates are high for developing countries as compared to developing countries. The quantity and quality of health care services influences the birth and death rate. The propensity to enjoy higher standards

of living, enjoy good health; and, the work force participation rate among woman are a few among many factors responsible for the lower fertility rate.

Check Your Progress 4

1) Write in brief five problems of the health care system.

Answer: The five problems of the health care system are: (i) inefficient allocation of resources; (ii) inequity and inefficiency; (iii) inadequate community participation; (iv) poor information, education, and information system; and (v) lack of intersectoral coordination.

2) What is IEC?

Answer: IEC systems are a means to inform and educate the people regarding various health and family welfare issues through different communication techniques, and to motivate them to adopt various practices for their health and wellbeing, as well as of their families. Different IEC methods usually used are lecture discussion, radio talk and advertisement, film show, audio-video like poster, charts, wall paintings and television, and other face-to-face communication, such as focus group discussions (FGDs), and individual counselling, etc. IEC is the most effective and appropriate means to promote health care delivery.

UNIT 3 GENDER AND DEVELOPMENT

Structure

3.1 Introduction

3.2 The Relationship of Gender with Development

3.3 The Role of Gender in Development

3.4 Gender Empowerment and Development

3.5 The Gender Development Index

3.6 The Gender Empowerment Measure

3.7 Gender Adversaries

3.8 Measures for Engendering Development

3.9 References and Suggested Readings

3.10 Let Us Sum Up

3.11 Check Your Progress - Possible Answers

3.1 INTRODUCTION

Gender and development are considered important areas in the study of social sector issues in development. The historical development of societies has placed women at distinctively disadvantageous position. Historical studies reflect that women have played a marginal role in the development of societies. However, modern development theories attribute significant participation by all sections of society, including women as a gender category, in the development process. Women constitute almost half of human population, and their role in the development process has critical significance in the success or failure of nations.

After reading this unit, you will be able to:

- establish relationship between gender and development
- define gender and describe various components of gender and development
- analyze various indicators of gender and development (GDI, GEM)

3.2 THE RELATIONSHIP OF GENDER WITH DEVELOPMENT

3.2.1 Meaning of Gender

Gender is the social dimension of being male or female. Gender identity is the sense of being male or female, which most children acquire by the age of three. Gender is not being masculine or feminine. According to the Children's Health Encyclopaedia, "Gender identity is a person's sense of identification with either the male or female sex, as manifested in appearance, behaviour, and other aspects of a person's life". The World Economic Forum explains that gender is not synonymous with women as it is commonly understood. It refers to both men and women, and to their status, relative to each other.

3.2.2 Relationship between Gender and Development

Gender as a concept or category has emerged to understand the complexities of women's subordination in society. The word gender does not necessarily refer to women as a group or class of society. Rather it is used as an analytical social category to study the problems of women. The theory of development is closely related to gender because of the large scale exclusion of women from the process of development. Margaret Synder and Mary Tadesse in their book, *African Women and Development: A History*, defined women and development as follows: " 'Women and development' is an inclusive term to signify a concept and a movement whose long term goal is the well being of society - the community of men, women and children". Amartya Sen has made a compelling case for the notion that societies need to see women less as passive recipient of help, and more as dynamic promoters of social transformation which is supported by the viewpoint that the education, employment and ownership rights of women have a powerful influence on their ability to control their environment and contribute to economic development.

The study of development with gender perspective needs to be understood for the reasons that follow.

- The gender perspective in development manifests the efforts towards ensuring equitable distribution of fruits of development.
- The idea of gender as a category has emerged as an outcome of the prevalent disparity and discrimination between men and women in almost all societies.
- Study of development and gender enables us to quantify the results of development efforts and also reflects the relative share of each segment of society which helps in devising sector specific policies and goals.

3.3 THE ROLE OF GENDER IN DEVELOPMENT

Gender roles can be defined as the behaviour and attitudes expected from the male and female members of a society. Gender roles may vary from country to country, culture to culture and even in the same country from region to region depending on the defined perceptions of people in that society. For example, in rural societies the gender role of a woman is limited to household chores because of women's exclusion from the educational framework, but in an urban environment, gender roles are defined a bit differently, since, with better educational opportunities, women get involved in economic and political activity. There are multiple factors which determine the gender role in a particular society or environment.

A theoretical approach to development is important to understand the evolution of development, thinking and policy. Development initiatives in the 1930s largely ignored women. The focus of development was on modernization and the adoption of western technology, institutions and beliefs. Development was identified with modernization and modernization was identical with the western world, anything which the western world identified with, i.e., technology, institutions, and belief was defined modern.

After the Second World War, the US became the model for third world countries which desired modernization. In the quest for such modernization and

development, equality for race, class, and sex in the third world countries was ignored. Both third world leaders and western development specialists assumed that western development policies would position fragile third world economics for takeoff. Few questioned whether this prosperity would extend equally to all classes, races, and gender groups. According to Ester Boserup, most of these projects undermined women's economic opportunities and autonomy. In reaction to this thinking, a new approach towards development of women was developed during the 1970s. It stressed the distinctiveness of women's knowledge, work, goals, and responsibilities. Thus, due credit for women began to be recognized. The UNDP has emphasized gender equality and women empowerment in the following four areas of development:

i) democratic government

ii) poverty reduction

iii) crisis prevention and recovery

iv) environment and energy

v) HIV/AIDS.

Six out of ten of women in the world are poor and the upliftment of women from poverty and hunger should be the main focus of each nation. Women play important role in the management of household activities and even manage the livestock, agricultural land and business in many countries. Thus, women play a critical role in household development as well as the development of a nation. Women's social and political participation refers to women's ability to participate equally with men at all levels and in all aspects of public and political life and decision making.

3.3.1 Empowerment of Women

Development is not sex neutral. It is biased towards men. Women's exclusion from the development process at social and political levels has not only cost them their due share in society, but it has made the task of achieving prosperity in developing countries much more difficult. The issue of discrimination against women and the need to formulate appropriate policies towards this has been debated for many years, but serious attempts to isolate the problem and target it comprehensively was started in 1995 in the UN's Beijing Declaration. Among other things, the mission statement of the declaration said: "It aims at accelerating the implementation of the Nairobi Forward-looking Strategies for the Advancement of Women and at removing all the obstacles to women's active participation in all spheres of public and private life through a full and equal share in economic, social, cultural and political decision-making".

The positive developments that took place after the Beijing Declaration were

- increased awareness
- policy reforms
- improved legislative frameworks
- institutional developments at the national level. These included actions in the following areas:
- establishment of national policies and strategies for gender equality

- adherence to international and regional instruments for the protection of human rights of women
- Increased diversity in the mechanisms promoting and monitoring attention to gender equality
- attention to resource allocations through gender sensitive budgeting
- efforts to engage men and boys more actively in the promotion of gender equality

However 10 years after Beijing, it was noticed that there were large gaps between policy and practice. The Millennium Task Force on Education and Gender Equality identified the following three critical dimensions of empowerment and enhanced participation of women in development

- capabilities in the areas of education and health
- access to opportunities and resources, i.e., to employment and land
- agency, i.e., women's ability to participate in the decision making processes in political institutions and policy making.

Besides international endeavour, it is pertinent to mention here that the Indian Constitution guarantees equality of gender. India is a signatory to the Beijing Declaration and its commitments. But the achievements on this front have been far from the desired objectives. The complex nature of Indian society and polity has further compounded the problem in India. If we have to find some objective parameter to judge women's participation in social and political development, it has to be evaluated on the following variables

- access to education
- access to health
- participation in work and labour
- representation in political institutions like legislative bodies.

In this section, we discussed gender and the role of gender in development. Now, answer the questions in Check Your Progress 1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What do you understand by the term, gender?

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2) How are gender and development related?

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3.4 WOMEN EMPOWERMENT AND DEVELOPMENT

Women, even if playing an important role in development, are neglected and marginalized in the process of development. Empowerment of women is essential for development. A few critical areas of gender empowerment and development are

i) economic participation

ii) economic opportunity

iii) political empowerment

iv) educational empowerment

v) health empowerment

vi) social empowerment

3.4.1 Economic participation

The economic participation of women in the workforce, in qualitative terms, is important, not only for lowering the disproportionate levels of poverty among women, but also as an important step towards raising household incomes and encouraging economic development in the countries as a whole. Amartya Sen opined that women need to be seen less as passive recipients of help and more as dynamic promoters of social transformation; and the education, employment, and ownership rights of women have a powerful influence on their ability to control their environment and contribute to economic development. The idea of gender in labour market appears because of the pattern of employment offered to people defined by their gender. Women have always been present in the labour market in India. In fact, women have made huge advances relative to men in labour force participation, occupational status, and educational attainment. It is important to understand their conditions in the labour market and the reasons for discrimination against women. The question of gender in the labour market gains importance only when a perceptible pattern is noticed in terms of treatment of women in the labour market which is either discriminatory in nature or, places women in a distinctively disadvantageous position vis-a vis men. The labour market disadvantages can be manifested in a number of differences. The following occupation categories define the nature of disadvantages by their specific role expectations.

- Managers

- Professionals
- Associate professionals
- Clerical and secretarial
- Skilled manual
- Personal services
- Sales
- Plant & machine (shop floor) operators

Women are often perceived as unfit for certain types of occupation which results in the segmentation of the labour market. For example, employers are generally not keen on employing women on shop floor jobs or shift work. Thus, discrimination becomes a natural outcome of the very structure of labour market. Here, we have to differentiate between two phrases- discrimination and disadvantage. Even if there is no discrimination against a particular group or section (in our case - women) a certain degree of disadvantage may occur because of either women's placement in the structure or because of the inherent mismatch between the characteristics of women as a labour force and specific requirements of a specific job in the labour market structure, or, the disadvantage which may emanate due to discrimination somewhere else in society, e.g., education, training opportunities, or responsibilities for children. Women are discriminated against in the labour market. Discrimination can be defined as unequal treatment to two individuals on the basis of their race, caste, religion, gender, or any other socio-economic characteristics. In the context of the labour market, discrimination appears as a result of certain characteristics: gender, race, religion, age. The reasons for labour market discrimination against women as a category can be because of the following reasons

- internal dynamics of the labour market
- external factors

The internal structure of the labour market demand certain characteristics out of an occupation and women may be perceived as not fitting into the frame. For example, more women are found in the profession of managers, professionals or secretarial jobs than in skilled manual jobs or plant and machine operators. The discrimination against women is perceived as an outcome of a series of external factors affecting women's position in the labour market. These factors are:

- Social characteristics of gender sometimes determine women's positions in the labour market. Women are bearers of specific social characteristics which play a major role in determining their labour market positions.

- The traditional division of labour between men and women within the family has a significant impact on their relationship in the labour market

- Women tend to have less investment in human capital or training which renders them unsuitable for certain category of jobs

- Women's overwhelming social responsibilities towards family and children also has a bearing on their job preferences which reduces their employment options and also partly explains their low wages

Men are judged on their productivity while women are judged on other parameters which have no relevance to their role as a labour force or impact on their productivity. The discrimination against women in labour market, either due to compelling external reasons or perceived notions of labour market players results in the following consequences.

- It impacts the wages women command in the market. Gender pay differential is the obvious outcome of discriminations
- Women are forced to accept low paying jobs
- It results in productivity differences
- Women's position in society further deteriorates due to her subordinate status in job market.

3.4.2 Economic Opportunity

Traditionally as well as culturally, the role assigned to women in many societies deprives them of economic opportunity. In most of the society, women are vested with the responsibility of bearing, rearing and caring of children. This prevents them from participating in employment opportunities in the private sector, as well as in the public sector. Women employed in the unorganized sector of developing countries, including India, do not get paid for maternity leave. The duration of maternity leave, the percentage of wages paid during the covered period, and the number of women in managerial positions are important aspects of economic opportunities available to women in various countries. In addition, women who are in managerial positions often make a painful choice between a successful career and family. A study in the United States has found 49 per cent of high achieving women to be childless as compared with only 19 percent of their male counterparts.

Table 1: Landholding pattern in different selected countries

Country	% of women land holders
Italy	32.2
Spain	28.8
Thailand	24.4
France	23.1
UK	18.8
Malaysia	13.1
India	10.9
Nepal	8.1
Bangladesh	2.8

***Source**: Food Agricultural Organisation and Times of India, March 8, 2010*

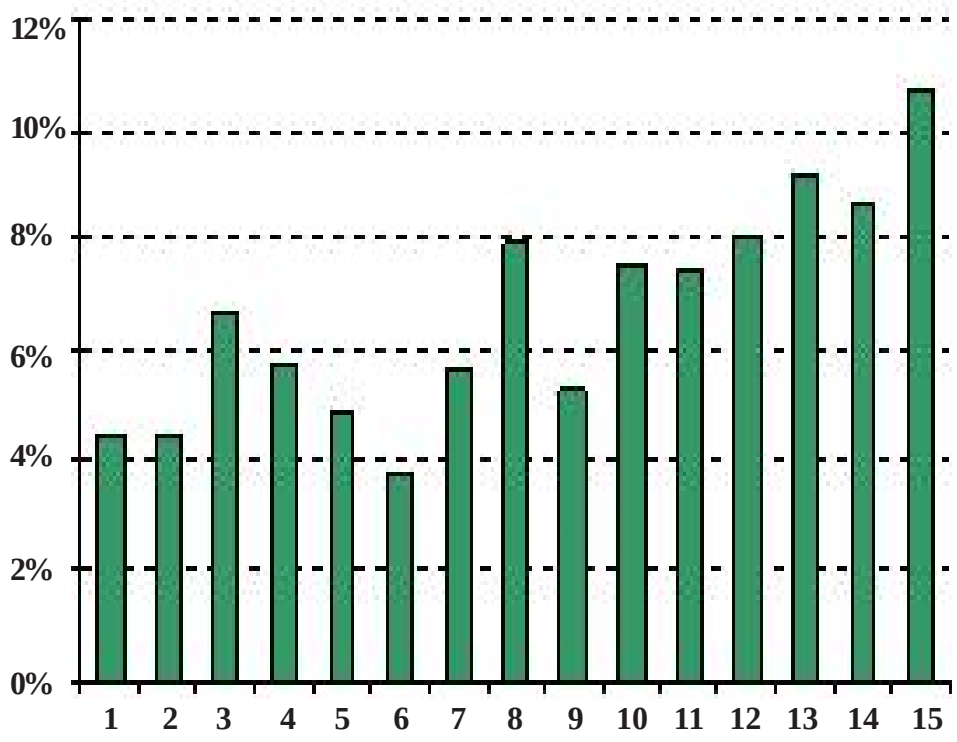
The landholding pattern among women is higher in Europe compared with Asian countries (Table 1). In Italy and Spain 32.2 and 28.8 percent respectively of women are landholders as compared to2.8 and 10.9 percent respectively in Bangladesh and India. In India, women constitute almost a third of the agricultural labour force and about 72 per cent of employed women are in agriculture. Thus,

the women's right to land is considerably lower, particularly in Asian countries. This has resulted in women's poor access to credit, and their restricted say in household decision making. The right to land is an essential component of economic empowerment of women.

3.4.3 Political Empowerment

It is said that, there are three places where women have always been excluded, these are military, religion, and politics, and it is in the political arena that they have the least access. The United Nations has admitted that women's increased participation in mass politics has been predominantly concentrated in the lower echelons of public administration, and has not been matched by the same presence at the higher levels of policy and decision making.

Women's political empowerment means equitable representation of women in the decision making structure. Women are poorly represented in democratic institutions. The Inter-Parliamentary Union report has envisaged an average of only 15.6 percent of women representation in the combine Houses of Parliament. The participation of women in political institutions is probably the most significant indicator of women's contribution in development process. The following table reflects the percentage of women in Lok Sabha in India, since the first General Elections.



Graph 1 : Percentage of Women MPs in Lok Sabha (From 1st to 15th)

Source: *http://votesmartindia.blogspot.in/2009/06/women-mps-in-15th-lok-sabha.htm l*

The 15th Lok Sabha elected 58 women MPs which is 11 per cent of the total MPs and the highest percentage of women MPs since Independence. It is also the highest number of women MPs in any Lok Sabha since Independence. However, this is well below many developed countries as seen in the table below (Table 2).

Table 2: Women in Parliament, 2016

Country	% of Women in Lower House	% of Women in Upper House
UK	29.4	24.6
USA	19.4	20
Sweden	43.6	-
Pakistan	20.6	18.3
Norway	39.6	-
India	12.0	12.8
Belgium	39.3	50.0

Source: *http://www.ipu.org/wmn-e/classif.htm*

Table 2 shows that the participation of women in political institutions is higher in Scandinavian countries compared with other countries of the world. The presence of women in Parliament is a direct reflection of their contribution in highest decision making body of the country. The pattern of women's representation in State Assemblies still lags behind, but with the enactment of the 73rd constitutional Amendment, 1/3 of women are now representing the local bodies. However, in many places they are the *de jure* heads, but *de facto* heads are their husbands and relatives. Women have to go a long way to stake a de facto claim in political arena. The constitutional 73rd and 74th amendment of government of India has made 33 percent seat reservation for women in the Panchayati Raj Institutions and Urban Local Bodies.

Thus, it is clear that women have made significant progress in terms of their participation in political development and government, international agencies, and non government agencies have been trying to provide a conducive environment to ensure gender parity in the development process. But there are many constraints which have to be removed for widespread success of the mission. Table 3 shows the percentage of women representatives in legislatures.

Table 3: Countries with the highest proportion of women in National Legislatures

Country	Kind of quota	% of women
Rwanda	Constitution-Reserved Seats	56
Sweden	Voluntary Political Party Quotas	47
South Africa	Voluntary Political Party Quotas	45
Iceland	Voluntary Political Party Quotas	43
Argentina	Constitution-Legislated Candidate Quotas	42
The Nether lands	Voluntary PoliticalParty Quotas	41
Norway	Voluntary Political Party Quotas	40
Senegal	No quota	40
Denmark	No quota	38
Angola	Electoral law-Legislated Candidate Quotas	37
Costa Rica	Electoral law-Legislated Candidate Quotas	37

Source: *Times of India, 8th March, 2010*

3.4.4 Educational Empowerment

Education is one of the fundamental prerequisites for empowering women. Education helps in reducing infant and maternal mortality. The importance of education in general and literacy, in particular, is greater for women.

However, women still constitute two-thirds of the world's illiterate population. Educational empowerment of women will

- enhance self-esteem and self confidence of women
- develop the ability to think critically
- enable women to make informed choices in areas like education, employment and health

Information and communication technology has become a driving force of development in recent years. A study by the USAID says that countless women in the developing world are further removed from the information age. It further envisaged that without access to information technology, an understanding of its significance and the ability to use it for social and economic gain, women in the developing world will be further marginalized from the mainstream of their communities, their country and the world. The literacy rate among women in India remains below international standards and has wide interstate differences. The World Development Indicator, 2004 envisages that among the female youth (15-24 years), the literacy rate is 97 per cent in Sri Lanka, as against 41 percent in Bangladesh.

Women's educational empowerment will boost their social, economic and political empowerment. Jawaharlal Nehru once said, "to awaken the people, it is women who must be awakened; once she is on the move, the village moves and the nation moves".

Some of the advantages of women's educational empowerment are: (i) it will enhance the scope of women's employment opportunity and thus lead to economic empowerment of women; (ii) it will increase the decision making capability of women; (iii) it will lead to women mobility and enhance their social net working capability; (iv) it will be beneficial to her children as women's education is vital to the education of the entire family; (v) it will enable her to come out of the traditional believes and values such as age at marriage, veil system and other social taboos attached to women; and (vi) it will lead to political empowerment of women and strengthen grassroots democratic institutions.

3.4.5 Health Empowerment

The World Health Organisation (WHO) expects that every mother maintains good health, learns the art of child care, has normal delivery, and bears healthy children. A healthy mother is required for the wellbeing of a family. Women are not in a better position as compared to men in health and wellbeing because of biological reasons. According to the World Health Organisation, 585,000 women die every year, over 1600 every day, from the causes related to pregnancy and child birth. The Planned Parenthood Federation of America estimates that of the annual 46 million abortions worldwide, some 20 millions are performed using unsafe methods resulting in the deaths of 80,000 women, which accounts for at least 13 per cent of global maternal mortality and causing a wide range of long term

health problems. Female life expectancy in Japan is 86 years, while in India and Bangladesh, it is 67 and 65 years respectively. This, itself, shows how bad the status of female is in the underdeveloped countries.

Women's health empowerment implies following things: (i) their right to receive reproductive health care for their health and well being; (ii) to take decision about her health care and about the fertility and number of children she will have; (iii) to receive health care treatment from the medical and paramedical personnel without the pressure of the in-laws and relatives; (iv) to be empowered to spend for won health care and health care of her children; and (v) freedom to use family methods of her choice for her won health and better quality of living.

Table 4: Maternal Health Indicators

Indicators	Countries					
	USA	UK	Japan	Banga-ladesh	Sri Lanka	India
Maternal Mortality ratio for 1,00,000 live births (2005)	11	8	6	570	58	450
Birth attended by skilled health staff (2006-2007)	___	___	___	18.0	98.5	46.6
3Female expectancy at birth (2008)	81	82	86	67	78	65
% of female population with HIV (age 15-24) (2007)	0.31	____	____	_____	____	0.3

Source: *World Development Indicators, 2010, World Bank*

The maternal mortality ratio in India is 450 which is significantly higher than those of US, UK and Japan. This shows that the health status of women in South Asian countries is comparatively lower than the other developed countries in the world.

Table -5 reinforces the fact that discrimination is faced by women throughout the different phases of their life.

Table 5: Phases of Gender Discrimination

Women's Life Phase	Type
Pre natal	Prenatal sex selection, battering during pregnancy, coerced pregnancy (rape during war).
Infancy	Female infanticide, emotional and physical abuse, differential access to food and medical care.
Childhood	Genital cutting, incest and sexual abuse; differential access to food, medical care and education, child prostitution.

Adolescence	Dating and courtship violence, economically coerced sex, sexual abuse in the work place, rape, sexual harassment, forced prostitution.
Reproductive	Abuse of women by intimate partners, marital rape, dowry abuse, sexual abuse with disabilities
Old age	Abuse of widows, elder abuse (which affects mostly women).

Source: *Heise L. 1994,_Violence against Women: The Hidden Health Burden. World Bank Discussion Paper. Washington D.C. The World Bank*

3.4.6 Women Social Empowerment

Women's social empowerment is vital for the development of the society and the nation. The social empowerment of women will promote build an inclusive and sustainable society. Women social empowerment means she has to be given freedom to participate in the social functions and also be the member of the social groups such as Mahial Mandal, and SHGs and farmers' association. They should mobilize people's support for the social issues such as literacy of women, bowery problem, property right of women, voice against veil system, diverse and similar social issues which concern women. Besides, social empowerment of women also implies women rights such as equal pay for equal work and their is no discrimination in the labour market on the basis of sex.

In this section, we discussed the economic opportunity, economic empowerment, political empowerment, educational attainment, health and well being and status of women**.** Now, answer the questions in Check Your Progress 2.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are the critical areas of gender and development?

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2) What do you mean by political empowerment of women?

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3.5 THE GENDER DEVELOPMENT INDEX

The GDI was developed in 1995 by UNDP to consider gender disparity on overall human development of a nation. The indicators used for measuring HDI and GDI are common, but for GDI, it is further narrowed down to calculate gender specific disparities in each parameter.

The three areas which are used to measure human capabilities for HDI are

- life expectancy to measure longevity
- educational attainment or literacy level to represent level of knowledge
- an appropriately adjusted real GDP per capita to ensure a decent standard of living

For the purpose of calculating GDI, the above indices are adjusted to find out the gender based results which explain the level of gender inequality prevailing in a country. The GDI is designed to evaluate the achievement of women along each of the following three components

- life expectancy at birth
- illiteracy level
- standard of living reflected in income level of women

Life expectancy at birth is a reasonable indicator of a category (particularly women) in achieving growth and prosperity. It depends directly on the following factors

- health care in society in general
- availability of facilities to mother and child
- society's cultural preferences

A higher life expectancy for male than a female indicates that there is perceptible disparity existing in the society. Measurement of GDI using this indicator categorically points out the level of gender inequality in a country. Similarly, the educational attainment level or literacy rate determines the access to education. In developing countries, with substantial population living in poverty, the accessibility and affordability of educational facilities is a question mark for the majority. GDI uses this indicator to correctly point out the level of gender inequality which cannot be determined through HDI because it concentrates on the overall development level. The standard of living is largely determined by the income level of the people.

But, calculating any parameter by using an absolute level of income can be misleading. Income level of the population can be highly skewed with large sections at the very end with meager income levels, while a few can be at the top of the pyramid with huge levels of income. The GDI uses the income levels of both men and women to decipher the extent of inequality between men and women. Whenever and wherever there is wide disparity, the GDI will deteriorate. According to UNDP reports, developed countries consistently score high on GDI index, compared with developing countries. India ranks moderately on GDI scorecard at 113 with a GDI score of 0.6 among 177 countries. The following table (Table 6) shows the top ten and bottom ten countries on GDI score.

Table 6: GDI Countries Ranking

Top Ten Countries			Bottom Ten Countries		
Country	**Rank**	**GDI**	**Country**	**Rank**	**GDI**
Iceland	1	0.962	Congo	148	0.398
Australia	2	0.960	Ethiopia	149	0.393
Norway	3	0.957	Mozambique	150	0.373
Canada	4	0.956	Mali	151	0.371
Sweden	5	0.955	Chad	152	0.370
Netherlands	6	0.951	Central African Republic	153	0.368
France	7	0.950	Burkina Faso	154	0.364
Finland	8	0.947	Niger	155	0.355
Switzerland	9	0.946	Guinea-Bissau	156	0.355
United Kingdom	10	0.944	Sierra Leone	156	0.320

Source: *Human Development Report, 2007/2008*

3.5.1 Methods of Calculation of GDI

The following three steps are applied for the calculation of GDI.

Step I

- The first step is to estimate male and female development indices. As there are three indicators, we need to estimate six development indices.
- male education development indices
- male health development index
- male income development index
- female education development index
- female health development index
- female income development index

Step II

Step II involves combining female and male indices in each indicator /dimension in a way that penalizes differences in achievements. The resulting index is called equally distributed index.

Step III

The final step arranges the three equally distributed indices in an outweighed manner to obtain the value of GDI.

The GDI is the average of these three equally distributed indices and has a value ranging from 0 to 1. GDI of one (GDI=1) indicates that a country has reached its goal on its way to development and has eliminated gender based disparities among its population.

In this section, we discussed the GDI, its indicators, and methods of calculating the GDI**.** Now, answer the questions in Check Your Progress 3.

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Define Gender Development Index.

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2) Differentiate between GDI and HDI.

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3.6 THE GENDER EMPOWERMENT MEASURE

The GDI is a significant indicator of the spread of development initiatives in a country. It is a gender specific measurement of development parameters. Another very important gender specific measurement index, developed by UN and used for analysis, is the Gender Empowerment Measure (GEM). The UN, in 1975, started focusing on the plight of women and declared it the Decade of Women. It led to further focus on women through initiatives in various conferences (Copenhagen, 1980, Nairobi, 1985, and in Beijing, 1995). Another UN initiative in this direction was HDI in 1990 and GEM in 1995.Empowerment is the power of enhancing the capacity of individuals or groups to make choices and to transform those choices into desired actions and outcomes. The World Bank's 2002 Empowerment Sourcebook identified empowerments as "the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control and hold accountable institutions that affect their lives". Empowerment of women involves the improvements of their status in the family, community, and society. It ensures women's accessibility to modern development facilities and extends their participation in social, economic and the political process, and decision making. GEM has emerged as an important indicator of women's empowerment in a community. GEM helps immensely in highlighting the deficiencies in policies and their implementation.

GEM is a measure of inequalities in opportunities between men and women in a country.

GEM combines inequalities in three areas:

- political participation and decision making
- economic participation and decisions making
- power over economic resources.

When the UNDP first introduced GEM in 1995 it said in its report, "The recognition of equal rights for women along with men, and the determination to combat discrimination on the basis of gender, are achievements equal in importance to the abolition of slavery, the elimination of colonials, and the establishment of equal rights for social and ethnic minorities".

UNDP has been calculating GEM for countries to compare their relative status in terms of empowering the weaker gender. It ranks countries on a scale of 0 to 1 to advise National Governments on appropriate policy initiatives and investment decisions. The aggregate score for GEM for India was 0.413 in 1996 and 0.451 in 2006.

3.6.1 Components of GEM

According to the Employment Paper, 2003/04, of the International Labour Office, Geneva, the Gender Empowerment Measure has three components

- the share of women in earned income
- the relative weight of women among administrators and professional workers
- share of women in parliamentary seats.

These three components indicate women's active role in socioeconomic and political process of a country. The United Nations, in 1999, evaluated the GEM data for 102 countries. The value of these indicators range from a low of 0.120 (Niger) to a high of 0.810 (Norway). India falls in between the two extremes.

Table 7: Gender Development Index, Gender Inequality Index and Gender Empowerment Index of Selected Countries

Country	Gender Related Development Index (GDI)		Gender Inequality Index (GII) Measure (GEM)		Gender Empowerment	
	Value	Rank	Value	Rank	Value	Rank
Netherlands	0.951	6	0.045	1	0.859	6
USA	0.937	16	0.256	42	0.762	15
Denmark	0.944	11	0.057	3	0.875	4
Kazakhstan	0.792	65	0.312	51	0.469	69
Sri Lanka	0.735	89	0.402	75	0.369	85
China	0.776	73	0.213	35	0.534	57
India	0.600	113	0.610	132	NA	NA

Pakistan	0.525	125	0.567	123	0.377	82
Singapore	NA	NA	0.101	13	0.761	16
Brazil	0.798	60	0.447	85	0.490	70
Kenya	0.521	127	0.608	130	NA	NA

Source: *Human Development Report 2007/2008, http://hdr.undp.org/en/media/HDR_20072008_GDI(GEM)*

3.6.2 Factors Affecting GEM

There are multiple factors which may affect the GEM score of a country. Some of the factors which may affect GEM are given below.

- Social structure of a country - a patriarchal social system may not permit higher role for women in decision making process. Muslim countries have perennially encountered lower participation of women in the economic and political process.
- Historical settings - if there is relative deprivation of women vis-à-vis men it may take longer to alter the historical setting in a country.
- Literacy rate - lower literacy rates for women could result in their exclusion from control over resources and in the decision making process.
- Level of urbanisation - typically urban societies extend greater roles for women at all levels. Rural societies are closed societies with limited resources as well as decision making opportunities; whatever is available is concentrated with men.

In this section, we discussed the GEM, its components and the factors affecting it. Now, answer the questions in Check Your Progress 4.

Check Your Progress 4

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Define the Gender Empowerment Measure.

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2) What are the different components of GEM?

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3.7 GENDER ADVERSARIES

In the earlier section, you studied gender empowerment and its measurement. In this section, you will study about the adversaries faced by women. The two main adversaries are:

i) missing women

ii) violence against women.

3.7.1 Missing Women

'Missing women' reflect the gender disparities of any society. The higher performing gender is favoured, whereas the gender with low performance is neglected. This leads to further additions to the missing women. Discrimination against women can begin early in life. Parental selection, female infanticide or abandonment, childhood sexual exploitation, genital mutilation, and limited access to adequate nutrition and health care; all affect the number of girls, in some parts of the world who survive into adulthood. These factors combined with limited access to education, early marriage and early child-bearing affect the health and wellbeing of girls, and can have lasting effects throughout their lives. Some of the causes of missing women are

- patrilocal exogamy
- economic value
- patriarchal society
- poverty

Patrilocal exogamy: whereby sons remain with the origin or parental household and contribute to joint income, while daughters migrate from their households to move into their husband's parental household. Investment in sons, in terms of education and share in property, seems to pay off, whereas investment in girls is seen as wasteful expenditure.

Economic Value: although women do the majority of work, they do not share equally in income, earnings and wealth. Discrimination against women in earnings, employment, access to credit and capital accumulation mechanism, and private social benefit systems also affects the economic wellbeing of their children and other house hold members.

Patriarchal Society: one important reason for declining sex ratio is a patriarchal society. The desire for male heirs of property is another reason for discrimination against daughters.

Poverty: the situation of women becomes worse for those living in poverty. The disproportionate burden of family limits access to education, training and participation in paid employment. Women are forced to enter informal unorganised employment, thus, leading to exploitation - economically, physically and mentally.

Declining sex ratio: The declining sex-ratio is one of the reasons of which foeticide is a cause of concern. Many girl children are missing before they are born. The sex ratio of Northern Indian States of Punjab and Haryana is low as compared to Southern Indian State. The sex ratio of Kerala is 1058, the highest in India (Table 7).The all India sex ratio for 1991 is 927 which increased to 933 in 2001.

Gender Discrimination-At a Glance

1) Of the World's 776 million illiterate adults, two thirds are women (UNFPA, 2010).
2) More Than 134 million women are "missing" worldwide because of a preference for boy babies that leads to sex-selective abortions and neglect of infant girls (UNDP, 2010).
3) Upto 70 percent of women experience violence in their life time (UNIFEM, 2005).
4) More than 101 million Primary-School age children are not attending school, and more than half of them are girl (UNFPA, 2010).
5) More than 3,50,000 women die each year-one every 90 seconds-from complications of pregnancy of child birth. Nearly all these deaths (99 percent) are in developing countries (World Bank, 2010).

3.7.2 Violence Against Women

Despite the protections guaranteed by the Universal Declaration on Human Rights and the convention on the rights of the child, gender discrimination and violence against women and girls persists everywhere and is a growing phenomenon in many parts of the world. Despite promises in the convention to end all forms of discrimination against women, the Beijing Platform for Action and the Millennium Development Goals, girls continue to be exploited by individuals and victimized by laws that fail to adequately protect them.

Forms of Violence

Gender based violence both reflects and reinforces inequities between men and women and compromises the health, dignity, security and autonomy of its victims. It encompasses a wide range of human rights violation, including sexual abuse of children, rape, domestic violence, sexual assault and harassment, trafficking of women and girls and several harmful traditional practices.

Witchcraft: sometimes a woman living in a village is alleged to be a witch and the cause of mishaps in the village. She is tortured and sometimes killed. Low education and superstition leads to such practices.

Devadasi: Girls in their childhood are made *devadasis* to serve in temples and they have to leave their home and stay in the temple complex. These girls grow up under the supervision of priests in the temple and when they are grown up, most of them are exploited.

Table 8: Sex Ratio (No of female per 1000 males)

Sl No	States/Union Territories	2011	2001
1	Jammu and Kashmir	889	900
2	Himachal Pradesh	972	970
3	Punjab	895	874
4	Chandigarh	818	773

5	Uttaranchal	963	964
6	Haryana	879	861
7	Delhi	868	821
8	Rajasthan	928	922
9	Uttar Pradesh	963	898
10	Bihar	918	921
11	Sikkim	890	875
12	Arunachal Pradesh	938	901
13	Nagaland	931	909
14	Manipur	985	978
15	Mizoram	976	938
16	Tripura	960	950
17	Meghalaya	989	975
18	Assam	958	932
19	West Bengal	950	934
20	Jharkhand	948	941
21	Orissa	979	972
22	Chhatisgarh	991	990
23	Madhya Pradesh	931	920
24	Gujarat	919	921
25	Daman & Diu	618	709
26	Dadra & Nagar Haveli	774	811
27	Maharashtra	929	922
28	Andhra Pradesh	993	978
29	Karnataka	973	964
30	Goa	973	960
31	Lakshadweep	946	947
32	Kerala	1084	1058
33	Tamil Nadu	996	986
34	Pondicherry	1037	1001
35	Andaman & Nicobar Islands*	876	846

Source : *Census of India*

Dowry: This is one of the most prevalent crime against women. At the time of marriage, a bride is supposed to bring dowry in terms of cash or kind as demanded by the bridegrooms' family. In the absence of dowry, the marriage is not finalized, and after marriage, if the dowry is not given the bride is tortured or even burnt to

death. A number of lacunae in the legal system allow the culprits to escape any punishment.

Exploitation at the workplace, in schools, and at home: This kind of exploitation is seldom reported as the culprit is a known person. The crime against women is done either by colleagues, boss, teacher, or some relative. Social stigma and inability to prove the crime of a trusted person leads the victim to suffer in silence.

Rape: This is among the most common crimes against women. All rape cases are not reported to police. Laws are not victim-friendly rape victims. Many times, culprits are either close relatives, friends, or known persons.

Blackmail: With the development of technology, women have become more prone to blackmail. The use of spy cameras and conversion of these into CDs and DVDs have made blackmailing more convenient.

Sex determination: Another disadvantage of technology is sex determination. The deteriorating sex ratio is due to sex determination. Recent research shows that missing women are more in rich northern Indian states compared to the south, and in poor States.

Selling of Girls: It is reported that in a few impoverished states and tribal communities' girl children are sold for a petty amount of money. Sometimes, they are sold under the guise of marriage also. Many of them end up as prostitutes or bar girls. The selling of girls as domestic help or sex workers is also driven by poverty of the family.

Other forms of violence: These include forcing girls into prostitution and honour killings. Honour killing is killing females if they revolt against their families or relatives wishes and decide to marry into other castes or religions.

3.7.3 Programmes for Prevention and Care

It is recognized that gender based violence exists in domestic and public spheres. Every effort should be made to prevent such inhuman acts of violence. Elimination of discrimination against women in employment and in access to capital and technology with attention to developing economic opportunities for women in private enterprise, in agriculture and all sectors of formal employment must be prioritized to enable women, their families, and their communities to reach their full potential. Education and training skills are essential tools for achieving economic wellbeing. The abolition of traditional discriminatory practices like *sati*, *devadasi*, genital mutilation and enforcement of law should be strongly followed. Legislative reforms should be formulated for the protection and promotion of women's rights. Awareness about the laws, rights, and responsibilities in family life must be made. Victims of violence must be offered psychological and financial support.

The following are a number of strategies adopted by UNFPA to address gender based violence.

- Ensuring that emergency contraception is available for victims of sexual violence.
- Strengthening advocacy on gender based violence in all country programmes in conjunction with other United Nations partners and NGOs.

- Advocating for women with Parliamentarians and Women's National networks.
- Integrating messages on the preventions of gender based violence into information, education and communication projects.
- Conducting more research on gender based violence.

In this section, we discussed the causes of missing women, various forms of violence against women, and about the prevention of violence against women. Now, answer the questions in Check Your Progress 5.

Check Your Progress 5

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are the different forms of violence against women?

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2) How can we prevent violence against women?

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3.8 MEASURES FOR ENGENDERING DEVELOPMENT

Promoting gender equality is an important part of a development strategy that seeks to enable all people - women and men, alike - to escape poverty and improve their standard of living. Economic development opens many avenues for increasing gender equality in the long run. A considerable body of evidence around the world supports this assertion. The strategy for engendering development could include the following points.

i) Establishing incentives that discourage discrimination by gender: The structure of economic institutions also affects gender equality in important ways. Markets embody a powerful set of incentives that influence decisions and actions for work, saving, investment, and consumption. Evidence from Mexico and the United States suggests that firms operating in competitive environments discriminate less against women in hiring and pay practices than the firms with significant power in protected environments. The reservation of jobs for women in private and corporate sector will discourage gender discrimination.

ii) Designing service delivery to facilitate equal access: The design of program delivery such as school systems, health care centres, financial organizations and agricultural extension programs can facilitate or inhibit equitable access for females and males. In parts of West Africa 'mobile bankers' bring financial services to local markets, workplaces and homes, eliminating the need for women to travel long distances to save or borrow. In Bangladesh, group-based lending programs use support groups and peer pressure as a substitute for traditional bank collateral to ensure repayment. Both designs have increased women's access to financial resources.

iii) Foster economic development to strengthen incentives for more equal resources and participation: when economic development raises income and reduces poverty, gender inequalities often decline. As with basic rights, higher incomes generally translate into greater gender equality in resources whether in health or in education. In education, studies suggest that the largest improvements from income growth are likely to occur in the poorest regions of South Asia and sub Saharan Africa. Globalisation has seen more women working in different capacities in the private and corporate sector in India.

iv) Taking active measures to redress persistent disparities in command over resources and political voice: active measures which can be implemented quickly including reservation for women in political institutions give women an opportunity to reduce persistent disparities in command over resources. Recent experience from more than 30 countries, including Argentina, Ecuador, India, Philippines, and Uganda suggests that political reservation can be effective in increasing political participation and representation in local and national assemblies in a relatively short period of time. 'Reservation' legislation takes different forms in different countries but, generally, it stipulates that a minimum number (or proportion) of political parties' candidates or of electoral seats in national or local assemblies be reserved for women. The passing of the Women's Reservation Bill in the Rajya Sabha is a significant step towards the political empowerment of women in India.

v) Institutional mechanisms for the advancement of women: it can be government (central, state, or local) or non government organizations which support the cause of women's advancement. Though institutional mechanisms exist at all levels, they need to be strengthened. The National Policy for Empowerment of women provides for strengthening the existing mechanisms through appropriate interventions, viz., provision of adequate resources, training, and advocacy skills to effectively influence macro policies, legislations, programmes, etc., to empower of women. The equal opportunity and gender budgeting policy measures should be regularly monitored by both the central and provincial governments in various states.

vi) The role of the media in portraying the female gender leaves much to be desired. Press and the print media are generally found unduly sensationalizing traumatic events such as rape, thereby invading the privacy of the victim. Very few positive stories of women who have stood up for their rights are published. The media has to become gender sensitive and more responsible while portraying women and, thus, play a significant role in bringing about attitudinal changes in society. A gender friendly media policy needs to be formulated for this purpose.

3.9 LET US SUM UP

Gender and development is one of the important issues of today's society. This unit deals with the critical areas of gender and development like economic participation, economic opportunity, political empowerment, educational attainment, health and wellbeing of women. In spite of advancement in various sectors like technology, education, and health, the position and condition of women in societies especially developing societies is still very much behind than their male counterparts .It is important to understand that the development and wellbeing of women will also lead to the development of the nation.

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3.11 CHECK YOUR PROGRESS-POSSIBLE ANSWERS

Check Your Progress-I

1) What do you understand by the term, Gender?

Answer. Gender is the social dimension of being male or female. Gender identity is the sense of being male or female, which most children acquire by the age of three. Gender is not being manly or feminine. Gender is how you feel inside. Gender identity is a person's sense of identification with either the male or female sex, as manifested in appearance, behaviour, and other aspects of a person's life.

2) How are gender and development related?

Answer. Development is a process of expanding human capabilities or a process of enlarging choices or options. By exercising these choices or options people can develop their power and, in turn, can develop their country. These choices can be of various types, e.g., to be educated, to be creative, to lead a longer and healthy life, and so on. Development may be gender specific in many contexts. It can assign a greater role to one gender, marginalizing another, or, it can provide equal opportunity to all. This depends on the priority of development policy. Gender has played an important role in the overall development of a country depending on the socioeconomic and political environment.

Check Your Progress 2

1) What are the critical areas of gender and development?

Answer. A few critical areas of gender and development are

i) Economic participation

ii) Economic opportunity

iii) Political empowerment

iv) Educational attainment

v) Health and well being.

2) What do you mean by political empowerment of women?

Answer. The political empowerment of women means the equitable representation of women in decision-making institutions which are critical for the policy formation. In the Indian context, they refer to the representation of women in Parliament, state assemblies, and, more recently, in local self government institutions.

Check Your Progress 3

1) Define the Gender Development Index.

Answer. The Gender Development Index is the quantitative projection of the development of a country with reference to parameters which reflect the

extent of gender disparity prevailing in any society. It is measured on the following three parameters of development.

- Life expectancy at birth
- Illiteracy level
- Standard of living reflected in the income level of women.

The GDI attempts to bifurcate the achievements between the genders. The GDI was developed in 1995 by UNDP to consider gender disparity on overall human development of a nation.

2) Differentiate between GDI and HDI.

Answer. The Human Development Index is the measurement of overall development of a country on an average without giving any specific weightage to any particular indicator. The Gender Development Index measures development on parameters with reference to their focus on gender based indicators. The indicators used for measuring HDI and GDI are common, but for GDI, it is further narrowed down to calculate gender specific disparities in each parameter.

Check Your Progress 4

1) Define Gender Empowerment Measure.

Answer. Gender Empowerment Measure is a measure of inequalities between men's and women's opportunities in a country. GEM combines inequalities in three areas

- Political participation and decision making
- Economic participation and decisions making
- Power over economic resources.

GEM focuses on the empowerment of women in a country with reference to their role in development. Since it is extremely difficult to quantify empowerment, the above parameters are generally accepted as reasonable indictors of women's role in any society.

2) What are the different components of GEM?

Answer. GEM has three components

- share of women in earned income.
- relative weight of women among administrators and professional workers
- share of women in Parliamentary seats.

These three components indicate women's active role in the socioeconomic and political process of a country, and also manifest their relative control over resources and institutions.

Check Your Progress -5

1) What are the different forms of violence against women?

Gender based violence reflects and reinforces inequities between men and women and compromises the health, dignity, security, and autonomy of its victims. It encompasses a wide range of human rights violation, including sexual abuse of children, rape, domestic violence, sexual assault and harassment, trafficking of women and girls, and several harmful traditional practices.

2) How can we prevent violence against women?

Legislative reforms should be formulated for the protection and promotion of women's rights. Awareness about the laws, rights, and responsibilities in family life must be made. Victims of violence must be offered psychological and financial support.

A number of strategies adopted by UNFPA Fund to address gender-based violence follow.

- Ensuring that emergency contraception is available for victims of sexual violence.
- Strengthening advocacy on gender based violence in all country programmes in conjunction with other United Nations partners and NGOs.
- Advocating for women with Parliamentarians and Women's National networks.

MDV 103: ISSUES AND CHALLENGES OF DEVELOPMENT

Block	Unit Nos	Unit Titles
1		**BASIC ISSUES IN DEVELOPMENT**
	1	Population
	2	Poverty
	3	Inequality
	4	Unemployment
2		**SECTORAL ISSUES IN DEVELOPMENT**
	1	Agriculture
	2	Industry
	3	Services
	4	Infrastructure
3		**SOCIAL ISSUES IN DEVELOPMENT**
	1	Education and Development
	2	Health and Development
	3	Gender and Development
4		**EMERGING ISSUES IN DEVELOPMENT**
	1	Energy and Development Nexus
	2	Natural Resource Management and Environment
	3	Sustainable Development
	4	Climate Change
5		**GOVERNANCE**
	1	Governance – An Overview
	2	Participatory and Decentralized Governance
	3	Good Governance: Attributes and Challenges
	4	E-Governance and Development

Indira Gandhi National Open University
School of Extension and Development Studies

MDV-103
Issues and Challenges of Development

Block

4

EMERGING ISSUES IN DEVELOPMENT

UNIT 1
Energy and Development Nexus 5

UNIT 2
Natural Resource Management and Environment 21

UNIT 3
Sustainable Development 50

UNIT 4
Climate Change 69

ORIGINAL PROGRAMME DESIGN COMMITTEE

Prof. Amita Shah
Gujarat Institute of Development Research
Ahmedabad

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. J. S. Gandhi (Rtd)
Jawaharlal Nehru University, New Delhi

Prof. Gopal Krishnan (Rtd)
Punjab University, Chandigarh

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. Kumar B. Das
Utkal University, Bhubaneswar

Prof. Nadeem Mohsin (Rtd)
A.N.Sinha Institute of Social Sciences, Patna

Prof. P. Radhakrishan
Madras Institute of Development Studies, Chennai

Prof. Ramashray Roy (Rtd)
Centre for Study of Developing Societies
New Delhi

Prof. R. P. Singh (Rtd)
Ex-Vice-Chancellor, MPUAT, Udaipur

Prof. K. Vijayaraghavan
Indian Agriculture Research Institute, New Delhi

Dr. Nilima Shrivastava, IGONU, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Dr. Nehal A. Farooquee, IGNOU, New Delhi

Dr. P. V. K. Sasidhar, IGNOU, New Delhi

REVISED PROGRAMME DESIGN COMMITTEE

Late Prof. T S Papola(Rtd)
Institute of Studies in Industrial Development
New Delhi

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. Preet Rustagi
Institute of Human Development, New Delhi

Prof. Gopal Iyer (Rtd)
Punjab University, Chandigarh

Dr. S Srinivasa Rao
Jawaharlal Nehru University, New Delhi

Dr, S, Rubina Naqvi
Hindu College, University of Delhi, Delhi

Prof. Nadeem Mohsin (Rtd)
A.N.Sinha Institute of Social Sciences, Patna

Prof. Rajesh, Delhi University, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Prof. Nehal A. Farooquee, IGNOU, New Delhi

Prof. P. V. K. Sasidhar, IGNOU, New Delhi

Dr. Pradeep Kumar, IGNOU, New Delhi

Dr. Grace Don Nemching, IGNOU, New Delhi

Dr. Nisha Varghese, IGNOU, New Delhi

COURSE PREPARATION TEAM

Units Writers:

Prof. B. K. Pattanaik and
Prof. Nehal A. Farooquee (Unit 1)
IGNOU, New Delhi
Prof. Nehal A. Farooqee (Unit 2)
IGNOU, New Delhi and
Dr. C.S. Negi
Govt. PG College, Pithoragarh

Prof. Kumar B. Das (Unit 3)
Utkal University, Bhubaneswar

Dr. Subhakant Mahapatra (Unit 4)
IGNOU, New Delhi

Editors:

Prof. Alak N.Sharma
Institute of Human Development, New Delhi

Mr. Praveer Shukla, New Delhi (Language Editor)

Prof. B.K. Pattanaik, IGNOU, New Delhi

Dr. Nehal A. Farooquee, IGNOU, New Delhi

Dr. P.V.K.Sasidhar , IGNOU, New Delhi

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Programme Coordinators : Prof. P.V.K. Sasidhar, Prof. B.K. Pattanaik, Prof. Nehal A. Farooquee

Course Coordinators: Prof. B.K. Pattanaik, E-mail:bkpattanaik@ignou.ac.in

PRODUCTION TEAM

Mr. S. Burman
Dy. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. K.N. Mohanan
Asst. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. Babu Lal Rewadia
Section Officer (Publication)
MPDD, IGNOU, New Delhi

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BLOCK 4 EMERGING ISSUES IN DEVELOPMENT

Block 4 on **'Emerging Issues in Development'** consists of three units. This block gives an overview of emerging issues in development, mainly comprising of energy and development nexus, natural resources management and environment and issue of sustainable development as relevant to the Development Studies.

Unit 1 on '**Energy and Development Nexus'** discusses the basic concepts of energy, including types and distribution of energy. This unit also covers the issues relating to sustainable energy. It also describes various issues and challenges of energy and development nexus.

Unit 2 on '**Natural Resource Management and Environment'** discusses the issues revolving around the natural resource management and environment. It describes the various types of natural resources, issues revolving the biodiversity including threats to biodiversity and various conservation initiatives and issues relating to management of natural resources.

Unit 3 on '**Sustainable Development'** deals with the concepts of sustainable development, including various components, and indicators of sustainable development. It also describes various measures to promote the sustainable development.

Unit 4 on **'Climate Change'** discusses the meaning, sources and impact of climate change. Besides, this unit also comprises climate change mitisation and adaption and protocal on Climate Chnage.

UNIT 1 ENERGY AND DEVELOPMENT NEXUS

Structure

1.1 Introduction
1.2 Energy: Meaning and Types
1.3 Energy and Development: The Nexus
1.4 Sustainable Energy and Its Aspects
1.5 Energy Related Issues and Challenges
1.6 Let Us Sum Up
1.7 Reference and Suggested Readings
1.8 Check Your Progress – Possible Answers

1.1 INTRODUCTION

Energy is a fundamental prerequisite for development. It is deeply connected with the economic, social, environmental dimensions of human development. Energy is required for not only sustainable livelihood, but also for having a respectable quality of life. Quality of energy influences environmental development. Access to sustainable sources of energy produces considerable impact on the social development of the nation particularly education and health care. Sustainable access to modern sources of energy is fundamental to fulfilling basic social needs, achieving higher economic growth and fuelling human development. UNIDO's UN Energy considers that the development of a sustainable, long-term solution to meeting the world's energy is a defining issue of our time.

After studying this unit, you should be able to:

- discuss about energy and its classification;
- differentiate between conventional and non conventional sources of energy;
- describe the exploitation and management of natural resources; and
- have an extensive knowledge of thermal and hydropower, advantages and challenges in the sector

1.2 ENERGY: MEANING AND TYPES

1.2.1 Meaning, Characteristics and Importance

Energy is at the centre stage of the critical economic, social, environment and human development issues and challenges facing the world today. The most common definition of 'Energy' is the ability to do work. Energy is an enabling element and is the capacity of a physical system to perform work. Energy is found in different forms such as heat, kinetic or mechanical energy, light, potential energy, electrical, or other forms. Therefore, energy is a potential power, without which nothing can survive on Earth. The sustainable source of energy should have the following characteristics.

- It should be less costly and affordable and available in large amount.

- It should be less pollutant
- It should be easily accessible.
- It should be easy to store and transport.
- It should be safe to use and non hazardous

Energy is the heart of all type of development and is one of the important elements for quality of life. Clean, sustainable, efficient, affordable and reliable energy services are critical and indispensable for the local and global prosperity. It is customarily seen that the "energy poor" suffer from poverty, illiteracy and ill-health. The people in general and women in particular are disproportionately affected by energy deficiency and quality. The UNDP and WHO in 2009 estimated that over three billion people lack access to modern fuels for cooking and heating. The energy system is a dominant contributor to environment and climate change. Emission from the combustion of fossil fuels is one of the important contributors of the unpredictable effect on climate change. It is remarked that global carbon dioxide emissions (CO2) will increase by some 50 percent by 2030 unless major policy reforms and technologies are introduced to transform the way energy is produced and consumed. Therefore, energy system design by providing stronger incentives for reduced GHG emissions will be critical to the risk of reducing irreversible, catastrophic climate change.

1.2.2 Types of Energy

Broadly, there are two different types of energy such as conventional energy and non conventional energy.

i) Conventional Energy

The various sources of conventional energy are fossil fuels, thermal energy and hydroelectric energy. Fossil fuels are the most commonly used fuels those are wood, crop residue and cow dung cake; coal, petroleum and natural gas. These fossil fuels are non renewable sources of energy. If we do not use them judiciously they will exhaust and might create energy crisis in future. Therefore, conservation of these conventional sources of energy is essential. Some of the features of conventional sources of energy are:

- These are the most traditional sources of energy and are being use for long time.
- These are very expensive and exhaustible.
- They cause pollution and emit smoke and ash.
- They are very expensive and the prices of these energies are increasing day by day.
- Their maintenance such as transport and storing are very costly.
- These are non-renewable sources of energy

Let us discuss them one by one:

a) Wood/Crop Residue and Cow dung Cake

Wood is one of the major sources of conventional energy. It is widely used for cooking and heating and other household energy purpose. It is a primary fuel which can be used directly to produce heat. In rural areas, people in general and the impoverished household in particular use not only wood but also crop residue and cow dung cake for cooking purpose. The crop

residue and cow dung cake are being used in the country side because they are easily available and less costly. However, their use and burning in heating water and cooking cause a lot of damage. The women found to be suffering from eye and heart ailments such as asthma and tuberculosis. It is observed that in the tribal areas cutting of woods for heating and cooking purpose lead to deforestation. Besides, rural women lose a lot of man-hours in collecting fire woods which they could use for other useful purpose.

b) Coal

Coal is one of the traditional forms of energy used in industry and railway. Coal is formed in layers called seams and takes millions of years to be formed. It is not available in all part of the country. The coal in India is largely available in the Eastern part of India such as Odisha, Bihar, Jharkhand, and Chhattisgarh. It consists largely of carbon, hydrogen, oxygen, and small amounts of sulphur and nitrogen. The oxides of carbon, nitrogen and sulphur are acidic oxides, and are released when coal and petroleum are burned. This leads to acid rain which affects our water and soil resources. Coal varies in quality according to the amount of pressure and heat to which it is subjected to during its formation.

c) Petroleum

Petroleum is formed on hydrocarbon. It is broadly defined as a class of liquid hydrocarbon mixtures. It includes crude oil, lease condensate, unfinished oils, refined products obtained from the processing of crude oil, and natural gas plant liquids. It is popularly used in the vehicles both household and commercial. It is also a non-renewable source of energy as over the period of time it may exhaust. The price of petroleum is also increasing day by day and it becomes a major political issue in the developing countries. It causes more pollution.

d) Natural Gas

Natural gas occurs deep beneath the earth's surface. Natural gas consists mainly of methane, a compound with one carbon atom and four hydrogen

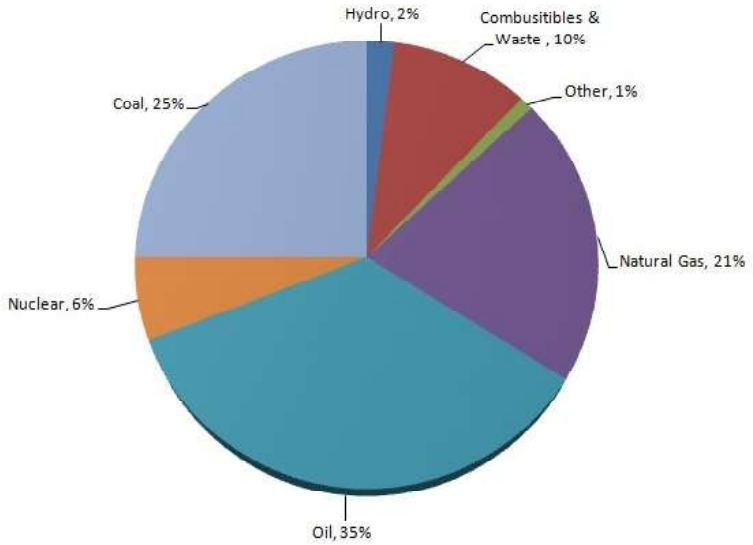


Figure 1 : Share of World Primary Energy Supply in 2005

Source: *IEA, http://www.iea.org/textbase/nppdf/free/2007/key_status_2007, p.6*

atoms. Natural gas also contains small amounts of hydrocarbon gas liquids and non-hydrocarbon gases. The natural gas is used as a fuel to make materials and chemicals. However, for the past few years, natural gas is used in the household for cooking purpose largely in the urban areas of India. One fourth of all energy used in the USA is natural gas. However, leak of natural gas is extremely dangerous. One of the advantages of natural gas is that it causes less pollution as compared to coal and petroleum.

ii) Non-conventional sources energy

Non conventional sources of energy include wind, tides, solar geo-thermal heat, and biomass including farm and animal waste, as well as human excreta. All of these sources are renewable or inexhaustible. They are inexpensive in nature. Some of the characteristics of non-conventional sources of energy are:

i) These are recent as compared to the conventional sources of energy.

ii) These are largely renewable sources of energy.

iii) These energies are pollution free.

iv) These energies are less costly as compared to the non-renewable sources of energy.

v) These are non-exhaustible.

Let us discuss the various types of non-conventional or renewable sources of energy one by one:

a) Wind Energy

Wind energy is an indirect form of solar energy. It describes the process by which wind is used to generate electricity. Wind turbines convert the kinetic energy in the wind into mechanical power. A generator can convert mechanical power into electricity.It can be used for pumping water, a prime need in irrigating farms in the countryside. Areas with constant and high speed winds are suitable for the purpose. Besides windmills, there are also wind farms. During last decades the use of wind energy has been increased. In 2006, the installed generating capacity in the world increased by 25%, a growth rate which has more or less been sustained during the last decade. As the supply of wind is unlimited then it is less costly. It is also non-polluting. Wind energy is far more eco-friendly than the burning of fossil fuels for electricity. However, one of the disadvantages of wind energy is that its installation cost is higher.

b) Tidal Energy

Tidal energy is one of the oldest forms of energy generation. The gravitational pull of the moon and sun along with the rotation of the earth cause the tides. These tides are helpful in generating electricity. It is a renewable form of energy that converts the natural rise and fall of the tides into electricity. This energy sources is unlimited and inexhaustible. The Gulfs of Kutch and Cambay are ideally suited to develop electricity from the energy produced by high tides those enter into narrow creeks.

c) Solar Energy

One of the most powerful and abundant source of energy is the solar

energy. It is a renewable source of energy. The energy derive from the sun is a universal source and has huge potential. However, this energy source constitute only one percent of total world energy. The European Investment Bank has invested $400m in solar power in India. Besides, government and the corporate sectors are also investing in solar energy projects. The rooftop and office top installations are becoming popular day by day. The uses of solar latrines, bulbs, etc. are also becoming popular day by day in many developing countries being promoted by the government, private and international agencies. It is less costly, however, the installations cost is high. Besides, other demerits of the solar energy system that it uses a lot of space and also causes pollution. The successful applications of the solar energy, so far, have been for cooking, heating water, water desalination, space heating, and crop drying. It is going to be the energy of the future when fossil fuels, namely coal and oil, are totally exhausted.

d) Thermal Energy

Thermal energy is produced by heat. This energy is generated by the movements of tiny particles within an object. Illustrious example of thermal energy is kinetic energy. The advantage of the thermal energy is that the generation cost of thermal energy is low. It has no environmental impact as its does not create any emission. It is a good source of renewable angry. Energy so produced can be used for running cold storage plants.

e) Other Sources of Non-Conventional Energy

Some of the other non-conventional sources of energy used are:

i) Energy from Urban and Industrial Waste

Now a day many countries are utilizing the urban and industrial waste to produce energy. Urban solid waste treatment plants are being established in many Municipalities of India and energy is being generated. The waste-to-energy plants have two important benefits: (i) it is an environmentally safe waste management and disposal and use of waste for energy purpose; (ii) secondly it generate clean electricity city for the city. The growing use of waste-to-energy as a method waste disposal and treatment for energy purpose has greatly reduced environmental pollution caused by the municipal wastes .In rural areas also in Kerala pilot plant for demonstration purposes has already been set up.

Table 1: Sources of Energy in Selected Nations, 2016

Countries	Access to Electricity	Renewable Energy Consumption	Carbon dioxide Emission
Afghanistan	89.5	16.7	0.3
Bangladesh	62.4	37.5	0.5
China	100.0	17.1	7.5
Finland	100.0	41.2	8.7
India	79.2	36.5	1.7
Japan	100.0	5.5	9.5
Pakistan	97.5	47.2	0.9

Sri Lanka	92.2	57.6	0.9
Uganda	20.4	89.2	0.1
United Kingdom	100.0	7.3	6.5
United States	100.0	8.9	16.5

Source: *World Development Indicators, 2016; also see http://wdi.worldbank.org/table/WV.5(accessed on 10/4/2018)*

ii) Energy produced from Farm, Animal, and Human Wastes

By using farm and animal wastes as well as human excreta, *gobar gas* plants are being set up in villages to make them self sufficient in their power requirements. The energy generated from these plants is used for cooking, lighting homes and streets, and meeting the irrigation needs of villages. The government of India provides subsidies and also offer training and technological help for setting up of these plants at individual, community, and village levels.

Using Bio-gas: A case study of Naravi Village

Naravi village is situated approx. 65 km from M.I.T campus. It is a small village with 20 families each owning 3-4 buffaloes/cows. It is located in the hinterland and falls in one of the remotest parts of Karnataka. The grid supply is present but is highly unreliable with power cuts of up to 6 – 8 hrs during peak summer season. The capital required is more in setting up transmission & distribution for this far flung village. Also Transmission & distribution losses increase due to the increased distance from the Power station. On the other hand, lighting in these rural areas can be effectively achieved by decentralized electricity generation using locally generated biogas. This also makes the system self-reliant. The raw material is abundantly available. The fuel is clean and locally available and the entire system can be developed using indigenous technology. The place of the case study is ideally located for the power generation using the Biogas energy. It is an ideal model which can be adopted by the Panchayat at the village level, so that the entire energy demand of the village including power, lighting and cooking can be overcome by using the cow dung and other human waste product.

Two Biogas plants of 15 cubicmeter capacity each of the type floating dome was setup at the cost of Rs. 30,000 for the entire project. The biogas generated is used to run a diesel engine of capacity 5 H.P using a mixture of diesel and biogas (2:8).[5] The power generated is directly used for lighting purpose. This leads to direct saving of diesel. The Alternator (AC generator) is used in this case is of capacity 4.5 KVA powered by a 5 H.P diesel engine. Since the output of this unit is used for lighting purpose, it runs for 6 hrs/day generating about 21.6 Kwh of electricity per day. The saving in diesel is 16 liters per day. The Biogas generated in this plant is also used to run the kiln/dryer, which in turn is used to bake areca nut, a local plantation.

Source: *http://www.iitk.ac.in/npsc/Papers/NPSC2002/181.pdf(accessed on 6/4/2018)*

1.3 ENERGY AND DEVELOPMENT: THE NEXUS

Energy and development are inter-linked. Availability of cheap and reliable energy boosts economic growth rate and development. It is remarked that the increasing availability of cheaper and higher quality forms of energy inputs has played a key role in driving economic growth in industrialized and emerging economies (Ayres and Warr, 2009). Some of the link between energy and economic growth and discussed below:

i) Energy is one of the primary requirements for the economic growth. Economic growth requires rise in productivity which can be brought about in the modernization of the agriculture, industry and service sector. The functioning of the tractors and lift irrigation in agriculture requires low cost and affordable energy. Similarly the foundation of industrial development depends on energy. Functioning of shopping malls and all service sector activities such as educational institutions, banking institutions, hospital, etc. also depends on energy. Thus energy and development are interlinked. A World Bank study indicates that countries with underperforming energy systems may lose up to 1-2 percent of growth potential annually as a result of electric power outages, over-investments in backup electricity generators, energy subsidies and losses, and inefficient use of scarce energy resources.

ii) Energy is required for quality of life and also for the eradication of poverty. It is said that a well-performing energy system that improves efficient access to modern forms of energy would strengthen the opportunities for the poorest few billion people on the planet to escape the worst impacts of poverty. The underdevelopment of rural areas in the developing countries are lack of electricity and other energy for hitting, cooking and lighting. It hampers the education of the children and also affects the cold chain for the immunization of children and women. Without energy and electricity you cannot make your city and village smart and cannot integrate impoverished households those who do not have electricity into the mainstream. Availability of cheap energy will promote small and tiny industries in the rural areas and would be helpful in poverty reduction.

iii) Energy is required for the social development. The key variables of social development are education and health. Many children in the rural areas of the developing countries are deprived of education because of lack of electricity in their houses. Moreover, functioning of health care centres and hospitals requires electricity. The social networking such as functioning of computers and mobile telephones also requires the connectivity which is derived from energy. Therefore, energy is essential to social development.

iv) Energy is linked to faster modernization. The possession of modern gadgets such as refrigerators, air conditioners, television, etc. requires energy and those gadgets which educate people on social change. All the developed countries of Europe, America and Asia, those who have achieved modernization since long back had done elaborate arrangement of ensuring energy to facilitate modernization.

v) Energy is required for the economic and social empowerment of women. In rural areas particular women spend a lot of time in the collection of fire

wood and cow dungs to be used for the cooking purpose. The burning of cow dung cake, paddy husk and fire wood also causing a lot of damage to women health. The availability of cooking gas and electricity will ease out the burden on women and enable them to spend their time in doing some self employment business and even spend in tutoring their children.

vi) Availability of energy will enhance private sector investment in industry and service sector. Further it will also attract foreign direct investment to the developing countries. It is observed that the state and district which have secured supply of electricity and other form of energy have attracted more FDI as compared to other state having poor availability of energy.

vii) Energy is an essential need of sustainable development. Safe and clean energy which is non-pollutant is a pre-requisite of sustainable development. The variables of sustainable development such as education, health care, women empowerment, etc. are influenced by energy. Thus for sustainable development nation-states need to have sustainable energy sources.A few Millennium Development Goals affected by the energy are:

Goal 1: Eradicate extreme poverty and hunger

Goal 2: Achieve universal primary education

Goal 3: Promote gender equality and empower women

Goal 4: Reduce child mortality Goal

Goal 5: Improve maternal health

Goal 6: Combat HIV/AIDS, malaria and other diseases

Goal 7: Ensure environmental sustainability

Goal 8: Develop a Global Partnership for Development

viii) Availability of affordable and cheap energy would be helpful to control inflation of food and vegetables in the developing countries. Most of the inflation pressure and rising prices of vegetables are seen due to rise in prices of crude oil used in the tractors in the cultivation. Food inflation can be successfully controlled in the developing countries with the help of energy supply.

In these sessions you read about various sources of energy and role of energy in development now answer the questions given in Check Your Progress-1

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are various sources of conventional energy?

.....

.....

.....

.....

.....

2) Energy is essential for sustainable development-Explain

.....

.....

.....

.....

1.4 SUSTAINABLE ENERGY AND ITS ASPECTS

The sustainable energy is that energy which meets the needs of the present generations without compromising the ability of the future generation. The sustainable energy is largely the renewable sources of energy. The four important aspects of sustainable energy are: (i) renewable energy; (ii) Energy Indicators; (iii) energy pricing; (iv) Energy and climate change.

i) **Renewable Energy:** Energy that can be naturally replenished is renewable energy. This includes traditional biomass like firewood, agro-waste, dung and also new renewable like small hydro, biofuels, wind, solar, geothermal, tides, and geothermal heat. These are considered environmentally sustainable as they are low to zero carbon fuels. The actual share of modern renewable of solar and wind energy etc in India is significantly low. But the renewable energy's share of total electric capacity is more than twice that of the US, and India is among the top five countries in renewable capacity. Future strategies will have to enable more rapid expansion of the renewable energy programme.

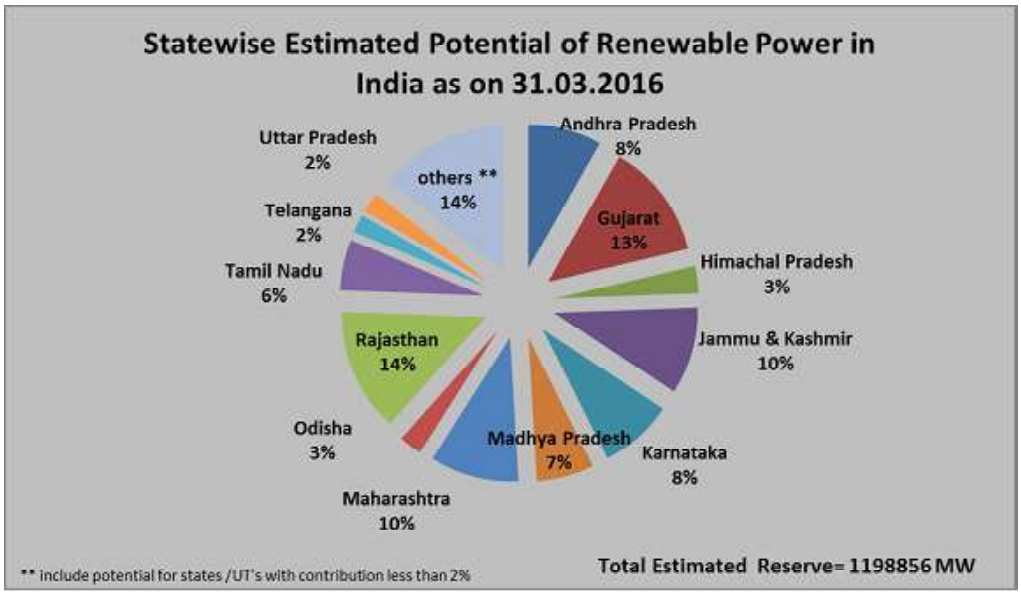
Why traditional biomass is low carbon fuel? Biomass has carbon. But this carbon is part of the current carbon cycle. The carbon that already exists in the atmosphere is absorbed during the growth of the plants. During photosynthesis the trees store carbon in their woody tissue and oxygen is released back to the atmosphere. As the wood is burned the carbon stored in the woody tissue combines with oxygen to produce carbon dioxide, this is emitted back and returned to the atmosphere. As a result a sustainable balance is maintained between carbon emitted and absorbed. The challenge is therefore to innovate to burn this fuel clean to minimize health impacts while benefiting from its low carbon potential.

Currently, the use of renewable energy is less than 20 percent of world primary energy supply till 2017, whereas, in India the use of renewable energy account for about 32 percent of primary energy consumption. The major share is that of traditional biomass mainly used for cooking followed by electricity generation from large hydro plants. The use of traditional biomass is so huge because of high level of poverty in the country.

There is high potential for generation of renewable energy from various sources- wind, solar, biomass, small hydro and cogeneration bagasse. The total potential for renewable power generation in India on 31.03.16 is estimated at 1198856 MW. This includes wind power potential of 102788 MW (8.57%) at 80m hub height, wind power potential of 302235 MW (25.21%) at 100 m hub height, SHP (small-hydro power) potential of 19749 MW (1.65%), Biomass power of 17,538 MW (1.46%), 5000 MW

(0.42%) from bagasse-based cogeneration in sugar mills, 2556 MW (0.21%) from waste to energy and solar power potential of 748990 MW (62.48%).

The geographic distribution of the estimated potential of renewable power as on 31.03.2016 reveals that Rajasthan has the highest share of about 14% (167276 MW), followed by Gujarat with 13% share (157158 MW) and Maharashtra with 10% share (119893MW), mainly on account of solar power potential.



Potential Constraints of Renewable Energy

If the world can make a rapid transition to a low to zero-carbon energy economy, more environmental space can be created for economic growth. However, the contribution of new renewable—wind, solar, tidal or geothermal—is as small as 0.5 percent of the world's primary energy usage. But importantly, renewable are already the third highest contributor to global electricity production—about 18 percent—after coal and gas. But this is because hydro-electricity generates about 16 per cent of the world's power and roughly 90 per cent of the power from renewable sources. The renewable energy market is growing. According to IEA, the wind energy sector has seen a growth of 24 per cent per annum and solar 6 per cent per annum between 1990 and 2005. Renewable need continued and sustained policy intervention.

Solar energy: The National Solar Plan of the Indian government states that India is well endowed with solar energy potential — about 5000 trillion Kwh of energy within its land area. Most parts receive 4-7 Kwh sqm per day. Solar power can help to meet peak power demand, and enable rural electrification. We can convert solar radiation into heat and electricity through solar thermal and solar photovoltaic process. These technologies though proven are expensive. Scale can reduce costs. Globally, between 1992 and 2006 the price of solar photovoltaic has declined by 50 per cent and this will continue.

Wind energy: In India, wind provides 70 per cent of renewable energy. In mid-2007, the country had roughly 10,000 MW of installed renewable

capacity—roughly 7.5 per cent of total installed capacity. According to the Integrated Energy Policy the total contribution of wind energy to India's energy mix will remain below 10 Mtoe. But this should be tapped wherever viable.

Hydrogen: Hydrogen is considered to be zero carbon energy. The overall efficiency of the hydrogen cycle, however, remains in doubt as Hydrogen production, liquefaction or compression, transportation, storage and final dispensation, entail huge amount of energy consumption and loss. Production of Hydrogen needs energy that can emit carbon. India has set up a Hydrogen Development Board to promote hydrogen based technologies. There are still significant barriers related to costs and technological viability of hydrogen in automotive or stationary applications. Metal hydrides that store hydrogen and release it for direct combustion have been developed for powering two/three-wheelers in the country but the technology has not yet been commercialized.

ii) **Energy Indicators:** The availability of resources and the reliability of their supply are essential for a sustainable economic growth. All sectors of the economy including residential, commercial, transportation, service and agricultural sectors depend on secure, sufficient and efficient energy services. Job availability, industrial productivity, urban and rural development and all major economic activities are strongly affected by energy input. The most important form of energy, viz. electricity is an important and sometimes irreplaceable input to modern productive activities, communication, dissemination of information and other service industries.

Energy indicators are the medium to provide a snap shot of the energy scenario of the country. They help to understand the various aspects of energy and are capable of detecting the grey areas in the complete chain of energy flow. Energy and energy efficiency indicators are indispensable tools for identifying and understanding the key drivers of trends, and for prioritizing interventions to control energy consumption growth. Indicators are also effective in quantifying the potential impact and benefits of interventions. While defining and constructing energy indicators is rather flexible, their accuracy strongly depends on the quality and detail of available energy end-use data.

iii) **Energy Pricing:** Expensive energy can also reduce demand for energy and improve efficiency. Cheap energy prices can encourage oil guzzling. But the majority of oil consumers do not pay prices that fully reflect the international market level as oil prices are controlled by the government. As a result fuel demand remains unaffected by the price rise.

High fuel prices can influence long term demand for fuel as well as GHG emissions. For instance, a 2009 World Bank study has found six countries (the U.S, Russia, China, Brazil, Mexico and Canada), that under tax fuels are responsible for more than 40 percent of transport oil GHG emissions. But a much larger number of countries that tax transport fuels high – including India, together account for lower – 28 percent of transport fuel GHG world emissions.

In India the government control on fuel-pricing has increased the burden of subsidies. Fuel pricing needs reforms to make its use more efficient and curb over consumption. For instance, cheap diesel can induce more driving, use of bigger SUVs and therefore increase overall fuel consumption. However, higher energy prices can constraint access of the poor to the modern energy systems needed to decrease poverty, improve health and increase productivity. Therefore, the fuel pricing policies should also try to make subsidies better targeted and ensure that the subsidies are not misused.

iv) **Energy and Climate Change:** Rising energy consumption creates other problems also. Greenhouse gas emissions like carbon dioxide that trap heat and warm up the atmosphere are linked with the amount of fuel burnt. This increases global temperature and induces climate change.

Climate Combat

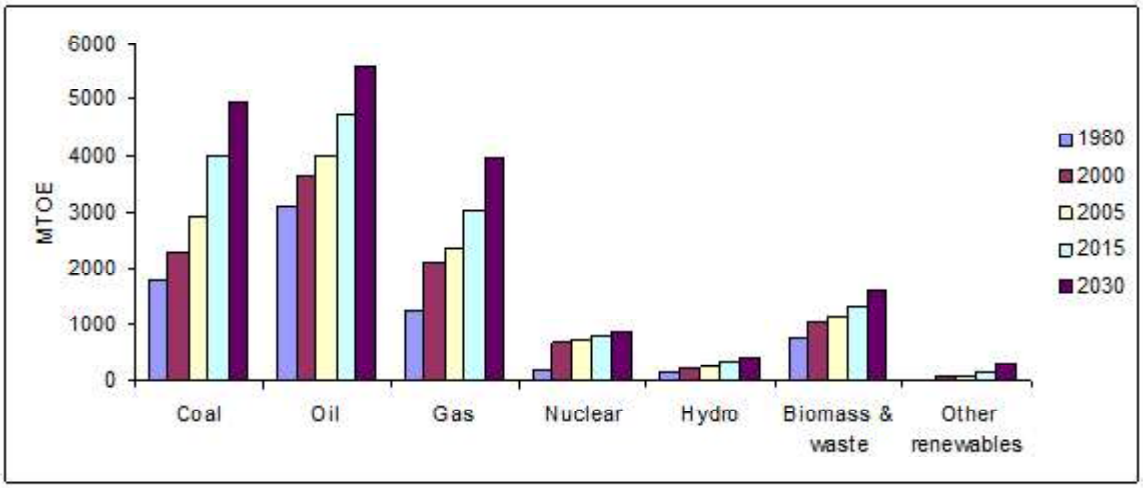
The world will have to limit greenhouse gas emissions so that the global temperature rise can be contained and limited to 2 degree C from the pre-industrial levels. The 2°C goal will require the world to reduce emissions by 50-85 per cent on 2000 levels by 2050. The Intergovernmental Panel on Climate Change (IPCC) has concluded that to stabilize at 2°C emissions just cannot increase after 2015, —meaning, globally emissions must plateau and then drastically reduce. To do this it has to reinvent and transform its strategies of energy use to be able to cap the GHG emissions.

Reducing fossil fuel energy consumption is a difficult challenge. As fossil energy remains abundant and cheap curbing its use becomes difficult. Fossil fuels supplies 80 percent of world primary energy demand according to IEA, and its use is expected to grow over the next 20–30 years if policies do not actively promote low-carbon emission sources. The only estimate of India's greenhouse gas inventory comes from the government's 2004 national communication to the UN Framework Convention on Climate Change (UNFCCC). According to this the energy sector alone contributes 61 per cent of the total stock. Therefore alternatives are critical. India has the opportunity to plan and grow differently. Decisions taken today that support low carbon pathways can make profound impacts.

1.5 ENERGY RELATED ISSUES AND CHALLENGES

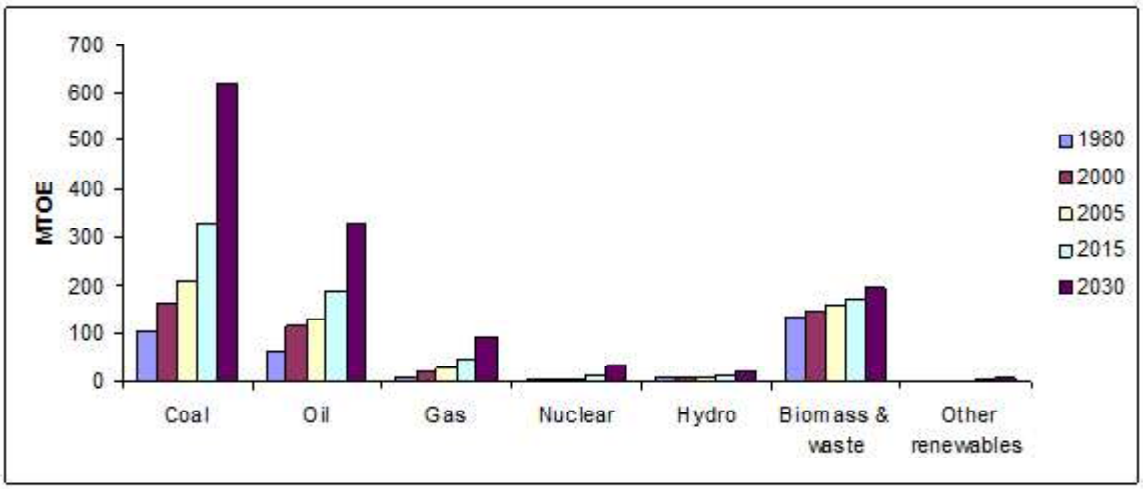
A few important issues relating to energy supply demand and utilization are:

i) Global primary energy demand has grown phenomenally. International Energy Agency projects that this will continue to grow by more than half between 2005 and 2030. Fossil fuels will form 84 per cent of overall increase in global demand between 2005 and 2030. In the global fossil fuel basket, oil is the single largest fuel though coal has witnessed the biggest increase in consumption. Currently, the industrialized countries have the maximum share of energy consumption. The developing countries are also expected to see significant increase as their economies begin to grow.



Graph 1: Trend in world primary energy demand (Mtoe)

Source: *World Energy Outlook, International Energy Agency, 2007*



Graph 2: Trend in India's primary energy demand (Mtoe)

Source: *World Energy Outlook, International Energy Agency, 2007*

ii) The second key issue related to energy is energy security. The insecurity in energy cost life. The horror of Bhopal gas leak will never go from the minds of the affected people. Therefore energy security in general and that to security of non-renewable energy in particular is an issue in both developed as well as developing countries.

iii) Energy pricing and subsidies related issue is quite popular in the developing countries. The rise in prices of electricity cost the common men and they have to cut down their expenditures from other essential necessities. The rise in cooking gas prices also pinches the common men living below the poverty line both in rural and urban areas of the developing countries. Many state governments of India are giving energy subsidy.

iv) Energy related pollution causes a lot of health problems. The use of conventional sources of energy in cooking such as cow dung cake, paddy husk and wood is causing a lot of health and eye illness. Similarly, the use of non-conventional sources of energy is causing pollution related heart problems in the urban areas of the developing countries.

v) The poor supply of energy leading to rise in energy prices particularly increase in prices of diesel and petrol in urban areas of the developing countries. The increase in diesel prices affects the food price inflation.

In these sessions you read about sustainable energy and issues and challenges related to energy now answer the questions given in Check Your Progress-2

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are various aspects related to sustainable energy?

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2) Briefly describe two energy related issues and challenges.

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1.6 LET US SUM UP

In this chapter you have studied the various concepts, sources, types and issues and challenges related to energy. The unit has described the various sources of renewable and non-renewable sources of energy in detail. It has also described the sustainable sources of energy. The energy related issues such demand and supply of energy, pricing of energy, energy subsidies, etc. have also been described in the last part of the units.

1.7 REFERENCES AND SUGGESTED READINGS

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1.8 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress 1

1) **What are various sources of conventional energy?**

Answer: The various sources of conventional energy are fossil fuels, thermal energy and hydroelectric energy. Fossil fuels are the most commonly used fuels those are wood, crop residue and cow dung cake; coal, petroleum and natural gas. These fossil fuels are non renewable sources of energy. If we do not use them judiciously they will exhaust and might create energy crisis in future. Therefore, conservation of these conventional sources of energy is essential.

2) **Energy is essential for sustainable development-Explain.**

Answer: Safe and clean energy which is non-pollutant is a pre-requisite of sustainable development. The variables of sustainable development such as education, health care, women empowerment, etc. are influenced by energy. Thus for sustainable development nation-states need to have sustainable energy sources.A few Millennium Development Goals affected by the energy are:

Goal 1: Eradicate extreme poverty and hunger

Goal 2: Achieve universal primary education

Goal 3: Promote gender equality and empower women

Goal 4: Reduce child mortality Goal

Goal 5: Improve maternal health

Goal 6: Combat HIV/AIDS, malaria and other diseases

Goal 7: Ensure environmental sustainability

Goal 8: Develop a Global Partnership for Development

Check Your Progress 2

1) What are various aspects related to sustainable energy?

Answer: The sustainable energy is that energy which meets the needs of the present generations without compromising the ability of the future generation. The sustainable energy is largely the renewable sources of energy. The four important aspects of sustainable energy are: (i) renewable energy; (ii) Energy Indicators; (iii) energy pricing; (iv) Energy and climate change.

2) Briefly describe two energy related issues and challenges.

Answer: Two important issues and challenges relating to energy are energy pricing and subsidies and energy related pollution: (i) Energy pricing and subsidies related issue is quite popular in the developing countries. The rise in prices of electricity cost the common men and they have to cut down their expenditures from other essential necessities. The rise in cooking gas prices also pinches the common men living below the poverty line both in rural and urban areas of the developing countries. Many state governments of India are giving energy subsidy.(ii) Energy related pollution causes a lot of health problems. The use of conventional sources of energy in cooking such as cow dung cake, paddy husk and wood is causing a lot of health and eye illness. Similarly, the use of non-conventional sources of energy is causing pollution related heart problems in the urban areas of the developing countries.

UNIT 2 NATURAL RESOURCE MANAGEMENT AND ENVIRONMENT

Structure

2.1 Introduction
2.2 The Meaning and Types of Natural Resources
2.3 Land
2.4 Water
2.5 Forest
2.6 Mining
2.7 Biodiversity
2.8 Exploitation and Conservation of Natural Resources
2.9 Management of Natural Resources
2.10 Let Us Sum Up
2.11 References and Suggested Readings
2.12 Check Your Progress - Possible Answers

2.1 INTRODUCTION

One of the most critical issues on the national and the global agenda is the need to preserve natural resources for future generations, while meeting present day requirements. Today, the entire world has awakened to the need for sustainable development by maintaining judicious use of the natural resources and adopting developmental models and policies which assure proper environmental protection. It is well known that humans across the globe are not only polluting nature and destroying it thorough an aggressive expansion of urbanization *vis-à-vis* consumerism. It was rightly pointed out by Mahatma Gandhi, that there is enough in nature for human need but not for human greed. Some 11,000 years ago, agriculture started in the lap of nature. In the beginning, it was a beautiful synergy between human technique and rhythmic nature, gradually this relationship became less friendly and finally it became tarnished. In the aftermath of the Second World War, unabated mechanization as well as increasing use chemicals have transformed our agriculture into a huge source of pollution of the environment.

The most basic natural resources needed for human life are now either growing scarce or are frequently polluted. For the most part, the reason for this is a two-fold development in the twentieth century-unprecedented population increase (mostly in the under-developed countries, where per capita consumption has grown only slowly at best), and unprecedented increases in per capita consumption in industrialized countries (where again, the populations are now stable or even declining). Thus the squeeze comes from two directions, and in neither case there is any likelihood of any early relief. While at one hand, in Asia, Africa and Latin America, populations continue to grow (although at a relatively lesser pace than in the late twentieth century); in the wealthy parts

of the world, consumption continues to grow at an increasing rate. And the 80 per cent, who lag behind in consumption aspire to the living standards of the wealthy. The earth, it seems, does not have the resources to support their dreams, and in fact may not have the resources to accommodate a 50 per cent increase in population among the poor, even at a present levels of consumption, or a 50 per cent increase in consumption among the wealthy.

In time, as humans gained more and more mastery over natural resources, populations could grow. People learned to cultivate crops, domesticate animals for food and their labour, smelt copper and iron to gain better tools, irrigate soil, and finally, in the greatest revolution of all, use falling water or the blowing wind or even the burning of organic fuels in engines to do most of the productive work, formerly done by hand tools or by their domesticated animals. In this long process they gradually gained a near complete dominance over their natural environment, and literally transformed the earth for their own benefit. Needless to emphasize, the most important basic resources for the support of the large number of humans today are soil, water, food, biodiversity (flora and fauna) and sources of energy.

After studying this unit, you should be able to:

- Explain the meaning and types of natural resources
- Identify the precise factors behind the denudation of this rich natural base, as well as the causal factors behind the degradation of the environment.
- Describe the impact of development on the natural resource management.

2.2 THE MEANING AND TYPES OF NATURAL RESOURCES

Nature has been defined as the omnipresent expanse, definite and indefinite, created and evolving, having all the biotic, abiotic and social dimensions, evolving within, and around life forms and life process. The following definition may be used for understanding the natural resources: “the sum total of all physical, chemical, biological and social factors which construct the surroundings of man is referred to as environment and each element of these surroundings constitutes a resource on which man thrives in order to develop a better life”. Any part of our natural environment, such as land, water, air minerals, forest, rangeland, wild life, fish, micro organisms, or even human population – that man can utilize to promote the welfare, may be regarded as a natural resource. There are two types of natural resources, viz., exhaustible and inexhaustible. Exhaustible resources are limited in nature and liable to be degraded in quantity and quality by human activities. Examples are forests, soil, water and fossil fuels, etc. Inexhaustible natural resources are unlimited in nature, and they are not likely to be exhausted by human activities, like solar radiation, air, and precipitation.

Environment: the environment is everything which surrounds an organism and influences its life in many ways. It includes physical and biological components. The physical components of the environment are soil, water, air, light and temperature. These are termed abiotic components. The plants and animals are collectively referred to as biotic components. All these components of the environment work together, interact and modify the effects of one another.

Land and Soil: Land is an important resource because it covers about 30 % of the total area of the earth's surface and not all parts of this small percentage are habitable or productive. All other resources are provided by land and it is on land that buildings and industries are made. All agricultural activities that include horticultural operations; ranching, game farming, dairy, grazing, livestock operations, apiculture, field and forage crop production, animal husbandry, hunting, forestry, forest management/silviculture, fish farming, inland fisheries are done on land resource. Land is the home to many species of plants and ...the word, soil, is derived from a Latin word, solum, meaning ground. It is a stratified mixture of inorganic and organic materials, both of which are products of decomposition.

Water: about 70-73 per cent of the earth is covered by water. Water is available in the form of oceans, seas, rivers, lakes, ponds, pools, polar ice caps, and water vapour, and this forms the hydrosphere. The main component of the hydrosphere is water. Water exists in all the three forms, i.e., solid (snow), liquid (water), and gas (water vapour).

Air: this is an inexhaustible natural resource and essential for the survival of all the living organisms on earth. In the atmosphere, about 95 per cent of the air is present up to a height of 20 km above the earth's surface. The remaining 5 per cent of air is present up to a height of about 280 km. Air is a mixture of different gases; nitrogen and oxygen are the major components. Thus, the total volume of air present in the atmosphere consists of 78 per cent nitrogen, 21 per cent oxygen, while the remaining 1 per cent is made up of other gases, such as argon, neon, helium, krypton, xenon, and radon.

Minerals: the Earth's crust is rich in inorganic materials which include ores that are used on a large scale to yield metals such as iron, aluminium, copper, tin, nickel, silver, gold, and platinum. These minerals are useful in industrial and technological growth. Some of the metals are used as catalysts, e.g., vanadium, tungsten, and molybdenum. Some of the non metallic materials (minerals) are vital to industrial growth such as sand, fluxes, clay, salt, sulphur, phosphorus, diamonds, gems, coal, and by products of petroleum (petrol, kerosene, lubricants).

Flora and fauna: flora refers to plant species and fauna refers to animal species. The term biota includes both plants, as well as the domesticated and wild species of animals. Our country has a rich diversity of flora and fauna. There are over 45,000 plant species and 81,251 animal species. This represents about 7 per cent of world's flora and 6.5 per cent of world's fauna.

2.3 LAND

Humans largely live on the surface of the earth. They draw their sustenance from living organisms that dwell on, or near, the surface. Without the primary requisites of food and water, life cannot survive. Without productive soil (and the plant life supported by soil), the world cannot support half of its present biota, or even a tenth of its human population. For humans, the most important part of the earth's crust is the surface of the continental plates, or the areas of the earth largely covered by soil. A very few people could survive, if all the soils disappeared. They could gain protein from fish or crustaceans, and needed vitamins from hydroponically grown vegetables or ocean vegetation. Today, the fastest growing source of protein for humans is fish, with 30 per cent of the fish coming from

the fish farms, or aquaculture. But then much of the food from aquaculture comes directly from the grain that is fed to the fish. Thus, most people would die without the plants that grow in soil, and without the animal life that is directly or indirectly dependent upon continental plant life for survival.

What is soil? Any definition is arbitrary. Only the starting point is clear. Soil, by almost any definition, begins with the weathering of rocks. Water, glacial movements, freezing and thawing, chemicals, the roots of the plants, and even gravity itself breaks rocks into smaller and smaller particles. It is these particles of rock that contain the original nutrients needed for plant growth. But soil, as we presently understand it, is more than the bare particles of rock. It also includes the air and water that mix with rock particles; it includes decayed vegetation, or organic matter, and is home to a rich array of life, mostly microscopic, but also fungi, worms and insect larvae. These help break down cellulose, aerate soil, and liberate the needed nutrients.

Soils are fragile in many ways. Wind can blow away particles of soil and deposit them elsewhere, creating easily erodible loess soils. Water easily erodes barren top soil, moving it into streams, or ultimately into the oceans, or depositing it along river valleys or in ever growing deltas. Mineral salts contained in water from streams can so accumulate in irrigated soils as to render them unproductive. These hazards-erosion, salinisation, acidification, and exhaustion vary according to the climate and soil types. Modern agriculture is able to compensate for most of these hazards, viz. contours and no-till methods reduce water and wind erosion; extra irrigation water, well beyond the needs of a growing crop leach away much (but not all) of the accumulated salts. And of course, in highly efficient modern agriculture farmers annually provide most needed nutrients through chemical fertilizers. In fact the environmental problems arise because of very manipulation of the soil, primarily aimed at short-term benefits.

2.4 WATER

Water is the most abundant substance on the face of the earth. In some sense, it will never be scarce. The supply in the form of vapour, fluids, and solids, is almost constant. Animals and plants use water, but do not destroy it. This is also true of most industrial uses of water, which may involve the heating or the pollution of water. Yet, for many plants and animals, including the humans, water may be scarce. It is a problem of where, and in what form, water is present. Over 97 per cent of the earth's water is in the oceans and has too much of salt for the use of most of the land plants or animals. Of the 2.5 per cent that is fresh water, about two-third is locked up in the glaciers. This means that slightly less than 1 per cent of the earth's water is fresh and in liquid form. Again most of this fresh water is in aquifers, some all but inaccessible. But this still leaves a lot of accessible water, up to 2000 cubic meters for each person per year. This water can be used over and over again if it remains fresh (without salts) and clean (without pollutants). For all animals, the most important use of water is for drinking. Only in very rare cases are humans, anywhere, without access to some fresh water. They rarely die from thirst. But many die from polluted water. In fact around 1.2 billion of the world's population drinks water that is unsafe. Thus the problem lies not in access to drinking water, but to safe water. As per the United Nations estimates, unsafe polluted water kills 4 million

people a year, more than half of them children, with diarrhea being the leading cause.

The water for irrigation comes from two main sources-ground water and the streams. In northern India, up to half of the irrigation water now comes from private wells that tap into ground water or easily accessible aquifers. It is a simple fact that if the outflow from these sources exceeds the slow rate of recharging, these will eventually shrink, requiring ever deeper wells. Eventually, they will dry up. The same is true for the flowing streams. Rainwater either feeds them directly, in runoff, or indirectly, by way of groundwater or aquifers that find an outlet in springs. In dry periods, as the water table sinks, stream loses more and more water by seepage. In hot weather, they lose water by evaporation. Very often than not, this lowered flow coincides with the time crops need the most water for irrigation. And hence, dams came into picture. Previously, the ancient civilizations built low earthen dams, creating reservoirs to save at least some of the spring run-off. But to save most of the total run off necessitated construction of large dams, which could not just function as reserves of water for urban water systems, hydro-electric production, flood control, but more importantly will serve to maintain a uniform flow of water for irrigation throughout the year.

The drawback, as relates to present irrigation system is its inefficiency, for the simple reason that when water is moved by open, unlined canals, seepage and evaporation can steal up to half of the original water discharged from the source. Subsequently, when the water reaches the crops by flooding of ditches or by spray, more of the water is wasted by evaporation or by absorption by soil that does not contain crop roots. If moved to crops by concrete-lined canals with some type of cover, and fed to plants by a drip system, irrigation can reach maximum efficiency. Such a system could expand production by up to 50 per cent. But few countries can afford such capital costs, which are up to three times greater than in ditch irrigation. Drip irrigation also slows the process of salinisation. Because of evaporation, minerals in river water (as well as those leached out from the soil) can slowly accumulate in the irrigated soils, eventually curtailing and even putting an end to production. The present means of postponing this disaster is the use of extra water, water not needed by plants, to flush out as many salts as possible deeper into the sub-soil, thence into ditches, and finally into heavily polluted holding ponds or lakes. Without proper drainage, this extra flushing water can lead to waterlogged soil, with some of the salt backing up to the roots of the plants. Ultimately, no final answer exists for salinisation in certain soils and climates. The only remedy remains that the fields are left non-cropped for a significant duration, with the recovery time being determined by the amount and duration of the rainfall.

2.5 FOREST

Forests are the most visible and dramatic product of the soil. Trees grow on over half the land area of the earth. Only very dry soils, or very cold temperatures, preclude tree growth. Thick forests are such a dominant form of vegetation that they not only depend on a favourable climate, but do much to shape the climate. Forests perform invaluable ecological services, such as controlling soil erosion (trees slow down run-off and control soil erosion and landslides by retaining water in their root systems and by arresting the velocity of rain water through

their canopy cover), and also act as sinks for storing carbon dioxide emissions. Of all species, humans have had the greatest impact on the forests. Insects attack and sometimes kill trees, and today these most often are invasive species introduced through travel or trade. Deer may over browse trees, or kill all new tree growth. But only humans have deforested large areas of the earth, not only by cutting and burning, but also by the effects of acid rain, harmful pesticides, and imported diseases and fungi. Human interactions with forests take many forms. One, so evident, is getting rid of trees that are an impediment to agriculture. Another is the using up of trees as fuel or timber.

Humans also harvest the products of trees without destroying them, as in gathering the fruits, nuts, or sap (for rubber, tar, turpentine, else). Finally humans often select and plant trees in behalf of a harvest (eg. orange groves, apple orchards, rubber plantations, etc.). Throughout human history, the greatest use of trees has been for fuel (as is the case in India and in rest of the third world countries). And it is this use that has led to the most critical environmental problems, problems based on rapid population growth and traditional patterns of heating homes or cooking food or, as in India, cremating the dead. Interestingly, even the cultural patterns define the amount of the wood being used in cooking; viz. in India the traditional cuisine often requires elaborate and extended preparation.

There is probably no other area of India's environment that has been more viciously attacked and destroyed in the last century than the country's forests. As per government estimates, between 1951 and 1972, India lost 3.4 million hectares of prime forests to dams, agricultural extension, to roads and industries, which again amounts to an average rate of forest loss about 0.15 million hectares per year (State of India's Environment Report, 1982). However, data released in mid-1984 by National Remote Sensing Agency (NRSA) showed that India lost 1.3 mha of forests every year within the same intervening period (1972-73 to 1980-82). This above figure discounts the 2.5 million hectares of mangrove forests lost over the last 80 years. As per *The Last Frontier Forests: Ecosystems and Economies on the Edge*, a study conducted by World Resources Institute (WRI), about 99 per cent of India's original frontier forest (a term used to describe large intact natural forests) has already been lost, while 57 per cent of the remaining frontier forest cover is threatened. Overall, in India, the dense forests cover only 12 per cent of the land area, a figure well below the target of 33 per cent, with the average annual deforestation rate of 3,400 sqkm in the interim period 1980-90 (Anon 1997a).

Deforestation and degradation has been caused by commercial logging; clearing of forestland for settlements and agriculture; excessive exploitation of forests for fuel wood and food and overgrazing. The denudation of fir and spruce forests in Himachal Pradesh and Jammu and Kashmir for making package cartons for apples is an example of the commercial exploitation of forests taking place in the region (TERI 1992). Fuel wood constitutes the dominant source of energy in the region and population growth has contributed to increased exploitation of forests for meeting out growing energy demands. In addition, the limestone quarrying and the construction of dams have added to the loss of forestland.

2.5.1 Shifting or *Jhum* Cultivation

The mountain people of the Himalayan region, especially those in the Northeast, over the years had adopted traditional practices of replenishment in the region. One such method was *Jhum* cultivation which is basically 'rotational bush fallow' agriculture. This traditional tribal practice enabled regeneration of forests before the same land was cultivated again. The *Jhum* cycle was once considered to be as long as 25 years, but in the recent past, studies have shown that the cycle has shrunk to as short as 4-5 years (Barthakur 1981). As the *Jhum* cycle becomes successively shorter, the rate of soil erosion gets accelerated (Box 1). An assessment by the Forest Survey of India indicates that 1.73 million hectares of land has been affected by shifting cultivation in this region during the period 1987-1997 (FSI 2000). Nagaland and Mizoram together account for 65 per cent of the area under shifting cultivation in this region. Due to degradation of forest cover and pastures, farmlands which are dependent on them for nutrients and organic matter also deteriorate. This loss of extent and productivity of forests and pasturelands implies a threat to the well-being of rural communities who are dependent on the agro-pastoral economy for their livelihood. The impact of deforestation is felt most by local communities, particularly women and children, who as a result of receding forest cover have to travel increasingly longer distances and spend more time on fetching fuel wood and fodder, contributing to severe hardship, as is very aptly exemplified by Chipko Andolan, in Chamoli Garhwal (Box 1).

Box 1: Aftermath of current practice of shifting or Jhum cultivation: A Case Study

Increasing population pressure and declining land through degradation have resulted in a rapid shortening of the *agricultural cycle*, leading to (1) a drastic reduction in yield to the farmer; (2) a reduced relative agro-ecosystem and landscape stability (resistance and resilience) in the face of perturbation, leading to social disruption; (3) a decline in biodiversity due to weed takeover, biological invasion, and eventual site desertification; and (4) a drastic decline in soil fertility under short agricultural cycles imposed on the same site over a period of time, (5) this loss in soil fertility is accentuated by heavy hydrological losses due to runoff and leaching during frequent perturbations; (6) since herbaceous weed vegetation alone develops during the first 5-10 years of fallow regrowth, the weed potential gets intensified, leading to an arrested succession; and (7) biological invasion by exotic weeds is promoted (e.g., takeover by *Eupatorium* spp. and *Mikania micrantha*), (8) substantial CO_2 emitted into the atmosphere because of more frequent and extensive burns. All attempts made so far in finding an alternate to shifting cultivation have had little or no impact; however three different pathways for sustainable agriculture do exist:

1) ***Incremental Change***: Maintaining a longer cycle length of 10 or more years where feasible and transferring better shifting cultivation technology from one area to another. Strengthening the tree component using biologically valuable and socially acceptable tree species (e.g., the nitrogen-fixing, *Alnus nepalensis* tree species in northeast India recoups about 600 kg of nitrogen lost during one cropping season or Sea buckthorn (*Hippophae salicifolia, H. rhamnoides*), wherever feasible;

2) ***Contour Management***: Implementing the sloping agricultural land technology (SALT), which is based on planting field and perennial crops in 3-to 5- meter bands between double rows of nitrogen fixing trees and shrubs planted on contours for soil conservation. The crop species include rice, maize, tomatoes, and beans, whereas the perennials may be cocoa, coffee, banana, and citrus. The contour lines are planted with *Leucaena leucocephala, Flemingia macrophylla*, and *Desmodium rensonia*.

3) ***Energy Intensive Agriculture***: Where feasible, on flat valley lands, more intensively managed monocropping systems could be developed, arising out of the existing traditional sedentary agriculture.

2.5.2 Deforestation and Availability of Minor Forest Produce

A large number of tribal populations depend on minor forest produce (MFP) for their survival. MFP covers products of the forest, except timber and firewood, for example flowers like *mahua*, seeds and leaves of *Sal* and *tendu*, resins, bamboos, lac, fruits, tubers, and so forth. Studies in Orissa, Madhya Pradesh, Himachal Pradesh and Bihar indicate that over 80 per cent of the forest dwellers depend on the forests for 25-50 per cent of their food requirement. In Orissa, 13 per cent of the forest population exclusively depends on MFP. Yet another 17 per cent is landless, which depends on the daily wage labour, primarily the collection of the MFP. Again for 39 per cent, MFP collection is a subsidiary occupation. Infact for the tribal population MFP rather stands for Major forest produce and not minor.

One consequence of deforestation is that the availability of MFP has decreased considerably. Normally the poorest among the forest dwellers eat mahua flowers, roots and tubers during the lean months and sell fruits like mangoes for additional income. But due to incessant deforestation availability of the mahua flowers, along with other MFPs has declined by almost half, viz. per capita availability of mahua flowers decreased from 200 kg per capita in the early 1960s to less than 100 kg, 2 decades later. Honey has all but disappeared from many forests, and high vitamin foods like gooseberries are no longer accessible to the poor. The result is low nutrition, lower earnings, as well as higher indebtedness (State of India's Environment Report, 2nd volume, CSE, New Delhi, p.91).

Box 2: The Chipko Andolan: The grassroots agitation against deforestation

The Chipko Andolan- the movement to hug trees is probably the world's most well-known grassroots Ecodevelopment movement. The Chipko movement was born in March 1973 in the remote hill town of Gopeshwar, Chamoli Garhwal (Uttarakhand), when representatives from a sports good factory situated in Allahabad reached Gopeshwar to cut 10 ash trees near Mandal village. When the villagers persistent calls to not to cut the trees fell in the deaf ears, they came up with the idea of hugging the earmarked trees. Few weeks later the same contractor empowered with fresh allotment from the forest department resurfaced at Rampur Phata, a good 80 kms away from the Gopeshwar township. However, as soon as the villagers learned of the attempt, they marched with drums and songs, gathering more people on the way. This time too, the idea of hugging the earmarked trees paid, with

the contractor being forced to return back. The Chipko movement reached its climax in 1974, when the women of remote village of Reni, some 65 kms from the border township of Joshimath, successfully foiled the exploitation attempt. That day their counterparts, the men folk were away in Joshimath protesting against the auction of a forest neighbouring the village; the contractor arrived to begin the felling. However, undaunted by the seer number of the men or their axes, the women of Reni, led by Gaura Devi, barred the path to the forest.

It needs to be emphasized here that the genesis of the Chipko movement has both an ecological and an economic background. The Alaknanda valley, in which the movement originated, was the scene of an unprecedented flood in 1970. The tragic aftermath of this flood left a deep impression on the hill folk and, with it, soon followed the appreciation of the vital ecological role that forests plays in their lives. At its heart, the movement is very much a feminist movement, which brings forth the salient role of the forest in the lives of the hill women; because it is they who are affected more by the loss of forest cover than their counterparts, with whom they very often had to fight, against felling of the trees.

Adapted from State of India's Environment, 1st Citizens' Report, Centre for Science and Environment, New Delhi, 1982, pp.42-43.

2.6 MINING

The pervasiveness of dust is the strongest indication that mining is not a benign activity. Unless it is carefully planned and thoughtfully carried out, mining can lead to (and it very often does) degradation of the landscape, pollution of the water, denude forests, defile the air, and degrade the very life of the inhabitants, who work or live in the vicinity. With increasing mechanization, the mining equipment have grown larger and more powerful, and thus with the use of power shovels, hydraulic excavators, massive dump trucks and conveyors, can move tens of thousands of tonnes of mineral or ores in a single day, thereby altering the entire landscape in a relatively very short period of time. Mining leads to not just the degradation of the mining site, but additionally means the conversion of land to such purposes as roads, railways and ropeways for mineral transport, townships for housing miners and other staff, infrastructure for administrative purposes, land for stockyard and for preliminary processing purposes, else. In effect, the total land affected by mining is many times larger than the simple lease area. The first stage of surface mining involves the removal of vegetation and the top soil. Since the mined areas are usually abandoned without the adoption of any reclamation measures, they become barren. The disposal of mining debris requires additional area, and thus renders the surrounding land infertile. Rainwater subsequently washes out the debris from waste dumps to adjoining agricultural fields and streams, making them polluted. Underground mining can similarly lead to subsidence of land. However, the most important fact remains that much of the mining activity in India is carried out in forested regions, with the obvious result-deforestation and erosion. In fact underground mining also significantly denudes forests, since the timber used for supporting the roofs of the mine galleries are procured from the forests only. The gross neglect of the surrounding ecosystem, including the health of the population in the vicinity of the mines is being described below (Box 1.3).

Box 3: Mining for uranium: A gruesome aftermath

Uranium is mined as an ore usually containing over 0.1 per cent of uranium oxide. Some 3.4 lakh tonnes of ore are required to generate 1,000 MW of power each year in light water reactors of Tarapur type. The most significant radiological hazard in uranium mining is represented by radon and its decay products. Inhalation of radon gas and its decay products in uranium mines irradiates the lungs and the respiratory tract, increasing the incidence of cancer in the miners. The incidence of procuring cancer gets compounded by the general poor health of the miners. The environmental cost of uranium mining could be described citing the example of Jaduguda uranium mill in Bihar. The ore is processed mechanically and chemically to extract the bulk of the uranium content to yield a concentrate of oxides called yellowcake. The mill trailing are dumped into a 25 ha pond. It is estimated that a 1,000 MW capacity nuclear power plant annually produces about 3.25 lakh tonnes of mine tailings. The tailings are decanted and the fluid is channeled into a nearby nullah. To this is also added the discharge from the mine, which contains uranium, radium and manganese. This effluent 50 meters downstream contains radium, manganese and sulphate above the derived water concentrations. By the time the effluents reach the Subarnarekha river, the uranium and radium concentrations in the aquatic system have both increased, the former by 2.5 times to 3.2 mg/m^3.

Adapted from State of India's Environment, 2nd Citizens' Report, Centre for Science and Environment, New Delhi, 1984-85, p.288.

2.7 BIODIVERSITY

Biodiversity is the variation of life forms within a given ecosystem, biome, or, on the entire Earth. Biodiversity is often used as a measure of the health of biological systems. The biodiversity found on Earth today consists of many millions of distinct biological species, which is the product of nearly 3.5 billion years of evolution.

Biological diversity or biodiversity can have many interpretations, and it is most commonly used to replace the more clearly defined and long established terms, species diversity, and species richness. Biologists most often define biodiversity as the "totality of genes, species, and ecosystems of a region". An advantage of this definition is that it seems to describe most circumstances and present a unified view of the traditional three levels at which biological variety has been identified, and they are genetic diversity, species diversity and ecosystem diversity.

One of the most pressing issues on the national and global agenda is the need to conserve biodiversity for future generations while trying to understand and document the indigenous knowledge of resource management practices. So far, this challenge, has been partially addressed by the national and global agencies, who have restricted themselves to conservation of biodiversity as outlined by the World Commission on Environment and Development (1987), which led to calls for sustainable development. As a result, the model of development was foisted upon the so called Third World for the last fifty years. A strong argument has been made that development dictated from outside rather anchored in the knowledge base of the target population is, in principle, modernization disguised,

and not fully concerned with local needs. This is evidenced by the continuing marginalization of already marginalized populations in Latin America and elsewhere at a global level, and similarly, marginalization of the tribal, pastoralists and marginal farmers in far flung and remote areas, especially in the mountains in India. Only recently, it has been realized by scholars and researchers that indigenous knowledge systems should constitute the core of development models in the Third World. Because indigenous knowledge has permitted its holders to exist in harmony with nature, allowing them to use it in a sustainable manner, it is seen as especially pivotal in discussions of sustainable resource use.

In agricultural systems, a diversity of crops and varieties is needed to combat the risks farmers face from pests, diseases, and variations in climate. Crop biodiversity also underpins the breadth of dietary needs and services that consumers demand as societies become wealthier. For some time, scientific experts have been concerned about declining diversity of crop genetic resources on farms. Many argue that the very processes that engendered the remarkable advances in agricultural productivity during the 20th century, such as the Green Revolution, also eroded the valuable stocks of genetic resources long maintained by farmers. Sampling these resources and housing them in gene banks, while fundamental, is only a partial solution. Ex situ conservation stops the evolutionary clock and raises proprietary concerns as genetic material is transferred out of the hands of its historical custodians for safeguarding. Economists often view the loss of diversity as an unavoidable, unintended consequence of technical change and specialization—a negative externality of progress. In the longer term, managing crop genetic diversity through a combination of strategies and approaches (in gene banks, breeding programs and on farms) is essential for sustained social and economic development.

Of all the forms of ongoing habitat destruction, the most consequential is the clearing of forests. It is believed that that the maximum extent of the world's forests was reached six thousand to eight thousand years ago, at the very dawn of the agriculture. Today, however, only about 50 per cent of the original forest cover remains, which again is under intense pressure of denudation. Over 60 per cent of the temperate hardwood and mixed forest has been lost, as well as 30 per cent of conifer forest, 45 per cent of tropical rainforest, and 70 per cent of tropical dry forest. Inevitably, the reduction in the area of the forest results in reduction in the number of the species that can live sustainably within it. More precisely, as the area shrinks, the sustainable number of species falls by the sixth to third root of the area. A common intermediate value found in nature is the fourth root. At the fourth root, the reduction of a habitat to one-tenth its original area eventually causes the fauna and flora to decline by about one-half.

A frightening aspect of the area-species principle is that while removal of 90 per cent of the habitat area allows about half of the total number of species to hang on, removal of the final 10 per cent can wipe out the remaining half in one stroke. In fact, the prime cause of concern remains this very bare fact that throughout the world, habitats reduced to fragments this size or even smaller is increasing rapidly. World's 25 hotspots of biodiversity, which even though cover only 1.4 per cent of the total land surface, yet represents 43.8 per cent of all known species of vascular plants and 35.6 per cent of all the known mammals, birds, reptiles, and the amphibians, are not safe either. These twenty-five hotspots have already been reduced 88 per cent in area; it is feared that

some of these hotspots will altogether be wiped in few decades due to continued intrusion by human. Two of the hotspots are within India: the Western Ghats and the eastern Himalayas.

The earth supports an enormous variety of organisms. How many species are on earth today is beyond any measurement. About 1.75 million species are presently described, although the exact boundaries among species, subspecies, and varieties are not always clear. It is estimated that humans have probably observed, although not always classified, about 2.5 million species. Beyond that the guesses vary widely. The United Nations Environment Programme (UNEP), in what amounts to a mean among all guesses, usually estimates a total of 14 million species.

2.7.1 Indian Scenario

The Indian subcontinent is one of the most fascinating ecological and geographic regions in the world. Here lies the nearly rainless desert of Thar and one of the rainiest place on earth- Cherrapunjee; the hot, salty Rann of Kutch and the permanently snow-bound peaks of the Himalaya; the wet coastal regions of Kerala and the Islands of Andaman and Nicobar; the great lake of Chilka and the river system of Ganga-Brahmaputra. This variety of ecological conditions sustains a tremendous amount of diverse life forms (tables 1 & 2). About 15,000 species of plants (out of a world total of 1.5 million) have their homes in India. On two per cent of the world's land mass, we possess around five per cent of the known living organisms on earth. The fauna peculiar to India include the sloth bear, blackbuck, four-horned antelope and snakes belonging to the family *Uropeltidae.*

With over 1,200 species and about 900 subspecies of birds, India's avian diversity is unmatched except by Latin America. However, today a significant portion of this cornucopia is threatened by the pressure of human activity, both on land and forests. What makes matters worse is that knowledge of our wildlife is still largely incomplete, except for a few groups of organism such as birds. A little over 10 per cent of India's flora also faces extinction. The first comprehensive listing of endangered wildlife species in India was compiled in the Wildlife (Protection) Act, 1972, which provides for protection of threatened faunal species from indiscriminate hunting. Schedule I of the Act identifies 70 mammals, 22 reptiles and amphibians and 41 bird species as rare or highly endangered species, which are totally protected throughout the land.

The lion-tailed macaque, which inhabits the evergreen rainforests and *Sholas* of south India, is among one of the world's most endangered primates. Similarly the wolf, the jackal, the Indian fox and the wild dog represents the threatened carnivore. Among the felines, all the big cats-the tiger, the lion, the leopard, the snow leopard, as well as the small felines- the lynx, the marbled cat (killed for pelts) are critically endangered. Similarly, 5 out of the recorded 9 species of deer in India, are endangered, which includes one of the most endangered species, the Sangai or the Brow-antlered deer, limited to just around 40 odd individuals in the wild. Lack of foresight and ecological insight has led to disappearance of 4 out of 5 species of turtles previously found in India, more so as these species were 'fenced off' from their principle breeding sites through construction of the embankments. As regards the bird fauna, the principle cause remains not harvesting/hunting, but rather the habitat destruction, pollution of air

and water (usage of the pesticides) and the increasing drainage or the decrease in the over-all area of the wetlands. Presently a significant number of species of Hornbills, the bamboo partridge, all the Himalayan Pheasants, are critically endangered.

Table 1: A Comparative Statement of the Floral Diversity of India and the World

Sl. No.	Taxa	Species			Percentage of species in India as compared to the world
		India	World	Endemic	
1.	Bacteria	850	4,700	-	18.10
2.	Viruses	unknown	5,000	-	-
3.	Algae	2,500	40,000	-	6.25
4.	Fungi	23,000	47,000	-	48.94
5.	Lichens	1,940	17,000	-	11.41
6.	Bryophyta	2,843	16,000	-	17.77
7.	Pteridophyta	1,022	13,000	200	7.86
8.	Gymnosperms	64	750	-	8.53
9.	Angiosperms	17,000	250,000	4,950	6.80
10.	**Total**	**49,219**	**392,700**	**5,150**	**12.53**

Source: *Anon 1997b*

Table 2: A Comparative Statement of the Faunal Diversity of India and the World

Sl. No.	Taxa	Species			Percentage of species in India as compared to the world
		India	World	Endemic	
1.	Protista	2,577	31,290	619	8.23
2.	Mollusca	5,050	66,535	807	7.59
3.	Arthropoda	60,383	9,83,677	9	6.13
4.	Other invertebrates (including Hemichordata)	8,329	87,121	-	9.56
5.	Protochordata	116	2,173	-	5.34
6.	Pisces	2,546	21,723	78	11.72
7.	Amphibia	204	5,145	85	3.96
8.	Reptilia	446	5,680	152	7.85
9.	Aves	1,228	9,672	50	12.70
10.	Mammalia	372	4,629	37	8.03
11.	**Total**	**81,251**	**1,217,645**	**1,837**	**6.67**

Source: *Anon 1997c*

2.7.2 Crop Diversity Loss

India is recognized as one of the centres of diversity, especially for its rich genetic wealth of bamboo, fruit trees (mango, banana, and citrus), vegetables (eggplant, okra, cucurbits), legumes (mung bean, black gram, cowpeas), rice, pepper, cardamom, ginger, turmeric, sugarcane, jute, and various medicinal and aromatic plants. In addition, the country enjoys a rich diversity of wheat, maize, millets, oilseeds, among other, such as forage legumes and grasses. It is estimated that about 250 Indian species have wild relatives of agricultural and horticultural importance, and of these, about 60 are rare or highly endemic. However, with the advent of modern agriculture, more specifically with the introduction of High Yielding Varieties (HYVs), this rich genetic pool has shown signs of rapid depletion. Witnessing the success of the green revolution technologies in the plains, there has been a blind run to implement the same throughout the country. However, the same has met with failure in the mountain environment, since the technologies were built around the requirements of homogenous or near homogenous agricultural pattern (read mono-cropping) and climatic, edaphic, topographical conditions, as well as the irrigational, nutrient inputs prevailing or re-enforced in the plains, or were easier to disseminate, subsequent to the green revolution.

The introduction of the 'miracle seeds' of the green revolution, which led to large scale destruction of crop diversity is based on the concept that only one product of the plant is useful: the marketable one. The HYVs or rather the high response varieties of the green revolution considered only the grain as the useful product. In fact, the HYVs yielded large amounts of grain only if they were given inordinate amounts of inorganic fertilizers, in addition to the regular dose of pesticides. Added to all this was the inevitable greater need for frequent irrigation. Eventually this unnatural act leads to toxicity of various kinds and water logging of the soil. Monocultures are not ecologically sound, and not least sustainable. By simple definition monoculture principally means breeding identical plants. Biodiversity erosion, thus starts a chain reaction, for the simple reason, the disappearance of one species is related to extinction of a number of other con-joint, related or associated species, of which the human beings are totally oblivious. All in all, the displacement of indigenous/traditional varieties of crops (which could be extended to the indigenous livestock population too) does not merely leads to the loss of diversity, but it has more serious ecological consequences, which again undermines the productivity. Thus, conserving the native crop species is necessary for the simple ecological reasons (adapted from Shiva 1996):

1) Resilience against environmental stress

2) Cropping patterns based on diverse mixtures of crops reduce vulnerability to disease and pests. Genetic variation in crops also reduces such risks.

3) Races which have evolved under rain fed conditions are well adapted to long periods of water stress and to variation in the climate. In addition, when such varieties are grown in mixtures of as high as nine 'Navdanya' or even twelve crops 'Barahanaja' (as practiced in the hills of Garhwal Himalaya- the practice of cultivating multiple crops at a time is termed as Polyculture), the risks of crop failure are further reduced.

4) This insurance is not a trade-off against productivity because all crop outputs are included in measurements of yield; mixtures generally have higher yields than monocultures.

In this session you read about various natural resources. Now answer the questions given in the Check Your Progress 1

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What do you mean by Natural Resources Management (NRM)?

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2) Write in brief what do you understand by environment?

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3) What do you understand by biodiversity?

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2.8 EXPLOITATION AND CONSERVATION OF NATURAL RESOURCES

A number of activities relating to development including construction activities of all kinds, forest based industries, hydel and irrigation projects, mining, oil drilling, pollution, resource extraction, and road and transportation put enormous pressure on natural resource base. There are some human induced activities, which relating to agriculture, fishery, expansion of forest villages, grazing/ increased domestic animals habitat, habitat depletion and exchange due to horticulture, monoculture forestry have led to different kinds of encroachment on natural resources.

Collections made by scientific/ educational institution

- exploitation by local authorities as revenue resource
- fuel wood collection
- food gathering
- food hunting
- smuggling of timber/ forest produce
- trophies/ specimen collection of medicinal plants and orchids and
- unregulated trade / market forces.

Human induced disasters causing stress on natural resources

- floods
- major oil spills/ leakage
- wildlife depredation
- Epidemic
- forest fires due to humming and
- intentional forest fire.

Threats to NRM- wrong and faulty approaches

- diseases
- fire as management tool
- genetic uniformity
- hybridization
- inadequate water and food for wildlife
- increased competition
- introduction of exotic species
- lack of patronage of local / native species
- low population/ restricted range (protectionism).

Management of human resources

- change in people's life style
- conflicting / increasing demands
- dilution of traditional values
- erosion of indigenous knowledge
- generation gap
- human harassment
- ignorance / lack of awareness
- inadequate trained human resource
- inappropriate land use
- lack of effective management
- negative attitude
- tourism development.

Political and policy issues

- civil unrest / political movement
- change in use/ tenure/ legal status
- insurgency or armed conflict
- intercommunity conflict
- intervention failure
- lack of clear policy implementation
- lack of interdepartmental coordination
- lack of intervention
- military activities

Why Conservation?

The Indian region is a treasure house of wild genetic resources. Wild species and relatives of crop plants contain valuable genes that are of immense genetic value in crop improvement programmes. The important wild related species and types in various crop groups, prevailing under different phytogeographic zones in the country needs particular attention in the agro-biodiversity management system for sustainable use, to help maintain food, nutritional, and agricultural economic security. The main objectives of biodiversity conservation are

- the conservation of biological diversity
- the sustainable use of components of biodiversity.

India's efforts at Biodiversity Conservation

Dr. M.S. Swaminathan (1983) suggested the following conservation measures

- cultivated varieties in current use
- obsolete cultivars
- primitive cultivars or land races
- wild species and weedy species closely related to cultivated varieties
- wild species of potential values to man
- special genetic stock developed by man
- fair and equitable sharing of benefits arising from the utilization of genetic resources.

In-situ Conservation

- This includes conservation of plant and animals in their native ecosystems, or even in a man-made ecosystem, where they naturally occur.
- It applies only to wild fauna and flora.
- It aims at preservation of land races with wild relatives in which genetic similarities exists.

Ex-situ Conservation

- This is done through the establishment of gene banks.
- It is the chief mode for preservation of genetic resources.

- Generally, seeds or *invitro* maintained plants cells, tissue, and organs are preserved under appropriate conditions.

The drawbacks of *ex-situ* conservation are

- loss of viability over passage of time and susceptibility to insect or pathogen attack
- inability to maintain distinct clones except for inbreed and apomicts species
- non applicability to vegetative propagated crop.

2.9 MANAGEMENT OF NATURAL RESOURCES

There is an urgent need to think deeply about the destruction of natural resources. With the exponential increase in human population and increased technological advancement, the natural resources get relentlessly exploited. There is a need for optimization of its usage. This is possible only when we adopt the concepts

Figure 1: Complex and Dynamic Resources Management Systems

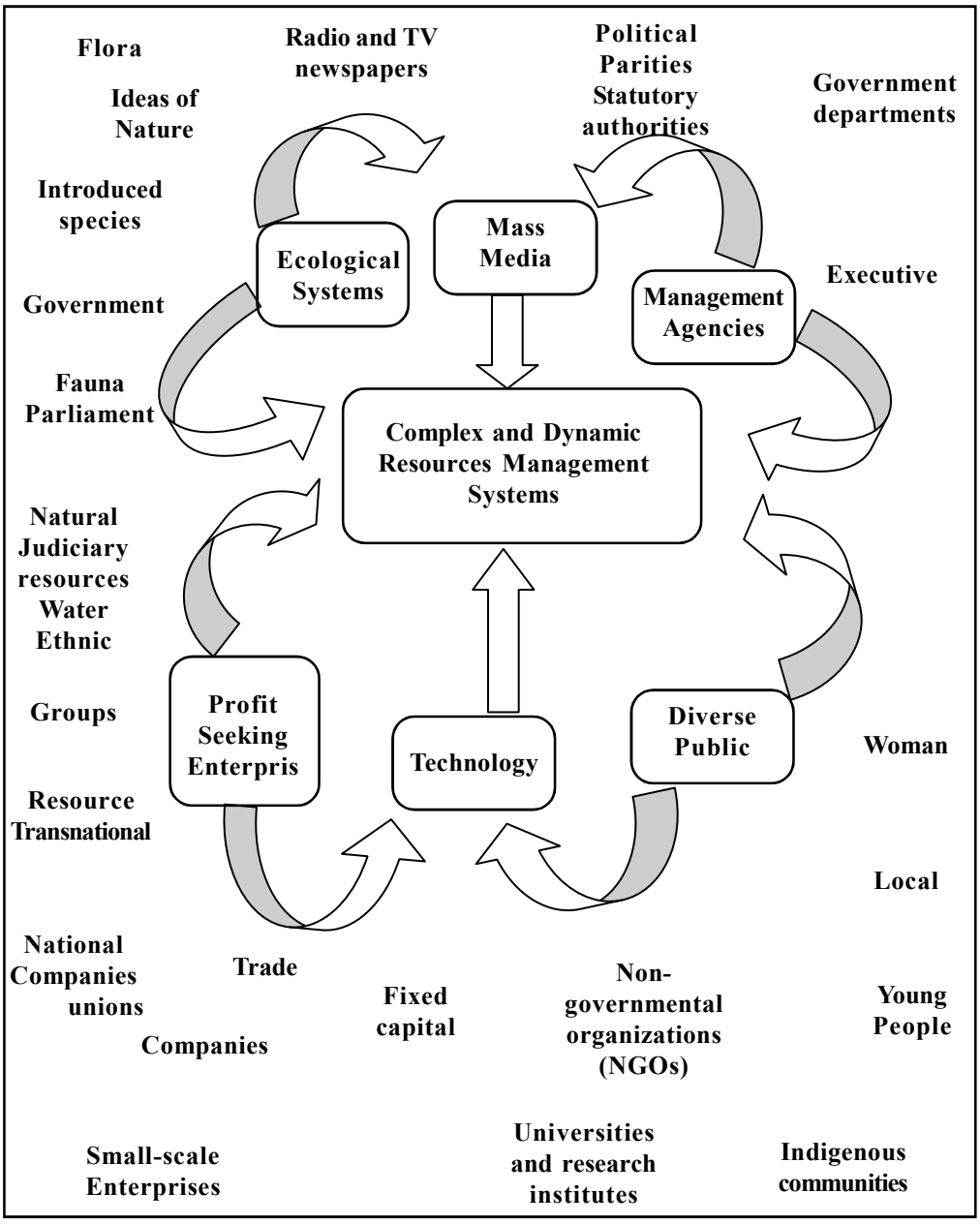

Figure 1: Resource Management Chart

of management and conservation of natural resources. Management and conservation mean scientific utilization of resources while maintaining their sustained yield and quality. India produces only half of the national requirement of petroleum products and it imports the rest from other countries. Natural gas is the most popular petroleum product and its consumption during last two decades has increased tenfold. If we need to save fossil fuels from total exhaustion, we should encourage the usage of non conventional resources of energy, such as solar energy, wind energy, biomass energy, etc. Biogas is a natural gas. It is produced from animal, water and weeds and other plants. India comes first in developing and using biogas technology. It is a cheap, non polluting and labour saving fuel. Biogas can be used for cooking and lighting, and in vehicles.

According to the world conservation strategy on natural resource management (NRM), it is the management of human use of the biosphere, lithosphere, and hydrosphere so that it may yield the greatest sustainable benefit to the present generation while maintaining its potential to meet the needs and aspiration, not the greed, of future generation. With the current rate of development, population growth, and migration, communities are increasingly unable to meet their sustained needs, growing demand for fuel wood and other forest products, pollution due to industrialization, and a market for rare animal species and medicinal plants have all threatened the biological diversity; and thereby have hampered sustainable human development. Further, the race for development and cultivation of improved varieties in larger areas has threatened the biodiversity to a considerable extent. The complex dynamics of resource management system can be well understood by the flowchart (figure 1) and various issues and dimensions involved in resource management are represented in figure 2.

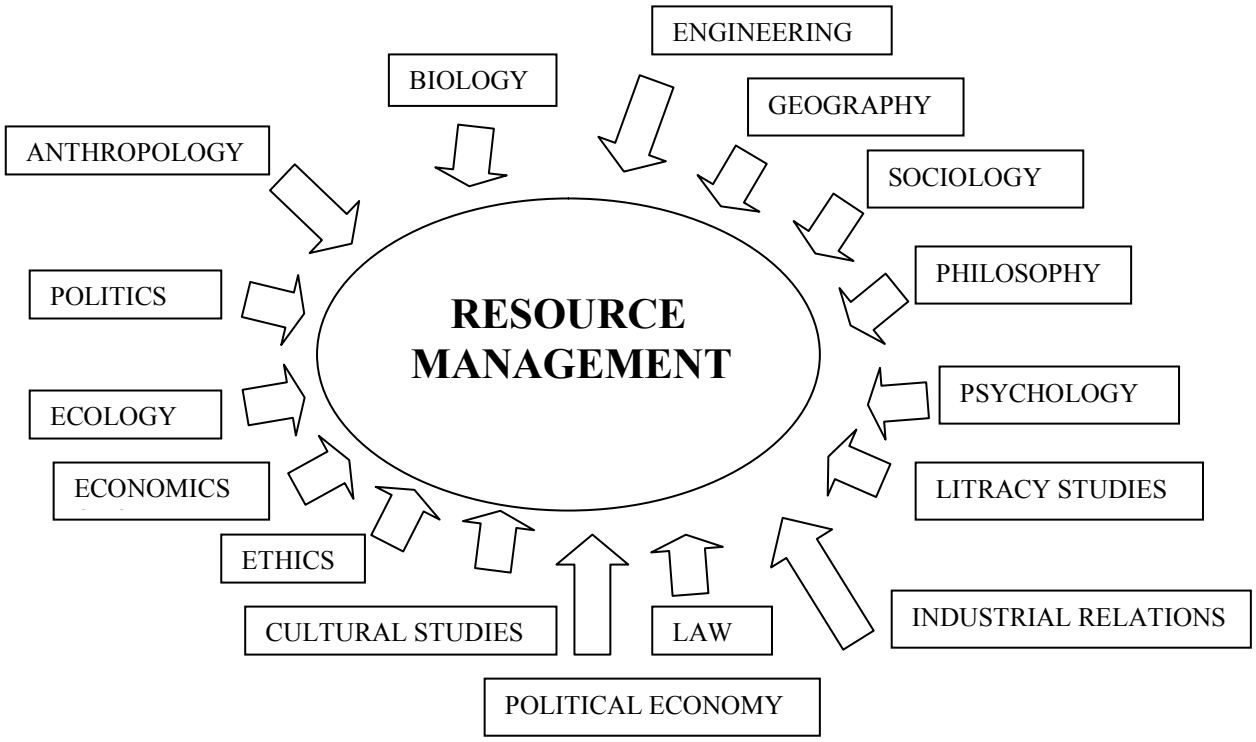

Figure 2: Various issues/dimensions involved in resource management

2.9.1 Meaning and Need for Resource Management

The main driving forces of resource consumption are population and economic growth, and the pattern of development, broadly defined to include technological level, economic structure, and the patterns of production and consumption. The projected 50 per cent growth in the global population over the next fifty years will put a significant pressure on the environment. If, over the next fifty years, the population of the developing countries achieves levels of material wealth similar to today's levels in industrialized countries, world consumption of resources would increase by a factor ranging from two to five. Without dramatic technological improvements or changes in the patterns of consumption, growth in resource use and environmental impacts due to increased population and economic growth in developing countries are likely to outweigh technological efficiency gains in industrialized countries.

Human wealth is based on the use and consumption of natural resources, including materials, energy and land. Continued increase in resource use and the related environmental impacts can have a multitude of negative effects leading to ecological crises and security threats. The sustainable use and management of natural resources have, therefore, come into focus and has been the subject of many policy discussions over more than a decade, beginning with the summit in Rio de Janeiro in 1992.

Over the past 50 years, humans have changed ecosystems more rapidly and extensively than in any comparable period in human history, largely to meet rapidly growing demands for food, fresh water, timber, fibre and fuel. This has resulted in substantial gains in human wellbeing and economic development, but these gains have been achieved at growing costs in the form of the degradation of many ecosystems (Millennium Ecosystem Assessment, 2005). What is driving our material and energy use to the extent that it is becoming a global environmental problem and a threat to future generations? There is no simple answer to this question, because a number of interdependent socioeconomic and environmental factors are at play. Nevertheless, there are three basic factors which determine the growth of resource consumption, and the resulting environmental impacts of human production and consumption patterns.

2.9.2 Dynamics of Resource Management

Public policy in India has, for long, appreciated that access to shared or common natural resources (NR) is crucial to local livelihood strategies. Many of the rural poor depend directly on shared NR, yet they often live in ecologically marginal areas and have limited and insecure rights to NR. A recurrent question in the rural development debate has been: how are poverty and access to NR linked and what are the policy implications of these linkages? A principal conclusion has been that decentralised NR management regimes will enhance both sustainability and equitable access to NR by the poor. Policy has focused principally on institutional frameworks conferring rights, responsibilities and roles in decentralized NR management (DNRM). In India, two formal institutional systems have been identified as having the legitimacy and potential to enhance rural livelihoods: partnership models. In the last decade there have been significant moves towards formal NR management partnerships between the public administration and local user groups. The two most institutionally evolved examples, for which Guidelines have been promulgated, are Joint Forest

Management (JFM) and Watershed Management (WM). A Constitutional Amendment passed in 1993 aimed to strengthen local government, collectively called Panchayati Raj Institutions, at District, Block and Village levels. Some of the seats at these levels are reserved for marginal and vulnerable community members, and for women. Village level Panchayats have become responsible for preparing plans for the management of NR within their boundaries. The support for decentralization is based less on any proven success than on ideological convictions related to the importance of local involvement and self determination in the development process. There is, however, a growing realism about the strong centralizing forces within the polity and bureaucracy that inhibit meaningful transfer of access and control over NR. Equally, earlier optimism regarding collective action has been tempered by failed participatory common resources are not considered worth collective action.

The decentralization agenda has however led to changes in the institutional arrangements for managing shared NR. Through partnership models, and indirectly through Panchayati Raj, communities have been given some autonomy in deciding priorities for NR management, funds to develop NR assets and guidelines to promote community mobilization. These decentralization initiatives represent major achievements in challenging the previous dominance of line department control over all aspects of NR management. The objective of sustainable, equitable and efficient DNRM is, however, far from being realized as our examination of the source of political demand for decentralization and the content of the programmes and projects themselves revealed.

Management of Forests

The world forest is derived from the Latin word *foris* meaning outside, the reference being to a village boundary, or fence and it must have included all uncultivated and uninhabited land. Today, a forest is any land managed for the diverse purpose of forestry, whether covered with trees, shrubs, climbers, etc., or not. The Indian word, jungle, has been adopted in the English language to describe a collection of trees, shrubs, climbers, etc., that are not grown in a regular manner, as contrasted with a forest, which is any vegetation under systematic management. Technically, a forest is defined below.

a) Generally, a forest is an area set aside for the production of timber and other forest produce, or maintained under woody vegetation for certain indirect benefits which it provides, e.g., climatic or protective.

b) From an ecological point of view, a forest is a plant community predominantly of trees and other woody vegetation, usually with a closed canopy.

c) From a legal point of view, it is an area of land proclaimed to be a forest under a forest law.

Forestry is the theory and practice of all that constitutes the creation, conservation, and scientific management of forests, and the utilization of their resources to provide for the continued production of the required goods and services. Forests are a very striking feature of the land surface. They vary greatly in composition and density, and stand in marked contrast with meadows and pastures. The scenic effect of forests changes with the seasons like the patterns in a kaleidoscope. Certain forests are evergreen, like the Deodar forests of Kashmir, while others are deciduous, becoming leafless either before the advent of winter

when vegetative activity almost ceases, such as the oak forests of the Himalayas, or else just before the onset of intense dry summer, to reduce transpiration to the minimum, like the Teak forests of Central India. The falling leaves in some species become bright orange or golden yellow. In others, the young foliage is pink. Such autumnal and verbal tinges are in vivid contrast with the general green or straw-coloured background, and are extremely pleasing. Unlike animals, plants do not have the power of locomotion. They also cannot construct shelters or generate heat to withstand the adverse effects of the environment of which they are captives. Therefore, to survive they wear the evidence of this fact in the form of structural adaptations, such as leaflessness in summer to minimize transpiration, thorns to ward off browsers, poisonous sap, etc.

The forests of a country are a natural asset of immense value. Unlike its minerals resources, including fossil fuels, which in course of time either get exhausted or their utilization will become uneconomic due to increased costs for obtaining and processing them, the forests, if of adequate extent, ideally dispersed, scientifically managed and judiciously utilized can be kept perpetually productive and useful, conferring many benefits, direct and indirect, on the people. Thus, forests are a renewable resource. Directly, forests meet the needs of small timber, fuel, bamboos and a variety of other products, including fodders which are indispensable requirements of the people living in close proximity of the forests. They also provide the facility of grazing for their livestock, and yield a variety of products of commercial and industrial value such as structural timber, charcoal, and raw materials for making paper, newsprint, rayon, panel products, *bidi* leaves, gums, resin, dyes, tans, and a number of other economic products including medicinal drugs. Forests also provide employment to a large population engaged in their protection, tending, harvesting and regeneration as also in ancillary occupations processing forest raw material and marketing them. These are productive functions of the forests.

Management of State Forests

No forest should be permitted to be worked without the government having approved the management plan, which should be in a prescribed format and in keeping with the national forest policy. In order to meet the growing needs for essential goods and services which the forests provides, it is necessary to enhance the forest cover and productivity of the forests through the application of scientific and technical inputs. Production forestry programmes while aiming at enhancing the forest cover in the country and meeting national needs should also be oriented to narrowing, by the turn of the century, the increasing gap between demand and supply of fuel wood. No such programme, however, should entail clear felling of adequately stocked natural forests.

Rights and concessions: the rights and concessions, including grazing, should always remain related to the carrying capacity of forests. The capacity itself should be optimized by increased investment, silvicultural research and development of the area. Stall feeding of cattle should be encouraged. The requirements of the community which cannot met by the rights and concessions so determined should be met by development of social forestry outside the reserved forests.

The holders of customary rights and concessions forest areas should be motivated to identify themselves with the protection and development of forests from

which they derive benefits. The rights and concessions from forests should primarily be for the *bonafide* use of the communities living within, and around forest areas specially the tribal communities.

Division of forest lands for non forest purposes: forest land or land with tree cover should not be treated merely as a resource readily available to be utilized for various projects and programmes, rather, as a national asset which requires proper safeguards for providing sustained benefits to the entire community.

Wildlife conservation: forest management should take special care of the needs of wildlife conservation, and forest management plans should include prescriptions for this purpose. It is specially essential to provide 'corridors' linking the protected areas in order to maintain genetic continuity between artificially repeated sub sections of migrant wildlife.

Tribal people and forests: there exists a symbiotic relationship between the tribal people and the forests, which means that both depend on each other for their survival and existence. Therefore, the primary task of all agencies responsible for forest management, including the forces development corporations should be to associate the tribal people closely in the protection, regeneration and development of forests as well as to provide gainful employment to the people living in and around the forests.

Shifting cultivation: Shifting cultivation is affecting the environment and productivity of the land adversely. Alternative avenues of income, harmonized with the right land use practices, should be devised to discourage shifting cultivation.

Forest based industries: as far as possible a forest based industry should raise the raw material needed for meeting its raw material requirements. Forest based industries must, not only provide employment to the local people on priority, but involve them fully in raising trees and raw material.

Forest extension: forest conservation programmes cannot succeed without the willing support and cooperation of the people, a direct interest in forests, their development and conservation, and awareness of the value of trees, wildlife, and nature in general.

Forestry education: forestry should be recognized both as a scientific discipline as well as a profession. Agriculture universities and institutions dedicated to the development of forestry education should formulate curricula and courses for imparting academic and professional excellence, keeping in view the manpower needs of the country.

Forestry research: with the increasing recognition of the importance of forests for environmental health, energy, and employment, emphasis must be laid on scientific forestry research necessitating adequate strengthening of the research base, as well as new priorities for action.

Management of Soil Resources

Rapid deterioration of soil health and degradation of soil environment as a consequence of persistent nutrient depletion and operating process of erosion, salinisation, acidification, and desertification have been of concern to soil

scientists in recent years, as these are posing a threat to the potentiality of our soil resources to support the increasing food demands in the future.

Soil Degradation

- Physical: soil erosion, water logging, desertification, compaction, crusting, overgrazing
- Chemical: nutrient runoff, acidification, salinisation, alkalinisation, loss of organic matter, nutrient imbalance, nutrient depletion, accumulation of toxicants.
- Biological: monoculture, pesticides and herbicides, disposal of industrial waste, toxic containing sewage water, genetic manipulation

Approaches towards soil conservation

- The primary purpose of soil conservation is to prevent soil erosion and heal the damage where it has not advanced too far to respond to curative methods.
- The land should wear a vegetative cover throughout the year.
- Engineering and agronomic practices should be applied conjointly.

Reclamation of eroded lands

- Ravines should be provided with sufficient and suitable vegetative cover.
- Instead of agriculture, these lands should be reclaimed for forestry, pasture, or horticulture.
- Their deficiency in nutrients and moisture for plants growth should be improved.
- Further misuse of such land should be prevented, over transplanting by man, and fenced cattle trails for example.
- Vegetative cover provided, should be protected against reckless destruction by local population.

Measures for controlling soil erosion deposition hazard

- Plantation at wind breaks and shelterbelts
- Sand dune stabilization
- Stubble mulching
- Wind string cropping
- Primary and secondary tillage
- Conserving soil moisture.

The Management of Water Resources

Ground water has been exploited in India quite substantially in the past few decades for irrigation. However, unlike surface water resources, there has been a conspicuous lack of scientific assessment of groundwater resources. Availability of this important natural resource has been taken for granted; utilization of ground water has not been commensurate with the available potential in a state, e.g., about 86 per cent in Gujarat and 3 per cent in Assam, indicating considerable regional imbalance. India has 4 per cent of the world's water resources. The

present water demand of India's agriculture is nearly 83 per cent of the total water use in the country and shall not change appreciable by the end of the century. The Ministry of Environment (1992) had made projections for water demand of various utility sectors for 2000 and 2025 AD.

Use of most of this allocated water for agriculture is confined to 33 per cent irrigated area and the remaining 67 per cent is still dependent on monsoon rains. The disproportionate use of water in certain pockets results in wastage. Excessive use of water makes the field more vulnerable to soil erosion. Irrigation, thus, can be identified as the most important single activity responsible for agriculture induced environmental stress, although other activities such as deforestation for expanding agriculture, production oriented agronomic practices, use of fertilizers, and plants protection chemicals have their individual contribution.

Approaches towards water conservation

Management at surface water resources such as

- canal water
- run-off water
- *khadins*
- *nadis,* Tanks
- Gully
- plugging
- water harvesting dams
- water spreading
- percolation tank

Management of ground water resources

The ground water resources in arid region have four major problems

- 65 per cent area has saline ground water with total soluble salt content over 3200 ppm
- deep static water level
- poor yield from wells
- due to over exploitation, static water level is declining, soluble salt content have increased, and the yield is reduced.

The following methods are available for artificially recharging aquifers

- water spreading
- recharging through pits
- wells and shafts
- pumping to induce recharge from surface water bodies.

Extension approaches for NRM

- Creation of natural resources like forests, water bodies etc.
- Conservation of resources in an ecology niche.
- Regeneration of natural resources by organizing self-propelling processes.

- Preservation through social fencing.
- Recycling of waste water by products.
- Rejuvenation of degraded or age old resource base.
- Protection of target species.
- Pollution control through policy formulation.
- Elimination of negative factors operating in the eco-systems.
- Social fencing for protection, preservation.
- Integration of biotic, abiotic and social factors.
- Rationalization in the use of dwindling resources.
- ITK and ITW: appropriate use and application.
- Watershed management to generate livelihood and conserve natural resources.
- Monitoring : Benefit monitoring evaluation (BME)
- Auditing is required to get accounts of depletion, and to suggest interventions
- People's participation: this is the most important and critical way to accomplish any objective in NRM.

In this session you read about the management of natural resources. Now answer the questions given in the Check Your Progress 2

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are the important roles of forests in our society?

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2) Write five major extension approaches which are very much needed for NRM.

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3) What are the right approaches to soil conservation?

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4) How can you manage surface water resources?

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2.10 LET US SUM UP

In this unit we dealt with various concepts and issues relating to the Natural Resource Management and Environment. We also discussed how these challenges have been partially addressed by global and national agencies. We explained how the exploitation of natural resources causes threats to the biodiversity, and various conservation issues and initiatives taken at global and national levels. The sustainable development approach, based on the complex dynamics of resource management, is the desired goal and objective of all national and international bodies. We also discussed how the decentralization agenda has led to changes in the institutional arrangements for managing shared natural resources including the sustainable management of the forests, soil resources and water resources.

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2.12 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress 1

1) What do you mean by Natural Resources Management (NRM)?

Answer: The following definition may be used for natural resources: "the sum total of all physical, chemical, biological and social factors which construct the surroundings of man is referred to as environment and each element of these surroundings constitutes a resource on which man thrives in order to develop a better life". Any part of our natural environment, such as land, water, air minerals, forest, rangeland, wild life, fish, micro organisms, or even human population – that man can utilize to promote the welfare, may be regarded as a natural resource.

2) Write in brief, what do you understand by environment?

Answer: The environment is everything which surrounds an organism and influences its life in many ways. It includes physical and biological components. The physical components of the environment are soil, water, air, light, and temperature. These are termed as abiotic components. The plants and animals are collectively referred to as biotic components. All these components of the environment work together, interact, and modify the effect of one another.

3) What do you understand by biodiversity?

Answer: Biodiversity is the variation of life forms within a given ecosystem, biome, or for the entire Earth. Biodiversity is often used as a measure of the health of biological systems. Biological diversity or biodiversity can have many interpretations and it is most commonly used to replace the more clearly defined and long established terms, species diversity and species richness. Biologists most often define biodiversity as the "totality of genes, species, and ecosystems of a region".

Check Your Progress 2

1) What are the important roles of forest in our society?

Answer: A forest is considered as an ecological kingdom, where many animals and the ecosystem live in perfect balance. The green cover produces enough oxygen, and, as well, carbon dioxide, for photosynthesis. The wild animals and other beings get enough protection from the solar heat, temperature, and the leaf cover formed on the earth gives cooling effect to the earth. The rivers and lakes in the forests give enough food and shelter for the animals and also the water for drinking for sustaining life. While the dense forests atmosphere acts as enormous sink for green house gases.

2) Write five major extension approaches which are very much needed for NRM.

   1) Creation of natural resources like forests, water bodies, etc.
   2) Conservation of resources in an ecology niche.
   3) Regeneration of natural resources by organizing self-propelling processes.
   4) Preservation through social fencing.
   5) Recycling waste water by products and social fencing for protection, preservation.

3) What are the right approaches to soil conservation?

Answer: The right approaches towards soil conservation are:

1) The primary purpose of soil conservation is to prevent soil erosion and heal the damage where it has not advanced too far to respond to curative methods.
2) The land should wear a vegetative cover throughout the year.
3) Engineering and agronomic practices should be applied conjointly.

4) How can you manage surface water resources?

Answer: Surface water resources can be managed in different ways: canal water, run-off water, *khadins*, nadis, tanks, gully, plugging, water harvesting dams, water spreading, percolation tanks, etc.

UNIT 3 SUSTAINABLE DEVELOPMENT

Structure

3.1 Introduction
3.2 Sustainable Development: Concept and Definition
3.3 Components of Sustainable Development
3.4 Indicators of Sustainable Development
3.5 Measures to Promote Sustainable Development
3.6 Sustainable Development Goals
3.7 Let Us Sum Up
3.8 References and Suggested Readings
3.9 Check Your Progress - Possible Answers

3.1 INTRODUCTION

Sustainable development has become a buzzword in different fora, seminars, and workshops. You might have read and heard about this concept. In this unit you will know more about the concept. Sustainable development stands for meeting the needs of present generations without compromising the ability of future generations to meet their own needs – in other words, a better quality of life for everyone, now, and for generations to come. It offers a vision of progress that integrates immediate and longer term objectives, local and global actions, and regards social, economic and environmental issues as inseparable and interdependent components of human progress.

After studying this unit, you should be able to:

- explain the meaning of sustainable development
- describe various components of sustainable development
- discuss various indicators of sustainable development
- suggest measures for the promotion of sustainable development.

3.2 SUSTAINABLE DEVELOPMENT: CONCEPT AND DEFINITION

Sustainable development has become a buzzword in different fora, seminars, workshops. It is found much in environmental and economics literature these days. The concern for sustainable development is becoming increasingly louder with the rapidity of economic growth. Around the globe, throughout history, most modern human institutions have evolved in ways that are at best, oblivious, and, at worst, positively hostile to the health of environment. Economic development, till today, is based on two fallacious premises: (1) it considers needs of mankind alone, and ignores the interdependent ecosystem, and (2) it treats the environment as a commodity. Man strives ceaselessly for riches. He is enslaved and obsessed by technological advancement, and by obtaining higher GNP. This obsession has despoiled the environment and is tending to ruin the carrying capacity (i.e., capacity of the ecosystem to support life) of Mother

Earth. The land is scarred and eroded; the waters of rivers, lakes and oceans are so contaminated with industrial waste, that it is nearly unfit for either industrial use or for human consumption. The air is filled with gaseous and particulate pollutants that are toxic to life. Pesticides used to promote agricultural production and public health has severely poisoned the environment. Each agent of production and consumption regards the disposal cost of waste as zero and uses the environmental sector as long as it permits him to improve his own welfare. He does not have to pay anything to anybody. The environment is still regarded as common property, each agent acting as if he owns it. The reckless use continues, without any heed to the damage inflicted, and causes degraded environmental standards, unhealthy and detrimental to all.

"Our Common Future" marks the beginning of the sustainable development concept that has generated all the literatures. New books on sustainable development have been appearing with increasing rapidity since the United Nations Conference on Environment and Development (the Earth Summit), held in Brazil in 1992. Divergent economic theorists like E. F. Schumacher of Britain, environmentalists like Barry Commoner and Lester R. Brown, population analysts like Paul Ehrlich, politicians like Willy Brandt of Germany and Jimmy Carter of the United States, all played significant roles in formulating ideas. The era of modernization has created an atmosphere of excitement of instant economic growth. In fact, all sectors of developing countries seem to be vibrating with economic buoyancy. There is expansion of trade, investment, market, and increase in Gross National product (GNP), productivity, per capita income, profit, efficiency, salary, etc, across the globe. The free trade system could more tellingly be called the free ride system, because the producers do not have to include in their product costs all the indirect costs they cause society, such as pollution of the land, sea and air, ozone holes, disappearing topsoil, exploding health costs, allergies, global warming, destruction of species, pesticides in food, antibiotic-resistant bacteria, crime, unemployment, escalating social costs, etc. Many of the most common, and most damaging products on the market, would never be manufactured if they were priced at their real costs to society as a whole. The road to success in global business today is to find a way to pass on as many of your costs as possible to the public, preferably to another country's public. The most profitable companies at this time are those that are most successful at getting someone else to pay the real costs of their doing business. Present economic process maximizes only the profits to the shareholders, while all the other stakeholders are left bearing the costs, for example, cleaning up the environment and dealing with unemployment.

The term, sustainable development, was coined by the Brundtland Commission which defines sustainable development as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs". Sustainable development is defined as balancing the fulfilment of human needs with the protection of the natural environment so that these needs can be met not only in the present, but in the indefinite future. Sustainable development is a pattern of resource use that aims to meet human needs while preserving the environment. The field of sustainable development is conceptually divided into four general dimensions: social, economic, environmental, and institutional. The first three dimensions address key principles of sustainability, while the final dimension addresses key institutional policy and capacity issues.

There is, now, a worldwide movement of environmentalism parallel to the more enthusiastic global movement of economic growth. Every section of people around the globe now expresses some amount of concern towards the deterioration of environmental standards. The rise in economic welfare is increasingly accompanied by a considerable decline in the quality of environment and loss of ecological stability. Some groups of environmentalist are very pessimistic while the other group of environmental scientists is very optimistic. But the fact remains that there is acid rain, global warming, the greenhouse effect, erosion and sterility of soil, degradation of land, environmental pollution, and ozone layer depletion. There is widespread desertification in one hemisphere and deforestation in another hemisphere of the globe. Deeper and wider concern for environmental degradation springs from two major sources.

1) Rise in material production effluents and use of synthetic materials
2) Increased demand for environmental goods.

The first refers to the problems of environmental externality and the second, to depletion of natural resources. In addition to the increased supply of economic goods, there is also an increased demand for environmental goods. Environmental goods signify any external environmental conditions that affect human welfare. The following elements are connected with the human welfare

- absence of all types of pollution
- availability of clean water and air
- quality of natural environment (outdoor recreation, etc)
- quantity of natural environment(forest, wildlife)
- Availability of public utility systems
- average space availability for inhabitants

In this session you read about meaning of the concept sustainable development and its need for development. Now answer the questions given in the Check Your Progress 1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What is the need for sustainable development?

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2) What do you mean by sustainable development?

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3.3 COMPONENTS OF SUSTAINABLE DEVELOPMENT

In this section you will read about the various components of sustainable development. The three main components of sustainable development discussed here are

i) interconnectedness of the system

ii) sustainable development path

iii) intergenerational approach.

i) Interconnectedness of the System

Traditionally we use numbers to show progress: "Employment rose 0.8 percent in January", or, "The economy grew by 2% last year", "Air pollution has declined by 0.2 per cent", "Dowry death has increased by 1.3%", etc. However, the traditional numbers only show changes in one part of the community without showing the various links between the community's economy, society, and environment. It is as if a community was made of three separate parts: (i) an economic part, (ii) a social part, and (iii) an environmental part. In this view, the parts do not overlap like the picture below (figure-1)

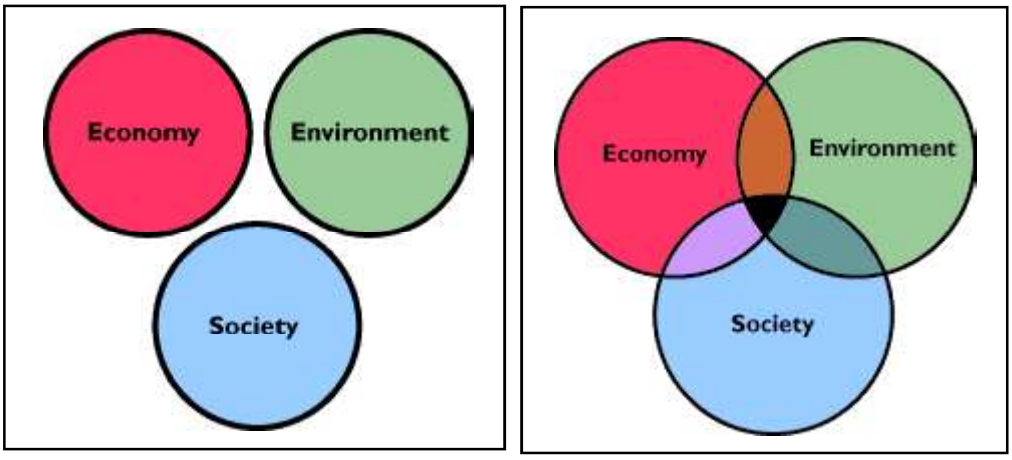

Figure.1: Interconnectedness of the three systems

However, when society, economy, and environment are viewed as separate, unrelated parts of a community, the community's problems are also viewed as isolated issues. This piecemeal approach has a number of negative side effects. Sustainable development depends on the links between the economy, the environment and the society. Figure-1, above, is frequently used to show the interconnectedness of three systems. Understanding the three parts and their links is the key to understanding sustainability, because sustainability is about more than just quality of life. It is about understanding the connections and achieving balance among the social, economic, and environmental pieces of a community.

Sustainable development is a dynamic concept, as a wide array of views fall under its umbrella. There may be as many definitions of sustainability and sustainable development. All the definitions have to do with

- living within the limits
- understanding the interconnections among economy, society, and environment
- equitable distribution of resources and opportunities.

Sustainable development involves the simultaneous pursuit of economic prosperity, environmental quality and social equity. "Sustainable community development is the ability to make development choices which respect the relationship between the three E's, i.e.-economy, ecology, and equity.

o **Economy -** economic activity should serve the common good, be self-renewing, and build local assets and self-reliance.

o **Ecology** - humans are part of nature, nature has limits, and communities are responsible for protecting and building natural assets.

o **Equity** - the opportunity for full participation in all activities, access, benefits and decision-making of a society.

Figure-2 illustrates all three dimensions of sustainable development. Sustainable development cannot ignore any of the three. If we ignore the social dimension, the development process may be viable, if we ignore the environmental dimension, development process may be equitable and if we ignore the environmental dimension, the development process may be bearable, but not sustainable.

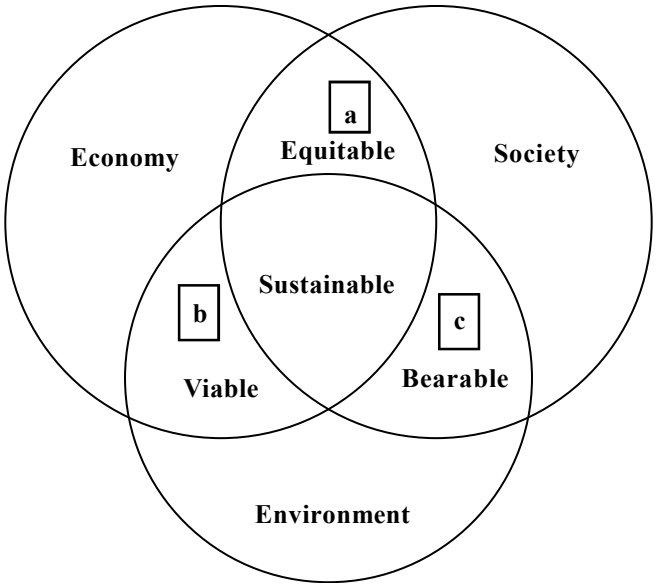

Figure. 2: Sustainable Development

In other words, the search for equity (a) neglects environmental aspects and the search for viability; (b) neglects social dimension and the search for bear ability; (c) ignores economic efficiency. Thus, a sustainable development process is that trajectory which is a synergy of efficiency, equity, and social acceptability. Sustainable development shows a compassionate concern for the posterity and for the world as a whole. It contends that social development, environmental soundness, and economic growth are not contradictory or incompatible. Healthy environment and good society are, rather, prerequisites for sustainable development. Sustainable development is based on a broader economic system which fulfils inter-generational equity criteria. Its objectives are focused on the future, not the

present, quality not quantity, protection not production, conservation not consumption.

ii) The Path of Sustainable Development

Sustainability implies irreversibility in the process of development. It necessitates the maintenance of the level of wellbeing so that it improves, and, at the least, never allows a decline over time. Thus, sustainable development has three interdependent and mutually reinforcing pillars: (i) economic development, (ii) social development, and (iii) environmental protection. It does not focus solely on environmental issues. We should differentiate between green development and sustainable development. The proponents of green development prioritize environmental sustainability over economic and cultural considerations. But cultural diversity is as necessary for humankind as biodiversity is for nature. It is one of the roots of development understood not simply in terms of economic growth but also as a means to achieve a satisfactory social, intellectual, emotional, moral and spiritual existence. In this sense, cultural diversity is the fourth policy area of sustainable development. Developing countries are not only rich in biodiversity but also in cultural diversity. In Figure.3 illustrates the path of sustainable development. It shows that Path N is non-sustainable and non-survivable. Development path E is efficient but non-sustainable. But path S is sustainable. Path E looks more attractive, but Path S is not impressive in the early stage. Path E has a maximum point after which it curls down. But Path-S is slow and steady, having no maximum survival limit.

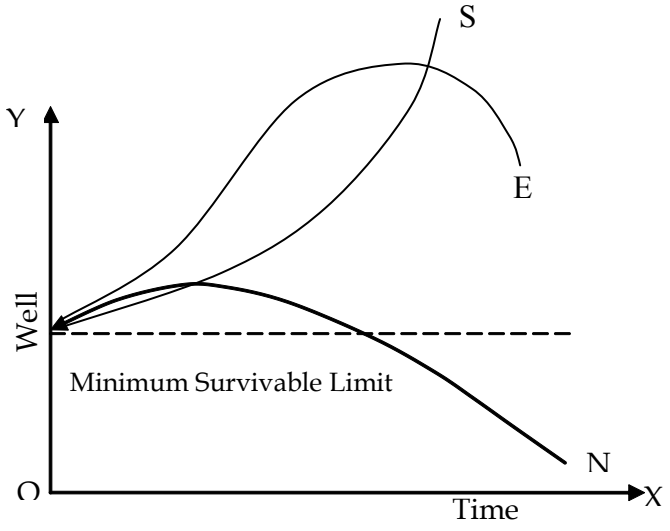

Figure 3: Sustainable Development Path

Source: *Das (2009) Sustainable Development Path*

Sustainability is related to the quality of life in a community - whether the economic, social, and environmental systems that make up the community are providing a healthy, productive, meaningful life for all community residents, present and future. It involves following three questions -

i) How has your community changed, economically?

ii) How has your community changed, socially?

iii) How has your community changed, environmentally?

Thus, the field of sustainable development can be conceptually broken into three constituent parts: environmental sustainability, economic sustainability, and socio-political sustainability. Sustainable development integrates the imperatives of developmental and environmentalism. It highlights the long term doomsday scenario and puts emphasis on economic, social, and ecological integration. It has three objectives.

i) Economic efficiency

ii) Social acceptability

iii) Ecological sustainability.

Sustainability is an issue for all communities, from small rural villages that are losing their natural environment, upon which their livelihoods depend, to large metropolitan areas where crime and poverty are decreasing the quality of life. Sustainability does not mean static equilibrium where nothing ever changes. Nor does it mean a utopia where nothing bad ever happens. Sustainability is not about maintaining the *status quo* or reaching perfection. It is not a community where nothing ever goes wrong. Sustainability does not mean that businesses never fail, or that people never go hungry, or that pollution never happens. A sustainable development process seeks to maintain and improve the economic, environmental, and social characteristics of an area so that its members can continue to lead healthy, productive, enjoyable lives at present and in future. Sustainability implies that when problems arise, we look for solutions that take into account all three dimensions of the community instead of applying a quick fix in one area that causes problems in another. It is not anti growth nor does it imply unlimited growth. Rather, at some point, a sustainable community stops getting larger but continues to change and improve, to develop in ways that enhance the quality of life for all its inhabitants.

iii) Intergenerational Approach

Sustainable development improves the economy without undermining the social or environmental imperatives. Sustainable development focuses on improving our lives without continually increasing the amount of energy and material goods that we consume. A sustainable community does not consume resources energy and raw materials faster than the regenerative capacity of the natural systems. We are currently living unsustainable lives. If we are not careful how we use and dispose of resources, our children, grandchildren and great-grandchildren will have a poorer, more polluted world to live in. A sustainable community interacts with four types of capital: natural, human, social, and built capital. All four types of capital need to be cared for. A sustainable community wisely manages all its capital - using and improving the social, natural and built capital in ways that allow that capital to continue to support that community in the future. Sustainability requires that human activity only uses nature's resources at a rate at which they can be replenished naturally. An unsustainable situation occurs when natural capital (the sum total of nature's resources) is used up faster than it can be replenished.

Inherently, the concept of sustainable development is intertwined with the concept of carrying capacity. In fact natural capital, social capital, and economic capital are often complementary. Carrying capacity is the size of

the population that can be supported indefinitely upon the available resources and services of supporting natural, social, human, and built capital. Living within the limits of an ecosystem depends on three factors:

i) the amount of resources available in the ecosystem

ii) the size of the population, and

iii) the amount of resources each individual consumes.

Thus, there is urgent need to develop an ecosystem approach, or inter generational approach for the management of natural capital and social capital. Ultimately, an ecosystem approach tends to evolve and change from a consumptive economy to an economy oriented towards conservation, maintenance of capital stock, and recycling of materials. Impoverishment of an ecosystem means the impoverishment of the entire society that depends upon it. Thus, an ecosystem approach is a compassionate concern for posterity and for the planet as a whole. Mere economic growth is not enough to bring welfare to mankind. Man is an organic being, whose total development depends, to a large extent, on the non-economic, sociological, psychological factors, and, on a meaningful sustainable balance between him and the environment (social and natural) in which he lives.

There are many contradictions and inconsistencies in the goal of sustainable development. It poses a great dilemma and a great challenge. Confronting the challenge is very costly, but not facing the challenge is really disastrous for the whole society. Therefore, the idea of sustainable development should be less idealistic and more practical. We do not have to choose between an environmentally healthy and economically robust nation. Both are compatible. We can have both. We are intelligent enough have the ability to develop enough new technologies and can change our behaviour enough to confront all the problems facing us, and to create optimal solutions.

In this session you read about various components of sustainable development. Now answer the questions given in the Check Your Progress 2.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Interconnectedness is important for sustainable development-Explain.

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2) What do you mean by 'sustainable development path'?

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3.4 INDICATORS OF SUSTAINABLE DEVELOPMENT

Indicators of sustainable development are more in the nature of indices that reflect the state of overall concepts or social goals such as human development, sustainable development, the quality of life, or socioeconomic welfare. Indicators provide early warnings about non sustainable trends of economic activity and environmental deterioration. They are the 'nutshell' indicators favoured by policy makers. Sustainable development indicators proliferated in the wake of the Rio Earth Summit's call for indicators of sustainable development (United Nations 1994, Agenda 21). Let us discuss a few selected indices of sustainable development.

Important indicators of sustainable development are:

i) Gross Sustainable Development Product

ii) Environmental Kuznets Curve

iii) Social Indicators for Sustainable Development

3.4.1 Gross Sustainable Development Product

Among different aggregation methods, green accounting is a common physical or monetary averaging. It is most commonly applied. The concept of Green GDP has been modified as Gross Sustainable Development Product (GSDP), which is defined as the total value of production after giving due care to social capital and natural capital of a region over a specified period of time. It is designed to replace the Gross Development Product (GDP) as the primary indicator of the economic performance of a nation. It takes into account:

- the economic impact/costs of environmental degradation
- impacts of changes in quality systems on national income and wealth
- global concerns and their impacts on the economy and ecology and society
- the welfare, economic development, and quality of life of future generations
- expenditures on pollution abatement and clean-ups
- the status of each resource and the stocks and productive capacities
- the depreciation or appreciation of natural assets
- the ecological processes and biological diversity
- the costs of economic growth, resources uses of present and future generations.

The measurement of GSDP shows that consumption levels can be maintained without depleting and depreciating the quality and quantity of services for the present and future. It indicates the solutions to the problems as well as the directions to take, such as:

- invest in technology, R and D
- increase productivity and end-use efficiency
- modify social services, educational programs
- slow down or increase economic growth

- remediate components of major quality systems; and
- rectify present shortcomings of income and wealth accounts.

The measurement of GSDP also gives a proper and sound signal to the public, government and industry about the rate and direction of economic growth. It identifies environmental, health, and social quality; it identifies sustainable and unsustainable levels of resource and environmental uses; it measures the success or failure of sustainable development policies and practices; and it identifies resource scarcity. The primary goal of a sustainable local community is to meets its basic resource needs in ways that can be continued in the future.

3.4.2 Environmental Kuznets Curve

Some forms of pollution appear first to worsen and later to improve as countries' incomes grow. The world's poorest and richest countries have relatively clean environments, while middle-income countries are the most polluted. Because of its resemblance to the pattern of inequality and income described by Simon Kuznets (1955), this pattern of pollution and income has been labelled an 'Environmental Kuznets Curve' (EKC). Grossman and Krueger (1995) and the World Bank (1992) first popularized this idea, using a simple empirical approach. They regress data on ambient air and water quality in cities worldwide on a polynomial in GDP per capita and other city and country characteristics. They then plot the fitted values of pollution levels as a function of GDP per capita, and demonstrate that many of the plots appear inverse U-shaped, first rising and then falling. The peaks of these predicted pollution-income paths vary across pollutants, but 'in most cases they come before a country reaches a per capita income of $8000' in 1985 dollars (Grossman and Kruger, 1995, p. 353). In simple terminology, the EKC shows the relationship between the environmental degradation and the per capita income. The proponents of EKC are of the opinion that in the early stages of economic growth, degradation and pollution increase, but beyond some level of per capita income, the trend reverses, so that at high-income levels, economic growth leads to environmental improvement. This implies the environmental impact indicator is an inverted U shaped function of per capita income.

In the years since these original observations were made, researchers have examined a wide variety of pollutants for evidence of the EKC pattern, including automotive lead emissions, deforestation, greenhouse gas emissions, toxic waste, and indoor air pollution. Some investigators have experimented with different econometric approaches, including higher-order polynomials, fixed and random effects, splines, semi- and non-parametric techniques, and different patterns of interactions and exponents. Others have studied different groups of jurisdictions and different time periods, and have added control variables, including measures of corruption, democratic freedoms, international trade openness, and even income inequality (bringing the subject full circle back to Kuznets's original idea). Some generalizations across these approaches emerge. Roughly speaking, pollution involving local externalities begins improving at the lowest income levels. Fecal coliform in water and indoor household air pollution are examples. For some of these local externalities, pollution appears to decrease steadily with economic growth, and we observe no turning point at all. This is not a rejection of the EKC; pollution must have increased at some point in order to decline with income eventually, and there simply is no data from the earlier period. By contrast, pollutants involving much-dispersed externalities tend to

have their turning points at the highest incomes or even no turning points at all, as pollution appears to increase steadily with income. Carbon emissions provide one such example. This, too, is not necessarily a rejection of the EKC; the turning points for these pollutants may come at levels of per capita income higher than in today's wealthiest economies.

Another general empirical result is that the turning points for individual pollutants differ across countries. This difference shows up as instability in empirical approaches that estimate one fixed turning point for any given pollutant. Countries that are the first to deal with a pollutant do so at higher income levels than following countries, perhaps because the following countries benefit from the science and engineering lessons of the early movers. Most researchers have been careful to avoid interpreting these reduced-form empirical correlations structurally, and to recognize that economic growth does not automatically cause environmental improvements. All the studies omit country characteristics correlated with income and pollution levels, the most important being environmental regulatory stringency. The EKC pattern does not provide evidence of market failures or efficient policies in rich or poor countries. Rather, there are multiple underlying mechanisms, some of which have begun to be modelled theoretically. An example of EKC of sulphur emission is given below in Figure.1.

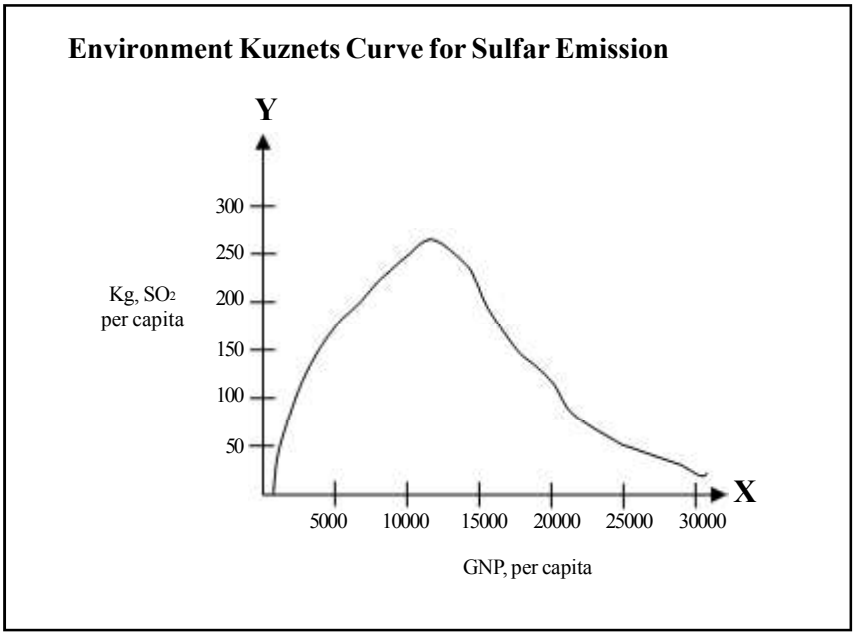

Figure 4

Source: *http://www.ecoeco.org/pdf/stern.pdf*

3.4.3 Social Indicators of Sustainable Development

The social indicators of sustainable development as framed by the United Nations Commission on Sustainable Development (CSD) in 1995 are broadly categorized as:

i) poverty

ii) governance

iii) health

iv) education

v) demography.

i) **Poverty:** Poverty is considered as one of the key indicators of sustainable development. Nations with a high percentage of people living the poverty line can not sustain their level of development. The sub themes as well as the core and other indicators to be covered in the area of poverty are given in Table 1.

Table 1: Poverty Indicators for Sustainable Development

Sub Themes	Core Indicators	Other Indicators
Income Poverty	Proportion of population living below poverty line	Proportion of population below $1 a day
Income Inequality	Ratio of share in national income o highest to lowest quintile	—
Sanitation	Proportion of population using an improved sanitation	—
Drinking Water	Proportion of population using an improved water sources	
Access to Energy	Share of household without electricity or other modern energy services	—
Living Conditions	Proportion of urban population living in slums	Percentage of population using solid fuel for cooking

Source: *Indicators of Sustainable Development: Guidelines and Methodologies*, United Nations, New York, 2007

ii) **Governance:** Governance is the second key indicator of sustainable development. Good governance is an essential element of sustainable development. The sub themes of the governance in sustainable development are corruption and crime. The indicators are given in Table 2.

Table 2: Governance Indicators for Sustainable Development

Sub Themes	Core Indicators	Other Indicators
Corruption	Percentage of population having paid bribe	—
Income Inequality	Number of international homicides per 1,00,00 population	—

Source: *Indicators of Sustainable Development: Guidelines and Methodologies*, United Nations, New York, 2007

iii) **Health:** The key indicators of sustainable health care are mortality, health care delivery, nutritional status and health status and risks. The core areas of these health care themes are delineated in Table 3.

Table 3: Health Indicators for Sustainable Development

Sub Themes	Core Indicators	Other Indicators
Mortality	Under Five Mortality Life Expectancy at Birth	Proportion of population below $1 a day
Health Care Delivery	Percentage of population with access to primary health care facilities Immunization against child hood diseases	Contraceptive prevalence rate
Nutritional Status	Nutritional status of children	—
Health Status and Risks	Morbidity of major diseases such as HIV/AIDS, malaria, tuberculosis	Prevalence of tobacco use Suicide rate

Source: *Indicators of Sustainable Development: Guidelines and Methodologies*, United Nations, New York, 2007

iv) **Education:** As far as education is concerned, sustainable education includes educational levels and literacy. The core indicators of education are given in Table 4.

Table 4: Education Indicators for Sustainable Development

Sub Themes	Core Indicators	Other Indicators
Educational Level	Gross intake ratio to last grade of primary education	
	Net enrolment rate in primary education	
	Adult secondary (tertiary) schooling attainment level	—
literacy	Adult literacy rate	—

Source: *Indicators of Sustainable Development: Guidelines and Methodologies*, United Nations, New York, 2007

v) **Demography:** The two vital demographic indicators of sustainable development are population growth and the dependency ratio. The indicators of demographic themes for sustainable development are given in Table – 5. The high fertility rates and higher dependency ratios retard development. Therefore, sustainable development goals become difficult to attain.

Table 5: Demographic Indicators for Sustainable Development

Sub Themes	Core Indicators	Other Indicators
Population growth rate	Total Fertility Rate	Ratio local residents to tourists in main tourist regions and destinations
Dependency ratio	Dependency ratio	—

Source: *Indicators of Sustainable Development: Guidelines and Methodologies*, United Nations, New York, 2007

In this session you read about various indicators of sustainable development. Now answer the questions given in the Check Your Progress 3.

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What do you mean by Gross Sustainable Development Product?

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2) What is the Environmental Kuznets Curve?

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3.5 MEASURES TO PROMOTE SUSTAINABLE DEVELOPMEMNT

Sustainable development is an important development agenda of the 21st century and is one of the vital paradigm shifts in development. Countries have to take appropriate measures for the promotion of sustainable development. Therefore, the United Nations has emphasized its institutional framework for sustainable development. In its institutional framework for sustainable development, it has mentioned that for the attainment of sustainable development, good governance, sound economic policies, social democratic institutions responsible to the needs of the people, and improved infrastructure are the basis for sustained economic growth, poverty eradication, and employment generation.

Some suggested measures for the promotion of sustainable development follow.

1) The conservation of land, water and energy resources is fundamental for the promotion of sustainable development. Appropriate action has to be taken for the conservation of scanty resources. Conservation of resources by the present generation will provide future generation with widest range of possibilities.

2) The development of technologies and approaches which will minimize the environmental damages. Such development requires scientific knowledge and continuous investment.

3) Political and public support is critical to implement environmental targets.

4) Increasing the scope of public participation in environmental issues and, in particular, in planning processes.

5) Some countries have initiated good practices which are concomitant with the promotion of sustainable development:

   a) in Brazil, the bio-fuels programme has saved the country $100 billion in external debt-a fact that makes such fuels attractive in many countries

   b) in China, the promotion of vehicles that are more efficient.

   c) in South Africa, the implementation of carbon capture and storage technology brings benefits in terms of technology transfer.

The United Nations has strengthened and integrated the three dimensions of sustainable development policies and programmes, and to promote the full integration of sustainable development objective with social development issues.

3.6 SUSTAINABLE DEVELOPMENT GOALS

The United Nations is serious about the sustainable development issues and challenges facing different countries. On 25th of September, 193 countries of the United Nations General Assembly adopted the 2030 Development Agenda named as Transforming Our World: The 2030 Agenda for Sustainable Development. The 17 identified Sustainable Development Goals associated with 169 targets and 304 proposed indicators are as follows:

1) End poverty in all its forms everywhere.

2) End hunger, achieve food security and improved nutrition and promote sustainable agriculture.

3) Ensure healthy lives and promote well-being for all at all ages.

4) Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.

5) Achieve gender equality and empower all women and girls.

6) Ensure availability and sustainable management of water and sanitation for all.

7) Ensure access to affordable, reliable, sustainable and modern energy for all.

8) Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

9) Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

10) Reduce inequality within and among countries.

11) Make cities and human settlements inclusive, safe, resilient and sustainable.

12) Ensure sustainable consumption and production patterns.

13) Take urgent action to combat climate change and its impacts.

14) Conserve and sustainably use the oceans, seas and marine resources for sustainable development.

15) Protect, restore, and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reserve land degradation and halt biodiversity loss.

16) Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels.

17) Strengthen the means of implementation and revitalize the global partnership for sustainable development.

The developing countries have largely discounted the future value of natural resources, ecology and environment at the cost of their lust for achieving higher economic growth rate. India with a score 58.1 ranks 116th out of the 157 nations in the Sustainable Development Goals Index-2017, behind countries such as Nepal(105th), Bhutan(83th) and China(71st). Pakistan ranked 126 (Table 6).

Table 6: Sustainable Development Goals Index, 2017

Countries	Score	Rank
Sweden	85.6	1
Denmark	84.2	2
Finland	84	3
Norway	83.9	4
Czech Republic	81.9	5
Germany	81.7	6
Austria	81.4	7
Switzerland	81.2	8
Slovenia	80.5	9
India	58.1	10

Source: *http://sdgindex.org/assets/files/2017/2017-SDG-Index-and-Dashboards-Report—full.pdf (accessed on 11/3/2018)*

In this session you read about various measures to be taken to promote sustainable development. Now answer the questions given in the Check Your Progress 4.

Check Your Progress 4

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are the important measures for the promotion of Sustainable Development?

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2) Write a few good practices for sustainable development?

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3.7 LET US SUM UP

In this unit, we dealt with the definition of economic growth and characteristics of economic development. We discussed the merits and demerits of different measures of economic development. We dealt with the definition and components of sustainable development. We analyzed sustainable development path, sustainable community ecosystem approach. We analyzed different indicators of sustainable development: Green Economic GDP, Gross Sustainable Development Product, Genuine Progress Indicator and Global Living Planet Index. Finally, we discussed the role of indigenous knowledge in sustainable development.

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3.9 CHECK YOUR PROGRESS - POSSIBLE ANSWER

Check Your Progress 1

1) What is the need for sustainable development?

Answer: The need for sustainable development arises for two important reasons. Those are: (i) the current system of development considers development of mankind alone and ignores the interdependent ecosystem; and (ii) it treats environment as a commodity.

2) What do you mean by sustainable development?

Answer: According to the Brandt and Commission "Sustainable development" is that which "meets the needs of the present without compromising the ability of future generations to meet their own needs." It has three components: a) Economy - economic activity should serve the common good, be self-renewing, and build local assets and self-reliance. b) Ecology - humans are part of nature, nature has limits, and communities are responsible for protecting and building natural assets. c) Equity - the opportunity for full participation in all activities, access, benefits, and decision-making of a society. It has three objectives: i. Economic efficiency, ii. Social acceptability, and iii. Ecological sustainability

Check Your Progress 2

1) What do you mean by Gross Sustainable Development Product?

Answer: The Gross Sustainable Development Product is the total value of production after giving due care to the social capital and natural capital of a region over a specified period of time.

2) What is the Environmental Kuznets Curve?

Answer: In simple terminology, the EKV shows the relationship between the environmental degradation and the per capita income. The proponents of EKV are of the opinion that in the early stages of economic growth, degradation and pollution increases, but beyond some level of per capita income, the trend reverses, so that at high income levels, economic growth leads to environmental improvement. This implies the environmental impact indicator is an inverted U shaped function of per capita income.

Check Your Progress 3

1) What are the important measures for the promotion of sustainable development?

Answer: The conservation of land, water and energy resources is fundamental to promotion of sustainable development. Appropriate action has to be taken for the conservation of scanty resources. Development of technologies, which would minimize the environmental damages, such development requires scientific knowledge and continuous investment. Increasing

awareness of the public and policy makers on environmental quality and natural resources issues is critical to sustainable development.

2) Write a few good practices for sustainable development.

Answer: Some countries have initiated good practices which are concomitant with the promotion of sustainable development:

a) In Brazil, the bio-fuels programme has saved the country $100 billion in external debt-a fact that makes such fuels attractive in many countries.

b) In China, the promotion of vehicles that are more efficient and have similar "footprints" has the potential to address both energy security concerns and infrastructure constraints in a fast growing economy.

c) In South Africa, the implementation of carbon capture and storage technology brings benefits in terms of technology transfer.

UNIT 4 CLIMATE CHANGE

Structure

4.1 Introduction
4.2 Climate Change: Concept and Definitions
4.3 Sources of Climate Change
4.4 Consequences and Impact of Climate Change
4.5 Climate Change and Sustainable Development
4.6 Measures to Overcome the Effect of Climate Change
4.7 Climate Change Debates
4.8 National Action Plan on Climate Change
4.9 Let Us Sum Up
4.10 References and Suggested Readings
4.11 Check Your Progress Possible Answers

4.1 INTRODUCTION

We experience or get information about intense storms, frequent floods, severe drought, melting glaciers etc. For several years, climate change was considered as sceptic's argument. But, today it has been accepted as a reality. This was possible due to the significant contribution made by various scientists engaged in climate science research particularly contribution by the French mathematician, Joseph Fourier highlighting the problem popularly known as greenhouse effect; the British scientist John Tyndall in terms of measuring the absorption of radiation by different gases; and the Swedish scientist, Svante Arrhenius who calculated the effects to our global temperature if we burnt enough fossil fuels to double the amount of carbon dioxide in the atmosphere. Presently, studying climate system is much more advanced due to the advancement in information and communication technology aided by space technology.

In this unit, we shall define climate change also explain natural as well as anthropogenic factors responsible for climate change. We will also discuss about the probable consequences and impacts of climate change both at global as well as at national level. The unit also critically analyse the adverse impacts of climate change on sustainable development. The next section i.e. 4.7 briefly discus about the mitigation and adaptation strategies to minimise the effect of climate change. Finally, we will also discuss about climate change debates specifically about Kyoto Protocol, the failure of Copenhagen Summit and India's Action Plan on Climate Change

After reading this unit you will be able to:

- Define climate change;
- explain natural and human induced factors responsible for climate change;
- Describe various evidences of climate change;
- describe the adverse impact of human activities on climate change; and
- analyse the probable consequences and impact of climate change at global as well as national level.

- suggest some mitigation and adaptation measures to overcome the effects of climate change.
- highlight major climate change related debates that are taking place at International level and National Action plan on climate change implemented in India.

4.2 CLIMATE CHANGE: CONCEPT AND DEFINITION

In simpler terms, climate change may be expressed as any substantial change in the Earth's climate that lasts for an extended period of time. Normally, minimum thirty years' time period are being considered for analysing or predicting any climatic condition of a place. Two major elements of climate are temperature and precipitation. According to the Inter-Governmental Panel on Climate Change (IPCC), climate change refers to

"any change in climate over time, whether due to natural variability or as a result of human activity" (IPCC, 2001a).

The United Nations Framework Convention on Climate Change (UNFCC) in Article 1defined it as:

"climate change refers to a change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time period" (IPCC, 2001a).

4.3 SOURCES OF CLIMATE CHANGE

Do you know climate change had happened many a times on the Earth's history since its origin? Then, you must be thinking that why we are making so much hue and cry about this. This is because climate change in today's context is anthropogenic or in simpler term created by human activities. Evidences suggest that earlier climate change occurred due to natural processes. Various natural sources responsible for climate change during different geological periods of earth's history were solar variability, change in earth's orbit and tilt, plate tectonic and biological evolution. In this section, we will discuss in details climate change due to anthropogenic activities that have been taking place in recent times.

4.3.1 Climate Change due to Anthropogenic Activities

As mentioned in the beginning of the unit, today's climate change is primarily due to anthropogenic activities. But, do you know how we have arrived on such conclusion? There was lots of scientific research that took place over the last two hundred years that helped in concluding about the present climate change is due to anthropogenic activities. Let us discuss these scientific developments in brief.

Scientific Study to Establish Human Induced Climate Change: As we know, today's climate change is due to presence of excessive greenhouse gases in the atmosphere due to human activities. This led to increase in temperature on the earth surface due to greenhouse effect. Do you know the scientist who identified

the problem created by greenhouse effect? The French mathematician, Joseph Fourier highlighted the greenhouse effect. Fourier realized that the earth's temperature is determined not only by the radiation absorbed by, and emitted from the earth, but also by the existence of the atmosphere. The atmosphere absorbs some of the radiated heat and acts as a blanket over the Earth that maintains the temperature higher than it would otherwise be.

The next major breakthrough was made in 1860 by the British scientist John Tyndall in terms of measuring the absorption of radiation by different gases. This led to the remarkable discovery that the most prevalent gases in the atmosphere i.e. oxygen and nitrogen weren't absorbing any of the energy at all. Only the minor gases in the atmosphere, i.e., carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) and water vapour, were doing so. These gases are called greenhouse gases (GHG).

The Swedish scientist, Svante Arrhenius was the first person to estimate the extent to which increases in atmospheric carbon dioxide increase Earth's surface temperature. This is also known as Arrhenius effect. Presently, studying climate system is much more advanced due to the advancement in information and communication technology aided by space technology.

Global Warming and Anthropogenic Activities: Till now, you might have realised that global warming is most commonly associated with human interference, specifically the release of excessive amounts of greenhouse gases. These gases, act like a greenhouse around the earth. This means that these gases allow the heat from the Sun to enter into the atmosphere, but do not allow the heat to escape back into space. In other words, more increase in the greenhouse gases, the larger is the percentage of heat trapped inside the earth's atmosphere. You might be knowing that the earth would have not beeninhabitablewithout the presence of some naturally occurring greenhouse gases (GHG). This is because without these gases, no heat would be trapped in the atmosphere, so the earth would be extremely cold. It is estimated that the average temperature of the earth would be about -17^{0}C without greenhouse effect which is not at all the condition for the growth of biota. Naturally occurring greenhouse gases (not fluorinated gases) are good in naturally occurring amounts; it's when people start contributing excessive amounts of these that greenhouse gases become a problem. With excessive greenhouse gas build-up, the earth's atmosphere warms to unnatural temperatures.

Let us understand how various human activities contribute in increasing these GHGs.

4.3.2 How do Human Activities Contribute to Climate Change?

Different anthropogenic activities lead to emissions of four principal greenhouse gases: carbon dioxide, methane, nitrous oxide and the halocarbons (a group of gases containing fluorine, chlorine and bromine). These gases accumulate in the atmosphere and have been increasing with the passage of time. The most significant aspect about the increases in all of these gases is that they have occurred in the industrial era which is not more than 300 years old. This is because of influence of human activities particularly in recent centuries. It is so significant that it has been affecting all the living organisms on the earth.

Carbon dioxide has been increasing from the utilization of fossil fuels in transportation, building heating/ cooling and in the manufacture of cement and other goods. Deforestation releases CO_2 and reduces its uptake by plants. Carbon dioxide is also released in natural processes such as the decay of plant matter.

Methane has increased as a result of human activities related to agriculture, natural gas distribution and landfills. Methane is also released from natural processes that occur, for example, in wetlands.

Nitrous oxide is emitted by human activities such as fertilizer use and fossil fuel burning. Natural processes in soils and the oceans also release N_2O.

Halocarbon gas concentrations have increased primarily due to human activities. Principal halocarbons include the chlorofluorocarbons (e.g., CFC-11 and CFC-12), which were used extensively as refrigeration agents and in other industrial processes before their presence in the atmosphere was found to cause stratospheric ozone depletion.

We will discuss in detail about these gases and their major sources in the next module which exclusively discuss about role human being on climate change.

4.4 CONSEQUENCES AND IMPACT OF CLIMATE CHANGE

These above mentioned change have differential impacts in terms of geographical locations, sectors of economy and socio-economic groups. Therefore, some of the major impacts/ consequences of climate change are mentioned for two levels. One is at macro scale i.e. at global level and the other at micro-level i.e. at national level.

Some of the major observations of Fifth Assessment Report (2013) by IPCC are given below:

4.4.1 Observations of Changes in Climate at Global Level

Some of the highlights of the 5th Assessment Report are as follows:

- Each of the last three decades has been successively warmer at the earth's surface than any preceding decade since 1850.
- Ocean warming dominates the increase in energy stored in the climate system, accounting for more than 90% of the energy accumulated between 1971 and 2010. Further uptake of carbon by the ocean will increase ocean acidification.
- Over the last two decades, the Greenland and Antarctic ice sheets have been losing mass, glaciers have continued to shrink almost worldwide, and arctic sea ice and northern Hemisphere spring snow cover have continued to decrease in extent.
- The rate of sea-level rise since the mid-nineteenth century has been larger than the mean rate during the previous two millennia. Over the period 1901–2010, global mean sea level rose by 0.19 m (0.6 ft).
- The atmospheric concentrations of carbon dioxide (CO_2), methane, and nitrous oxide have increased to levels unprecedented in at least the last

800,000 years, primarily from fossil-fuel emissions and secondarily from net land-use-change emissions. The ocean has absorbed about 30% of the emitted anthropogenic carbon dioxide, causing ocean acidification.

- Total radiative forcing is positive and has led to an uptake of energyby the climate system. The largest contribution to total radiative forcing is caused by the increase in the atmospheric concentration of CO_2 since 1750.
- Warming of the climate system is unequivocal. Many of the temperature changes observed since the 1950s are unprecedented over decades to millennia. It is extremely likely (95%–99%) that human influence has been the dominant cause of the observed warming since the mid-twentieth century.
- Climate models have improved since the Fourth Assessment Report. Models reproduce observed continental-scale surfacetemperature patterns and trends over many decades, including the more rapid warming since the mid-twentieth century and the cooling immediately following large volcanic eruptions.
- Continued emissions of greenhouse gases will cause further warming and changes in all components of the climate system. Limiting climate change will require substantial and sustained reductions of greenhouse gas emissions.
- Changes in the global water cycle will not be uniform. The contrast in precipitation between wet and dry regions and between wet and dry seasons will increase.
- Global mean sea level will continue to rise. The rate of sea-level rise will very likely exceed that observed during 1971–2010, due to increased ocean warming and increased loss of ice mass from glaciers and ice sheets.

Source: Climate Change 2013, The Physical Science Basis, Summary for Policy Makers, Working Group I, Contribution to the Fifth Assessment Report of the IPCC.

4.4.2 Observations of Changes in Climate at National Level

In India, Ministry of Environment, Forest and Climate Change is the nodal agency which has been sending reports to UNFCC. Till now, it has already sent two reports titled as India's First and Second National Communications to the United Nations Framework Convention on Climate Change in 2004 and 2012 respectively.The future impacts of climate change, identified by the Government of India's National Communications (NATCOM) in 2004 include:

- Decreased snow cover, affecting snow-fed and glacial systems such as the Ganges and Brahmaputra. About70% of the summer flow of the Ganges comes from melt water
- Erratic monsoon with serious effects on rain-fed agriculture, peninsular rivers, water and power supply
- Drop in wheat production by 4-5 million tonnes, with even a 1ºC rise in temperature
- Rising sea levels causing displacement along one of the most densely populated coastlines in the world, threatened freshwater sources and mangrove ecosystems

- Increased frequency and intensity of floods. Increased vulnerability of people in coastal, arid and semi-arid zones of the country
- Studies indicate that over 50% of India's forests are likely to experience shift in forest types, adversely impacting associated biodiversity, regional climate dynamics as well as livelihoods based on forest products.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) State any three major impacts of climate change in India as predicted by NATCOM.

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4.5 CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT

As mentioned above, the rapid increase in greenhouse gases within such a small period of human history is a problem because it is changing the climate fasterthan the rate at which many living organisms may be able to adapt. Recent assessments have confirmed that, due to greenhouse gas emissions, global temperature has gone up by 10°C since 1850. If these emissions are not seriously reduced, probability is that global temperatures would rise between 20° and 30°C over the next 50 years. Scientists are already seeing some of these changes occurring more quickly than they had expected. According to the IPCC, eleven of the twelve hottest years occurred between the years 1995 and 2006.

As a consequence of this, the earth's ice sheets such as Greenland and Antarctica have begun to melt resulting in extra water which could potentially raise the sea levels significantly. This rise in sea level would lead to submergence of many island countries in Pacific, Atlantic and the Indian Ocean. Apart from this, majority of megacities, popularly coined as Bombay to Boston would also submerge under sea water. In addition to this, weather can become extreme. This means more intense major storms, more rain followed by longer and drier droughts posing a challenge for agriculture and loss of water supplies which is directly related to livelihood of majority of population in the world and more specifically to the developing countries. In brief it would be one of the major threats to sustainability of the earth and its inhabitants.

This has been highlighted by Human Development Report 2007/08 and World Development Report 2010. According to Human Development Report 2007/08 entitled 'Fighting Climate Change: Human Solidarity in a Divided World" which stated that

"Climate change is the defining human development issue of our generation. All development is ultimately about expanding human potential and enlarging human freedom. It is about people developing the capabilities that empower them to make choices and to lead lives that they value. Climate change threatens to erode human freedoms and limit choice. It calls into question the Enlightenment principle that human progress will make the future look better than the past."

Climate change will undermine international efforts to combat poverty. Seven years ago, political leaders around the world gathered to set targets for accelerated progress in human development. The Millennium Development Goals (MDGs) defined a new ambition for 2015. Much has been achieved, though many countries remain off track. Climate change is hampering efforts to deliver the MDG promise.

Looking to the future, the danger is that it will stall and then reverse progress built-up over generations not just in cutting extreme poverty, but in health, nutrition, education and other areas. The report identified five key areas through which climate change could stall and then reverse development in general and human development in specific:

• **Agricultural production and food security:** Climate change will affect rainfall, temperature and water availability for agriculture in vulnerable areas. For example, drought affected areas in Sub-Saharan Africa could expand by 60–90 million hectares, with dry land zones suffering losses of US$26 billion by 2060 (2003 prices). Other developing regions, including Latin America and South Asia will also experience loss in agricultural production, undermining efforts to cut rural poverty. The additional number affected by malnutrition could rise to 600 million by 2080.

• **Water stress and water insecurity:** Changed run-off patterns and glacial melt will add to ecological stress, compromising flows of water for irrigation and human settlements in the process. An additional 1.8 billion people could be living in a water scarce environment by 2080. Central Asia, Northern China and the northern part of South Asia face immense vulnerabilities associated with the retreat of glaciers in the Himalayas. Seven of Asia's great river systems will experience an increase in flows over the short term, followed by a decline as glaciers melt. The Andean region also faces imminent water security threats with the collapse of tropical glaciers. Several countries in already highly water-stressed regions such as the Middle East could experience deep loss in water availability.

• **Rising sea levels and exposure to climate disasters:** Sea levels could rise rapidly with accelerated ice sheet disintegration. Global temperature increases of 3–4°C could result in 330million people being permanently or temporarily displaced through flooding. Over 70 million people in Bangladesh, 6 million in Lower Egypt and 22 million in Vietnam could be affected. Small island states in the Caribbean and Pacific could be affected by catastrophic damage. The warming of seas will also give rise to intense tropical storms. With an average of 344 million people currently exposed to tropical cyclones, highly intense storms can have devastating consequences for a large number of countries. The one billion people currently living in urban slums on fragile hillsides or flood-prone river banks face acute vulnerabilities.

• **Ecosystems and biodiversity:** Climate change is already transforming ecological systems. Around one-half of the world's coral reef systems have suffered 'bleaching' as a result of warming seas. Increasing acidity in the oceans is another long-term threat to marine ecosystems. Ice-based ecologies have also suffered devastating climate change. While some animal and plant species will adapt, for many species the pace of climate change is too rapid: climate systems are moving more rapidly than they can follow. With 3°C of warming, 20–30 percent of land species could face extinction.

Millennium Ecosystem Assessment, 2005, observed that out of 24 listed ecosystem services under three major categories i.e. provisioning, regulatory and cultural ecosystem services fourteen services have been substantially declining and there are five services that have mixed outcomes-some part of the earth it is declining and in some part it has increased. In a way we could say that there are areas where out of 23 services, there is a decline in 19 services. (cited from World Development Report 2010, p.125.)

• **Human health:** Rich countries are already preparing public health systems to deal with future climate shocks, such as the 2003 European heat wave and more extreme summer and winter conditions. However, the greatest health impacts will be felt in developing countries because of high levels of Climate Change Poverty and the limited capacity of public health systems to respond. Major killer diseases could expand their coverage. For example, an additional 220 – 400 million people could be exposed to malaria, which is a disease that already claims around 1 million lives annually. Dengue fever is already in evidence at higher levels of elevation than has previously been the case, especially in Latin America and parts of East Asia. Climate change could further expand the reach of the disease. (Cited from Human Development Report, 2010, p. 9-10).

None of these five separate drivers will operate in isolation. They will interact with wider social, economic and ecological processes that shape opportunities for human development.

4.6 MEASURES TO OVERCOME EFFECTS OF CLIMATE CHANGE

In climate change discourse, there are two approaches to address human induced climate change. These are mitigation and adaptation. Mitigation has the long history in the climate policy, whereas the adaptation has recently gained importance.

The Concept of Mitigation and Adaptation: The concept 'mitigation' in general means the reduction of the atmospheric GHGs, and hence, we can avoid the likelihood of the occurrence of the climatic variability and extreme events. IPCC defines mitigation as *"an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases."* On the other hand, the notion 'adaptation' in general refers to the individual, communities, and societies to adjust their activities, life courses and location to take an opportunity, to get advantage from the fluxes of the social-ecological systems. The climate change literature views it as "*the adjustment in human and natural systems to actual or expected climatic stimuli, which can reduce the negative impacts and take advantage of the positive"* (UNFCC 1992).

The Need for Mitigation and Adaptation: As mentioned above, climate change has severe non-linear impacts on the wellbeing of the human society. Many developing nations have already experienced weather related extreme events in terms of floods, droughts, heat waves and tropical cyclones that are more frequent or intense than previous experiences. In general, it affects different sectors, such as fresh water resources and their management, food and fibre and forest products, coastal system and low lying areas, and health etc. The resulting impacts will have significant consequences on the environment, production systems and livelihood from future climate variability and change. Importantly, the developing nations are facing more burdens as compared to the developed nations (Stern, 2006; and Mendelsohn et al., 2006). Meanwhile, Stern has estimated "if we don't act, the overall damage cost will be equivalent to at least 5 percent of GDP now and forever, and if wider range of risks and impacts is taken into account, the estimates of damage could rise to 20 percent of the GDP or more" (Stern, 2006).

Mitigation and Adaptation Measures by AR5 for Policy Makers

IPCC Fifth Assessment Reporthas giventhe following major suggestions related to mitigation and adaptation. There are two broad suggestions related to mitigation and adaptation. Under these two broad suggestions, there are five important specific suggestions. Let us discus broad suggestions as well as specific suggestions given under broad suggestions.

1) **Future Pathways for Adaptation, Mitigation and Sustainable Development** Adaptation and mitigation are complementary strategies for reducing and managing the risks of climate change. Substantial emissions reductions over the next few decades can reduce climate risks in the 21st century and beyond, increase prospects for effective adaptation, reduce the costs and challenges of mitigation in the longer term and contribute to climate-resilient pathways for sustainable development.

   1.1 **Climate Change Risks Reduction by Mitigation and Adaptation:** Without additional mitigation efforts beyond those in place today, and even with adaptation, warming by the end of the 21st century will lead to high to very high risk of severe, widespread and irreversible impacts globally (high confidence). Mitigation involves some level of co-benefits and of risks due to adverse side effects, but these risks do not involve the same possibility of severe, widespread and irreversible impacts as risks from climate change, increasing the benefits from near-term mitigation efforts.

   1.2 **Characteristics of Adaptation Pathways:** Adaptation can reduce the risks of climate change impacts, but there are limits to its effectiveness, especially with greater magnitudes and rates of climate change. Taking a longer-term perspective, in the context of sustainable development, increases the likelihood that more immediate adaptation actions will also enhance future options and preparedness.

   1.3 **Characteristics of Mitigation Pathways:** There are multiple mitigation pathways that are likely to limit warming to below 2°C relative to pre-industrial levels. These pathways would require substantial emissions reductions over the next few decades and near zero emissions of CO_2 and other long-lived greenhouse gases by the end of the

century. Implementing such reductions poses substantial technological, economic, social and institutional challenges, which increase with delays in additional mitigation and if key technologies are not available. Limiting warming to lower or higher levels involves similar challenges but on different timescales.

2) **Adaptation and Mitigation:** Many adaptation and mitigation options can help address climate change, but no single option is sufficient by itself. Effective implementation depends on policies and cooperation at all scales and can be enhanced through integrated responses that link adaptation and mitigation with other societal objectives.

2.1 **Common Enabling Factors and Constraints for Adaptation and Mitigation Responses:** Adaptation and mitigation responses are underpinned by common enabling factors. These include effective institutions and governance, innovation and investments in environmentally sound technologies and infrastructure, sustainable livelihoods and behavioral and lifestyle choices.

2.2 **Response Options for Adaptation:** Adaptation options exist in all sectors, but their context for implementation and potential to reduce climate-related risks differs across sectors and regions. Some adaptation responses involve significant co-benefits, synergies and trade-offs. Increasing climate change will increase challenges for many adaptation options.

2.3 **Response Options for Mitigation:** Mitigation options are available in every major sector. Mitigation can be more cost-effective if using an integrated approach that combines measures to reduce energy use and the greenhouse gas intensity of end-use sectors, decarbonize energy supply, reduce net emissions and enhance carbon sinks in land-based sectors.

2.4 **Policy Approaches for Adaptation and Mitigation, Technology and Finance:** Effective adaptation and mitigation responses will depend on policies and measures across multiple scales: international, regional, national and sub-national. Policies across all scales supporting technology development, diffusion and transfer, as well as finance for responses to climate change, can complement and enhance the effectiveness of policies that directly promote adaptation and mitigation.

2.5 **Trade-offs, Synergies and Interactions with Sustainable Development:** Climate change is a threat to sustainable development. Nonetheless, there are many opportunities to link mitigation, adaptation and the pursuit of other societal objectives through integrated responses (high confidence). Successful implementation relies on relevant tools, suitable governance structures and enhanced capacity to respond (medium confidence).

(Source: Climate Change 2014, Synthesis Report, Summary for Policy Makers, Contribution to the Fifth Assessment Report of the IPCC, pp. 1)

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Whey there is a need for mitigation and adaptation of climate change?

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4.7 CLIMATE CHANGE DEBATES

There are so many debates and developments as far as climate change is concerned since Rio Earth Summit, 1992. But, we would discuss two important developments i.e. Kyoto Protocol and the Copenhagen Summit.

4.7.1 Kyoto Protocol

It's a United Nations sponsored agreement among nations to reduce their greenhouse gas emissions. This protocol emerged from the United Nations Framework Convention on Climate Change which was signed by almost all the nations which attended Rio Earth Summit, 1992. The Framework pledges to stabilize GHG concentrations "at a level that would prevent dangerous anthropogenic interference with climate system." The Protocol was initially adopted on 11th December 1997 in Kyoto, Japan and entered into force on

16th February 2005. As of November 2009, 187 states have signed and ratified the protocol. The most notable non-member of the Protocol is the United States, which is a signatory of UNFCCC and was responsible for 36.1% of the 1990 emission levels.

Under the Protocol, 37 industrialized countries (called "Annex I countries") commit themselves to a reduction of four greenhouse gases (GHG) i.e. carbon dioxide, methane, nitrous oxide, sulphur hexafluoride) and two groups of gases i.e. hydrofluorocarbons and perfluorocarbons produced by them, and all member countries give general commitments. Annex I countries agreed to reduce their collective greenhouse gas emissions by 5.2% from the 1990 level. Emission limits do not include emissions by international aviation and shipping, but are in addition to the industrial gases, chlorofluorocarbons, or CFCs, which are dealt with under the 1987 Montreal Protocol on Substances that Deplete the Ozone Layer. The benchmark 1990 emission levels were accepted by the Conference of the Parties of UNFCCC (decision 2/CP.3) were the values of "global warming potential" calculated for the IPCC Second Assessment Report. These figures are used for converting the various greenhouse gas emissions into comparable CO2 equivalents when computing overall sources and sinks.

The biggest question is that 'Will Kyoto make any difference?' But it appears that if any of the big economies will meet their Kyoto targets by 2012. Even if they did, it would only make a tiny dent in the world's ever increasing output

of GHG's. Therefore, century long lifespan of atmospheric CO2 means that the planet is already committed to a substantial amount of greenhouse warming. Even if we turn off every fuel-burning machine on earth tomorrow, climate modelers tell us that the world would warm at least another 0.5oC as oceans slowly release the heat that they have collected in recent decades. The bottom line is that we cannot bring down our greenhouse gas emissions in check until changes in technology and lifestyle enable us to pull us back far beyond our current emission levels. We need to find some safe methods to remove enormous amounts of carbon or both.

4.7.2 Copenhagen Summit

The United Nations Climate Change Conference 2009, commonly known as the Copenhagen Summit, was held at Copenhagen, Denmark, from 7th - 18th December. According to the Bali Road Map, a framework for climate change mitigation beyond 2012 was to be agreed there. The Copenhagen Accord was drafted by the US, China, India, Brazil and South Africa on December 18th, and judged a "meaningful agreement" by the United States government. It was "taken note of", but not "adopted", in a debate of all the participating countries the next day, and it was not passed unanimously. The document recognized that climate change is one of the greatest challenges of the present day and that actions should be taken to keep any temperature increases to below 2°C. The document is not legally binding and does not contain any legally binding commitment for reducing CO2 emissions. With no firm target for limiting the global temperature rise, no commitment to a legal treaty and no target year for peaking emissions, countries most vulnerable to climate impacts have not got the deal they wanted.

Early on Saturday 19th December, delegates approved a motion to "take note of the Copenhagen Accord of December 18th, 2009". This was due to the opposition of countries such as Bolivia, Venezuela, Sudan and Tuvalu who registered their opposition to both the targets and process by which the Copenhagen Accord was reached. The accord recognizes the scientific case for keeping temperature rises below 2°C, but does not contain commitments for reduced emissions that would be necessary to achieve that aim. One part of the agreement pledges US$ 30 billion to the developing world over the next three years, rising to US$100 billion per year by 2020, to help poor countries adapt to climate change. Earlier proposals, which would have aimed to limit temperature rises to 1.5°C and cut CO2 emissions by 80% by 2050, were dropped. The Accord also favours developed countries' paying developing countries to reduce emissions and degradation, known as "REDD".

Despite widely held expectations that the Copenhagen summit would produce a legally binding treaty, the conference was plagued by negotiating deadlock and the "Copenhagen Accord" is not legally enforceable. The Copenhagen Accord asked countries to submit emissions targets by the end of January 2010, and paves the way for further discussions to occur at the 2010 UN climate change conference in Mexico. By early February, 67 countries had registered their targets. Countries such as India and Association of Island States made clear that they believed that Copenhagen Accord could not replace negotiations within the UNFCCC. Other commentators consider that "the future of the UN's role in international climate deals is now in doubt." Indian journalist Praful Bidwai puts the blame on both developed and a few developing countries such as India, arguing that the "Copenhagen Accord is an illegitimate, ill conceived, collusive

deal between a handful of countries that are some of the world's greatest present and future emitters." He argues that India's policy is driven by elites determined to maintain high-consumer lifestyles which will have devastating effects for the vast majority of India's poor.

4.8 NATIONAL ACTION PLAN ON CLIMATE CHANGE

India released its National Action Plan on Climate Change (NAPCC) on 30th June 2008. The entire action plan advocates broadly two pronged strategy. Firstly, to develop adaptation to climate change and secondly further enhancement of the ecological sustainability of India's development path. In other words, the NAPCC outlines a strategy by which India will adapt to climate change, while maintaining a high growth rate, protecting poor and vulnerable sections of society and achieving national growth objectives. NAPCC proposed eight missions and 24 initiatives to minimize the climate change effects. These initiatives are aimed at promoting technologies and actions in the sectors pertaining to energy generation, transport, renewable energy, disaster management and capacity building etc. However, detailed action plans for each mission, and any clear targets are missing from the report. The real challenge is to implement these below mentioned eight missions into actions at diverse grass root level situations in India. The proposed eight missions are as follows:

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitat
- National Water Mission
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission for a "Green India"
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change

As our country is full of diversity, climate change would have differential impacts on different geo-ecological conditions. Therefore, it is pertinent to have different action plan for different regions apart from national level missions. In this context, attempt has been made by different states to develop state level climate change action plan. But if we analyze all these state plans, it has been found that it has still remains as a document and nothing significant has been implemented.

State Level Action Plans on Climate Change in India

The Prime minister in his address to Ministers of Environment and Forest from various states on 18th August 2009 called upon all the states to prepare a State level Action Plan on Climate Change consistent with the strategy outlined in the NAPCC. The State level plans will enable communities and ecosystems to adapt to climate change effectively and help to achieve the objectives of NAPCC. Accordingly, a programme for the preparation of state level plans has been initiated in almost all the states of India.

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) List eight missions identified under National Action Plan on Climate Change.

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4.9 LET US SUM UP

Climate change refers to a change in climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time period. Major natural sources of climate change are solar variability, changes in Earth's orbit and tilt, plate tectonics, and biological evolution. Climate change threatens to erode human freedoms and limit choice. Climate change is hampering efforts to deliver the MDG promise. Unfortunately, despite of various efforts at international level, till now, no consensus has emerged and there are strong differences among developed and developing countries. Remedial measures to overcome or reduce the effects of climate change can be addressed by undertaking both adaptation and mitigation measures. This unit also discusses the climate change protocol and national action plan.

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http://unfccc.int/resource/docs/natc/indnc1.pdf

4.11 CHECK YOUR PROGRESS POSSIBLE ANSWERS

Check Your Progress 1

1) State any three major impacts of climate change in India as predicted by NATCOM.

Answer: The three major impacts of climate change in India as predicted by NATCOM are:

- Decreased snow cover, affecting snow-fed and glacial systems such as the Ganges and Brahmaputra. About70% of the summer flow of the Ganges comes from melt water
- Erratic monsoon with serious effects on rain-fed agriculture, peninsular rivers, water and power supply
- Drop in wheat production by 4-5 million tonnes, with even a 1ºC rise in temperature

Check Your Progress 2

1) Whey there is a need for mitigation and adaptation of climate change?

Answer: The climate change has severe non-linear impacts on the wellbeing of the human society. Many developing nations have already experienced weather related extreme events in terms of floods, droughts, heat waves and tropical cyclones that are more frequent or intense than previous experiences. In general, it affects different sectors, such as fresh water resources and their management, food and fibre and forest products, coastal system and low lying areas, and health etc. The resulting impacts will have significant consequences on the environment, production systems and livelihood from future climate variability and change.

Check Your Progress 3

1) List eight missions identified under National Action Plan on Climate Change.

Answer: The proposed eight missions are as follows:

- National Solar Mission
- National Mission for Enhanced Energy Efficiency
- National Mission on Sustainable Habitat
- National Water Mission
- National Mission for Sustaining the Himalayan Ecosystem
- National Mission for a "Green India"
- National Mission for Sustainable Agriculture
- National Mission on Strategic Knowledge for Climate Change

MDV 103: ISSUES AND CHALLENGES OF DEVELOPMENT

Block	Unit Nos	Unit Titles
1		**BASIC ISSUES IN DEVELOPMENT**
	1	Population
	2	Poverty
	3	Inequality
	4	Unemployment
2		**SECTORAL ISSUES IN DEVELOPMENT**
	1	Agriculture
	2	Industry
	3	Services
	4	Infrastructure
3		**SOCIAL ISSUES IN DEVELOPMENT**
	1	Education and Development
	2	Health and Development
	3	Gender and Development
4		**EMERGING ISSUES IN DEVELOPMENT**
	1	Energy and Development Nexus
	2	Natural Resource Management and Environment
	3	Sustainable Development
	4	Climate Change
5		**GOVERNANCE**
	1	Governance – An Overview
	2	Participatory and Decentralized Governance
	3	Good Governance: Attributes and Challenges
	4	E-Governance and Development

Indira Gandhi National Open University
School of Extension and Development Studies

MDV-103
Issues and Challenges of Development

Block

5

GOVERNANCE

UNIT 1
Governance: An Overview 5

UNIT 2
Participatory and Decentralized Governance 18

UNIT 3
Good Governance: Attributes and Challenges 36

UNIT 4
E-Governance and Development 53

ORIGINAL PROGRAMME DESIGN COMMITTEE

Prof. Amita Shah
Gujarat Institute of Development Research
Ahmedabad

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. J. S. Gandhi (Rtd)
Jawaharlal Nehru University, New Delhi

Prof. Gopal Krishnan (Rtd)
Punjab University, Chandigarh

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. Kumar B. Das
Utkal University, Bhubaneswar

Prof. Nadeem Mohsin (Rtd)
A.N.Sinha Institute of Social Sciences, Patna

Prof. P. Radhakrishan
Madras Institute of Development Studies, Chennai

Prof. Ramashray Roy (Rtd)
Centre for Study of Developing Societies
New Delhi

Prof. R. P. Singh (Rtd)
Ex-Vice-Chancellor, MPUAT, Udaipur

Prof. K. Vijayaraghavan
Indian Agriculture Research Institute, New Delhi

Dr. Nilima Shrivastava, IGONU, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Dr. Nehal A. Farooquee, IGNOU, New Delhi

Dr. P. V. K. Sasidhar, IGNOU, New Delhi

REVISED PROGRAMME DESIGN COMMITTEE

Late Prof. T S Papola(Rtd)
Institute of Studies in Industrial Development
New Delhi

Prof. S. Janakrajan (Rtd)
Madras Institute of Development Studies Chennai.

Prof. S. K. Bhati
Jamia Millia Islamia University, New Delhi

Prof. Preet Rustagi
Institute of Human Development, New Delhi

Prof. Gopal Iyer (Rtd)
Punjab University, Chandigarh

Dr. S Srinivasa Rao
Jawaharlal Nehru University, New Delhi

Dr, S, Rubina Naqvi
Hindu College, University of Delhi, Delhi

Prof. Nadeem Mohsin (Rtd)
A.N.Sinha Institute of Social Sciences, Patna

Prof. Rajesh, Delhi University, New Delhi

Prof. B. K. Pattanaik, IGNOU, New Delhi

Prof. Nehal A. Farooquee, IGNOU, New Delhi

Prof. P. V. K. Sasidhar, IGNOU, New Delhi

Dr. Pradeep Kumar, IGNOU, New Delhi

Dr. Grace Don Nemching, IGNOU, New Delhi

Dr. Nisha Varghese, IGNOU, New Delhi

COURSE PREPARATION TEAM

Units Writers:

Dr. Sujit Kumer Pruseth (Unit 1)
IIPA, New Delhi

Prof. R.K. Barik and Dr. Sachin Chowdhary
IIPA, New Delhi (Unit 2)

Dr. Akbar Ali (Unit 3)
IIPA, New Delhi

Prof. Nehal A Farooquee (Unit 4)
IGNOU, New Delhi

Editors:

Prof. Alak N.Sharma
Institute of Human Development, New Delhi

Mr. Praveer Shukla, New Delhi (Language Editor)

Prof. B.K. Pattanaik, IGNOU, New Delhi

Prof. Nehal A. Farooquee, IGNOU, New Delhi

Prof. P.V.K.Sasidhar , IGNOU, New Delhi

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Programme Coordinators : Prof. P.V.K. Sasidhar, Prof. B.K. Pattanaik, Prof. Nehal A. Farooquee

Course Coordinators: Prof. B.K. Pattanaik, E-mail:bkpattanaik@ignou.ac.in

PRODUCTION TEAM

Mr. S. Burman
Dy. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. K.N. Mohanan
Asst. Registrar (Publication)
MPDD, IGNOU, New Delhi

Mr. Babu Lal Rewadia
Section Officer (Publication)
MPDD, IGNOU, New Delhi

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BLOCK 5 GOVERNANCE

Block 5 on **'Governance'** consists of three units covering major aspects of governance. This block gives an overview of governance relevance to development.

Unit 1 **Governance: An Overview** introduces basic concepts of governance and its need and scope. The unit also discusses the relationship between governance and development. It also narrates the features of governance and barriers to governance.

Unit 2 **Participatory and Decentralized Governance** gives an account of participation of state and non-state actors in governance. The role of NGOs, MNCs and other civil society institutions in governance and development has also been discussed.

Unit 3 **Good Governance: Attributes and Challenges** deals with the emerging challenges of governance and various attributes of good governance. This unit also presents an exhaustive analysis of Corruption and Right to Information Act.

Unit 4 **E-Governance and Development** gives an account of the use and benefits of e-Governance in the development process. It has also narrated various case studies on rural and urban e-Governance in India.

UNIT 1 GOVERNANCE: AN OVERVIEW

Structure

1.1 Introduction
1.2 Governance – Meaning, Need and Scope
1.3 Governance and Development
1.4 Features of Good Governance
1.5 Barriers to Good Governance
1.6 Let Us Sum Up
1.7 Key Words
1.8 References and Suggested Readings
1.9 Check Your Progress: Possible Answers

1.1 INTRODUCTION

Governance is a buzzword now days and you might be listening and reading this word in daily life. People might be talking about the good governance in the southern Indian states leading to better performance in various areas of development, as compared to some other states. Former UN Secretary General, Kofi Annan said "good governance is perhaps the single most important factor in eradicating poverty and promoting development". Therefore, knowing about the meaning of governance has become important in studying development. Governance is characterized mainly by transparency, accountability, participation, rule of law, and efficiency. Good governance would promote and ensure development. It is believed that sound economic policies and democratic institutions that are responsive to people's needs are instrumental for sustained economic growth, poverty eradication, and employment generation. This unit deals in detail with governance and development.

The thrust of the unit is to analyse the concepts- governance and development, where two concepts are closely linked.

After studying this unit, you would able to:

- explain the need, scope, and meaning of governance;
- analyze the features of good governance;
- distinguish the linkage between governance and development; and
- discuss barriers to good governance.

1.2 GOVERNANCE: MEANING, NEED AND SCOPE

The concept of the state occupies a central place in discourses on politics and administration. Government is a critical and inseparable element of the state. The government is constitutionally responsible state for administration through various institutions to ensure a better society and improved lives of citizens. So, the focus is on the state, and the state remains the principal actor in the entire process of administration. In the course of administration, the government creates a relationship between its various institutions and citizens. The nature of this relationship depends the nature of the state, e.g.,. whether it is a military state, autocratic state, democratic

state, or any other form. Moreover, the relationship among the state, the market and the civil society has undergone a rapid and huge change all over the world. With this background, 'governance' is recognised as an important concept in recent years both by the nation states as well as by the international agencies giving fund for developing activities. In India, it has gained prominence in academic, as well other arenas, after the launch of liberal economic policies in 1991. As far as the meaning of the concept is concerned, it can be said that an exact interpretation of the concept of governance is still elusive. However, there are various interpretations of the concept, and they seem to converge on a broad meaning, i.e., reform in the governing process for better and improved policy outcome. So, the meanings include building and strengthening the capacities of various institutions of the state or public institution; encouraging and facilitating participation of common citizens in the governing process. But, with the beginning of the liberal economic policies, another actor, called the market, has entered into the scenario. Many people believe that the market has emerged as a viable alternative to the state as the latter has failed in ensuring effective development policies, and their proper implementation. So, in this context, the meaning of governance includes the reduction of the role of the State in economic activities as well as the promotion of the role of the market.

Governance has a clear relationship to the redefinition of the role of the state in India. In many advanced countries, the redefinition of the role of the state has a direct bearing on the conceptualization of the term governance. The concept was again strengthened with the beginning of the process of globalization. It got additional emphasis with the beginning of the process of globalisation. Hence, the state-centric approach has changed, and the meaning of governance has also changed with the rise of the market as a player in development. The market involves international and aid-providing agencies, and, with the rise to prominence of the market, these organizations have emerged as powerful players. These agencies interpret governance as the set of guiding principles to improve and strengthen the capacity of the recipient countries towards better and effective implementation of development initiatives. There is a quest for alternative framework for policy making and implementation. Thus with globalisation, a new set of actors, such as the state and its institutions, the market, civic organizations, and citizens have emerged. This has resulted to a new pattern of relationship between these actors, giving a new twist to the meaning of the term, governance. It may be said that governance implies the renewed pattern of relationships between these actors.

The term, "governance", is derived from the Greek term, *kubernao,* which means 'to steer'. So, governance is the process that steers affairs of the State. In ancient times, the Greek philosopher, Plato, also used the term, governance. A close examination of the literature on governance reveals that the term came into the limelight with the publication of the World Bank's report on sub Sahara in 1989. The report said that development initiatives taken up by the World Bank had not been able to produce the desired development benefits due to the weak role of the state, and its ineffective institutions. Summarizing this problem, the World Bank report coined the term 'crisis of governance'. Thus, the focus was cast on improving governance by improving managerial and administrative competencies. Further, in 1992, the World Bank, in its publication, *The World Development Report,* focused on the renewed meaning of governance by re-conceptualization of the role of the State. It advocated an efficient and effective

administrative state that is detached from its earlier omnipresent involvement in economic and administrative matters. From the above discussion, it can be deduced that the different problems relating to administration can be tackled by institutions of the state and by other actors as well. Jon Pierre comments, in his book, *Debating Governance,* that political institution no longer have a monopoly on the orchestration of governance. This statement indicates that the process of governance is no longer state-centric and that other actors have, also, emerged as critical players. Stoker has identified the following features of governance while summarizing various perspectives on governance.

i) it refers to a complex set of institutions and actors that are drawn not only from government, but from beyond

ii) governance identifies the power dependence involved in the relationship between institutions that are involved in collective action

iii) it recognizes the blurring of boundaries and responsibilities for tackling social and economic issues

iv) it is about autonomous self-governing networks of actors

v) Governance ensures that the government is able to use new tools and techniques to steer and guide.

Prof. Kuldeep Mathur opines in his book, *From Government to Governance*, that governance is concerned with changes taking place in the organization of the state, and with changes in its relationship with the private sector and civil society actors (Mathur, 2009). The World Bank defines governance as, 'The exercise of political authority, and the use of institutional resources to manage the society's problems and affairs.' The World Bank interprets governance as the institutional capacity of public organizations to provide public and other goods demanded by a country's citizens in an effective, transparent, impartial, and accountable manner, subject to resource constraints.

In the Worldwide Governance Indicators project, the World Bank further defines governance as: "The traditions and institutions by which authority in a country is exercised. This considers the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies and the respect of citizens and the state of the institutions that govern economic and social interactions among them."

The United Nations Development Programme's regional project on local governance for Latin America has been able to define the concept of governance in a comprehensive way. It includes three key ingredients, namely, legality, legitimacy, and participation. It says, "Governance has been defined as the rules of the political system to solve conflicts between actors and adopt decision (legality).It has also been used to describe the proper functioning of institutions and their acceptance by the public (legitimacy).And it has been used to invoke the efficacy of government and achievement of consensus by democratic means (participation)". The last feature that is participation is crucial to the process of governance and it facilitates a healthy relationship between the government and the governed. It also enhances a sense of belongingness among the citizens towards their respective states.

Based on these discussions, it can be said that governance means the process of decision making, and the process by which the decisions, are implemented, or even not implemented. Over the last couple of years, the concept of governance has

undergone change. It has included a few elements like accountability, transparency, and effectiveness into its broad contours. So, it has led to the emergence of a new aspect of governance, which is termed, good governance. Here, again, the World Bank cites four essential components of good governance, which are

i) Public sector management requires civil service reform and involvement of private sector. The civil service reform as suggested by the Administrative Reforms Commission in India is an example of this. Again, the public-private partnership in infrastructure development, popularly known as the PPP model, is also an example of private sector initiative.

ii) A legal framework for development to ensure the working of market.

iii) The establishment of accountability through various institutions such as an Ombudsman, and the parliamentary public accounts committee.

iv) Ensuring transparency and access to information. The existence of free media or the fourth estate, and the enactment of the Right to Information in India are examples of initiatives towards having transparency and access to information. The innovative *Jan Sunwai* (public hearing) and pubic display of budget allocation for development schemes and expenditure are other good examples in this regard.

The definition provided by the United Nations Development Programme on governance is also worth mentioning. It says that governance is, "…the exercise of economic, political and administrative authority to manage a country's affairs at all levels and the means by which states promote social cohesion and integration, and ensure the well-being of their population. It embraces all methods used to distribute power and manage public resources, and the organizations that shape government and the execution of policy. It encompasses the mechanisms, processes and institutions, through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and resolve their differences."

In a critical analysis on the process of governance, the issue of corruption emerges as the major impediment in ensuring development benefits reach the needy and the other target groups. So, the World Bank's formulation of governance is critically linked to reduction of corruption and ensuring rule-bound behavior by all institutions associated with governance. Some people use the term, fair governance, also, which implies a mechanism which allows various institutions to respect the rights and interests of the beneficiaries.

Measures of Governance

The big question that has emerged is how the amount or extent of governance quantify or measure in any country. The World Bank has identified six dimensions in which to measure governance. These are

i) Voice and accountability: they measure political, civil and human rights.

ii) Instability and violence: they measure the likelihood of violent threats to, or changes in government, this includes terrorism.

iii) Effectiveness of government: This measures the competence of the bureaucracy, and the quality of public service delivery.

iv) Regulatory burden: this measures the policies which are market unfriendly.

v) Rule of law: this measures the quality of contract enforcement, the police, the court, as well as the likelihood of crime and violence.

vi) Control of corruption: this helps in measuring the exercise of public power for private gain, including both petty and large scale corruption.

To measure the concept of governance and its quality, the International Fund for Agricultural Development has devised the following set of principles

i) Inclusiveness and Equity: the principle that no one can be excluded from the process of development on the basis of gender, race and religion.

ii) Participation: the opportunity for people who are affected by a particular decision to influence the process of decision making directly, or, indirectly.

iii) Transparency: the degree to which the rules, standards and procedures for decision making are open, clear, verifiable, and predictable.

iv) Efficiency: a measure of how economically resources are used to produce the intended results.

v) Effectiveness: a measure of the extent to which an intervention achieves its objectives.

vi) Subsidiarity: the principles that decision making should take place at the level that is most appropriate for a particular issue.

vii) Adherence to the rule of the law: the principle that every member of a society, even a ruler, must follow the law.

viii) Accountability: the responsibility for decisions made, and for their implementation, and for the results that the intervention has produced.

ix) Sustainability: the likelihood that the positive effects of an intervention will persist for an extended period after the intervention ends.

Countries are categorized and ranked on the parameters of good governance based on these dimensions. There have been many attempts by various countries and international organizations to attain good governance in its totality. Although the results vary, the attempts to achieve good governance have resulted in tremendous improvements in the process of governance.

So far, you have read about the meaning and importance of governance, and, measure of governance. Now, you should be able to answer the questions, given below, in order to check your progress 1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Governance is a buzzword in contemporary times. What does the term mean?

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2) Explain the significance of governance.

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1.3 GOVERNANCE AND DEVELOPMENT: INTER-RELATIONSHIP

The term development is closely related to the process of governance. Every state in the world initiates a series of development activities in order to bring about a positive change in the economy, society and the lives of its citizens. In the entire process of development, the state has played a dominant role. However, it has been observed that the benefits from development initiatives have not had the desired effects, and that the initiatives have failed to bring about a positive change in the lives of the intended people. So, basic questions regarding the role of the state and its efficiency have been raised. The search for alternative mechanisms to ensure that development benefits reach the people has been on the agenda of policy makers. The recent arrangement of public-private partnerships has emerged as the viable alternative in providing service delivery in certain sectors of the economy. Thus, the basic approach to development has undergone changes in recent times.

The United Nations General Assembly 2005 World Summit outcome envisaged that "…good governance is essential for sustainable development; that sound economic policies, solid democratic institutions responsive to the needs of the people and improved infrastructure are the basis for sustained economic growth, poverty eradication and employment creation; and that freedom, peace and security, domestic stability, respects for human rights, including the right to development, the rule of law, gender equality and market oriented policies and an over all commitment to just and democratic societies are also essential and mutually reinforcing ".

The Asian Development Bank, while emphasing the role of governance in development mentioned that poor governance holds back and distorts the process of development, and has a disproportionate impact on the poorer and weaker sections of society. Therefore, assisting developing countries in improving governance is a strategic priority of the ADB in eliminating poverty in Asia and the Pacific. The four key areas of interrelationship between governance and development identified by the ADB:

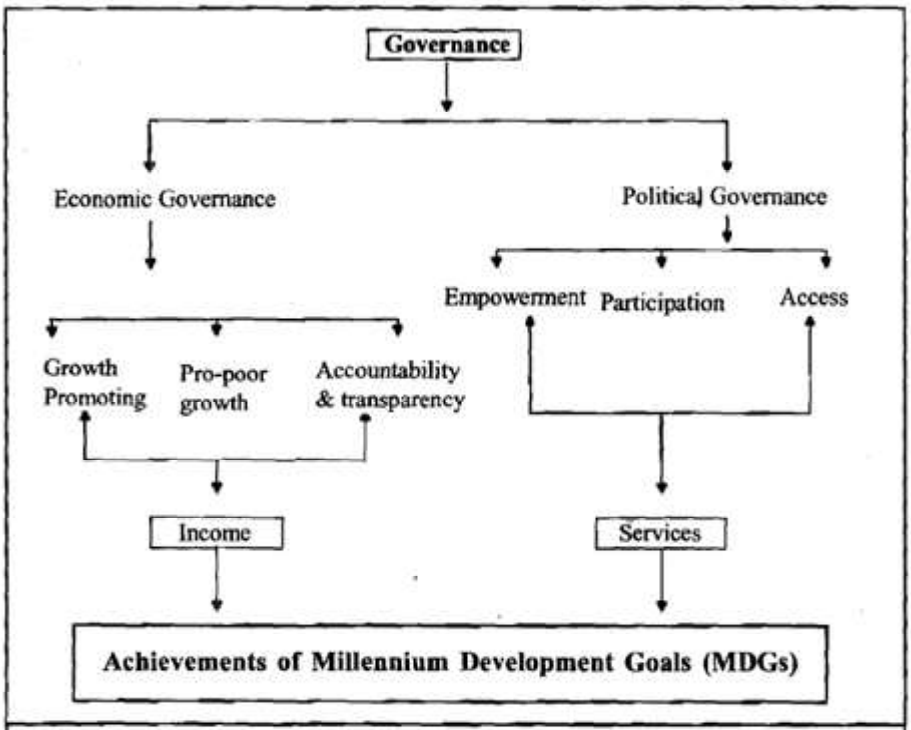
a) Accountability

b) Participation

c) Predictability

d) Transparency

The UNDP governance and development linkage is given below in the flow chart.



Source: Governance for the Millennium Development Goals: Core Issues & Good Practices, UNDP, 2007

The central point in development and governance is that both concepts aim at offering benefits to the citizens. However, neither concepts have any meaning if they do not deliver benefits to citizens. Moreover, neither of the concepts are detached from each other, rather they complement each other. Development initiatives bear fruit in the presence of good governance. Again, good governance ensures participation of people in decision making related to development programmes. The participation of people in development initiatives truly reflects the empowerment of people.

Generally speaking, development implies the process of improving the standard of living and wellbeing of citizens by raising per capita income. Per capita income is definitely an important parameter of development, but, the question is, how much benefit has it provided to common citizens in terms of availing the basic elements of life, such as health and education is an aspect to be taken into consideration. In recent years, development has transformed from mere economic terms to value loaded terms, or, human development. So, based on their performance on the human development front, all countries are ranked through the human development index. Nobel prize winner Amartya Sen has contributed significantly towards changing the meaning of development and making it a broad and inclusive concept. He argued that one way of seeing development is in terms of expansion of the real freedoms that the citizens enjoy to pursue the objectives, they have reason to value, and in this sense the expansion of human capability can be, broadly, seen as the central feature of the process of development (Dreze and Sen, 1996).

The quality of governance relates to the practice of domestic politics and to public action. Public action is the action *by* the public or the people rather than just *for* the public by the government. Looking at the functioning of the various

democratic countries, it can be said that the role of the public is not confined to influencing or challenging the decisions of the government. Rather it is to play a constructive and definitive role in the socio-economic development of society, and to reduce social inequalities. Amartya Sen argues that public action has the potential of making a government really accountable and transparent. (Dreze and Sen, 1996).As discussed earlier, accountability and transparency are the two key componentsof good governance. Thus, governance can be ensured and strengthened by public action, or more involvement of people in the process of governance. The role of the government is to build institutions to help facilitate the involvement of people in the entire process of governance. Initiatives by the Government of India, such as the 73rd and 74th amendments which provided constitutional status to grassroot institutions, like the *panchayat* and *nagarpalika* have been landmark achievements that ensure the involvement of people in the process of governance. Moreover, another significant step taken by the Government of India to constitutionally ensure 50 per cent seats in *panchayats* for women, is a positive step to involve women in the process of governance. As the people are direct beneficiaries in the process of governance, they have a definitive say in the decision making process. Having a say in the decision making process at the grassroot level, people can, themselves, decide what kind of development they want rather than having a development plan imposed on them by the state. The much publicized National Rural Employment Guarantee Act (NREGA) reflects the requirements of citizens and is an excellent example of the importance of critical linkage between governance and development. It validates the view that development and good governance are mutually complimentary. Good governance facilitates development, and in turn development ensures the furtherance of good governance. The success of NREGA in bringing a development turnaround in rural areas in different parts of India is also crucially linked to the practice of transparency in both development and governance practices. The display of budget allocations, and how that amount has been utilized are regularly and transparently publicized in the public places, and on the agendas of *panchayat* meetings popularly known as 'social audit'. As citizens get a concrete idea about the progress of development initiatives at their local level, it brings in transparency, and there is a sense of increased accountability among government officials. The social audit has become an integral part of the development process at the grassroots. The awareness among the people has brought a positive impact on the implementation of the development initiatives. This can also be interpreted as public action, as identified by Amartya Sen. This process has again gained strength with the enactment of the Right to Information Act, which has empowered the citizens to ask for information from officials. The participation of people has also brought about a qualitative and significant change in the development process, and its impact on the larger section of the society.

1.4 FEATURES OF GOOD GOVERNANCE

After reading about governance, now it is appropriate to introduce you to the term, good governance, a key development concept, today. The people of a country expect that their government should deliver effective administration, which promotes their quality of life. In ancient times, the legendary administrator of the Mauryan Empire, Kautilya emphasized that it is the duty of a government to act in a manner that realizes the material, mental, moral, and cultural, wellbeing of the people.

The World Bank in its reports of 1989 and 1992, the Organization for Economic Cooperation and Development (OECD) Commission on Global Governance (1995), United Nations Development Programme (UNDP) 1997 have all dealt with the authorities of good governance extensively. The OECD (1992) delineated the key features of good governance in the following words: "…it is the promotion of democracy and open pluralistic societies; the strengthening of transparent accountable, efficient and effective national and local government; the promotion of respect for human rights; the reinforcement of rule of law, including fair and accessible legal and judicial system, the promotion of independent media and the dissemination of information; anti corruption initiatives and efforts to reduce excessive military expenditures."

Over the past few years, the concept of good governance has became the subject of intense interest. Precisely speaking, the distinctive features of good governance are: participation, accountability, consensus oriented, transparency, responsiveness, effectiveness, efficiency, equitable-ness, inclusiveness, and following the rule of law. The concept of good governance also includes feature such as the minimization of corruption, and, being responsive to current and future needs, and taking into account, the aspirations of society in large.

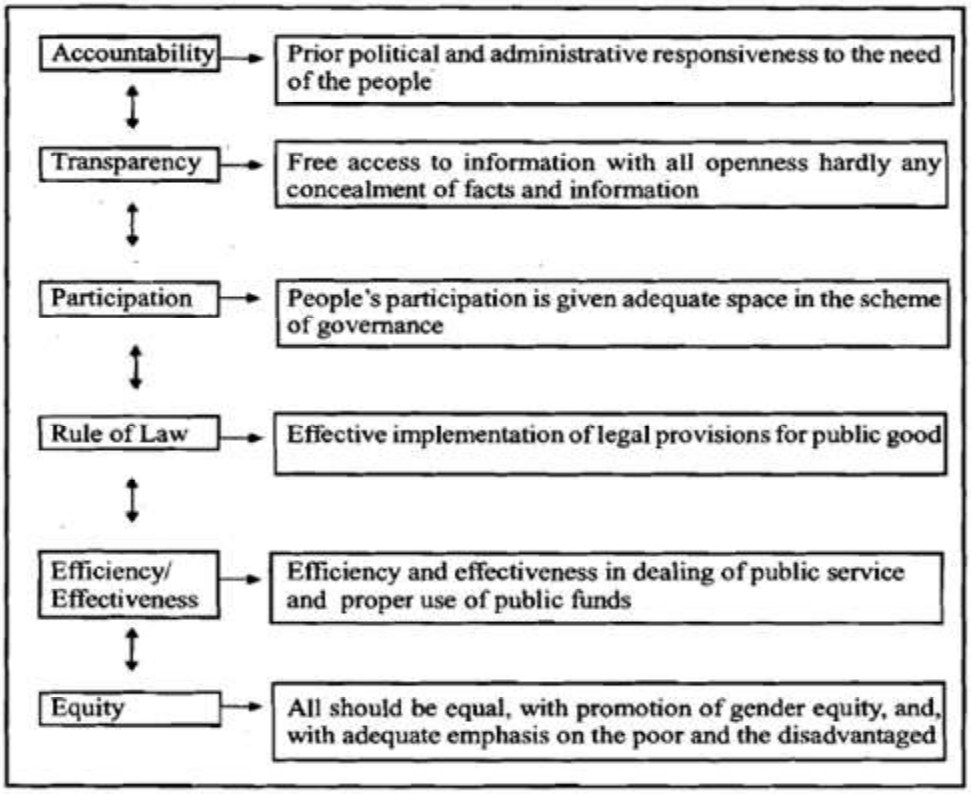
Focusing on the concept of good governance, the United Nations Development Programme emphasised on a high quality of processes by which decisions affecting public affairs are reached and implemented. It further, highlights, good governance need to ensures that all, including the poor and other disadvantaged groups, are included and have the means: (a) to influence the direction of development, (b) to make contributions to development and have these recognized, and (c) to share the benefits of development to improve their lives and livelihoods.

The concern for good governance has been well voiced in Asian Development Bank Report (1999) titled Governance in Asia: From Crisis to Opportunity which could be discussed through the following questions:

- Do people fully participate in governance?
- Are people fully informed?
- Do people make decisions, or, can they, at least, hold the decision makers accountable?
- Are the women equal partners with men in governance?
- Are the needs of the poor and disadvantaged met?
- Are people's human rights guaranteed?
- Are the needs of the future generation taken into account in current policies?
- Do people own their structures of governance?

The key features of good governance are explained in the chart given below.

Features of Good Governance



1.5 BARRIERS TO GOOD GOVERNANCE

Now, let us understand the barriers to good governance. Going through the discussion on good governance, it can be said that development is a value-loaded concept and has a strong relationship to good governance. However, the process of good governance encounters various barriers. The barriers are multifold and intense in nature. Most importantly, all the barriers are inter related to each other. The barriers to good governance are discussed briefly.

i) **Lack of awareness**: this is one of the biggest barriers that come in the way of good governance. Due to inadequate literacy, lack of information from the government side, and the failure of civil society institutions there is a lack of awareness among people about the process of governance, and development initiatives. The sense of apathy among people also compounds the problem.

ii) **Absence of transparency and accountability**: governance gets derailed due to lack of transparency. Moreover, lack of accountability leads to authoritarianism and creates a huge gap between the government and the governed.

iii) **Corruption and failure to check corruption**: corruption is generally identified as private gains from using public means through unethical practices. This phenomenon takes away development benefits from people.

iv) **Weak civil society**: civil society bridges the gap between government and governed, and checks the growth of unethical practices. But, when there is an absence of civil society institutions, or when they are weakened, the gap between people and the government gets widened.Good governance is badly affected by weak civil society institutions.

v) **Lack of strong institutions of governance**: governance functions with the support of various institutions such as the legislature, executive, and the judiciary, with a clear separation of power. If these institutions succumb to illegal and unethical pressures, and they fail to perform their designated functions, then the institutions get weakened. This results in the failure of the process of governance, and hampers development initiatives.

The process of governance is being strengthened by modern information technology. Video conferencing, for example, is a way to organize direct discussions between officials and citizens. The availability of information on internet sites, the conversion of documents into electronic format, the storage of all data related to citizens, makes the process of transparency and accountability simple. The devolution of power by giving constitutional status to grassroots organizations has brought an upsurge of democratic values and participation among citizens. The participation of citizens in the development process enhances governance, and, ultimately, democratic ideals.

In these last sections, you have read about the features of good governance, and barriers to good governance. Now, attempt the answers to the questions given in the Check Your Progress 2.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Discuss the key features of good governance.

2) What is the relationship between governance and development? How do they strengthen each other?

1.6 LET US SUM UP

Good governance is a qualitative term which gets strengthened with people's participation, with transparent and accountable mechanism. The rule of law also plays a definitive role towards ensuring good governance. This process is, now, being strengthened by the application of science and technology, which has revolutionized governance, and plays an important role in bringing people closer to the process of governance. Governance plays an important role in development.

1.7 KEY WORDS

State : This is the basic actor in today's world, representing a definite population, having a definite territory, a government, and sovereignty (the ultimate authority in handling its affairs).

Market : An institution which represents the interests of private players in the economy. Over the years, some people claim that it has emerged as the alternative to the state.

Civil Society : This represents the organizations that have emerged as voluntary initiatives of citizens, and without the support of the State. It articulates the voices of citizens, and helps to facilitate a smooth relationship between the State and the citizens.

Governance : This represents the complex relationship between the state, market, and the civil society. It reflects the nature of functioning of the authority and government. Recently, it has transformed into a value-loaded concept called good governance ,and it features rule of law, participation of people, transparency, and accountability, among others.

Rule of Law : This implies the proper and rational codification of laws and application of laws to one and all, uniformly.

Development : Means the betterment of the lives of people which is measured by a rise in per capita income. However, the term has undergone a transformation, and the new view is termed human development, which means the benefits in terms of health, education, drinking water facility, food availability, among others, through the development process.

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1.9 CHECK YOUR PROGRESS - POSSIBLE ANSWERS

Check Your Progress 1

1) Governance is a buzzword in contemporary times. What do you mean by it?

Answer: Governance has entered into the academic discourse in a big way. In this changing world, the nature of state activities has undergone rapid changes. So, the nature of service delivery mechanism has changed from state-centric activities to an arrangement between state and other actors, such as the market and civil society. Governance refers to a set of complex relationships between the state, market, and civil society organizations with the aim of rapid development.

2) Explain the significance of governance.

Answer: The term, governance, implies the relationship between the state, marketand civil society. Over the years, the term has attained a comprehensive meaning that includes features like efficiency, transparency, accountability, and rule of law. The definition provided by the United Nations Development Programme is the widely accepted, comprehensive explanation on governance. (Also see section-1.2)

Check Your Progress 2

1) Discuss the key features of good governance.

Answer: According to Kautilya, governance refers to the role of public organizations to realise the material, mental, moral, and cultural well being of the people. Recent changes in the concept have added the term, good, to encompass a broader meaning. The key features of good governance are accountability, transparency, participation, rule of law, efficiency, effectiveness, and equity. These features help government to deliver services for public welfare. It has been dealt with at length in section 1.4. Read this section and analyze each points.

2) What is the relationship between governance and development, and how do they help strengthen each other?

Answer: Governance and development are interconnected. Both concepts aim at improvements in the lives of the citizens. Governance aims to attain its objectives through greater participation of citizens in the governance process with transparency and accountability, supported by the rule of law. Development becomes effective and meaningful with good governance in place. (For further details, go through the section-1.3)

UNIT 2 PARTICIPATORY AND DECENTRALIZED GOVERNANCE

Structure

2.1 Introduction
2.2 Governance: Its Meaning and Importance
2.3 Participation and Governance
2.4 Globalization and Participatory Governance
2.5 The Role of NGOs in Participatory Governance
2.6 Centralized Governance
2.7 Decentralization and Decentralized Governance
2.8 Issues in Decentralized Governance
2.9 Let Us Sum up
2.10 Key Words
2.11 References and Suggested Readings
2.12 Check Your Progress: Possible Answers

2.1 INTRODUCTION

In the first unit, *Governance: An Overview*, you read about governance in general, and about good governance in particular, which plays a pivotal role in development. The idea of participatory governance has gained enormous popularity in recent times. The right to participate in development process creates a sense of ownership of masses, therefore, it has high intrinsic values. It is well said, that, the right to development is not simply as a right to enjoy the fruits of development, but is a right to participate in the process of realizing development. However, for the effective implementation of various development programmes, and effective people's participation, the process of decentralized governance emphasized. The deconcentration, as well as decentralization of power and authority, from the centre to the periphery has made development programmes more people centered. In this unit, you will come to know, through detailed discussion, participatory governance, as well as the pros and cons of decentralized governance.

After reading this unit you will be able to:

- explain the concept of participation, participatory governance and its role in the development process;
- discuss the role of two major agencies towards participatory governance besides the state i.e., the corporate sector and non government agencies;
- analyze the methods of participatory rural appraisal (PRA), rapid rural appraisal (RRA) to evaluate the extent of development and planning for further intervention;
- distinguish between centralized and decentralized governance; and
- analyze the issues in decentralized governance.

2.2 GOVERNANCE: ITS MEANING AND IMPORTANCE

The state is a complex system of multiple legal orders and interdependent relationships. In recent years, the structure of this complex system has seen a major shift. The focus has shifted from government to governance. Governance refers to what a government does. Kaufmann, Kraay and Zoido-Lobaton (1999) define governance as, "The traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them". From development and welfare concerns, there is a rapid switchover to concerns for, what is termed, good governance. It is critical, at this stage, to understand the meaning of good governance. The World Bank emphasized three significant dimensions of governance

1) Political regime character
2) The organizational process by which authority and control are exercised
3) The institutional capacity to plan and implement policies, and carry out functions. (World Bank, 1991)

Governance, in other words, is a dynamic concept, and encompasses fast changing political, social, and economic milieu, along with international environment and conditions of operational governance. Therefore, the experts suggest periodical rethinking on, and even, remodelling of the concept and institutions of governance. The analysts world over have weighed the advantages and disadvantages of various forms of governance. The basic point of analysis is the comparative efficiency of two types of governance. The first is centralized governance, using the central governments' field offices, and, the other is decentralized governance based on the transfer of power to the state and local levels of government. The proponents of each form of governance insist on the superiority of the form they prefer. The issues that are analyzed in this discourse are

- optimal use of resources
- high productivity levels
- achieving synergies and cooperation
- conflict over human and budgetary resources
- responsiveness to the societal needs and aspirations.

The effectiveness of the two types of governance is contextual, and has a symbiotic relationship with the polity, economy, and society. Both have their advantages and disadvantages.

2.3 PARTICIPATORY GOVERNANCE AND ITS FEATURES

The definition of governance according to the United Nations Development Programmes (UNDP) is: "… the exercise of economic, political and administrative authority to manage a country's affairs at all levels. It comprises mechanisms, processes and institutions, through which citizens and groups articulate their interests,

exercise their legal rights, meet their legal obligations and mediate their differences". Participation is taken as the pillar of good governance. Public participation is regarded as a vital part of the democratic process. Public participation seeks the involvement of those who are targeted as beneficiaries. Those are affected by decision needs to participate in the decision making process. This implies that public contribution will influence the decision. The participatory processes viewed as the facilitator and inclusiveness, the desire to participation of the whole community or society. Public participation is a part of people-centred or human-centric principles which have emerged over the last thirty years. In this respect, public participation challenges logic of centralized hierarchy and paradigm shift. It advances the alternative idea, that collective decision making is better than one, further argues that public participation can sustain productive and durable change. Article 25 of the international covenant on civil and political rights envisaged that, "every citizen shall have the rights and the opportunity ….. to take part in the conduct of public affairs, directly or through freely chosen representatives…"

In some countries, public participation is the central principle of making public policy. Public participation is viewed as a tool that is intended to the informed planning, organizing, and funding of activities. Public participation may use measure attainable objectives, evaluate impact, and identify lessons for future practices. Public participation in administrative rulemaking refers to the process by which proposed rules are subject to public comment for a specified period of time.

Features of Participatory Governance

Some features of participatory governance are

Participatory Budgeting: Participatory budgeting is a process of democratic deliberation and decision making, in which ordinary residents of a village or city decide how to allocate part of a panchayat or municipal or public budget. Participatory budgeting is usually characterized by several basic design features, such as: identification of spending priorities by community members, election of budget delegates to represent different communities, facilitation and technical assistance by public employees, local and higher level assemblies to deliberate and vote on spending priorities, and the implementation of local direct-impact community projects. Participatory budgeting may be used by the local self governments around the world, and has been widely publicized. In India, the panchayat in some states utilizes its common property resources and generates funds which are added to the total budget of the panchayats. Besides this, people also collect money to manage their common resources such as water works, and street lights. For example, in Punjab many village panchayats generate fund by utilizing the village *samlat* (common) land and use the fund for developmental purposes such as construction of water works, provision of street light, toilet facilties in schools, etc. Similarly, in Karnataka, many village panchayats collect fund from the households to manage village water works, street lights, etc.

Public Trust: In recent years, loss of public trust in authorities and politicians has become a widespread concern in many democratic societies. Public participation is regarded as one of the potential solutions to the crisis in public trust and governance. The idea is that the public should be involved in the policy process, and to have state officials seek public views and participation, rather than treating the public as simply passive recipients of policy decisions.

The underlying assumption by political theorists, social commentators, and even politicians is that public participation increases public trust in authorities, improving citizen political efficacy, enhancing democratic ideals, and even improving the quality of policy decisions. However, the assumed benefits of public participation are yet to be confirmed.

Transparency and Accountability: Transparency and accountability are critical for the efficient functioning of a modern economy, and to achieving faster growth and development. These are two important pillar of democratic governance. Transparency ensures that information is made available that can be used to measure the authority's performance and to guard against the misuse of power. Transparency enables democracies to achieve accountability.

Participatory Development: In economic development theory, the school of participatory development draws the attention of all today. The desire to increase public participation in humanitarian aid and development has led to the establishment of a numerous context-specific, formal methodologies, matrices, pedagogies, and *ad hoc* approaches. These include conscientization and praxis-project programme appraisal (PPA), rapid rural appraisal (RRA) and participatory rural appraisal (PRA); 'open space' approaches; goal-oriented project planning also called 'Zielorientierte Projektplanung' (ZOPP). The World Development Report (1994) on infrastructure reported that in a study of 121 completed rural water supply projects, financed by various agencies, projects with a high degree of local participation in project selection and design were more likely to enjoy good maintenance, subsequently, than those with more centralized decision-making.

Environment and Sustainable Development: In recent years, public participation has come to be seen as a vital part of addressing environmental problems and bringing about environment and sustainable development, In this context, relying solely on a method where technocrats, or, bureaucrats monopolize decision making is no longer seen as effective, and it is argued that public participation allows governments to adopt policies and enact laws that are relevant to communities and take into account their real needs. Sustainable development is more effective with participation in governance.

2.4 GLOBALIZATION AND PARTICIPATORY GOVERNANCE

With globalization, the scenario of governance has changed completely. There are many players in the system of administration which is termed governance. The government and market are now players on equal plane. New actors have entered the system. Two of these actors are: the multinational companies (MNCs) and the non government organizations (NGOs). The state is no longer a coercive power while negotiating with MNCs. The state is now, one among others, although a significant one. The government and MNCs both remain engaged with each other and prepare a ground on which they have to work together. This will also help the host country to keep a check on an MNC. That gives a bigger role to be played by the government of a host country. Globalization has changed the scenario. Both actors have to work together on equal plane according to a prepared code of conduct and rules of the game, which regulate the behaviour of both actors. MNCs play an important role in working with various actors, such as NGOs and the market.

MNCs, in their role as investor, innovator, experts, manufacturers, lobbyists, and employers, are critical players in developing the architecture of global governance. They are increasingly prominent in negotiating formal intergovernmental regimes, such as the Kyoto Protocol, and the scientific advisory panels of these regimes. MNCs, working as the actors in the decision making process that determine the quality of products, decide about the standards and codes of conduct that govern not just products, but environmental practices and labour conditions too. MNCs negotiate with a government about the entry into their country to establish their units, but, at the same time, they negotiate with NGOs about the quality of environment which is going to be affected by their industrial enterprise. They want to know the market conditions of a country whether there is any restriction imposed on the market from the government or even through NGOs. MNCs need to know what environmental problems their unit is going to create. If it emits higher than acceptable level of carbon dioxide which is the source of global warming then they have to talk to the government and NGOs about the sustainable technology which can reduce the emission of carbon. The government, MNCs, and NGOs all have to agree to regulations that are to be followed by all so that acceptable labour standards and environmental standards are in place. For instance, if an MNC uses child labour in their factory, an unacceptable practice, then NGOs and government watchdog bodies have the right to bring the matter to the attention to courts and other bodies. The government, MNCs and NGOs all of them need to agree to have a regulatory authority where they can be subject to code of conduct approved by them to regulate their activities in relation to labour employment. MNCs and NGOs often make common ground for discussions and settle disputed matters amongst themselves, according to the ground rules that have been adhered to, previously. Peter Newell (2001) remarked "There has been a notable shift in the relationship between business and NGO around regulatory issues. From a position of clearly defined antagonism, there is increasing emphasis on partnerships and institutionalized forms of collaboration".

Governance is a mechanism for these non state actors to participate in the decision making process. Though, NGOs are not as powerful as MNCs in terms of finance, yet as a network, NGOs, are a significant force to reckon with. NGOs are able to pressurize MNCs and business, in general, for coming to agreement over issues related to environment and climate. Today, a large number of NGOs around the world have received recognition by international funding agencies. For example, participation by NGOs has brought the issue of carbon emission to an international forum which resulted in the Kyoto agreement in which business has to be selective about technology which creates less carbon emission. They have to follow international standards to ensure the quality of their products. This quality is measured in terms of the impact on the environment. Thus NGOs are getting importance in global governance. Moreover, because of the active role of civil society and business, the political regime is a critical factor in governance, as the state is no longer the only important actor. To regulate diverse interest groups, the state cannot use administration. In the place of state and bureaucracy, which, earlier, took decisions on behalf of the state, a regulatory authority has been established. The regulatory authority has to mediate with both non state actors and state actors. David Levy and Peter Newell remarked that business is not just a subject of a regulatory system imposed by the state rather business is an intrinsic part of the fabric of governance. Governance is multilayered and all the stakeholders do participate in the decision making process, i.e., the states, the market, and NGOs.

Till this time you must have understand the concept of governance and its importance, in general and particularly participatory governance. Now, you should be able to answer the questions given below, in order to check your progress.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Transparency and accountability are vital to good governance - Explain.

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2) What is meant by participatory budgeting?

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3) How does globalization play a key role in changing the concept of governance?

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2.5 THE ROLE OF NGOS IN PARTICIPATORY GOVERNANCE

At the international level, NGOs are active, at meetings of intergovernmental coordination committees where issues related to trade, environment, and climate change are discussed. Their participation has helped bring radical changes in the negotiation mechanism with the non state players. Today, participation by NGOs is the key to good governance. Besides, their international presence and presence at both, the national and local levels, their participation is accepted by the government in various consultation meetings. Business, trade unions and NGOs, today, participate in decision making and this is a key to empowerment. It is the NGOs which can articulate the demands of people at the grass roots level. Many industrial establishments have initiated community outreach and developmental projects with the help of NGOs at their local levels. This is intended to create congenial environment for businesses. Business organisations provide funding to the NGOs in order to deliver

specific services to people. In recent years, governments of many countries are also taking the help of the NGOs for the implementation of various developmental projects at the grassroots level. At the same time, the local administration requires their help in implementing projects meant for the targeted social groups.

It is realized that the top-down approach is not going to succeed. The indirect and formal political decision making processes have not only failed to allocate adequate resources to the poor, but have excluded them from these processes. A bottom-up approach creates countervailing action by the people to influence the decision making processes. The role and contribution of people's participation is acknowledged by the UN which calls for "increased popular participation in decision making as a fundamental goal of and policy instrument for development."

Once the bottom-up approach is accepted, it requires NGOs to participate in a big way. These social action groups are able to articulate the needs of people as they work at the grass roots level. They have knowledge and expertise which makes meaningful participation possible and influence decisions that affect the livelihood of a target community. That is why it is recognized that programmes such as the participatory rural appraisal (PRA) is a means of empowerment of the rural poor.

The significant features of PRA are as following:

Empowerment: Knowledge is power. A local community that participates in the social process has acquired knowledge. The technical and social concepts related to their experience help them to have some expertise in limited areas. With knowledge, they have the capacity to contribute. The monopoly of professionals who have dominated the decision making process can be broken by the awareness of local communities that have knowledge.

Respect: The representatives of the local administration can learn to respect NGOs. The PRA process transforms administrators into learners and listeners. They learn to respect the intellectual and analytical capabilities of local people. The administrators should not have a patronizing attitude to local people. They may try to understand the folklore of local people to appreciate the local culture.

Localization: The administrators learn and understand the local mode of representations. This helps them to use local materials for creative use.

Enjoyment: The PRA process provides real enjoyment as working with local people is really fun.

Inclusiveness: once the stakeholders (government/ NGOs) are sensitive to the needs of the local people, it encourages the poor and *dalits* to participate in the process. This brings the participation of marginal and vulnerable groups into the PRA process.

The PRA process generates a lot of data and ideas which can be used in participatory planning. Participatory planning emphasizes the involvement of the whole community in the strategic and management process. It becomes a community level planning processes. PRA is supported by participatory learning and action, which emphasizes the links between the participatory process and action. This helps in building democratic leadership, consisting of various castes and ethnic groups. This process helps in the integration of lower castes and tribal people into PRA.

One of the leading exponents of PRA, laid down following principles of PRA

a) handing over the stick: facilitating investigation, analysis, presentation and learning by local people themselves by which let local people teach you

b) self critical awareness: the administrator critically examines his, or her, behaviour

c) personal responsibility: taking responsibility to ensure that what is needed is really done, rather than depending on rules and manuals

d) sharing: which involves a wide range of techniques now available, which includes everything from chatting across the fence, to making photocopies, and sending e-mail

Participatory Rural Appraisal uses several of the do-it-yourself methods given below

- local people are experts, and teachers and administrators are novices
- mapping and modeling
- time lines and trend and change analysis
- seasonal calendars
- daily analysis
- institutional diagramming
- matrix scoring and ranking
- shared presentations and analysis
- participatory planning, budgeting, implementation and monitoring

2.6 CENTRALIZED GOVERNANCE

A state centric approach is favoured for conceptualizing a coherent centre, a global referential, a sense of direction, of scalar hierarchy, of equal treatment, of inalienable rights guaranteed by state acting in the general interest. In this framework, the primary decision making authority is vested in the central government. In other words, the goods and services are produced and delivered by the central government's field offices, or affiliated organizations. How such systems put in place is of high significance for an understanding of centralized governance. This can be understood better by the example of post independence India.

India adopted the approach of a division of functions and finances between the centre and the states in a framework of federal polity. The Constitution makers favoured a strong centre, because of the conditions prevailing then, such as a lack of industrial development, the need for balanced regional development, a large population living in poverty, scarcity of resources, and most importantly the fissiparous tendencies in many parts of the country which threatened its unity and integrity. The leadership at that time decided to opt for a democratic system of governance with a socialist pattern of society. The public sector was envisaged to be the engine of growth and economic development in the 'mixed economy' by gaining commanding heights in the economy. The principles mentioned earlier, i.e., optimal utilization of resources, high productivity levels, etc., formed the basis of the division of functions. Thus, three lists were obtained - Union, State, and Concurrent. These

lists enumerated subjects which determined the primary decision making authority. However, an overview of the three lists makes it amply clear that many subjects have been included in the union list which, generally, in a federal polity, is state government's responsibility. Consequently, the resource generation capacity of the central government increased manifold, and states, in general, became dependent on the centre, for their investment and other spending requirements. This helped the centre to have greater control over states.

Besides political and economic control, administrative control was exercised through the continuance of Indian Administrative Service officers, who were the successors to the erstwhile Indian Civil Service of the Imperial rule. One party dominance for a sufficient period of time led to consolidation of the centralization tendencies. The biggest instrument in exercising, or perpetuating, the Centre's control over the states was centralized planning.

Outside India, among the modern states, France can be classified as having a greater degree of centralized governance among the world's democratic countries. The quest for overarching regulation and the re-conceptualization of a coherent centre describes well the reactions of leading French political and administrative actors to many of the challenges faced by contemporary France. French local authorities operate within the context of the centralized state tradition.

The advocates of centralized governance argue that the lower level governments are too close to the people to be effective instrument of desirable changes. They would be reluctant in imposing taxes and implementing schemes in the larger interest of the population. They might instead indulge in favouritism. Another assumption is that higher level governments are more enlightened and have higher capacity of policy making and efficient service delivery. Many proponents claim that if the responsibility of service delivery is delegated to local government, the quality of service will be degraded, as the Central government is likely to invest more in improving the skills and technical knowledge of its personnel as they may stay longer in the same position.

Till this point, you have read about the meaning, scope, and importance of participatory governance and centralized governance. Now, you should be able to answer the questions given below, in order to check your progress 2.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Explain the meaning of centralized governance with specific examples.

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2) Discuss the three lists of the Indian Constitution which provide the decision making authority between centre and state.

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2.7 DECENTRALIZATION AND DECENTRALIZED GOVERNANCE

Discourse on good governance has led governments, the world over, to move towards decentralization, and subsequently, towards democratic decentralization, giving more authority to local government systems. Before discussing decentralized governance, it is important to distinguish between the types of decentralization. Decentralization refers to a process through which more autonomy is bestowed upon lower level of institutions, and, more specifically, through the transfer of power to democratically elected bodies. There are different ways to grant autonomy.

i) ***Devolution***: It refers to the transfer of power to the lower levels of government, from the national level to the state level, or from the state level to local government levels. This reduces the control of the higher level of government, but the lower level of government has to operate within the framework of the general policies.

ii) ***Deconcentration***: Through deconcentration, the power is transferred to a sub unit, which ensures that the control of the government concerned remains intact, while functional autonomy enables the sub unit to perform efficiently. Deconcentration is normally given to a sub unit at the regional, or field level.

iii) ***Delegation***: In delegating power, limited responsibilities are transferred to a lower level office to reduce the burden of decision making. It is normally used in units where the work load has increased, and it is efficient for the lower unit to carry out certain responsibilities without looking upwards for sanctions. Delegation does not reduce the accountability of the authority which has delegated power.

Democratic Decentralization

It is almost impossible to conceive of a highly decentralized system of governance without some measure of democracy to sustain it. It is widely accepted that in a democracy, the political values and preferences of the government reflect the will of the people. The government translates this will of the people into laws and policies, and then, implements it through its bureaucracy. The emphasis on discarding the top down approach has led to a search for effective alternatives. Democratic decentralization has emerged as the most appropriate and most recommended solution. Stigler (1957) identified two principles of jurisdictional design

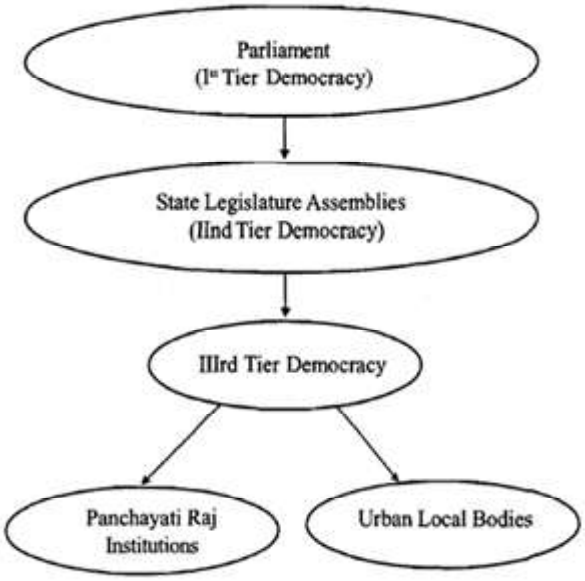
- the closer a representative government is to the people, the better it works
- people should have the right to vote for the kind and amount of public services they want

These principles suggest that decision making should occur at the lowest level of government, consistent with the goal of allocative efficiency.

The international agencies give due importance to the projects that correspond to the needs of the people and formulated and implemented by the people. It is important to mention here that the efforts of decentralization are not donor driven. The main assumption behind is that development would reflect the will of the majority of the people through the elected representatives. Decentralization was also seen as part of a wave of democratization that was sweeping many countries towards the end of the 1980s.

India had a decentralized process even before its independence. By the 73rd and 74th constitutional amendments, democratic decentralization travels a full circle. Now, the local self governments in India are considered as the third tier in a three tier democracy. The democratic decentralization processes in India is given in the flow chart below.

Democratic Decentralization in India



Decentralized Governance

Increasing needs and aspirations, and the rising expectation of citizens put pressure on the capacity of the centralized governance institutions to formulate and implement sound policies, and to deliver public services. The move towards decentralization is aimed towards enhancing this capacity which is at the core of good governance. The assumption is that it would increase the effectiveness of the government through improved quality of policy formulation, as it would be synchornized with reality on the ground; streamline the bureaucracy, as it would increase the interface with the citizens, and, make it more accountable; and to vide improved service delivery by a responsive bureaucracy. One of the serious problems with centralized governance is that it results in inefficient service delivery, and suffers from low accountability. International organizations like the United Nations and the World Bank use the term, governance, with reference to political, administrative, economic matters, and civil society.

Decentralization has emerged as the key element in the present thought on improving governance. Governments, the world over, are vying with each other in experimenting with decentralization (Manor, 1999). It recognizes the inability of traditional political and bureaucratic institutions to govern society through a top down approach. It has means taking recognition of spatial distribution of power and its multiple centres. These multiple centres can be at various levels, rising from the local community itself (Mathur, 2008). Mathur (2008) argues that, “In India, decentralization began to mean dispersion of power, not only to rural and urban local self governments, but, also, to self-help groups, local communities and NGOs”.

Most importantly, decentralized governance serves to fragment and disperse political power. Despite the call for a reduced role of the state, the fact remains

that the government is the most powerful institution in any society, and retains a monopoly on the use of coercive power. This makes it imperative to establish and maintain a system of checks and balances with regard to the exercise of power. Decentralized governance is a significant measure to implement and exercise such check and balances. It implies that there is need to establish multiple levels, jurisdiction and units of government, each of which has some measure of independence and autonomy from the other. This helps to ensure that power and authority are not concentrated, and promotes the creation of competing elites, which serve to check the independence and power of each other. According to some scholars, decentralization serves to create additional civic space as well. By generating more centres of power, there are inevitably more venues in which civil society organizations can develop and find sustenance, which contribute significantly to the creation of nongovernmental centres of authority and power within a society. These centres of power can serve to hold government accountable.

Additionally, decentralization enhances accountability. In the principal-agent framework, the authority is brought closer to the population, which provides the citizenry with a greater sense of political efficacy. Moreover, the people tend to respond more positively to the government that is nearer to them and more tangible.

Tiwari (2002) identifies the conditions that are necessary for the success of decentralized system of government

i) the capacity of the local government to raise their own revenue and develop the competencies that are necessary to govern

ii) the ability of the state governments to direct reforms and to behave in a way that does not impede decentralization

iii) the state governments must learn when to impinge on local autonomy for the sake of stability, and when to refrain from interference to avoid inhibiting good governance at local levels

iv) the paradox is that decentralization requires more central governance and more sophisticated political skills at the state level

v) a good and strong state government

vi) reliance on local taxation and fiscal autonomy

vii) smooth function of local democracy.

Now, attempt following questions, given below, to check your progress 3.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Explain the three concepts- devolution, deconcentration and delegation, and make distinction between them clear.

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2) What are the necessary conditions for the success of a decentralized system of government?

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2.8 ISSUES IN DECENTRALIZED GOVERNANCE

Decentralization is not a panacea to address the problems of effective governance. Success of decentralization depends a lot on the capacity of the lower levels of governments and efforts towards enhancing that capacity. Both, political and bureaucratic will are required to support decentralization. Below, we list some issues that plague decentralized governance

i) The political will to share power with the lower levels of the governments has often been absent, and, in fact, thwarted the attempts towards effective decentralization. The cases in point are the 73rd and 74th Constitutional Amendment Acts. Provisions, such as DPCs (District Planning Committees) or SFCs (State Finance Commissions), have yet to show any significant impact at the local level in a majority of the states. The states have not shown adequate enthusiasm towards implementing these provisions. Sufficient powers have not been devolved to local bodies, as envisaged under the Acts. Effective decentralization requires strong local government, and effective local law making capacity.

ii) Local bodies have been reluctant to raise resources through taxation at their level. A look at the budgets of local bodies, especially in the northern states, reveals that there are few untied funds which are available to local bodies, because revenue from their own sources is negligible.

iii) A potential problem inherent in the movement towards greater decentralization is that local entities, even when well intentioned and responsive, are in fact likely to have a narrower perspective in terms of issues of broad public policy and wellbeing than larger units of government. Decentralization may also help national governments in sharing responsibilities. Often the responsibility for providing services is devolved without adequate resources. For example, the matching of responsibilities and resources is not seen at the level of local bodies despite Constitutional provisions. There has been a growing concern about the extent of fiscal decentralization.

iv) It is desirable that there would be a significant local demand and local concern for the development and maintenance of a decentralized governance system. Local governments have, for long, faced the apathy of the people in India unlike in some western countries where people take pride in the affairs of their local government institutions.

v) A potential danger in a decentralized system is that the lower levels of governments may be captured by narrowly based, but highly organized,

local elites. This may impact the broad public policy framework and put the local governments at loggerheads with the central government. The emergence of some regional parties is a demonstration of this.

vi) Decentralization talks about power of the government but it does not guarantee good governance. Situations vary from country to country, and governance is a complex of polity, economy, society and environmental factors, and, therefore, there cannot be a specified remedy to ensure that reforms will result in desired outcomes. There is no best way to structure a decentralized governance system.

2.9 LET US SUM UP

The capacity of the government to effectively formulate and implement sound policies is under a scanner. The basic point of analysis is the relative efficiency of two types of governance. One is centralized governance using the central government's field offices, and the other is decentralized governance, based on the transfer of powers to the state and local level governments. A state centric approach is favoured for conceptualizing a coherent centre, a global referential, a sense of direction, of scalar hierarchy, of equal treatment, of inalienable rights guaranteed by the state acting in the general interest. How such systems are put in place is of high importance for understanding centralized governance. The advocates of centralized governance argue that the lower level governments are too close to the people to be effective instrument of desirable changes. However, discussions on good governance has led governments, the world over, to move towards decentralization, and, subsequently, towards democratic decentralization, giving more authority to local government systems.

Governments, the world over, are vying with each other in experimenting with decentralization. In India, decentralization began to mean dispersion of power, not only to rural and urban local self governments, but to self-help groups, local communities, and NGOs, as well. Decentralization enhances accountability. Democratic decentralization has emerged as the most appropriate and most recommended solution. The decentralization would lead to the decision making authority coming lower down the order.

2.10 KEY WORDS

Non Governmental Organisation (NGOs) : Any institutions or agencies outside the state or government may be included under this category. Broadly, the term represents civil society, or the third sector in the form of a grassroot organization, self help group, voluntary organization, nonprofit organization, any associations, and development agencies.

Trust : For public participation, public trust is one pre-requisite condition to participate and act collectively for any common issues.

Participatory Rural Appraisal (PRA) : It comprises tools for collecting, analyzing, and formulating the people's need, and, accordingly, intervening with development projects. PRA methodology focuses on participation, in which

information is gathered from villagers, and local governments understand and learn from them.

***Zielorientierte Projektplanung* (ZOPP)** : This is German term which means Goal-Oriented Project Planning. This approach is widely used and promoted by German Technical Cooperation, an international *cooperation* enterprise for sustainable development with worldwide operations, and provides a systematic structure for identification, planning, and management of projects developed in a workshop setting, with principal interest groups.

Governance : The traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and, the respect of citizens and the state for the institutions that govern economic and social interactions among them.

Decentralized governance : It refers to the exercise of authority to effectively formulate and implement sound policies by the multiple levels of governments and is based on transfer of powers to state level and local level governments.

Democratic decentralization : A process of transferring power to popularly elected governments at multiple levels.

Local government : This refers to specific institutions or entities created by constitutions, or, by ordinary legislations, or, by executive order, to deliver a range of specified services to a relatively small geographically delineated area.

Alternative Dispute Resolution mechanism : It refers to institutions outside the formal system of courts for settling disputes or litigation through negotiation, arbitration, or conciliation.

District Planning Committees : The 73rd constitutional amendment envisages for the formulation of District Planning Committees at the district levels, this institution will be responsible for the preparation of district plan. The chairman of the Zilla Parishad will be the chairman of district planning committee.

State Finance Commissions : The 73rd constitutional amendment envisages for the formulation of State Finance Commissions in each state to look after the financial matters relating to the local self governments.

Multinational/ Translational Corporations : These are those corporations which operate in more than one country or nation at a time. They have become some of the most powerful economic and political entities in the world today.

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2.12 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress 1

1) Transparency and accountability are vital to good governance - explain.

Answer. Transparency and accountability are critical for efficient functioning of a modern economy to achieve faster growth and development. These are two important pillar of democratic governance. Transparency ensures that information is made available which could be used to measure the authority's

performance, and to guard against any misuse of power. The Right to Information (RTI) Act in India is an example of transparency in governance. Further, transparency ensures accountability, and institutions and authorities can be held responsible for the delivery of results. Thus, transparency and accountability are viewed as pre-conditions for good governance.

2) What is meant by participatory budgeting?

Answer. Participatory budgeting is a process of democratic deliberation and decision making in which ordinary residents decide how to allocate part of a municipal or public budget. Usually, this is characterized by several basic design features such as, the identification of spending priorities by community members, election of budget delegates to represent different communities, facilitation and technical assistance by public employees, local and higher level assemblies to deliberate and vote on spending priorities, and the implementation of local direct-impact community projects. Some states in India, the panchayat utilizes its common property resources and generates funds which are added to the total budget of the panchayat. Besides, people also collect money to manage their common resources such as water works, streetlights, and other utilities.

3) How globalisation has played a key role in changing the perception of governance?

Answer. Globalisation and economic integration have not only changed economic and social relations, but influenced the nature of governance, and political systems at local and global levels. During the process there are two important actors– MNCs and NGOs emerged and played active roles. (Also, see the analysis in section- 2.3 & 2.4)

Check Your Progress 2

1) Explain the meaning of centralized governance with specific connotations.

Answer: Centralised governance refers to the primary decision making authority vested in the central government. It is a state centric approach which is favoured for conceptualizing a coherent centre, a global referential, a sense of direction, of scalar hierarchy, of equal treatment, of inalienable rights guaranteed by state acting in the general interest. In other words, the goods and services are produced and delivered by the central government's field offices, or affiliated organizations.

2) Discuss three lists of the Indian Constitution which provide decision making authority between centre and state.

Answer: According to the 7th Schedule of the Indian Constitution, there are three lists formed on the basis of division of functions between the State and the Centre. The lists are: Union, State, and Concurrent for optimal utilization of local resources and high national productivity. The first two lists, the union and the state lists, refer to the authority of central government and the state government respectively, whereas the concurrent list is the area of common subjects for both union and state lists. These lists enumerate subjects which determine the primary decision making authority. However, the centre has greater control over the states.

Check Your Progress 3

1) Explain the three concepts- devolution, deconcentration and delegation, and make distinction between them clear.

Answer: Devolution, deconcentration, and delegation are three types of decentralization process. Devolution refers to the transfer of power to the lower levels of government, from national level to state level, or, from state level to local government level. This reduces the control of the higher level of government, but the lower level of government has to operate within the framework of the general policies. Deconcentration is another form of transfering power to a sub unit, which ensures the control of the government concerned remains intact, while the functional autonomy enables the sub unit to perform efficiently. Deconcentration is normally given to a sub unit at the regional or field level. Delegation is the third form of delegating power, where limited responsibilities are transferred to a lower level office to reduce the burden of decision making. It is normally used in units where the work load has increased, and it is efficient for the lower unit to carry out certain responsibilities without seeking sanctions from higher authorities. Delegation does not reduce the accountability of the authority which has delegated power.

2) What are the necessary conditions for the success of the decentralized system of government?

Answer: The necessary conditions for the success of decentralized system of government: i) the capacity of the local government to raise their own revenue and develop necessary competencies to govern; ii) the ability of the state governments to direct reforms, and to behave in a way that does not impede decentralization; iii) the state governments must learn when to impinge on local autonomy for the sake of stability, and, when to refrain from interference to avoid inhibiting good governance at local level; iv) the paradox is that decentralization requires more central governance and more sophisticated political skills at the state level; v) a good and strong state government; vi) reliance on local taxation and fiscal autonomy; vii) healthy local democracy.

UNIT 3 GOOD GOVERNANCE: ATTRIBUTES AND CHALLENGES

Structure

3.1 Introduction

3.2 The Concept of Good Governance

3.3 The Attributes of Good Governance

3.4 The Challenges of Good Governance

3.5 Important Aspects Related to Good Governance

3.5.1 Corruption and Sources of Corruption

3.5.2 The Right to Information (RTI) Act

3.6 Let Us Sum Up

3.7 References and Suggested Readings

3.8 Check Your Progress: Possible Answers

3.1 INTRODUCTION

The concept of good governance is related to all branches of social sciences, especially, to political science, public administration, and economics. Governance, as a term, has gained prominence in public debates around the world, in recent times. It is used with the adjective, good, as if to suggest that what is under discussion is governance, evaluated positively. To use the term in such a manner, contrary to the general impression is not new, while the Oxford English dictionary defines the term as 'the action or manner of governing'.

It is believed that good governance can solve all the major problem of civil society. The concept of good governance is not static, but dynamic. It has always been in demand and is the need of the common man. The concept of good governance derives its relevance in the context of misgovernance, which includes non-feasance, over-feasance and mal-feasance. Misgovernance is found, especially in developing countries, to a rampant degree. The concept of good governance becomes attractive as a remedy against this state of affairs.

In the last unit you studied about the participatory governance, in this unit we will focus on challenges and attributes of good governance.

After studying this unit, you should be able to:

- discuss concept of good governance;
- describe challenges to good governance;
- analyse attributes to good governance;
- describe important aspects related to governance such as, Corruption and Right to Information Act.

3.2 THE CONCEPT OF GOOD GOVERNANCE

First time in 1989, the World Bank used the term 'good governance' which focused to action oriented programmes to curb the corruptions in its client countries. Whereas

the United Nations Economic and Social Commission for Asia and the Pacific refer it as 'the process of decision-making and the process by which decisions are implemented (or not implemented)'. For Mahatma Gandhi, it means *Sarvodaya* the concept of actions for the common good beneficial to all. According to Kautilya (c. 340-293 BCE), a king is the servant of the state who could harbour no personal likes. In the happiness of the subject, lies his happiness. The king should surrender his individuality in the interest of his duties. Kautilya's king is a constitutional slave, unlike Plato's philosopher king who had absolute power. Kautilya's king acts in concert with the seven organs of the state and values their advice. But, Kuatilya also warns that not only the ruler, but also the people have to live within constraints, otherwise, there will be no civil society. According to Kautilya, rulers and their officials must be subjected to a vigorously disciplined life and an elaborate code of conduct. Good governance means governing by the rule of law with equality before law and equal protection under law. To ensure the people's welfare, which is the objective of good governance, there must be properly guided public servants or bureaucracy. Thus good governance means happiness and welfare of all through limited government, rule of law, properly guided bureaucracy, disciplined rulers, fixed salaries, maintenance of law and order, curbing corruption and uniformity in administration.

The modern concept of good governance emerged in the post cold war eras a result of deliberations by the World Bank and Organization for Economic Cooperation and Development countries upon development, particularly in developing countries. Good governance is associated with efficient administration in a democratic framework, an administration that is considered to be citizen friendly, caring and responsive. Government must be efficient, effective, economical and also ethical. The governing process must be just, reasonable, fair, and emphatic. Good governance is in no way based on fragile doctrines and dogmas; rather, it has a constitutional base. Further, it must be pointed out that good governance is not simply something that governments can achieve, or, do by themselves. Instead, it depends on the cooperation and involvement of a large number of citizens and organizations. Precisely, the good governance relates to political and institutional processes and outcomes that are perquisites for achieving the goals of development. Therefore, good governance is applicable to all sections of society such as the government, legislature, judiciaries, the media, the private sector, the corporate sectors, the cooperatives, the society registered under the Society Registration Act and NGOs. The features of good governance are discussed earlier Unit on Governance: An Overview.

3.3 THE ATTRIBUTES OF GOOD GOVERNANCE

In the previous section you studied about the meaning and challenges to good governance. In this section you will come know about the various attributes of good governance.

A) Rightsizing governmental functions

It is essential that the role of the state is primarily to the care functions that cannot be performed by the markets. There is a need to identify those care areas. Security, law and order, social services, creation of infrastructure, and macroeconomic management are some areas. We must strengthen the existing ones, and set up new, autonomous regulatory agencies with quasi-judicial powers, in order to ensure that the functioning of private units are regulated in

the interests of society. All functions that do not involve formulation of policy should be given to executive agencies, cooperative and nongovernmental organizations, with a caution that these autonomous bodies should play a supplementary and complementary role to other public organizations. The departmental forms of undertakings should be converted into joint stock companies; services that cannot be performed economically by public organizations should be contracted out. Such steps, hopefully, would reduce the size of public bureaucracy and bring in value for money.

B) Greater use of information technology and management techniques

With the introduction of computer and information technology in governmental functioning, steps are needed towards revamping officer oriented systems with the aim of evolving better systems of record keeping, movement of files, space utilization, and the adoption of other available means of automation. We can make public offices more effective and efficient through computerized information system. We must reduce, or, even abolish all unwarranted reports and returns. Greater delegation of powers and level jumping can also lead to greater efficiency. Simplification of office procedures, standardization of job output, and introduction of appraisal by result, would help in boosting efficiency. Performance budgeting and zero base budgeting, along with efficiency cum performance audit would ensure greater accountability.

C) Delegation, ethics and participation

One of the basic requirements of good governance is responsive administration, which, in turn, depends on: (i) delegation and devolution of authority, and responsibility, (ii) adherence to clearly defined ethical standards, and (iii) the process of consultation and participation in decision making.

Throughout the world, it is well recognized that the civil service ethics is an important check and balance against the arbitrary and politically motivated use of public power. The need for a civil service court and a charter of ethics is being felt to maintain the confidence of the people, and to build up credibility of public institutions for good governance. Prevention, surveillance, and deterrent prosecution operating through the strength of existing machinery and the creation of new, autonomous quasi-judicial bodies warrants urgent attention. Similarly, a code of conduct is needed to define, specifically, the relationship between civil servants and politicians. The constitution of a high powered civil service board or Commission, or the extension of the jurisdiction of the existing Public Service Commission may guard against politicization of postings, transfers, and promotions. The proposed machinery can also act as a Civil Services' Ombudsman. This is being advocated in many countries.

D) Ensuring accountability

Another the most important item contributing to good governance is public accountability. Accountability should not only be confined to the functioning of public organizations, it should also become an integral part of the broader aspect of governance in a civil society. This would require proactive participation of different stakeholders in society.

It necessitates the citizens' orientation to public organizations involving adherence to declared standards of performance, sharing of information, openness, and a system of providing choice and consultation to the citizens. Greater transparency

in different aspects of the functioning of public authorities is needed. Though some steps have already been taken in this direction, it should be expedited. Easy accessibility, by citizens, to the information relating to government operations and its decisions and performance is an essential aspect of good governance. The citizens' charter should be extended to all public organizations dealing with service sector. Such charters should be updated periodically based on the feedback of citizens. Not only does the existing grievance redressal machinery need to be strengthened at all levels, it must be coupled with a mechanism to closely monitor delays, and enforce individual responsibility.

More importantly, we must remove the root causes of grievances and delays. Apart from steps taken to empower citizens, especially those in the weaker sections, local social groups and media are needed to identify problems, and, to ensure prompt action from public authorities. Internationally, a number of countries have restructured their administrative systems to fulfil the aspirations of citizens. Technology up gradation (introducing information technology), incorporating modern techniques of management to ensure effectiveness and efficiency capacity building of public institutions (training of civil servants) and transparency and openness in public organizations are the essential aspects of good governance. Further towards good governance, empowerment of citizens in general and vulnerable section in particular (decentralization), empowerment of grass root functionaries (delegation), dispersal of politico-administrative power (democratization), privatization, contracting out and removing delays and rigidity in public organizations (debureaucratisation) are essential alternatives for application of good governance and countering challenges faced in application of good governance.

E) Institutional reforms

Administration, being constantly involved in practical action situations, it cannot afford to remain static. It has to change, structurally, for the sake of sheer survival. Four principal goals of the rearrangement of administrative structure have been identified by Mosher. They are: changing policy and programmes; improving administrative effectiveness; solving personal problems; and, countering pressures and threats from outside organizations. Of these, improving organizational effectiveness seems a more generic objective. Paul Appleby, in an insightful article on the first Hoover Commission report in the US suggested two basic changes in administration: constant, and, episodic.

The first one stands for incremental change that takes place during the course of spontaneous adjustments to changing situations. New filing systems, alterations in procedures of work, and the reshuffling of postings, are examples of this type of changes, referred to as constant change. On the other hand, the episodic change is much wider ranging in scope and content, involving a major shake up in government.

Administrative reforms have this administrative character. Gerald Caiden defined it as the "…artificial inducement of administrative transformation against reforms". Three interrelated properties of reform are: moral purpose, artificial transformation, and resistance. A reform proposal is aimed at improving the status quo: it marks a departure from an existing set up, and opposition to the proposal is assumed. Caiden makes a distinction between reform and change. The change is a self-adjusting organizational response to changing conditions,

while reform becomes necessary to remedy the malfunctioning of the natural administrative process.

3.4 THE CHALLENGES OF GOOD GOVERNANCE

The preliminary condition for good governance is the establishment of the rule of law, which, ultimately, supplants the rule of whims and caprices of those in power. Good governance demands that government must be not only representative, but responsive, as well, to the needs of governed. A strong sense of responsiveness and commitment to serve the governed is required on the part of the government. It emphasises on the effective delivery of services to the satisfaction of the people. It provides moral legitimacy, apart from constitutional validity and credibility to the goals, as well as instrumentalities of government. It comprehends within itself all sections of governance and all sections and regions of society.

The main constituents of the good governance are rule of law; honesty, or probity in public affairs; independence of judiciary and human rights; people's participation; equality of treatment; absence of discrimination on the basis of colour, creed, caste, race, language, sex, region, ability; administrative responsiveness; social sensitivity; ethical approach or conduct; willingness to learn, and an urge to improve, as well as to evolve the capability to anticipate the nature and direction of change; to cope with challenges as they arise, from time to time.

Good governance depends on a range of factors that include administrative capacity, country's stage of development, the external conditions that it faces, and the state of information and technology (I.T) available to it, for taking decisions.

The World Bank has identified a number of challenges to good governance which assume significance for developed and the developing countries. These factors deal with the following political and administrative aspects

- **Political accountability,** including the acceptability of the political system by the people, and regular elections to legitimize the exercise of political power.
- There should be **freedom of associations and participation** by various religious, social, economic and cultural and professional groups in the process of governance.
- An established **legal framework** based on the rule of law and independence of judiciary to protect human rights, secure social justice and safeguards against exploitation and the abuse of power.
- **Bureaucratic accountability,** ensuring a system to monitor and control the performance of government offices and officials, in relation to quality of services, efficiency and misuse of discretionary power. The related determinants include openness and transparency in administration.
- **Freedom of information,** needed for formulation of public policies, decision-making, monitoring and evaluation of good performance.
- A sound administrative system should lead to efficiency and effectiveness. This, in turn, means value for money and **cost effectiveness**.
- Lastly, there is a greater need of **cooperation** among government and civil society organizations.

Some of the challenges of good governance could be as follows:

1) Corruption at various levels
2) Centralisation of power and authority
3) Criminalisation of politics
4) Violations of human rights
5) Weak legislators with criminal records, poor knowledge about development issues and low level of education
6) Poor people's participation in development processes
7) Less active civil society
8) Poorly empowered grassroots democratic institutions
9) Poor coordination among the political, administrative and community level organizations and institutions
10) Delay in delivery of judicial decisions
11) Poor participation of disadvantaged in decision making process.

In this section you read about meaning of good governance, challenges of good governance and attributes of good governance. Now you should be able to answer the questions in order to check your progress 1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What is good governance?

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2) What are the challenges of good governance?

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3.5 IMPORTANT ASPECTS RELATED TO GOOD GOVERNANCE

Two important aspects related to good governance are: (i) corruption and (ii)the right to information.

3.5.1 Corruption

Corruption is defined differently by various exponents. According to David H. Bayley, corruption is "… a general term covering misuse of authority as a result of consideration of personal gains which need not be monetary". As defined by Roberts C. Brooks "Corruption is the intentional misperformance or neglect of a reorganized duty or the unwarranted exercise of power with the motive of gaining some advantage more or less directly personal". J.S.Nye observes, "Corruption is a behaviour which deviates public officials from the normal duties. This includes behaviour such as bribery, nepotism and misappropriation". In short, corruption is the deliberate and intentional exploitation of one's position status or reserves, directly or indirectly, for personal aggrandizement, whether it is in terms of material gain, enhancement of power, prestige, or influence beyond what is legitimate, to the detriment, or, the interest of other persons, or the community, as a whole.

Table 1: The Corruption Perception Index (CPI), 2017

Country	Score	Rank
New Zealand	89	1
Denmark	88	2
Finland	85	3
United States	75	16
Japan	73	20
Bhutan	67	26
China	41	77
India	40	81
Pakistan	32	117

Source: *https://www.transparency.org/research/cpi(accessed on 17/3/2018)*

Since 1995, Transparency International has published an annual Corruption Perceptions Index (CPI) rank ordering the countries of the world according to the degree to which corruption is perceived to exist among public officials and politicians. The organization defines corruption as "the abuse of entrusted power for private gain". The Scandinevian countries rank high in the CPI.

Corruption in India is all pervasive. There are very few activities in the nation that are perceived to be free from this malaise. The Corruption Perception Indices (CPI), Transparency International,2017, India ranks 81 and day by day the situation in India with regard to corruption is improving but not satisfactory. Broadly, corruption in India can be divided into two categories. In the first, is grand larceny, where those in power pocket hundreds of millions in kickbacks in public procurement, and in contracts. The second category consists of what might be called petty corruption where the common man pays for the public services to which they are fully entitled. There is ample evidence to show that corruption has slowed down economic progress and poverty alleviation initiatives in India. It has adversely affected the national security system, too. The most affected by corruption are the poorest and the most vulnerable groups. These groups are denied of their rightful entitlements, as they do not have the resources to pay bribes.

Sources of Corruption

According to Wilson, "men steal when there is lot of money lying around and no one is watching". K Santhanam Committee observes that "corruption can exist only if there is someone to corrupt and capable of corrupting". The Punjab administrative reforms commission has listed the following sources of corruption.

1) Lack of proper education and training of civil servants
2) Low salaries
3) Inadequate and insufficient supervision
4) Political patronage of officials
5) Complicated and dilatory procedures
6) Collection of funds through officials
7) Poor public opinion
8) Unwillingness of people to complain against the corrupt

Given below are some other sources of corruption.

Cumbersome administrative process- This is a major source of corruption. In a third world countries like India, administrative procedures and practices are cumbersome and dilatory. This is added by the negative attitude of the bureaucracy and red-tapism. The files move from one desk to another because everyone wants to avoid the responsibility of taking decision. This results in delays in administrative action, and the anxiety to avoid delays encourages the growth of dishonest practices such as giving speed money to dishonest officials.

Social environment- Social environment is a powerful impact on public administration. Administrative culture is a part of the total culture of the society. In Indian society the ties of family, caste, community, religion and region are still very strong. Public servants are therefore unable to sacrifice their group loyalty for the sake of the nation. This results in corrupt practices like nepotism, favoritism, castism, etc. India is going through the process of modernization. Older values are crumbling and being replaced by materialistic ambitions. The acquisition of wealth by any means has become the chief motive which breeds corruption.

License permit quota Raj: The authority to license and control regulations has earned the government the nickname of 'license, permit, and quota raj'. This condition has provided enough opportunities for corruption, bribery, and affluence through ill-gotten wealth.

Public cynicism: The public itself becomes a source of corruption through its cynicism. The people's acceptance of corruption as a fact of life; and the feeling that those indicted in political or bureaucratic corruption will, invariably, go scot free, and, continue to amass more power, status, and wealth have led to a situation where even the most determined efforts to fight corruption have failed to make a significant impact.

System of governance: The system of governance in India is also responsible for corruption.

Table 2: World Governance Index, 2011

Country	Score	Rank
Norway	0.844	1
Sweden	0.843	2
Finland	0.830	3
United Kingdom	0.750	18
United States	0.720	32
Bhutan	0.600	92
China	0.549	140
Bangladesh	0.541	143
India	0.525	152
Pakistan	0.480	166
Somalia	0.293	179

Source: *http://world-governance.org/IMG/pdf_WGI_short_version_EN_web-3.pdf (accessed on 27/10/2017)*

3.5.2 The Right to Information (RTI) Act

The Right to Information Act (2005) implemented in India, goes a long way in putting together a comprehensive mechanism for citizens to obtain information from the Government, and, thereby, promotes "transparency and accountability in the working of every public authority". This landmark legislation is a radical improvement on the relatively weak and ineffective statute it replaces, the Freedom of Information Act, 2002. The new legislation unequivocally confers on all citizens the right to access information, and, correspondingly, makes the dissemination of such information an obligation for all public authorities. An outstanding feature of the act is the provision for Information Commissions-independent high level bodies at both the Central and State levels that are dedicated to encouraging the citizen's right to know, and enforcing the provisions of the Act. By empowering these Commissions to act as appellate authorities, and by vesting them with the powers of a civil court, these bodies have been given the teeth to discourage public authorities from refusing to part with information.

As the right to information is not explicitly spelt out in the Indian Constitution, the Supreme Court has held, in several cases, that this right is inherent in the right to freedom of speech and expression (Article 19), as well as the right to life and liberty (Article 21). The effectiveness of 'the Right to Information Act' will depend substantially on how prepared the central and state governments are in implementing it, in both letter and spirit. The very fact that it will be in the statute books will send out an important message to all public authorities. The disclosure of information is no longer a transgression, but an obligation. Conversely, its withholding is no longer a virtue, but an offence. With the passage of the bill by the Rajya Sabha on May 12, 2005, India is now among the 55 countries which have legislated comprehensive laws that protect the citizen's right to information. Nine states namely, Delhi, Maharashtra, Tamil Nadu, Rajasthan, Karnataka, Jammu & Kashmir, Assam, Goa, and Madhya Pradesh already have laws on the right to information to show

their commitment for building a dynamic and prosperous society, by involving people in governance and in the decision making process.

Area Covered

The act extends to the whole of India except the state of Jammu and Kashmir.

The Meaning of Information

Information is any material in any form including records, documents, memos, e-mail, opinions, advices, press releases, circulars, order, logbooks, contracts, reports, papers, samples, models, data material held in any electronic form, and information relating to any private body which can be accessed by a public authority under any other law for the time being in force, but does not include 'file notings'.

The right to information includes the right to:

- inspect works, documents and records
- taking notes, extracts, or certified copies of document or records
- take certified samples of material
- obtain information in the form of printouts, diskettes, floppies, tapes, videos, cassettes, or in any other electronic mode, or through printouts.

What are the obligations of public authority?

It shall publish within one hundred and twenty days of the enactment:

- The particular of its organization, functions, and duties
- The powers and duties of its officers and employees
- The procedure followed in its decision making process, including channels of supervision and accountability
- The norms set by it for the discharge of its functions
- The rules, regulations, instruction manuals and records used by its employees for discharging its functions
- A statement of categories of the documents held by it, or under its control
- The particulars of any arrangement that exists for consultation with, or representation by, the members of the public, in relation to the formulation of policy, or, implementation thereof
- A statement of the boards, councils, committees, and other bodies consisting of two or more person constituted by it. Additionally, information as to whether the meetings of these are open to the public, or the minutes are accessible to the public
- A directory of its officers and employees
- The monthly remuneration received by each of its officers and employees, including the system of compensation as provided in its regulations
- The budget allocated to each of its agency, indicating the particulars of all plans, proposed expenditures and reports on disbursements made

- The manner of execution of subsidy programmes, including the amounts allocated and the details and beneficiaries of such programmes
- Particulars of recipients of concessions, permits or, authorizations granted by it
- Details of the information available to citizen for obtaining information, including the working hours of a library or reading room, if maintained for public user
- The names, designations and other particulars and other particulars of the public information officers.

Public information officers (PIOs)

PIOs are officers designated by the public authorities in all administrative units, or officers under it, to provide information to citizens requesting information under the Right to Information Act. Any officers, whose assistance has been sought by the PIO for the proper discharge of his or her duties, shall render all assistance, and, for the purpose of contraventions of the provisions of this Act, such other officer shall be treated as a PIO.

The role of PIOs

- The PIO shall deal with requests from persons seeking information, and where the request cannot be made in writing, to render reasonable assistance to the person to reduce the same in writing.
- If the information requested is held by, or, its subject matter is closely connected with the function of another public authority, the PIO shall transfer, within 5 days, the request to that other public authority, and inform the applicant immediately.
- A PIO may seek the assistance of any other officer for the proper discharge of his, or her, duties.
- A PIO, on receipt of a request, shall, as expeditiously as possible, and in any case, within 30 days of the receipt of a request, either provide the information on payment of such fee as may be prescribed or reject the request for any of the reasons specified in the law.
- Where the information requested concerns the life or liberty of a person, the same shall be provided within 48 hours of the receipt of the request.
- If the PIO fails to give a decision on the request within the period specified, he shall be deemed to have refused the request.
- Where a request has been rejected, the PIO shall communicate to the requester: (i) the reasons for such rejection, (ii) the period within which an appeal against such rejection may be made, and (iii) the particulars of the appellate authority.
- PIO shall provide information in the form in which it is sought, unless it would disproportionately divert the resources of the public authority, or would disproportionately divert the resources of the public authority, or would be detrimental to the safety, or preservation of the record in question.
- If allowing partial access, the PIO shall give a notice to the applicant, informing him, or her:

- That only part of the record requested, after severance of the record containing information which is exempt from disclosure, is being provided;
- The reasons for the decision, including findings on any material question of fact, referring to the material on which those findings were based;
- The name and designation of the person giving the decision;
- The details of the fees calculated by him, or her, and the amount of fee which the applicant is required to deposit;
- His, or her, rights with respect to review of the decision regarding non disclosure of part of the information, the amount of fee charged, or, the form of access provided;
- If the information sought has been supplied by a third party, or, is treated as confidential by that third party, the PIO shall give a written notice to the third party within 5 days from the receipt of the request, and take its representation into consideration; and
- The third party must be given a chance to make a representation before the PIO within 10 days from the date of receipt of such notice.

Information not opens to disclosure:

- Information, the disclosure of which would prejudicially affect the sovereignty and integrity of India, the security, strategic, scientific, or economic interest of the state, relation with foreign state, or lead to incitement of an offence.
- Information, which has been expressly forbidden to be published by any court of law, or tribunal or the disclosure of which may constitute contempt of court.
- Information, the disclosure of which would cause a breach of privilege of Parliament or the State Legislature.
- Information, including commercial confidence, trade secrets, or intellectual property, the disclosure of which would harm the competitive position of the third party, unless the competent authority is satisfied that larger public interest warrants the disclosure of such information.
- Information available to a person in his fiduciary relationship, unless the competent authority is satisfied that the larger public interest warrants the disclosure of such information.
- Information received in confidence from a foreign government.
- Information, the disclosure of which would endanger the life or physical safety of any person or identify the source of information given in confidence for law enforcement or security purposes.
- Information which would impede the process of investigation, or, apprehension, or, prosecution of offenders.
- Cabinet papers including records of deliberations of the Council of Ministers, Secretaries and other offenders.
- Information which relates to personal information, the disclosure of which has no relationship to any public activity or interest, or which would cause unwarranted invasion of the privacy of the individual.

- Notwithstanding any of the exemptions listed above, a public authority may allow access to information, if public interest in disclosure outweighs the harm to protected interest.

Who is excluded?

Central intelligence and security agencies specified in the Second Schedule like IB, R & AW, Directorate of Revenue Intelligence, Central Economic Intelligence Bureau, Directorate of Enforcement, Narcotics Control Bureau, Aviation Research Centre, Special Frontier Force, BSF, CRPF, ITBP, CISF, NSG, Assam Rifles, Special Service Bureau, Special Branch (CID), Andaman and Nicobar, The Crime Branch-CID-CB, Dadar and Nagar Haveli and Special Branch, and the Lakshadweep Police. Agencies specified by the state governments through a notification will also be excluded. The exclusion, however, is not absolute and these organizations have an obligation to provide information pertaining to allegations of corruption and human rights violations. Further, information relating to allegation of human rights violations could be given but only with approval of the Central or State Information Commission.

Application procedure for requesting information

Apply in writing, or through electronic means, to the public information officer in English, or, Hindi, or, in the official language of the area. Applications must specify the particulars of the information sought, and payment fees as may be prescribed (if the applicant does not belong to the below poverty line category). The reasons for seeking information are not required.

Time limit to obtain the information

- 30 days from the day of the application
- 48 hours for the information concerning the life, or, liberty of a person
- if the interests of a third party are involved, then the time limit will be 40 days (maximum period plus time given to the party to make representation)
- failure to provide information within the specified period is a deemed refusal.

Fee structure

Application fees must be reasonable. If further fees are required, then the same must be intimated in writing with a calculation of details of how the figure was arrived at. An applicant can seek a review of the decision on fees charged by the PIO by applying to the appropriate Appellate Authority. No fees will be charged from people living below the poverty line.

Applicants must be provided with information free of cost if the PIO fails to comply within the prescribed time limit.

Appointment of Chief Information Commissioner/Information Commissioner (CIC/IC)

Candidates for the position of CIC/IC must be persons of eminence in public life with wide knowledge and experience in law, science and technology, social science, management, journalism, mass media, or administration and governance. The CIC/IC shall not be a Member of Parliament, or Member of a State Legislature, or Union Territory. He shall not hold any other office of profit, or be connected with any political party, or be carrying on any business, or

pursuing any profession. The Appointment Committee includes the Prime Minister (Chair), the Leader of Opposition in the Lok Sabha, and one Union Cabinet Minister, to be nominated by the Prime Minister.

Power to order inquiry: The Chief Information Commissioner/State Information Commissioner will have powers of civil court such as:

- Summoning and enforcing attendance of persons, compelling them to give oral, or written evidence on oath, and, to produce documents, or things;
- Requiring the discovery and inspection of documents;
- Receiving evidence on affidavit;
- Requisitioning public records, or, copies from any court or office;
- Issuing summons for the examination of witnesses, or documents;
- Any other matter, which may be prescribed.

All records covered by this law, including those covered by exemptions, must be given to the Chief Information Commissioner/State Information Commissioner during inquiry for examination.

The power to secure compliance of its decisions from the public authority includes:

- Providing access to information in a particular form;
- Directing the public authority to appoint a PIO/APIO where none exists;
- Publishing information or categories of information;
- Making necessary changes to the practices relating to management, maintenance and destruction of records;
- Enhancing training provision for official of RTI;
- Seeking an annual report from the public authority on compliance with this law;
- Require it to compensate for any loss, or other detriment suffered by the applicant;
- Impose penalties under this law ;or
- Reject the application.

We conclude by suggesting that for the proper implementation of RTI, we should develop educational programmes for the public, especially for disadvantaged communities. Encourage Public Authorities should participate in the development and organization of such programmes. They need to promote timely dissemination of accurate information to the public; train officers and develop training materials; compile and disseminate a users guide for the public in respective official languages; publish names, designations, postal addresses, and contact details of PIOs, and other information, such as notices regarding fees to be paid, remedies available in law if requests are rejected, etc.

Till this point you read the important aspects related to good governance like corruption, sources of corruption and Right to Information Act. Now, you should be able to answer the questions in order to check your progress.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Define corruption and discuss Corruption Perception Index (CPI).

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2) What is Right to Information (RTI)?

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3.6 LET US SUM UP

In this unit we have discussed the concept of good governance, and its meaning, in the first section. Next, we looked at different challenges coming in the way of achieving good governance. In the following section we discussed various attributes to good governance. In the second part, corruption and different sources of corruption have been discussed in detail. Last, in detail, we discussed the Right to Information ACT, and its aspects.

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3.8 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress 1

1) What is Good Governance?

Answer. Good governance means governing by the rule of law with equality before law, and equal protection under law. To ensure the people's welfare, which is the objective of good governance, there must be properly guided public servants or bureaucracy. Thus good governance refers happiness and welfare of all through limited government, rule of law, properly guided bureaucracy, disciplined rulers, fixed salaries, maintenance of law and order, curbing corruption and uniformity in administration.

2) What are the challenges of good governance?

Answer. The World Bank has identified the challenges of good governance, which are important to both developed and developing countries. The challenges are: 1) Political accountability, including the acceptability of the political system by the people, and regular elections to legitimize the exercise of political power; 2) Freedom of association and participation by various religious, social, economic, cultural, and professional groups in the process of governance; 3) An established legal framework to protect human rights, secure social justice, and guard against exploitation and abuse of power; 4) Bureaucratic accountability for quality of services, efficiency, and misuse of discretionary power; 5) Freedom of information; 6) A sound administrative system leading to efficiency and effectiveness, which, in turn, means value for money, and cost effectiveness; and 7) cooperation among the government and civil society organizations.

Check Your Progress 2

1) Define corruption and discuss Corruption Perception Index.

Answer. David H. Bayley viewed the corruption as misuse of authority as a result of consideration of personal gains which need not be monetary. Similarly, The CPI focuses on corruption in the public sector and used in compiling the information bribery of public officials, kickbacks in public procurement, embezzlement of public funds based on people's perception. Since 1995, the Transparency International published Corruption Perceptions Index ranks countries in terms of the degree to which corruption is perceived to exist. It is a composite index, a poll of polls, drawing on corruption-related data from expert and business surveys carried out by a variety of independent and reputable institutions. The CPI reflects views from around the world, including those of experts who are living in the countries evaluated.

2) What is Right to Information (RTI)?

Answer. Transparency of public offices is one important component of good governance of any society. In this process the Right to Information Act (2005) is a land mark legislation and radical improvement initiated by civil society and enacted by Indian Parliament. It is a comprehensive mechanism for citizens to obtain information from the Government, and, thereby, promotes "transparency and accountability in the working of every public authority". The new legislation unequivocally confers on all citizens the right to access information, and, correspondingly, makes the dissemination of such information an obligation for all public authorities. (for detail see the section- 3.5.2)

UNIT 4 E-GOVERNANCE AND DEVELOPMENT

Structure

4.1 Introduction
4.2 Meaning and Concept of e-Governance
4.3 Need and Importance of e-Governance in Development
4.4 Initiatives of e-Governance: International Experiences
4.5 Initiatives of e-Governance: National Experiences
4.6 Cases in Rural e-Governance in India
4.7 Challenges in e-Governance
4.8 Let Us Sum Up
4.9 Key Words
4.10 Notes
4.11 References and Suggested Readings
4.12 Check Your Progress – Possible Answers

4.1 INTRODUCTION

Government is one of the actors in governance, and the other actors involved in governance vary depending on the level of government that is under discussion. In rural areas, for example, other actors may include influential land lords, associations of peasant farmers, cooperatives, NGOs, research institutes, religious leaders, finance institutions, political parties, the military etc. The situation in urban areas is much more complex as the interconnections between actors involved in urban governance are more diversified. However, the use of Information and Communication Technologies (ICTs) over the last few decades has brought sea change in the decision making processes of the government machinery. It has traversed a long way and in the present context, it has in fact become a way of life. ICT in its nascent stage remained with researchers and academicians. Later, its usefulness was leveraged for the benefit of the business sector, especially to support the economics of products and services with specific focus on optimization of transaction and coordination costs. Use of ICT in public sectors has now been far more than three decades. Today, prefixing "e" with various processes (business, government, development etc.) has speed up the process of decision making and actions.

The United Nations Development Programme (UNDP) study for Asia acknowledges the difficulty in appreciating the role of technology in achieving development goals, especially in addressing those issues related to poverty reduction, health and primary education. It infers that growth of ICT in Asia has not been a critical factor in progress towards the attainment of development goals. The study has also indicated statistically not significant correlations in the use of ICT and improvements in development goal indicators and strongly argues in favour of the role of ICT in addressing issues related to information asymmetry. In developed countries, development goal indicators are strongly correlated with ICT interventions.

Generally speaking, e-governance or electronic governance in any kind of development activities is the use of information and communication technologies (ICT) in the operation and maintenance of services relating to these activities. ICT helps to introduce a wide range of ways in which government should use the Internet and computer networks for improving collaboration and cooperation between ministries; making government services more transparent, efficient and effective for the public by sharing accurate and up-to-date information and improving people's access to government services; boosting public sector accountability, transparency, efficiency and effectiveness. E-governance can also help streamline activities, cut costs and paperwork and help the city governments make more informed development decisions.

Many countries worldwide have been reforming their governments and public service delivery. They use ICTs as a key way to bring about development. To illustrate, introduction of e-government initiatives is being perceived as a major tool in meeting the challenge that Africa is facing in bringing about city development. In many countries, for a simple transaction such as obtaining a form, a large number of citizens spend most of a day at a local administration office. Too often, they do not know fully about the range of available public services, what they are entitled to, or how the services are delivered. For civil servants, processing the transactions manually is a time-consuming exercise, which introduces human errors and corruption. Information that they collect is kept within particular departments and not shared among ministries and agencies. Decision makers do not have accurate and up-to-date information, analysis and forecasts on their country's socio-economic development, which are critical in making informed decisions based on evidence.

The initiative of the use of information technology (IT) in rural and urban management started in the late nineties, especially after the adoption of the 73rd 74th Constitutional Amendment Act (CAA) in 1994, when rural and urban local bodies (ULBs) became constitutional entities of local governance. Prior to this, local governance was the mandate of the state governments where the panchayats and ULBs were supposed to perform certain functions mandated to them by the state governments. The passage of the 73rd and 74th CAA resulted in the increased role of the panchayats and the ULBs in local governance.

After studying this unit you should be able to:

- Discuss the meaning and concept of e-governance.
- Explain the importance and challenges e-governance.
- Describe various initiatives of e-governance in different development sub-sectors in rural and urban areas with the help of examples/case studies.
- Correlate the various international and national e-governance experiences.

4.2 MEANING AND CONCEPT OF E-GOVERNANCE

While embarking on a discussion on e-governance, it is essential to understand the spheres of *e-government* and *e-governance* systems that exist in the domain of public services. E-government is broadly defined as an effort to transform government services with focus on information based services for citizens. It also aims to provide ICT enabled environment in government departments to

improve public services and in turn support the democratic process. E-government is also categorized to be ICT-enabled transformed government process to develop and deliver high quality seamless and integrated public services, to enable effective constituent relationship management; and to support the economic and social development goals of citizens, business and civil society at local, state, national and international level. E-government is defined as an ICT enabled SMART government system. It is also aimed to interface with various Government systems (G2G), Businesses (G2B), Citizens (G2C) etc. In summary, e-government is all about ICT enabled government institutions/processes and agencies.

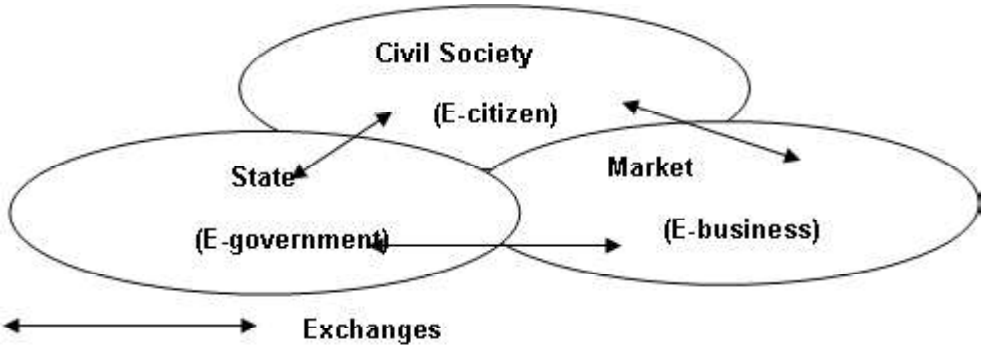

Fig. 4.1: E-Governance Scenario

E-governance is primarily a transformed version of *governance* through ICT intervention. Therefore, it is expected that ICT applications need to maintain the sanctity of governance in all its forms, content and spirit. E-governance gets the support of e-government systems that operate as a back-end service provisioning entity to coordinate and extend support to other agencies working in tandem for reinforcement of public service deliveries. In Fig. 3.1, scenario for e-governance is presented. It may be seen here that e-governance encompasses the rigour of e-government systems, provides the desired structure for networking among market (e-business) and civil society (e-citizen). This relationship indicates that e-governance provides support to the policy makers, decision makers and other stakeholders to achieve the goals set for overall development of society in general. E-governance advocates e-democracy where all interactions among electorate and the elected are performed electronically. There are various e-governance and e-government models and frameworks developed to understand the complexity of the issue, to appreciate the areas of ICT interventions and to make clear the deliverables through the ICT enabled processes.

Key advantages of e-Governance

- Improve service delivery mechanism;
- Enhancing the efficiency in output;
- Emphasizing on wider access to information;
- Better management of accounting and record keeping;
- Promote accountability and transparency.

4.3 NEED AND IMPORTANCE OF E-GOVERNANCE IN DEVELOPMENT

4.3.1 Need for E-Governance

E-Governance which is a short form for electronic governance, also known as digital governance or online governance refers to the use of ICT to provide and improve government services, transactions and interactions with citizens, businesses, and other arms of government. While e-government is often thought of as *online government* or *Internet-based government*, many non-Internet *electronic government* technologies can also be used in this context, like telephone, mobiles, fax, wireless networks and services etc for various management and development activities of the government.

E-Governance has become an essential tool for development by involving the use of IT in:

- Improving transparency;
- Providing information to the citizen speedily;
- Improving administrative efficiency;
- Improving public service such as transportation, power, health, water, security and municipal services.

4.3.2 Importance of e-governance

Urban areas are currently the largest contributors to global energy consumption and climate change. The world's 20 largest cities alone – each with a population exceeding 10 million – are responsible for 75 percent of the planet's energy use. Added to this is the rapid development of metropolitan areas around the globe as well as the need to renew outdated 20th century infrastructures in cities. The scope of ICT in addressing these urban challenges is tremendous.

The further development of the information/knowledge/network society is now a common goal of many authorities round the world. Modern telecommunications can be seen not only as a new way of working but also as a new form of urban management. Delivery and management of urban services can be better done by e-governance. This may be true for property tax collection; vehicle tracking or efficient transport services. The quality and diversity of conventional transportation networks and services are important locational factors for many industries and activities. The ICT and its applications will, over the course of time, come to affect spatial development. Therefore, one may argue that with this in mind, ICT should already now be taken into account in all future spatial planning processes. In the policies and plans for sustainability and eco responsibility in cities, much attention has been directed to three sectors: the built environment, energy, and mobility. At the commencement of the 21st century, it is obvious that a fourth, equally important element must be addressed: ICT.

This era is the start of a dialogue about how cities can create coherent, long term policies and plans to manage the environmental impacts of ICT and utilize ICT strategically to create sustainable 21st century cities. ICT products and systems are a significant and rapidly growing part of the environmental footprint of modern urban life. They are resource intensive in manufacturing and

distribution, consuming ever greater amounts of energy while in use, and producing escalating volumes of solid and toxic waste.

ICT products, systems and networks are the essential drivers of productivity improvements and innovation for the 21st century. They will be the enablers of sustainability solutions in all networks of urban life: buildings, energy production and use, mobility, water and sewage, open spaces, education, and public health and safety. ICT innovation is also the catalyst for changes in personal, work and community life that will be a fundamental requirement for sustainable economic development.

Until now, little attention has been given to measuring the eco footprint of ICT in cities, or to clearly understand its role in enabling other sustainability initiatives. Because ICT systems and products are literally everywhere in modern life, it is difficult to see and understand that each device is part of a whole system globally linked by networks to create, manipulate, store, move and present information for humans and machines. To successfully manage the ICT environmental footprint and realize the benefits for enabling sustainability, a city must have a vision and strategy for ICT that encompasses all organizations and constituencies.

ICT helps develop an innovative combination of advanced technologies that meet the unique needs and vision for each urban area. Some of these technologies include:

- Vehicle tracking/identification systems;
- Dynamic congestion-charging programmes;
- Video communication solutions;
- Integrated transportation management systems;
- Global positioning system (GPS), radio frequency identification (RFID) and other sensor technologies;
- Broadband, wireless and intelligent infrastructures;
- Collaboration technologies in the creation of innovative work environments;

A study about the relationship between the quality of local e-government services and the levels of Internet access in the 12 regions of the United Kingdom reveals that lower quality of local e-government services correlate with low levels of Internet access. In Taiwan, electronic tax-filing systems, the implications of technology acceptance and perceived credibility of the systems are positive factors that influence adoption of e-government services. Whether e-government in the future will be a method for including more citizens in a government or excluding less technologically educated citizens remains a concern. Many information policy issues are likely to present significant challenges to the development of e-government. These are:

- Ensuring ability to use required technologies;
- Educating citizens about the value of e-government;
- Ensuring access to useful information and services;
- Coordinating local, regional and national e-government initiatives;
- Developing methods and performance indicators to assess the services and standards of e-government;
- Providing consistent and reliable electricity, telecommunications, and Internet access;

- Addressing issues of language and communication;
- Preventing e-government from lessening responsiveness of government officials;
- including individuals with disabilities in e-government

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What do you mean by e-governance?

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2) Explain the importance of e-governance and how e- governance has helped urban management across countries with examples.

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4.4 INITIATIVES OF E-GOVERNANCE: INTERNATIONAL EXPERIENCES

The use of ICT tools and examples of e-Governance practices is quite common in some of the developed countries of the world. Some of the success stories and examples from few countries can enhance our understanding on the use of e-governance in various kinds of development activities:

4.4.1 Automated Building Plan Approval: Case of Singapore

Singapore is a key hub in the development of the global information and knowledge economy. Part of the developing e-Business capability in Singapore is the Construction and Real Estate Network project (CORENET). This world's leading initiative has changed the entire perception of building planning in Singapore. Key to the success of CORENET is Automated Code Checking, which allows automated approval of building plans over the Internet. Received data is stored and checked within EXPRESS Data Manager software.

CORENET is a major IT initiative undertaken by the Singapore Ministry of National Development to re-engineer the business processes of the construction industry and achieve a quantum leap in turnaround time, productivity and quality.

CORENET centres on developing IT systems to integrate the four major processes of a building project life cycle, supported by key infrastructures, to provide a *One-Stop Submission Centre* (OSSC) to facilitate electronic submission, processing and approval of building project documents over the Internet.

The specific objectives of CORENET are:

- To speed up the business planning and project evaluation processes in the building industry by making all relevant information readily available to all players in the industry.
- To streamline the design-related processes by having all industry professionals work with one common set of electronic plans instead of separate paper and electronic plans presently used.
- To evaluate the compliance of building design to statutory requirements with minimal intervention and guidance from the regulatory authorities.
- To move towards common procurement procedures and document standards.
- Integrated Building Plan and Building Services System (IBP/IBS).

One of the major projects in CORENET is the IBP/IBS which is an expert system that automatically performs checks on digital plans for compliance with building plan and building services regulatory requirements. The design checking and approval process using the manual approach is time-consuming and inefficient. Automating this process eliminates potential delays as well as avoids inconsistencies in code interpretation.

One-Stop Plan Submission of Building Plans:

It is a virtual submission centre to facilitate round the clock electronic submission and approval of digital building plans. It will be an advanced e-government solution for industry professionals such as architects, structural, mechanical and electrical engineers. Automated compliance checks are performed on the relevant parameters of the proposed building against the building codes and compliance regulations. Payment of fees is electronic. The system saves the industry travelling time to the 13 regulatory agencies and brings about significant manpower and cost savings to both industry and agencies.

4.4.2 Smart Work Centres: Amsterdam

This network of Smart Work Centers (SWC) is part of collaboration between Cisco and the City of Amsterdam under the Connected Urban Development program (CUD), which serves to address modern urban challenges including mobility, climate, energy and sustainable ways of urban management. The Double U Smartwork aims at a one stop shop for location providers, individual users, independent professionals and corporate users, where all SWCs can be booked directly by a central booking tool.

SWCs comprise a regional network of neighbourhood professional work and community centres supporting travel virtualization and enabling mobile working practices. SWCs offer a professional work environment near residential areas to lower energy use and carbon emissions. Estimates revealed that users have saved on an average of 66 minutes of commuting time per day.

An SWC is a physical facility where high quality workplace solutions are offered to professional workers in a neutral, centrally located and easily

accessible environment. To minimize traffic, an SWC is located in the vicinity of roads, traffic junctions, stations and residential areas. Currently, there are several providers of SWC-like facilities in he Netherlands. The Double U Smartwork Foundation serves as a coordinating platform for SWC providers and aims to develop a national network. Users, regardless of where they live or reside, should have access to a good workplace within biking distance. Until recently, existing SWCs were too fragmented and locally focused, therefore, employers operating on national level were not interested in offering their employees an alternative working spot. Double U links a network of over 50 open and SWCs, with the plan to extend to 100 national centres.

Smart Work Centers are well equipped and go beyond providing a workplace. The services and facilities are not only meant to facilitate work itself, but also to provide work related services as day-care and catering facilities.

Anyone can use the facilities offered by one simple online booking system. Through the portal, users can quickly find the nearest location with the right facilities, whether they are on the road or at their workplace. The available providers are automatically displayed.

4.4.3 Energy Efficient City: Madrid

Madrid is one of the first pilot projects carried out in Spain within the Connected Urban Development program (CUD), in which companies and cities partner to contribute to the development of sustainable, efficient and innovative cities through the use of connectivity and new technologies. Promoted by the Municipal Company for Housing and Lands of Madrid; Cisco and technology partner Telvent, have deployed network infrastructure, connectivity and control systems in a pilot, apartment building in the city. The development is intended as temporary housing on a rental basis to young people in Madrid.

The *Energy Efficiency Manager* installed in homes can, at any time and in real time, manage energy consumption, controlling emissions of carbon dioxide and make decisions about the way in which residents make use of energy both at the individual apartment level and throughout the building. In the future, this is intended to extend across the urban community. The solution, which allows consumers to set limits and comparisons of weekly, monthly or yearly consumption, provides to citizens and municipal managers, daily tips to improve efficiency and be more environmentally responsible.

Urban Eco-Map is part of the global Urban Services Platform approach toward which visionary cities and the ICT industry are moving. Urban Eco-Map provides real-time environmental intelligence to enable citizens, communities, cities, countries and businesses alike to make smart ecological decisions and to develop policies that improve the sustainability of cities. Through this comprehensive view of eco-data, we can now take a global *pulse* of the eco-health of our planet.

4.4.4 Urban Eco Map: San Francisco

Urban Eco-Map: A pilot co-developed with the City and County of San Francisco, Urban Eco-Map provides cities with relevant data regarding primary greenhouse gas contributors – transportation, waste and energy – to help city residents take action to reduce their emissions.

4.4.5 Personal Travel Assistant: Seoul

Personal Travel Assistant (PTA): PTA is a Web-based service that allows residents in Seoul and Amsterdam to make on-the-go travel decisions based on time, cost and carbon impact. It offers *virtual assistant* features that provide transit guidance based on user preferences via any Web-enabled device, from any location. (Taken from MEDS-008, Block II, unit 3).

4.5 INITIATIVES OF E-GOVERNANCE: NATIONAL EXPERIENCES

There are few very good examples of innovative initiatives by few government agencies in the use and success of e-Governance practices in some sectors of development. The efficient use of these technologies have helped the people in few sectors, few examples from the Indian states are narrated below:

4.5.1 Computer-Aided Registration of Deeds and Stamp Duties: An initiative of the Andhra Pradesh Government

E-governance has helped the state revenue departments to register properties in less time, store information scientifically and bring about transparency in the system. Such an initiative was taken in Andhra Pradesh in the late eighties, where the Computer-aided Administration of Registration Department (CARD) project has brought about computerized counters at land registration offices throughout Andhra Pradesh. The project aimed at altering the antiquated procedures that had governed the registration system of the state, which included the laborious copying and indexing of documents as well as their unscientific space-consuming preservation in ill-maintained backrooms. The state had a flourishing business of brokers and middlemen who exploited citizens selling or buying property. The CARD project is an attempt to reform this system through the use of IT[1]. With the introduction of CARD, citizens now complete registration formalities within a few hours. The CARD project illustrates some of the key implementation issues the state and national governments may face in their efforts to use IT to improve citizen-government interfaces and serves as a best practice to be replicated by them (J. Satyanarayana, 2002).

The idea of introducing computers originated in 1988 in Andhra Pradesh when a project was initiated to computerize the process of issuing Encumbrance Certificates. A 386 server operating with 14 terminals was set up at a cost of about $31,000 (Rs 1.33 million). Data entry of index registers of the twin cities of Hyderabad and Secunderabad was initiated. The National Informatics Centre (NIC) provided the technical assistance. The entry of 15 years of data went on until 1995 when a pilot scheme for issuing computerized Encumbrance Certificates was launched in one of the city offices. The feasibility of taking up a comprehensive Registration Department computerization project to address other registration formalities and problems was established in a study conducted by J. Satyanarayana[2] in August 1996. The study brought out methods by which the various registration services could be delivered electronically across the counter in an integrated manner and showed a road map as to how the process of valuation could be consigned to the computer and also introduced the concept of electronic document management as an essential part of computerizing the registration process.

Objectives of the CARD Project

CARD is a major IT project designed to eliminate the maladies affecting the system of registration through electronic delivery of all the registration services. It was based on the primary objectives outlined below.

- Demystify the registration process;
- Introduce a transparent system of valuation of properties, easily accessible to citizens;
- Bring in speed, efficiency, consistency and reliability;
- Replace the manual system of copying and filing of documents with a sophisticated document management system that uses imaging technology;
- Replace the manual system of indexing, accounting and reporting;
- Introduce electronic document writing; and
- Substantially improved the citizen interface.

Benefits of CARD

The CARD project aims at providing improved quality of the services at the registration department by providing a computer interface between citizens and government. The tedious procedures that took weeks have been replaced by a system that can be accomplished in just a few minutes. The market value assistance and issuing of the Encumbrance Certificate (EC) takes five minutes each. The sale of stamp papers, document writing and registration of the documents takes ten minutes, thirty minutes and one hour respectively. The positive impact of the CARD project on the efficiency of registration operations can be gauged from the following table:

Table 1: Quantitative Benefits of CARD

Description of registration services	Time taken in manual system	Time taken in Card System
Encumbrance Certificate	1 to 5 days	10 minutes
Valuation of Properties	1 hour	10 minutes
Sale of stamp paper	30 minutes	10 minutes
Document writing	1 day	30 minutes
Registration	1 to 7 days	1 hour
Certified copies of documents (registration under card)	1 to 3 days	10 minutes

Source: *Based on CARD (J. Satyanarayana, 2002)*

4.5.2 KAVERI in Karnataka

KAVERI is another e-governance initiative undertaken by the Government of Karnataka. For the last five decades, the process of registration of documents was done manually and involved the following steps:

- Stamping,
- Presentation,
- Admission of execution,
- Identification by witnesses and
- Registration, as prescribed in Karnataka Stamp Act, 1957 and Registration Act, 1908

Features of KAVERI

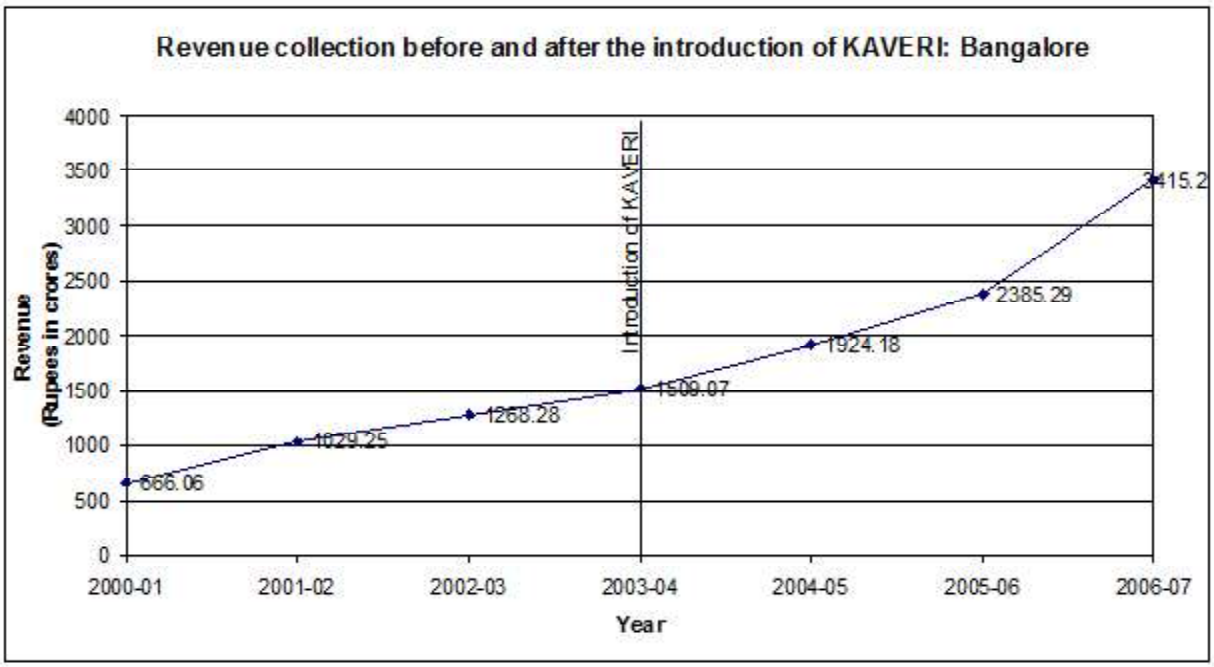
Automated Kiosks with touch screen operation facility were installed in every Sub-Registrar's Office, through which public can have access to the following information in Kannada and English.

- Market value of land in all villages, owns and cities in the state.
- Model formats of commonly used deeds and forms required for Registration of Marriage.
- Model byelaws of Societies and Associations.
- Frequently asked questions and exhaustive answers.
- Fee for Registration of documents/Registration of Societies/Firms/Marriages.
- Acts and Rules bearing on registration of documents.

(Source: Department of Stamps & Registration, Government of Karnataka, 2008)

Under the manual registration process, the documents registered were copied manually in specified books. After that, they were verified with the original documents, and the hand written documents were authenticated by Registering Officers. The registered book would serve as a public document. Since the manual procedure involved writing each document that was to be registered, the time taken for the entire registration procedure was anywhere between two to three months. Moreover, it also meant 2–3 trips to the registration office to check if the document was ready. The solution lay in finding an alternative procedure that would meet the statutory requirements and also speed up the process while preserving the accuracy of the manual procedure. Computerization was the way forward. The Department of Stamps & Registration, Government of Karnataka set up automated registration process in the state in the year 2002. More than 200 Sub-Registrar Offices in Karnataka came under computerization under an outsourced model whereby the vendor could complete the registration process within 30 minutes. The software was aptly called KAVERI, after the river Cavery[3].

After the introduction of KAVERI the department has registered documents and returned the same to the parties concerned within 30 minutes of its presentation. The graph indicates that there was a significant growth in the revenue to the state exchequer after the introduction of KAVERI. In spite of reduction in stamp duty and registration fee there was significant growth in revenue[4]. This was possible due to the elimination of the human interface as the KAVERI system calculates the value of property through automated programme[5].



Source: *http://egyankosh.ac.in/bitstream/123456789/39129/1/Unit-3.pdf(accessed on 20/4/2018)*

4.5.3 E-Suvidha–e-Governance Initiatives of Pimpri Chinchwad Municipal Corporation

The Pimpri Chinchwad Municipal Corporation (PCMC) has introduced an integrated e-Governance Programme to ensure improved transparency to build citizen centric governance. The implementation of e-governance gave new set of responsibilities to PCMC's employees. This project has involved around 11 corporation departments, which are computerized. Citizen Facilitation Centre (CFC) is the most successful project, which provides services to citizens with more than 99% efficiency. Another Innovative project is PCMC@home, which provides services of corporation directly at home through PCMC personnel.

The initiative under E-Suvidha has considerably reduced the hassles faced by the citizens. Citizens take minimum time and cost for availing the civic services. Citizens avail the facility on a mouse click from home or office or any remote location-avoiding visit to Corporation office or division office. Payment of charges and taxes directly online through payment gateway facilities reduces the travelling cost and valuable time. Citizens save about 3–4 hours of time through availing E-Suvidha facilities and in some cases citizens save days by availing the online facilities of the PCMC.

Kiosks set up in different wards, zonal offices and other public places have helped the citizens who are not proficient with net banking and who are not able to avail web based facilities. Visit to Kiosks at the nearest point helps the citizens to avail the facilities, services and payment of different charges, taxes and bills. The web based application helps the citizens to locate their properties for assessment details and for payment of taxes online. The utility mapping has helped the PCMC to monitor the delivery of essential services such as water supply, drainage lines, roads, streetlights, garbage bins, etc. This has increased the overall service delivery improvement to provide services and identify the areas which do not avail these services and utilities.

The following section provides details of the services provided under E-Suvidha initiative:

- **Property and water revenue management:** The property assessment details and water charges are available online, with online payment facility. This has reduced number of visits by the citizens to the corporation office.

- **e-Tendering:** PCMC has initiated the online tendering system for all projects and procurements to be taken up for the development works under its limits. Submission of tenders and documents can be done online.

- **Dashboard for works management:** Dashboard of work management is an integrated web based software for monitoring and tracking the progress of work. This module is also integrated with financial data like budget approved for works, cost incurred and other information, which helps in keeping a track of the projects undertaken by PCMC. Necessary decisions are taken from time to time depending upon the progress of projects and works.

- **Citizens Facilitation Centre (CFC):** PCMC's Citizens Facilitation Centre (CFC) provides 79 different citizen centric services for 12 departments of the Corporation. The CFCs work on single window basis to provide one stop service to the citizens for PCMC. CFCs also provide services of the District Collectorate like caste certificates, domicile certificate, ration card, and also provides value added services of Road Transport Office like issuance of learning licenses and collection of Maharashtra State Electricity Board bills, collection of BSNL bills, collection of insurance premiums and railway ticket booking.

- **SMS-based complaint monitoring system:** To reduce the difficulties of citizens and to send a complaint to PCMC, a SMS based complaint system has been initiated. A citizen can send a complaint by SMS and scrutiny of received complaints takes place through PCMC administration. An SMS as well as an email immediately goes to the related officer for addressing the complaint. This has reduced PCMC's response time considerably.

- **Solid waste management with vehicle tracking** PCMC has also started GPS vehicle tracking system. This GPS system has been integrated with an interface, which will assign waste pick up job and duty management. The system also monitors and registers the auto job picks adherence via geo reference and stop at pick up bin location. Vehicles trip/job report gets generated for number of trips per vehicle per driver and as well as contractor. Pick up adherence report; exception report on missed bins also gets generated for the authority to monitor the collection of solid waste from bins. Tracking report, stoppage, over-speed reports, detention reports etc., are getting generated for continuous monitoring of collection and transportation of vehicles.

- **Geographical Information System:** PCMC has a GIS mapping of 182 sq. km area. This has been done through geo-referencing of the Quick Bird satellite map of 0.6 m resolution map. This mapping has been developed for GISDA by Science and Technology Park (STP) and on terms of integration with various databases and application services. GISDA runs from a centrally located system, which can be accessed through web. GISDA provides core web technology and a GIS platform that is used by all other applications to provide Web-GIS based Citizen Centric Services.

- **Property and water revenue management:** Through this service:
- Citizens can view their bills online;
- Taxes can be paid online from home;
- High level of transparency is achieved;
- Strong MIS and administration control;
- Citizens can pay or use any office of corporation;
- Easy Property Registration for tax assessment;
- Ability to create/copy rate profile for different tax years;
- Property Tax calculations;
- Self-Assessment of Property Tax;
- Provisional Tax and Notice generation.
- **e-Tendering:** This facility helps:
- All the departments publish tenders online;
- Bidders can view/download tenders online;
- Bidders pay fees online;
- Bidders bid online using digital signature;
- Bidding is controlled through parameters like bidding capacity;
- Tenders only opened by Tender committee using digital signatures online;
- Lowest financial bids are published online to all bidders;
- The Bidder registration is one time process;
- Tender-Committee can be defined per tender;
- Department wise Bidder Registration as well as common bidders;
- Bidding Capacity and Tender limits are configurable with Rate Contracts;
- Integration with Accounting;
- Generation of comparative statement;
- Facility to define multiple manufacturers for single item and bidders can bid for multiple manufacturers for single item;
- The comparative statement is generated for all manufacturers;
- The EMD and Tender Fees are auto-calculated based on Tendering Rules;
- Bidders can pay the EMD and Tender Fees online through online payment gateway.
- **Building permission management:** The broad uses of the building permission management system are:
- Creation of new projects for the developed drawings and project attributes;
- The Auto DCR system reads the drawing and extracts the geometrical information of layouts and building plans;
- Single window to get all N.O.C. The application is integrated internally with all departments;
- Integrated with digital signature key – the applicant signs the application digitally and then it is encrypted;

Based on the project attributes the graphical object information is mapped to the relevant development control rules.

- Final detailed rules verification report is produced, indicating passed/ failed status for each rule;
- Reduces the architect's/authority's effort for drawing and calculations;
- Permission status is available online to the applicant;
- Eliminates the human errors and manipulation and produces accurate reports;
- Tremendously reduced the time cycle of approval;
- Alerts on unnecessary delays;
- Standardizes the drawing process;
- Detailed user friendly dynamic reports.
- **Dashboard for Works Management:** This facility offers following services:
- Every work has unique identification number generated by the system to be used for all purposes;
- Budget is loaded in the system;
- The workflow of various stages of the work is configured in the system;
- At every stage the person who is in charge of that work needs to update its status;
- It is linked to e-tendering application;
- The work flows through various stages of approval. Once it is approved and work order is issued the work can be commenced;
- Work in progress can be tracked for its completion, bills raised, payments made and funds allocated.
- **Solid waste management with vehicle tracking:** The system includes benefits like:
- Bin wise service efficiency report;
- Business specific alerts via SMS/email;
- Vehicle being dispatched to trip;
- Vehicle reaching assigned waste bins locations;
- Unloading at land fill site;
- Vehicle stoppage time in various locations and breakdown. (Taken from MEDS 008, Block II, Unit 3)

Activity 1

Visit a near by corporation / municipal office and find out whether e-governance has been introduced in your city/town. If yes, what are the civic services, which are delivered through e-governance?

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Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Taking Pimpri Chinchwad Municipal Corporation as a case study, name various initiatives of e-Governance taken in different development sub-sectors in the city.

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4.6 CASES IN RURAL E-GOVERNANCE IN INDIA

4.6.1 Case-1: Bhoomi: Online Delivery of Land Titles in Karnataka, India

The Department of Revenue in Karnataka has computerized 20 million records of land ownership of 6.7 million farmers in the state. Previously, farmers had to seek out the Village Accountant to get a copy of the Record of Rights, Tenancy and Crops (RTC) – a document needed for many tasks such as obtaining bank loans. There were delays and harassment. Bribes had to be paid. Today, for a fee of Rs.15, a printed copy of the RTC can be obtained online at computerized land record kiosks (*Bhoomi* centres) in 140 taluk offices. In the next phase, all the taluk databases are to be uploaded to a web-enabled central database. RTCs would then be available online at Internet kiosks, which are likely to be set up in rural areas(Taken from MEDS-008, Block II, Unit 4).

4.6.2 Case-2: Gyandoot: Community-Owned Rural Internet Kiosks

In awarding the *Gyandoot* project the Stockholm Challenge IT Award 2000 in the Public Service and Democracy category the jury described it as "a unique government-to-citizen Intranet project ... with numerous benefits to the region, including a people-based self-reliant sustainable strategy. 'Gyandoot' is recognised as a breakthrough in e-government, demonstrating a paradigm shift which gives marginalised tribal citizens their first ever chance to access knowledge, with minimum investment." The project also was awarded the CSI-TCS National Award for Best IT Usage for the year 2000(Taken from MEDS-008, Block II, Unit 4).

4.7.3 Case -3: Gram Sampark

Gram Sampark is a flagship ICT product of the state of Madhya Pradesh. A complete database of the available resources, basic amenities, beneficiaries of government programmes and public grievances in all the 51,000 villages of Madhya Pradesh can be obtained by assessing the website *Gram Sampark*. It has three sections – *gram paridrashya* (village scenario), *samasya nivaran* (grievances

redress) and *gram prahari* (village sentinel). An eleven-point monitoring system has been put in place whereby programmes are monitored village wise every month(Taken from MEDS-008, Block II, Unit 4).

4.6.4 Case – 4: MS Swaminathan Foundation (MSSRF), Chennai

Since 1992, M.S. Swaminathan Research Foundation (MSSRF) has been implementing the Village Resource Centres (VRCs) and Village Knowledge Centres (VKCs). VRCs and VKCs mainly provide need-based locale-specific, demand driven information content (both dynamic and static) based on collection of several secondary data and a well-planned need assessment, organizing training and awareness programmes and making linkages with several leading institutions / organizations for translating the content into field-based applications. In 2003, the VRC and VKC programmes were further strengthened by the creation of the Jamsetji Tata National Virtual Academy (NVA) and Indian Space Research Organization (ISRO)-VRC programme. This programme involves collaboration with several international and national partners for developing content and capacity to embark on sustainable rural development. This programme also leads to identifying and selecting grassroots people who involve rural transformation in the area of sustainable development and awarding the NVA Fellowship. During 2003, M S Swaminathan Research Foundation and many institutions launched a multi stake-holder partnership network called "Mission 2007: Every Village a Knowledge Centre". The purpose of the movement is to know how we will take ICT-enabled development activities to all over India particularly in the rural areas as a consortium mode. Since then every one of this network members will have annual meet and discuss many issues related to content, capacity building, care and management, connectivity, financial sustainability, etc. The mission is referred to as 'Grameen Gyan Abhiyan – Rural Knowledge Movement" since August 2007 (Taken from MEDS-008, Block II, Unit 4).

4.7 CHALLENGES OF E-GOVERNANCE

Some of the challenges of good governance are as follows:

- Securing freedom of information and expression
- Removal of arbitrariness in exercise of authority
- Use of I.T. base services to de-mystify procedures and improve the citizen-government interface.
- Reducing cost of governance
- Eradication of corruption to re-establish credibility of government.
- Establishing legitimacy and credibility of institutions.
- Making every department result oriented.

Recounting its wide experience the World Bank Document narrates the challenges of "good governance". For instance despite technical soundness, programmes and projects have often failed to produce desired results. Laws are not enforced properly and there are often delays in implementation. Privatized production and market led growth do not succeed unless investors face clears rules and institutions. In the absence of proper accounting system budgetary policies cannot be implemented of monitored. Many a time procurement system encourages corruption and distorts public investment priorities. The failure to involve

beneficiaries and others affected in the design and implementation of projects has often led to substantial erosion of their sustainability. Against this background of mal-governance, the World Bank has attempted to focus on some of the key dimensions of 'good governance' such as public sector management, accountability, the legal framework for development and information and transparency as stated earlier.

The World Bank has also identified a number of challenges of good governance, which assumed significance for the developed and the developing countries. These factors deal with political and administrative aspects, which are as follows.

- Political accountability including the acceptability of the political system by the people and regular elections to legitimize the exercise of political power.
- There should be freedom of associations and participation by various religious, social, economic and cultural and professional groups in the process of governance.
- An established legal framework based on the rule of law and independence of judiciary to protect human rights, secure social justice and guard against exploitation and abuse of power.
- Bureaucratic accountability ensuring a system to monitor and control the performance of government offices and officials in relation to quality of services, efficiency and misuse of discretionary power. The related determinants include openness and transparency in administration.
- Freedom of information needed for formulation of public policies, decision-making, monitoring and evaluation of good performance.
- A sound administrative system should lead to efficiency and effectiveness. This in turn means the value for money and cost effectiveness.

Lastly there is a greater need of cooperation among the government and civil society organizations and market forces.

4.8 LET US SUM UP

E- Governance or electronic governance in urban development is the use of information and communication technologies (ICT) in the operation and maintenance of urban services. This initiative of the use of information technology (IT) in urban management started in the late nineties, especially after the adoption of the 73rd and 74th Constitutional Amendment Act (CAA) in 1994, when the Gram Panchayats and Urban Local Bodies (ULBs) became constitutional entities of local governance. Further, the central government launched the programme of Jawaharlal Nehru National Urban Renewal Mission (JNNURM) in 2005 where adoption of reform in e-governance became mandatory for all the 65 Mission cities (all State capitals, all million plus cities and cities of historical interest). The Government of India has launched the National e-Governance Plan (NeGP) with the intent to support the growth of e-governance within the country. The introduction of e-governance has facilitated the state and local governments in the country in successfully delivering urban services to its citizens in a transparent and efficient manner. Although e-governance has been introduced in all the Mission Cities under JNNURM, concerted efforts need to be taken to increase the coverage across

and within cities. Efforts should also be taken to include non-Mission cities under e-governance.

4.9 KEY WORDS

E-governance : E- governance or electronic governance in urban development is the use of information and communication technologies (ICT) in the operation and maintenance of urban services.

JNNURM : Launched in 2005, Jawaharlal Nehru National Urban Renewal Mission (JNNURM) is a central government reform linked programme wherein adoption of reform in e-governance is mandatory for all the 65 Mission cities (all State capitals, all million plus cities and cities of historical interest).

CARD : The CARD is a project aimed at altering the antiquated procedures that had governed the registration system of the state of Andhra Pradesh, which included the laborious copying, and indexing of documents as well as their unscientific space-consuming preservation in ill-maintained backrooms. The state had a flourishing business of brokers and middlemen who exploited citizens selling or buying property. The CARD project is an attempt to reform this system through the use of IT.

KAVERI : The Department of Stamps & Registration, Government of Karnataka set up automated registration process in the state in the year 2002, wherein 202 Sub-Registrar Offices in Karnataka came under computerization whereby the vendor could complete the registration process within 30 minutes. The software was aptly called KAVERI, after the river Cavery.

E-Stamping : To prevent fraudulent practices in stamp paper based transactions and registrations, e-stamping has been introduced in some states where the entire exercise of stamp duty payment and generation of stamp duty certificate takes less than 3 minutes. It offers a secure and reliable stamp duty collection mechanism, and stores information in secured electronic form and builds up a central data repository to facilitate easy verification.

E-Suvidha : Development of an integrated e-Governance programme to ensure improved, transparent and efficient way of building citizen centric governance.

4.10 NOTES

1) The CARD project was funded entirely by the government of Andhra Pradesh. The original outlay was about US$3 million (Rs.130 million).

2) Commissioner & Inspector General of Registration and Stamps C.T. & Excise Complex, M.J. Road, Nampally, Hyderabad

3) Centre for Development of Advanced Computing, Pune (C-DAC) provided the technical support in developing suitable software to cover the following aspects of registration: Registration of properties, Valuation of properties, Scanning and Archival of Documents, Reports, Vendor management system, Utilities, Website, Societies, Firms and Marriage Registration and Data Transmission.

4) The Government of Karnataka reduced the rate of stamp duty on conveyance from 10% to 8% and Registration fee from 2% to 1% with effects from 01-04-2003.

5) This initiative of the department got two e-governance awards from GOI for introducing computerization as best practice.

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4.12 CHECK YOUR PROGRESS – POSSIBLE ANSWERS

Check Your Progress 1

1) E- governance or electronic governance in urban development is the use of information and communication technologies (ICT) in the operation and maintenance of urban services.

2) Two examples of the use of IT in the field of property registration are CARD in Andhra Pradesh and KAVERI in Karnataka. The CARD is a project aimed at altering the antiquated procedures that had governed the registration system of the state of Andhra Pradesh, which included the laborious copying, and indexing of documents as well as their unscientific space-consuming preservation in ill-maintained backrooms.

Check your progress 2

1) Property and water revenue management; e-Tendering; Dashboard for works management; Citizens Facilitation Centre (CFC); SMS-based complaint monitoring system; Solid waste management with vehicle tracking; Geographical Information System; Property and water revenue management; e-Tendering; Building permission management.

MDV 103: ISSUES AND CHALLENGES OF DEVELOPMENT

Block	Unit Nos	Unit Titles
1		**BASIC ISSUES IN DEVELOPMENT**
	1	Population
	2	Poverty
	3	Inequality
	4	Unemployment
2		**SECTORAL ISSUES IN DEVELOPMENT**
	1	Agriculture
	2	Industry
	3	Services
	4	Infrastructure
3		**SOCIAL ISSUES IN DEVELOPMENT**
	1	Education and Development
	2	Health and Development
	3	Gender and Development
4		**EMERGING ISSUES IN DEVELOPMENT**
	1	Energy and Development Nexus
	2	Natural Resource Management and Environment
	3	Sustainable Development
	4	Climate Change
5		**GOVERNANCE**
	1	Governance – An Overview
	2	Participatory and Decentralized Governance
	3	Good Governance: Attributes and Challenges
	4	E-Governance and Development