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INTERMEDIATE
Second Year

ECONOMICS



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Andhra Pradesh

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Second Year Text Book

Economics

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SRI. Y.S. JAGAN MOHAN REDDY



**CHIEF MINISTER
ANDHRA PRADESH**

AMARAVATI

MESSAGE

I congratulate Akademi for starting its activities with printing of Intermediate textbooks from the academic year 2021 – 22.

Education is a real asset which cannot be stolen by anyone and it is the foundation on which children build their future. As the world has become a global village, children will have to compete with the world as they grow up. For this there is every need for good books and good education.

Our government has brought in many changes in the education system and more are to come. The government has been taking care to provide education to the poor and needy through various measures, like developing infrastructure, upgrading the skills of teachers, providing incentives to the children and parents to pursue education. Nutritious mid-day meal and converting Anganwadis into pre-primary schools with English as medium of instruction are the steps taken to initiate children into education from a young age. Besides introducing CBSE syllabus and Telugu as a compulsory subject, the government has taken up numerous innovative programmes.

The revival of the Akademi also took place during the tenure of our government as it was neglected after the State was bifurcated. The Akademi, which was started on August 6, 1968 in the undivided state of Andhra Pradesh, was printing text books, works of popular writers and books for competitive exams and personality development.

Our government has decided to make available all kinds of books required for students and employees through Akademi, with headquarters at Tirupati.

I extend my best wishes to the Akademi and hope it will regain its past glory.

Y.S. Jagan Mohan Reddy

Dr. Nandamuri Lakshmiparvathi

M.A. M.Phil., Ph.D.

Chairperson, (Cabinet Minister Rank)
Telugu and Sanskrit Akademi, A.P.



Message of Chairperson, Telugu and Sanskrit Akademi, A.P.

In accordance with the syllabus developed by the Board of Intermediate, State Council for Higher Education, SCERT etc., we design high quality Text books by recruiting efficient Professors, department heads and faculty members from various Universities and Colleges as writers and editors. We are taking steps to print the required number of these books in a timely manner and distribute through the Akademi's Regional Centers present across the Andhra Pradesh.

In addition to text books, we strive to keep monographs, dictionaries, dialect texts, question banks, contact texts, popular texts, essays, linguistics texts, school level dictionaries, glossaries, etc., updated and printed and made available to students from time to time.

For competitive examinations conducted by the Andhra Pradesh Public Service Commission and for Entrance examinations conducted by various Universities, the contents of the Akademi publications are taken as standard. So, I want all the students and Employees to make use of Akademi books of high standards for their golden future.

Congratulations and best wishes to all of you.



Nandamuri Lakshmiparvathi

Chairperson, Telugu and Sanskrit Akademi, A.P.

J. SYAMALA RAO, I.A.S.,
Principal Secretary to Government



Higher Educational Department
Government of Andhra Pradesh

MESSAGE

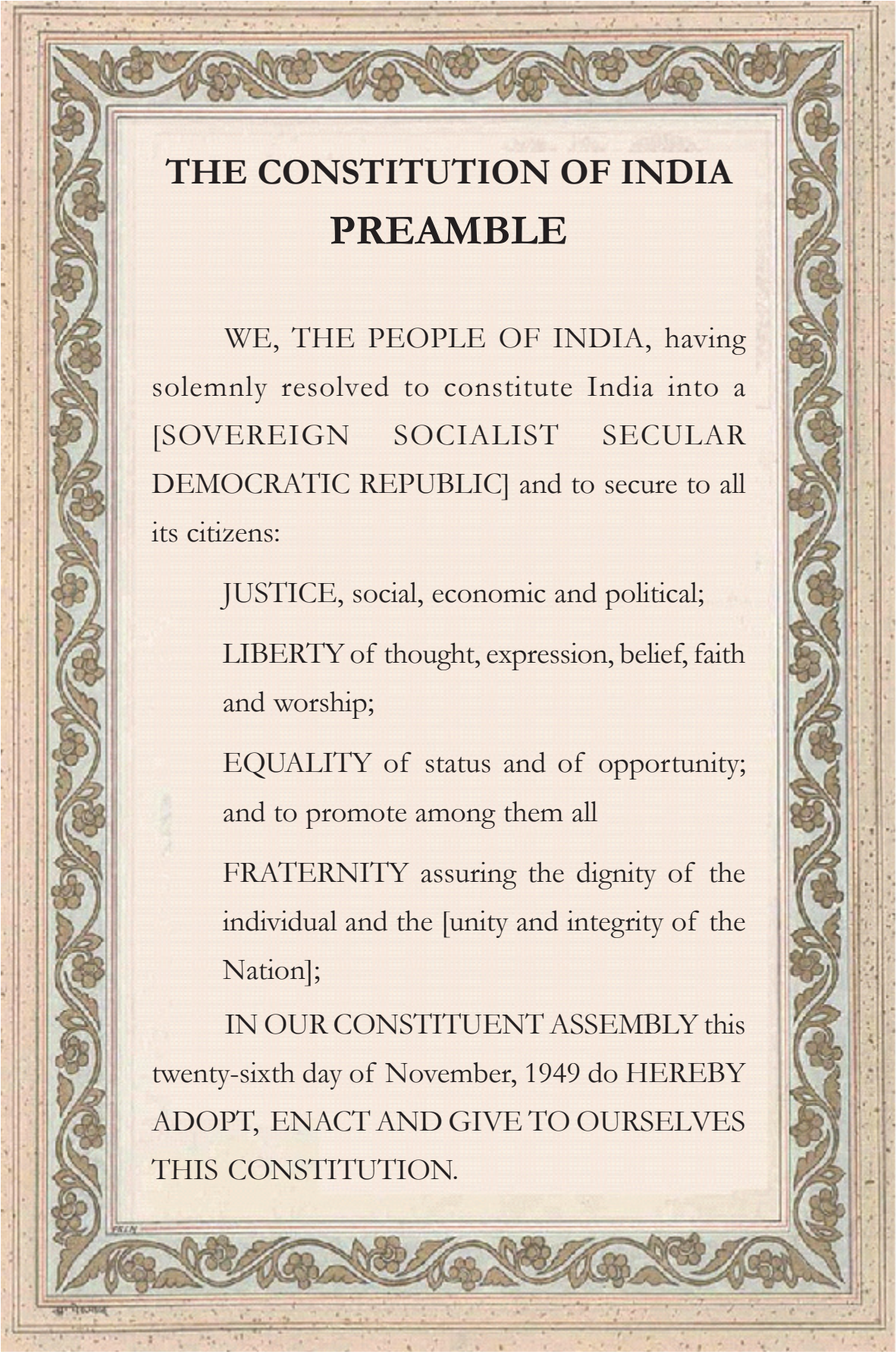
I Congratulate Telugu and Sanskrit Akademi for taking up the initiative of printing and distributing textbooks in both Telugu and English media within a short span of establishing Telugu and Sanskrit Akademi.

Number of students of Andhra Pradesh are competing of National Level for admissions into Medicine and Engineering courses. In order to help these students Telugu and Sanskrit Akademi consultation with NCERT redesigned their Textbooks to suit the requirement of National Level Examinations in a lucid language.

As the content in Telugu and Sanskrit Akademi books is highly informative and authentic, printed in multi-color on high quality paper and will be made available to the students in a time bound manner. I hope all the students in Andhra Pradesh will utilize the Akademi textbooks for better understanding of the subjects to compete of state and national levels.

A handwritten signature in blue ink, appearing to read 'J. Syamala Rao'.

(J. SYAMALA RAO)

The entire page is framed by a decorative border featuring a repeating floral and vine motif in a light blue and gold color scheme. The text is centered within this frame.

THE CONSTITUTION OF INDIA

PREAMBLE

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

JUSTICE, social, economic and political;

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

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

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

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

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Foreword

The role played by the Akademi in stabilizing Telugu Medium at the level of Higher Education since its inception (1968) is well known. The Akademi has rendered needful services by publishing a number of Text Books, Reference Books, Translations, Popular Series, Monographs, Dictionaries, Glossaries, Readings, etc., over the years. Many among the above mentioned books were also reprinted as per the demand. Sincere effort is being made to improve the quality of these books by conducting workshops, refresher courses and also by taking suggestions given by the intellectuals in general and the students and the teachers in particular.

Akademi has been revising and updating its publications in accordance with the prescribed syllabi, as and when necessary. Akademi is publishing Text Books for Intermediate in Telugu Medium since its inception. In addition, the Akademi has entered a new phase of activity with the publication of language books from the year 1995, and preparation and publication of Intermediate Text books in English medium from the year 1998, as entrusted by the Board of Intermediate education.

For the academic year 2014-15, the Board of Intermediate Education has revised the syllabus of all Humanities Text Books for first year of Intermediate and entrusted the preparation, printing and distribution of Text Books to Akademi. Accordingly, Akademi prepared this Text Book strictly in accordance with the prescribed syllabus for the academic year 2014-15.

We are indeed very much grateful to the Government of India, State Government, State Universities, the Board of Governors of Telugu and Sanskrit Akademi. We also thank the Commissioner, Intermediate Education and Secretary, Board of Intermediate Education of Andhra Pradesh. We are also very much grateful to Text Book Development Committee of the subject concerned for their valuable cooperation.

Constructive suggestions are solicited for the improvement of this book. The suggestions received will be examined and incorporated in the subsequent editions.

Sri. V. Ramakrishna I.R.S.

Director

Telugu and Sanskrit Akademi,
Andhra Pradesh

Preface

This text book is meant for 2nd year Intermediate students of economics. The Board of Intermediate Education, Andhra Pradesh, Hyderabad has set to modify the existing Intermediate Second year syllabus in accordance with CBSE, ICSE and NCERT syllabi which will be effective from 2015-16. The purpose of this book is to introduce students to the exciting and challenging subject of Development Economics and understand development problems facing the economies of the developing countries like India.

The present book contains X Units. These Units were written by Dr. B. Guru Bheema Char, (Units-VII, VIII and IX) K.Venkatesulu Naidu(Units-III and V), Dr. K. Umamahesh Patnaik (Units-VI and X), Sri. Atla Srinivasulu (Unit-IV), Sri. Mandha Radhakrishnaiah (Unit-I) and Chekuri Ganapathi Raju (Unit-II). In each Unit, an attempt is made to address the subject matter of development, basic concepts, fundamentals, necessary data regarding economic growth and development, population and human resource development, national income, poverty and unemployment, agriculture, industrial and territory sectors, planning reforms, environment and sustainable economic development Andhra Pradesh economy and to provide basic statistical tools of analysis as a preparatory for further studies. In this book the topics are presented in words, in figures with data wherever necessary and tabular analysis. The writers of this book have been involved in teaching Economics courses at the Intermediate and Undergraduate levels in different parts of the state of Andhra Pradesh.

The students will find this book very lucid, useful and analytical to understand the basic concepts. This book is prepared keeping in mind the level of students at the Intermediate stage. Utmost care has been taken to maintain high academic standards. We are very much thankful to the Commissioner, Secretary and Staff of Board of Intermediate education, Andhra Pradesh, Hyderabad for their help in bringing out this text book. Any suggestions for improvement are welcome.

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CHAPTER

1

ECONOMIC GROWTH AND DEVELOPMENT

- 1.0 Introduction
- 1.1 Economic growth
- 1.2 Economic Development
- 1.3 Differences Between Economic Growth and Development
- 1.4 Classification of the world countries
- 1.5 Indicators of Economic development
- 1.6 Determinants of Economic Development

- 1.7 Characteristic features of Developed Countries
- 1.8 Characteristic features of Developing countries with special reference to India
- Model Questions
- Glossary
- References

1.0 Introduction

The study of Economic development has been attracting the attention of the economists right from the days of Adam Smith. But prior to the Second World War the focus was more on the problems of the Western Countries which were Industrialized and advanced. Afterwards the attention turned to the developing countries. There have been several attempts to analyze the persistent problems of under development and to find solutions for speedy and sustained Economic development. In the process many development theories and models emerged.

Economic development is now recognized as an improvement in the quality of human life, instead of a mere rise in growth rate and per capita income. The developed countries try to increase the growth rate and improve the standard of living in their economies. Whereas developing countries like India, strive to tackle the problems of poverty, unemployment, income inequalities etc., Economic development can improve the productivity and the standard of living. According to the world development report (2013), 18.5 per cent of the world population lives in the developed countries (high income countries) and remaining 81.5 per cent lives in the developing countries (low and middle income countries). In this context **Cairan Cross** described developing countries as “**The Slums of the world Economy**”.

Till **1960s** the terms economic growth and economic development were used synonymously. But Economists like **Hicks** and **Schumpeter** made a distinction between Economic growth and Economic development. In their opinion the concept of economic growth is related to the problems of developed countries where as the concept of economic development deals with the problems of developing countries.

The present chapter deals with the concepts of economic growth and economic development and elaborates the characteristic features of developed and developing countries.

1.1 Economic Growth

The term economic growth refers to the increase in the real output of goods and services in an economy. It is measured as the per cent rate of increase in real GDP. Economic growth occurs when the growth rate of real output is more than the growth rate of population. So all the countries try to increase the output on one hand and reduce the growth rate of population on the other so that the availability of goods and services per capita will increase.

The progress of any economy depends on the following factors

1. The quantity and quality of its labour force.
2. Availability of natural resources
3. The accumulation of capital.
4. The technological change and innovation.

1.2 Economic Development

The meaning of the term economic development is broader than economic growth. Economic development refers to progressive changes in the socio economic structure of a country. It is quantitative as well as qualitative because it includes increase in real national income, real per capita income, economic welfare, human development, institutional and technological changes.

Robert McNamara, former World Bank President had estimated that about **40** per cent of developing world's population did not benefit at all from the economic growth and structural changes during **1950s** and **1960s**. Therefore economists in **1970s** redefined the concept of economic development in terms of economic welfare or in terms of the satisfaction of the basic needs of the people.

1.2.1 Definitions of Economic development

Following definitions give a clear idea of the concept of economic development.

According to **C.P. Kindle Berger** "Economic growth means more output and economic development implies more output and changes in the technological and institutional arrangements by which it is produced".

According to **Prof. G.M. Meier** “Economic development may be defined as a process where by the real per capita income of the country increases over a long period of time”.

According to **Colin Clark** “Economic development is simply an increase in economic welfare”.

According to **Michael P. Todaro** “Economic development is a multidimensional process involving major changes in social structures, popular attitudes and national institutions as well as the acceleration of economic growth, the reduction of inequality and the eradication of absolute poverty”.

According to **United Nations Expert** committee “Development concerns not only man’s material needs but also the improvement of the social conditions of his life. Development is therefore not only economic growth, but growth plus change- Social, cultural, institutional and economic”.

The concept of economic development has the following aspects:

1. Economic development is a dynamic and long term process.
2. It is measured by the real per capita income.
3. It includes growth with structural changes.
4. It ensures equal distribution of income and wealth.
5. It improves the quality of the life of the people, increases employment opportunities and eradicates the poverty.

1.3 Differences between economic growth and development

Table1.1: *Distinction Between Economic Growth and Development*

Economic Growth	Economic Development
<ol style="list-style-type: none"> 1. Economic growth refers to an increase in a country’s real output of goods and services 2. It is a single dimensional phenomenon 3. It is narrow concept. 4. It is mainly related to developed countries Eg. USA, Canada etc. 5. It does not require Governmental intervention. 6. It denotes quantitative changes in the economy. 7. Economic growth does not indicate the distribution of income and wealth in the economy. 8. Economic growth can be compared with the physical growth of a person. 9. It can be measured. 	<ol style="list-style-type: none"> 1. Economic development refers to not only economic growth but also progressive changes in the socio economic structure of a country. 2. It is a multidimensional phenomenon. 3. It is a wider concept. 4. It is generally related to developing countries. Eg: India, China etc. 5. It is not possible to achieve economic development without the intervention of the government. 6. It denotes qualitative changes in the economy. 7. Economic development indicates the distribution of income and wealth in the economy. 8. Economic development is like overall improvement of a person. (Both physical as well as intellectual) 9. It cannot be measured.

1.4 Classification of the world countries

The World Bank has classified the countries of the world according to the GNI per capita. The World Bank publishes the World Development Report every year with a different theme. To understand the classification of the countries, we need to have an idea of the concepts like Gross National Income (GNI) and Purchasing Power Parity (PPP)

1.4.1 Gross National Income (GNI)

Gross National Income (GNI) is the sum of value added by all producers who are residents of a nation, plus any product taxes (minus subsidies) not included in output, plus income received from abroad such as employee compensation and property income. In other words it is the income received by a country both domestically and from overseas.

1.4.2 Purchasing Power Parity (PPP)

Purchasing Power Parity is used worldwide to compare the income levels in different countries. It aims to determine the adjustments needed to be made in exchange rates of two currencies to make them at par with the purchasing power of each other.

The World Bank in its world development report (2014) classified the countries on the basis of Gross National Income (G.N.I) per capita. Countries are divided into

1. Low Income Countries

With G.N.I per capita of **\$1,045** and below

2. Middle Income Countries

With G.N.I per capita ranging between **\$1,046** and **\$12,746**. The middle income countries are again divided into

a. Lower middle income countries

With G.N.I per capita ranging between **\$1,046** and **\$4,125**

b. Upper middle income countries

With G.N.I per capita ranging between **\$4,126** and **\$12,746**.

3. High Income Countries

With G.N.I per capita of **\$12,747** or more.

1.5 Indicators of Economic Development

The economic indicators are the statistics about an economic activity. The economic indicators help to analyse the performance of an economy. Following are some of the indicators of economic development.

- (a) Real National Income
- (b) Real Per capita Income
- (c) Standard of Living

But it has been felt that the above indicators have certain deficiencies and do not reflect the overall change in the economy. The real national income fails to take into consideration the growth of the population in the country which can nullify the development in the economy. The per capita income does not clearly reflect the standard of living because sometimes per capita consumption may be falling even though the per capita income increases. More over it does not consider the nature of income distribution in the economy. So various other indicators like PQLI, MEW, NEW and HDI have been developed over a period of time.

1.5.1 Physical Quality of Life Index (PQLI)

According to **Morris D Morris** PQLI measures the social progress of the community. It covers different indicators like health, education, drinking water, sanitation, nutrition etc. It is calculated on basis of 3 parameters of

1. Life expectancy at age one
2. Infant mortality rate (IMR)
3. Literacy rate

1.5.2 Measure of Economic Welfare (MEW)

William Nordhaus and James Tobin introduced the concept of MEW in addition to GNP as an indicator of economic development. MEW takes national output as a starting point, but adjusts it to include the value of leisure time, amount of unpaid work in an economy and deducts the value of environmental damage caused by industrial production and consumption which change the welfare value of the GNP.

1.5.3 Net Economic Welfare (NEW)

By making some changes to the MEW, **Paul Samuelson** introduced the concept of Net Economic Welfare. It is a measure that attempts to put a value on the cost of pollution, crime, congestion and other negative effects to find a better measure of true national income.

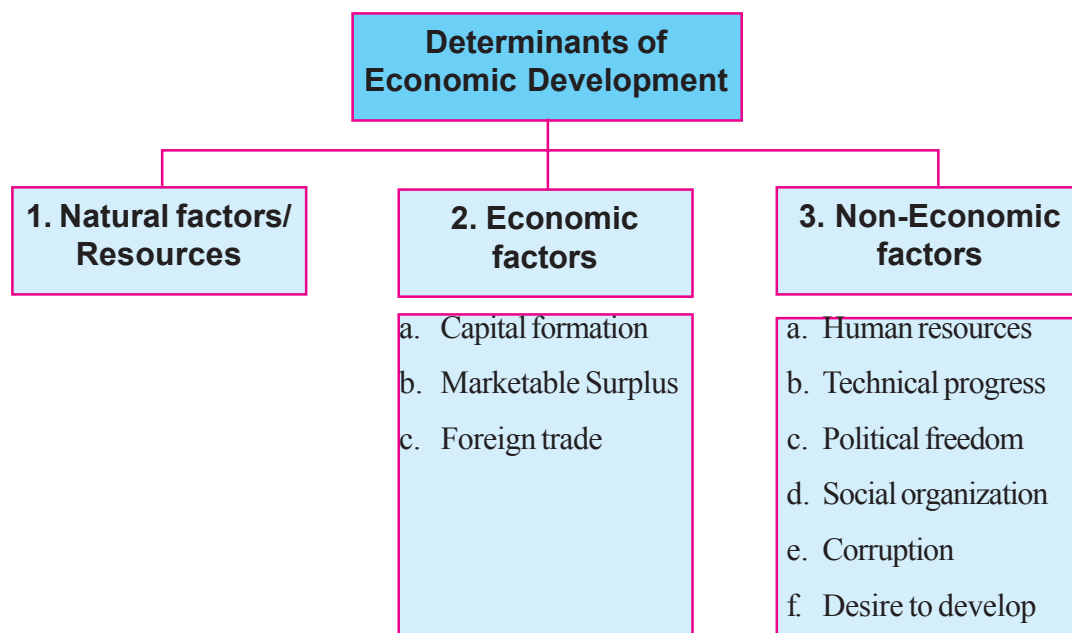
1.5.4 Human Development Index (HDI)

The focus of the economists turned from economic growth to human development. Human development is a process of enhancing the choices of the people and raising their standard of living. From this background a new concept called human development index was introduced by **Mahabub-ul-Haq** in the first Human Development Report of the United Nations Development Programme (UNDP) in 1990. In addition to the earlier concepts like GNI, PCI, MEW, NEW and PQLI, the HDI is being used as a better measure of economic development. It measures the country's overall achievement in its social and economic dimensions. It is a composite index of three dimensions like life expectancy, knowledge and a decent standard of living.

1.6 Determinants of Economic Development

Economic development is a complex process. It is influenced by a number of factors such as natural resources, capital, human resources, technology, social attitude of the people and political condition in the country. All the factors having strong bearing on economic development are divided into 3 categories as shown below.

Fig 1



Let us examine these factors in detail

1. Natural Resources

The development of any country depends on the availability of natural resources. Economists like **Jacob Viner**, **William.J.Baumol** and **W.A.Lewis** gave more importance to the natural resources in a country's development. The progress of agriculture depends on availability of fertile soil,

favourable climate, and abundant supply of water resources. Rapid industrialisation can be achieved with the availability of coal, petroleum and minerals like iron ore, copper, bauxite, tin etc. However the natural resources can make effective contribution to the economic development only when they are properly utilized.

2. Economic Factors:

- a) **Capital Formation:** Capital formation determines the pace of the economic development in a country. The significant role of capital in raising the level of production has been widely accepted. Lack of capital in the developing countries is the main obstacle to achieve economic development. So they have to save more to increase the capital. Development of economic and social infrastructure depends on the availability of capital.
- b) **Marketable Surplus:** Marketable surplus refers to the excess of output in the agriculture sector after the basic needs of the rural people are met. The marketable surplus raises the incomes in the rural areas which in turn stimulates the demand for goods and services. So the development of other sectors in an economy depends on the marketable surplus, particularly in the low income countries.
- c) **Foreign Trade:** Foreign trade helps the countries to increase the production of goods and services through division of Labour and specialisation. It results in the efficient use of the resources. Moreover foreign trade provides the market for goods and services which will expand the output and employment in the economy. Foreign trade facilitates the developing countries to import capital, technology and managerial skills from the developed countries. So **Trade has been described as an engine of growth as it speeds up the process of growth and development.**

3. Non Economic Factors

- a) **Human Resources:** The people in the country are called as human resources. Human resources are an important determinant of economic development because other resources are utilized by the people in the Country. If the labour is efficient and skilled it will contribute more to the development. If a Country fails to use its man power properly, then it's population will become a burden on the economy.
- b) **Technical progress:** Technology plays an important role in the economic development. The use of modern and sophisticated technology enhances the productivity and production in all sectors of the economy. It minimizes the cost of production. All countries need to invest more on Research and Development to improve the technology.
- c) **Political Freedom:** Majority of the developing countries were under the British rule in the past. The British exploited the resources of those countries and made them as a

market for their goods and services. After they got independence all these countries have initiated planning strategy to achieve faster economic development. Hence political freedom is necessary to take strong and independent decisions regarding the development process.

- d) **Social Organisation:** Development process requires the active participation of all sections of people in a country. But in many countries due to lopsided development, masses show apathy towards the development process as they do not get the fruits of development. Experiences suggest that the defective social organization helped the rich to garner the benefits of development. This has led to widespread disparities among the people.
- e) **Corruption:** The rampant corruption at various levels in the developing countries has become a negative factor in the process of development. If the corruption is not rooted out, the capitalists, traders and other powerful economic classes will continue to exploit the resources of the country for their personal interests. The factors like tax evasion, misappropriation of public funds and connivance of the officials are the major hindrances in the way of development.
- f) **Desire to Develop:** The development process in any Country depends on the peoples desire to develop. According to Richard T. Gill “economic development is not a mechanical process. It is a human enterprise. It’s outcome will depend on the skill, quality and attitudes of the people”.

1.7 Characteristic features of Developed countries

Based on certain features like per capita income, standard of living, availability and utilization of resources, technological development etc., the countries of the world are classified into developed countries and developing countries. The Developed countries are also referred to as **high income countries, industrialised countries and advanced countries**. USA, UK, France, Germany, Canada, Japan are some of the developed countries.

According to the World Development Report 2013, the high income economies comprise about 18.50 per cent of the world population and accounted for 68.80 per cent of world GNI. In the same way the developing countries are also termed as **low income countries, under developed countries, backward countries and third world countries**. Eg. India, China, Pakistan etc.

Let us discuss the features of the developed countries

1. High per capita Income.
2. Importance of non-agricultural sectors.
3. Abundance of capital and technology.
4. Low level of unemployment.
5. Better quality of life.

1. High per capita Income

The income per head per year is called per capita income. The main feature of the developed countries is high per capita income. The Table 1.2 indicates the per capita GNI (at market prices of 2012) of some developed countries along with India and China.

Table 1.2

(Fig. in US Dollars)

Country	Exchange Rate Basis	Purchasing power parity Basis
Switzerland	82,730	56,240
U.S.A	50,120	50,610
Japan	47,870	36,290
Germany	44,010	41,890
U.K	38,250	36,880
China	5,740	9,210
India	1,530	3,840

Source: *World Development Indicators – 2013*

It can be noticed from the Table 1.2 that the per capita GNI of developed countries is far higher than the per capita GNI of the developing countries like India and China. In the year **2012** the per capita G.N.I of U.S.A (\$ **50,120**) at official exchange rate was nearly **33** times and at Purchasing Power Parity (\$**50,610**) was 13 times that of India (\$**1,530**). So there are huge differences in the per capita incomes of developed and developing countries.

2. Importance of Non-Agricultural sectors

The developed economies are non agriculture in nature. The Industry and service sectors are well developed in these economies. The contribution of these sectors to income and the employment generation is very high when compared to the agriculture sector. These sectors make use of advanced technology. So the productivity is higher than that of agriculture sector and it becomes the driving force behind the progress of these economies.

Table 1.3: *Population engaged in Agriculture and Share of different sectors to GDP*

Country	Active population Engaged in Agriculture (Percentage)	Contribution to GDP (Percentage)		
		Agriculture	Industry	Services
Year	2011	2012	2012	2012
U.K	1.2	0.7	20.5	78.8
U.S.A	1.6	1.3	21.0	77.7
Japan	3.7	1.2	25.6	73.2
China	36.7	10.1	45.3	44.6
India	51.1	18.0	31.9	50.1

Source: *World Bank, world development Indicators 2014*

It can be observed from the table 1.3 that the developed countries are Industry and Service sector oriented whereas the developing countries still depend on the agriculture sector. In the USA the proportion of people engaged in agriculture sector is just 1.6 per cent and its contribution to GDP is 1.3 per cent. Whereas the corresponding figures for a developing country like India are 51.1 per cent and 18.0 per cent respectively.

3. Abundance of Capital and Technology

The most important feature of developed countries is high rate of capital formation and wide spread use of modern and sophisticated technology. As the developed countries are high income countries, their capacity to save is also very high. The banking system and financial institutions efficiently mobilize the savings. Table 1.4 shows the gross capital formation as a percentage of GDP in developed countries.

Table 1.4: *Gross capital formation as a percentage of GDP*

Country	1990	2012
Japan	33	19.9*
Germany	24	17.2
U.K	20	14.5
U.S.A	18	14.9*
China	35	48.4*
India	24	35.6

Source: *World Bank, World Development Indicators 2013 (*2011)*

Table 1.4 shows that the developed countries are capital abundant. The availability of capital leads to technical progress in these economies. In the above Table there is a decline in the rate of capital formation due to the economic slowdown in these economies which is a temporary phenomenon. The above Table reveals that rate of gross capital formation in India and China is higher than that of developed countries.

4. Low level of unemployment:

There is a clear difference in the nature and magnitude of unemployment between developed and developing countries. The unemployment in the developed countries is caused by the shortage of effective demand. The unemployment in these economies is cyclical and frictional. Whereas developing countries like India experience open and disguised unemployment, which are caused by deficiency of capital. The rate of unemployment is marginal and the skills and mobility of labour are higher in the developed countries.

5. Better Quality of life

A better quality of life is ensured in the developed countries due to the effective social security system, better compliance of pollution standards, availability of safe drinking water, well organized health care system and sanitation. The expenditure on education, research, training, skill formation and health is more in these countries. For Eg. The public expenditure on education and research in USA is more than 6 per cent of its GDP, whereas the developing countries spend around 3 per cent of their GDP. India spent 3.3 per cent of its GDP on education in 2004-05 and it increased to 4 per cent in 2011-12.

The Table 1.5 shows life expectancy, adult literacy rates and HDI ranks of different countries for the year 2013.

Table 1.5

Country	Life Expectancy (years)	Adult literacy (percentage)	H.D.I Rank
Year	2013	2013	2013
Canada	81.1	99.0	8
U.S.A	78.7	99.0	5
Japan	83.6	99.0	17
France	81.7	99.0	20
U.K	80.3	99.0	14
China	73.7	95.1	91
India	65.8	74.04	135

Source: UNDP, *Human Development Report 2014*

It is clear from the table 1.5 that the performance of the developed countries in terms of life expectancy and adult literacy is notable when compared to the developing countries. In the case of human development, the developed countries like Norway, Australia and Switzerland ranked First, Second and Third respectively in 2013 and India stands at 135 out of 187 countries.

1.8 Characteristic Features of Developing Countries with special reference to India

1.8.1 Definitions

According to **United Nations**, “the countries which have real per capita income less than a quarter of the per capita income of the United States are developing economies”.

According to the **Planning Commission of India**. “An under developed economy is characterized by the existence, in greater or lesser degree, of unutilized or underutilised man power on the one hand and of unexploited natural resources on the other”.

On the basis of per capita income, the developing countries are separated from the developed countries. The developing countries have different characteristic features when compared to the developed countries.

1. Low per capita Income
2. Scarcity of Capital
3. Demographic Characteristics
4. Unemployment
5. Predominance of Agriculture
6. High Incidence of poverty
7. Income Inequalities
8. Low Quality of Life
9. Technological Backwardness
10. High Density of population
11. Dual Economy
12. Price Instability

1. Low per capita Income

Low per capita income is the main feature of the developing countries. Table 1.6 represents the per capita GNI of different groups of countries.

Table 1.6: *Per capita G.N.I of various Groups of countries (2011)**(Fig in US Dollars)*

Country/Group	Per capita G.N.I	
	Exchange Rate Basis	P.P.P Basis
Low Income	583	1,387
Lower Middle Income	1,877	3,912
Upper Middle Income	6,987	10,740
High Income	37,594	37,760
China	5,740	9,210
India	1,530	3,840

Source: *World Bank 2013, World Development Indicators (2013)*

It is very clear from the Table 1.6 that there are wide differences among different groups of countries in terms of per capita GNI. The low and middle income countries which are known as developing countries, lag far behind the developed countries when it comes to per capita income. The per capita income of India and China which are considered as fast growing economies is also very less compared to the per capita income of developed countries.

The per capita GNI (Exchange rate basis) of India has increased from \$ 1,070 (2008) to \$1,530 (2011), and on Purchasing Power Parity basis it increased from the \$ 2,960 to \$3,840 in the same period but it still remains in the category of low middle income countries.

2. Scarcity of Capital

The insufficient amount of capital is characteristic feature of the developing countries. They are often called as “capital poor” economies. One indication of capital deficiency is the low amount of capital per head of population. The rate of capital formation which is an important determinant of economic development, is very low in these economies. It ranges between 15 and 20 per cent of their GDP. The rate of savings which stimulates the capital is very low because of low per capita incomes. Moreover the incentives for investment and the institutional arrangements are not effective to raise the levels of saving and investment.

But In recent times the rates of saving and capital formation are high in case of India and China when compared to the developed countries. This is shown in the Table 1.7

Table 1.7: *Gross Capital Formation and Gross Domestic savings as a per cent of G.D.P*

Country	Gross capital Formation	Gross Domestic saving		
		2012	1990	2012
U.S.A	18	14.9 *	16	11.1 *
U.K	20	14.5	18	12.1
Japan	33	19.9 *	34	19.0 *
Germany	24	17.2	24	22.9
China	35	48.4	38	52.5 *
India	24	35.6	23	27.9

Source: *World Bank, World Development Indicators 2013, *2011*

As per the table 1.7 in India the gross domestic saving rate has 23 per cent of GDP in 1990 and it increased to 27.9 per cent in 2012. In the same period the gross capital formation rate was 24 per cent of GDP and it increased to 35.6 per cent. It reflects the pace of development in the Indian economy.

3. Demographic Characteristics

The developing countries are facing the problem of heavy population. Many of these countries have recorded the growth rate of population around 2 per cent. They are successful in reducing the mortality rates by improving the medical facilities but failed to control the birth rates in the same manner. This has led to population explosion. The huge population exerted pressure on the natural resources which resulted in poverty and unemployment. So the standard of living remained at low level.

India is also facing the problem of heavy population. Its population was 1210 million in 2011 and it increased to 1278 million in 2015 which is 17.5 per cent of world population. When we observe the composition of population in india, it can be understood that there is higher dependency on the productive population which is not conducive for the economic development.

4. Unemployment

Wide spread unemployment is one of the serious problems faced by the developing countries. The unemployment in these countries is open and it is several times higher than that of developed countries. The rural urban migration is adding to the problem of open unemployment in the urban areas. As the slow growing industrial sector fails to absorb the increasing labour force the pressure on the agriculture sector increases. This results in the disguised unemployment in the agriculture sector.

In the Indian economy, the unemployment is because of scarcity of capital. It is also facing the problem of open and disguised unemployment. The planning commission estimated that there was a backlog of 37 million unemployed at the beginning of eleventh plan and it was expected that 45 million would add up to the existing unemployed force and the total unemployed would be 82 million by the end of the plan.

5. Predominance of Agriculture

According to **Harvey Leibenstein**, the developing economies are essentially agrarian in their character. About 30 to 70 per cent of the population depends on agriculture in these economies. **J.K. Galbraith** stated that “a purely agricultural country is likely to be unprogressive even in its agriculture”. The agriculture sector in these economies is labour intensive and lags behind in making use of available technology. So the productivity of the agriculture sector is lower in these economies. Moreover the agriculture land is fragmented and subdivided due to heavy population pressure, which leads to small size of land holdings. The incomes of the people in agriculture are low because of little marketable surplus. Its contribution to GDP ranges between 20 and 30 percent.

According to Indian Economic Survey - 2013-14, **54.6** per cent of the working population is engaged in the agriculture sector and it contributes **13.9** per cent of the GDP. The agriculture sector in the Indian economy is primitive and uses obsolete methods of production. Recently the agriculture activity has become uneconomical and majority of the farmers are debt ridden.

6. High Incidence of Poverty

The most important feature of developing countries is the prevalence of mass poverty which means a certain percentage of population is not able to fulfill the basic needs of life. The people in these countries suffer from low levels of income, malnutrition, ill health and illiteracy. At relatively lower levels of per capita income, large income inequalities have resulted in widespread poverty in the developing economies.

India is also facing the problem of poverty. As per the recommendation of Tendulkar committee, the planning commission has updated the poverty line as monthly per capita consumption expenditure (MPCE) of Rs. 673 for rural areas and Rs. 860 for urban areas in 2009-10. Based on this the percentage of population living below the poverty line was 29.8 per cent in 2009-10.

7. Income Inequalities

Another distinguishing characteristic of the developing economies is the disparities in income and wealth enjoyed by the rich and poor sections of the society. Compared to the developed countries, the income inequalities are larger in the developing countries. The situation in India is no different.

Various rounds of surveys conducted by the NSSO corroborates the fact that the inequalities have increased over the years in the Indian economy. According to 68th round of NSSO for the year 2011-12, the monthly per capita consumption expenditure of the poorest 10 percent of the rural population rose by 11.5 percent in 2011-12 compared with the 66th round for the year 2009-10. In the same period, the expenditure of the richest 10 percent of population increased by 38 percent. In urban areas, the growth was 17.2 per cent and 30.2 per cent respectively over the same period.

According to a report by the Organization for Economic Cooperation and Development (OECD) in December 2011, the inequalities in earnings in India have doubled over the past two decades. India's richest 100 had a combined net worth which was almost 17 percent of its GDP of Rs.71,57,412 Crores in 2010-11.

8. Low Quality of Life

The quality of life in the developing countries is very low in comparison with the developed countries. Three basic indices of real income, health and educational attainments are used to measure the quality of life of the people. The people in the developing countries suffer from malnutrition, high levels of pollution, lack of sanitation and safe drinking water. Improving the population's health, education and technical training must be given top priority.

The life expectancy at birth in developing countries is below 65 years whereas it is more than 75 years in the developed countries. In the case of infant mortality rate, it is 61 per thousand live births in the developing countries and 6 in the developed countries. We have already observed that the GNP per capita of developing countries is much lower than that of developed countries.

9. Technological Backwardness

In the developing countries the production techniques are backward due to lack of focus on the research and development. These countries use labour intensive technique because adoption of modern technology requires huge capital which is deficient. Moreover the workers unions oppose the introduction of new technology as there is no social security against unemployment. But it limits their competitive strength in the international market.

Indian economy is also technically backward. Modern and traditional techniques are seen side by side in different sectors of the economy. It has affected the productivity in the economy which is very low compared with the developed economies.

10. High Density of Population

The number of persons living per sq.km is called as density of population. It is very high in the developing countries due to the large size of the population. The density of population of the world was 50 per sq.km in 2011. High density of population puts pressure on the available natural resources

in the given area of land. The density of population in India was 382 per sq.km in 2011 whereas it was 145 in China, 33 in USA, 4 in Canada and 3 in Australia.

11. Dual Economy

Developing economies are characterised by dualism. It refers to that condition of an economy where two sectors (Advanced and backward or modern and traditional sectors) exist side by side. There are different types of dualism. They are (a) Technological Dualism (b) Social Dualism (c) Financial dualism According to **Benjamin Higgins**, in the developing countries technically advanced and primitive sectors exist side by side which is called as technological dualism. In the opinion of **Boeke** the society in the developing countries is split into two parts upper and lower, which is known as social dualism. According to **Myint**, large unorganised financial market and a small organised financial market exist side by side, in the developing countries. This is known as financial dualism.

The modern sector makes use of the advanced technology which increases the productivity and production. On the other hand the traditional sector follows the obsolete methods of production. This causes income inequalities in the society. Therefore technological dualism leads to social dualism. Indian Economy is also characterised by the dualism, the product and factor markets in India are divided with different degrees of imperfection. So the product prices and factor prices are not same for all groups of buyers and sellers. Technological dualism is prevalent in the Indian economy. The industrial sector uses the modern technology and the agriculture sector still follows old methods of production.

12. Price Instability

The price instability is also a basic feature of the developing countries. In almost all developing countries like India there is continuous price instability because of shortage of essential commodities and gap between consumption and production. Rising inflation poses a problem to maintain the standard of living of the common people as their incomes hardly increase regularly.

From the above discussion it is clear that the developing countries have different characteristic features which separate them from the developed countries. Besides the above mentioned factors, the developing countries are also characterised by inadequacy and insufficiency of technical education which is an important factor of economic development. The means of transport and communication are not well developed. Financial and banking system which provides capital for industry and trade is inadequate. Apart from the above, the unfavourable institutional set up and weak political leadership are responsible for their backwardness.

Indian economy is typical example of a developing economy. After Independence, with the implementation of planning strategy the economy has got a clear direction and it is on the right path

of development. The new economic reforms which were introduced in early 1990s have stimulated the economy to record faster growth rate which is some times higher than that of the developed countries.

India is emerging as one of the largest markets in the world. According to World Bank data in 2011, in purchasing power parity terms, India was the third largest economy in 2011 behind America and China and it is estimated that it will occupy the second place by 2050 (only behind China).

Model Questions

I. Write an essay on the following questions

1. Explain the characteristic features of developed countries.
2. India is a developing country –discuss.
3. Explain the features of developing countries with special reference to India.

II Write the answers briefly for the following questions.

1. Differentiate between economic growth and development.
2. Explain the determinants of economic development ?

III Write the answers in one or two sentences.

1. Economic growth
2. Economic development
3. Per capita income
4. Planning commission's definition of a developing country.
5. Human capital
6. World bank's classification of world countries
7. Dual Economy

Glossary

1. **Economic Growth** : Economic growth refers to an increase in a country's real output of goods and services
2. **Economic Development** : Economic development refers to not only economic growth but also progressive changes in the socio economic structure of a country.
3. **Per capita Income** : The income per head per year is called per capita income. It is obtained by dividing the national income with population of the country.

$$\text{Per capita Income} = \frac{\text{National Income}}{\text{Population}}$$
4. **Human Capital** : Expenditure on education, training, skill formation, research and improvement in health is called human capital
5. **Dual Economy** : An economy where both technically advanced and technically primitive sectors exist side by side is called as dual economy.

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CHAPTER

2

POPULATION AND HUMAN RESOURCES DEVELOPMENT

2.0	<i>Introduction</i>	2.4	<i>Occupational distribution of population of India</i>
2.1	<i>Theory of Demographic Transition</i>	2.5	<i>Meaning of Human Resources Development</i>
2.2	<i>World Population</i>	2.6	<i>Role of Education and Health in Economic Development</i>
2.3	<i>Causes of rapid Growth of population in India</i>	2.7	<i>Human Development Index (HDI)</i>
			<i>Model Questions</i>
			<i>Glossary</i>

2.0 Introduction

The study of population and human resource development is very important in the process of economic development. It is particularly important because human beings are not only instrument of production but also end users. India and many other third world countries are now passing through the phase of population explosion.

2.0.1 Population

Population of India means the total number of people living in India. Population is very essential for the growth of country.

2.0.2 Advantages of Population

1. Population provides work force to produce goods and services.
2. Population provides market for the products that are produced.
3. Population promotes innovative ideas.
4. Population promote division of labour and specialisation

2.0.3 Disadvantages of Population

1. Population put pressure on means of subsistence.
2. Population leads to unemployment if there are no adequate jobs.
3. Population put pressure on social overheads like hospitals, schools, roads etc.
4. Population may result in increased consumption and reduced savings and capital formation.
5. Population may increase dependency.

2.1 The Theory of Demographic Transition

This is the latest edition to the literature on population theories. According to the theory of demographic transition a country passes through three stages of population growth.

1. First Stage

According to this stage, the country happens to be a backward and under developed country. It is primarily an agrarian economy with little or no industry. Trade in such an economy is also under developed. This type of economy is characterized by the existence of high birth and death rates. The birth rate is high on account of the peculiar social customs prevalent in society. Social beliefs in such a society favor the existence of larger families. Larger the number of children in a family, larger will be the earnings of that family, because the children instead of being liabilities will be positive assets for the family. Along with the high birth rate, the death rate is also high in such an economy, on account of poor diets, primitive sanitation and almost complete absence of medical facilities. The rate of infant mortality as well as maternal mortality are exceedingly in such an economy. India up to 1921 could be placed in the first stage of population growth.

2. Second Stage

According to this stage, the country becomes a little more developed, economically speaking. As a result of this economic development, there is an appreciable reduction in the death rate. The death rate declines because of the greater and more regular availability of food supplies, greater control over diseases and epidemics, spread of health consciousness and availability of life saving drugs and medicines. Since the death rate declines rapidly while the birth rate continues to be high, there is a very rapid increase in the population of the country. This stage is, Therefore, the stage of population explosion. Whatever is gained as a result of economic development is nullified by the rapid expansion of population. The living standards of the people, Therefore, remain more or less static. Now India is passing through second stage of demographic transition.

3. Third Stage

According to this stage, The country moves to a still higher level of development. There is a general spread of education through the length and breadth of the country. Consequently, People become more enlightened and begin to understand the implications of smaller families. The advantages of smaller families are increasingly realized by the people. Children now become more of liability

and less of an asset. The spread of family education for the results in a change in the attitude of women to unwanted maternity. These changes appear first in the urban areas and higher income groups, but later on spread to smaller towns and lower income groups, and finally to the rural areas. The net result of all these a drastic decline in the birth rate of the country. The death rate having all ready fallen in the second stage, there is now a new equilibrium established between the low birth rate and low death rate. Now all the developed countries are in the stage of demographic transition.

2.1.1 Demographic Trends in India

1. Size of Population

The India's population is growing since 1901 and India's present population is above 121 crores in 2011.

Table 1: Size of Population in India 1901-2011

Year	Population (in crores)
1901	23.83
1951	36.11
1961	43.92
1981	68.33
2001	102.87
2011	121.02

Source: Misra and Puri - Indian Economy Himalaya Publication House Mumbai - 2014.

India's **population rank is second** in the world after China. India has only about 2.4 per cent of the world's area and 1.2 per cent of the world's income but, India accommodates about **17.5 per cent of the world's population. Every Sixth** person in the world is an Indian. The annual addition of India's population is equal to total population of **Australia**. The combined population of U.P and Maharashtra more than the total population of **USA**. Which is third largest populous country in the world.

2. Rate of Growth

Following Table shows the rate of growth of population in India. It shows growth rate of population per decade and per annum.

Table 2: *Growth of population in India Between 1951 and 2011*

Census Year	Decadal Growth (Per cent)	Average Annual Growth Rate (per cent)
1951	13.31	1.25
1961	21.64	1.96
1971	24.80	2.20
1981	24.66	2.22
1991	23.87	2.16
2001	21.54	1.97
2011	17.64	1.64

Source: *Misra and Puri - Indian Economy Himalaya Publication House Mumbai - 2014.*

Since 1921, population has started increasing. In fact, year 1921 is known as ‘**Year of Great Divide**’ for India. From the decade 1971-81 to till date, the growth rate has come down to 1.64percent in 2001-2011.

3. Birth rate and Death rate

Birth rate refers to number of birth per thousand of population. Similarly, death rate refers to number of deaths per thousand of population.

Table 3: *Birth and Death Rate in India during 1951-2012*

Year	Birth Rate	Death Rate
1951	39.9	27.4
1981	33.9	12.5
2001	25.4	8.4
2011	21.8	7.1
2012	21.6	7.0

Source: *Misra and Puri - Indian Economy Himalaya Publication House Mumbai - 2014.*

Over the years, birth rate in Indian has fallen and death rate has also fallen. Among all States, Kerala has lowest birth rate of and Bihar has the highest birth rate. West Bengal and Maharashtra have the lowest death rate. Orissa has highest death rate

4. Density of Population

Density of population refers to the number of persons per square kilometer. It has increased since 1951; in 2001 it was 324 persons per square kilometer, in 2011 it was 382 persons per square kilometer.

Table 4: *Density of population in India between 1951 and 2011*

Year	Density of Population
1951	117
1981	216
2001	325
2011	382

Source: *Misra and Puri - Indian Economy Himalaya Publication House Mumbai - 2014.*

Density of population is not same for all the States. Kerala, West Bengal (880 persons), Bihar (1102 persons), Arunachal Pradesh has the lowest density with 17 persons. Population Density of Delhi is 11297 and Chandigarh with 9252.

5. Sex Ratio

Sex ratio refers to the number of females per 1000 males. The following Table gives sex-ratio since independence. Female sex ratio has been declined. It is a matter of concern.

Table 5: *Sex Ratio during 1951-2011*

Census Year	Sex Ratio (females per 1000 males)
1951	946
1981	934
2001	933
2011	940

Source: *Misra and Puri - Indian Economy Himalaya Publication House Mumbai - 2014.*

Sex ratio is most favorable to women in state of Kerala only. In Kerala ratio of females to males is 1084 as per 2011. Haryana has the lowest female sex ratio of 879 (2011) among states. The alarming rate in some developed states have the lowest sex ratio in the country.

6. Life Expectancy at Birth

Life expectancy refers to the mean expectation of life at birth. The following Table shows life expectancy at birth both for males and females.

Table 6: *Life expectancy at Birth (in years)*

Period	Life Expectancy at Birth
1951	32.1
1981	56
1991	59
2001	63
2011	66

Source: *World Bank Report 2011*

Life expectancy has improved over the years. Life expectancy at birth is highest in Kerala i.e. 71.4 and Madhya Pradesh is the lowest with 58 in 2006. Overall average was 66 years in 2011. This is the most important indicator in Human Development Index (HDI) when compared to most of the developed countries; life expectancy in our country is low. It is expected that female life expectancy is higher than males because biologically females are stronger than males.

7. Literacy Ratio

Literacy ratio refers to number of literates as a percentage of total population. Literacy ratio among males and females is shown below.

Table 7: Literacy Rate from 1951-2011

Census Year	Literate persons	Male	Female
1951	18.33	27.16	8.86
1961	28.30	40.40	15.35
1971	34.45	45.96	21.97
1981	43.57	56.38	29.76
1991	52.21	64.13	39.29
2001	64.83	75.26	63.67
2011	74.04	82.14	65.46

Source: Misra and Puri - Indian Economy Himalaya Publication House Mumbai - 2014.

The highest literacy ratio is 94 per cent in Kerala, about 88.7 per cent in Goa, 82.34 per cent in Maharashtra, 82.80 per cent Himachal Pradesh, 80.09 per cent in Tamil Nadu, 67.68 per cent in UP, 66.11 per cent in Rajasthan and 61.80 per cent in Bihar which is the lowest literacy ratio.

2.2 World Population

It took millions of years for the world population to reach 100 crores mark by around 1830. The world population doubled i.e 200 crores in another 100 years by the year 1930. Then it took just 35 years to add another 100 crores to touch 300 crores around the year 1960. By 1974, i.e in 14 years the population increased to 400 crores and then it took only 13 years to reach the 500 crore mark in 1987. The world population crossed 600 crores in 1999 i.e in 12 years, It was 700 crores by October 31 2011 and now it estimated to be around 7.3 billion. The momentum created by the unprecedented of the last half century, will carry the world population towards the 9th billion(900 crores), Probably with in next 3 to 4 decades by 2050 world population expected to be around 9.20 billion. Around 98 per cent of world population growth will be in developing countries.

Table 8: *World population between 1830-2011*

Year	Population (in Crores)
1830	100
1930	200
1960	300
1974	400
1987	500
1999	600
2011	700

2.2.1 Top 10 populous countries in the world

The below Table shows the list of top 10 populous countries in the world.

Table 9: *Top 10 populous countries in the world*

S. No.	Country	Population (in crores Approx)	Per cent of world Population (Approx)
1	China	134	18.9
2	India	121	17.5
3	United states	31	4.43
4	Indonesia	23	3.53
5	Brazil	19	2.82
6	Pakistan	17	2.62
7	Nigeria	16	2.54
8	Bangladesh	15	2.18
9	Russia	14	2.02
10	Japan	12	1.76

2.3 Causes of the rapid Growth of population in India

Population generally increases because of High birth rate, low death rate and immigration. The birth rate has not declined significantly in India during the last five decades because of a number of economic and social factors.

Causes of high birth rate

I. Economic Factors

- a) **Predominance of Agriculture:** India is predominantly agriculture economy. In an agrarian economy, children are considered assets and not burdens as they help in agricultural fields and also other sectors.
- b) **Slow Urbanization process & Predominance of villages:** The process of urbanization has been slow in this country and it has failed to generate social forces, which usually bring down the birth rate. The social system and family structure of rural life seem to survive transplantation to the town or city quite remarkably. According to sociological studies.
- c) **High incidence of poverty:** There is high incidence of poverty in India. Poor people tend to have large families as they consider every child as earning hand. In a poor country like India children are considered as an asset of generating income.

II. Social Factors

- a) **Compulsory Marriage:** Marriage is both a religious and social necessity in India. Presently in India by the age of 50 only 5 out of 1000 Indian women remains unmarried. More Marriages means more population.
- b) **Early Marriage:** Not only marriages are almost compulsory, they take place at quite young age in India, which provides more time for women to give birth to children.
- c) **Religious beliefs and superstitions:** Most Indians due to their religious and superstitions desire to have more children having no regard to their economic conditions. Every child is considered as “Gift of God”.
- d) **Joint family system:** Joint family system in India also encourages people to have large families.
- e) **Illiteracy:** Lack of education among people especially among women causes people to have irrational attitudes and hence big families.

Control of fall in death rate

- a) **Control over famines:** Famines, Which were wide spread before independence, have not occurred on a large scale since Independence.
- b) **Control over epidemics:** Cholera and small pox often resulted in epidemics before Independence. Now small pox is completely eradicated and cholera is very much under control. Similarly there has been decline in the incidence of malaria and tuberculosis. These have resulted in reducing the death rate.
- c) **Other factors:** other factors which have reduced death rate are:
 - Spread of Literacy and education.
 - Expanded medical facilities and health care awareness.
 - Improved supply of safe drinking water.
 - Improvement in the nutritional level.
 - Improvement in sanitation.
 - Agricultural development in terms of HYVP.

2.3.1 Remedial Measures for Population Explosion

High growth rate of population is one of the problem for the development of the economy. Therefore, it is not something to be welcomed and praised. Hence, an attempt must be made to control population explosion. To deal with the population problem, broadly speaking, threefold measure's are put forward.

1. Economic Measures

The size of population in India is large and it is neither desirable nor possible to reduce it. Under these circumstances, vigorous efforts are needed on the economic front. As a matter of fact, only economic measures can ensure a permanent solution to the problem. But the implementation of economic measures is not an easy task. It takes rather a long time to carry out. The following measures which are being suggested by the economists, to reduce intensity of high growth rate of population.

- **Expansion of the industrial sector:** The family size of the people employed in the industrial sector is smaller than that of the people who are employed in the agricultural sector. In the country side any number of people can work on the family farm, though some of them will hardly make any contribution to the output. Most of the operational holdings in India are not economic and can thus provide only subsistence living. This situation demands that some working force should be transferred from agriculture to industrial sector and service sector. Moreover, higher productivity in the industrial sector

makes industrial workers conscious of their standard of living. They realize that in order to raise their standard of living they must restrict the size of their family.

- **Creation of employment opportunities in urban areas:** Industrial development in the country, will create many other factors which contribute to the growth of urban centers. In order to induce people to migrate from the rural areas to urban areas, the government will have to create job opportunities in urban centers. If this programme is carried out in an effective manner and migration of rural population to urban areas stops in a big way, it may prove to be a powerful check on the growth of population. The housing problem and the cost of upbringing of children in urban areas are two factors which usually deter people from having big families.
- **Equitable Distribution of Income and Removal of poverty:** Poor people have virtually no interest in limiting the size of family. They have little stakes in their lives and are thus unconcerned about their families. While living in poor conditions, they often lose human qualities and at times get alienated even from themselves. Once the poor people get basic needs of life, they will have no economic compulsion to have more children and their attitude towards the size of family will undergo a change. In the change of situation not only will they become conscious of the number of children they should have, But will also undertake every possible effort to make the life of their children as comfortable as they can.

2. Social Measures

Population explosion is as much a social problem as much it is a economic problem many of its causes are deep-rooted in the social life of the country. Literacy, superstitions and orthodoxy contribute to population explosion in the country. In order to bring down the birth rate, which is still very high, all the social evils must be removed.

- **Education:** Contribution of education in bringing down the birth rate is significant. Education often changes the attitude of person towards family, marriage and number of children he should have. Most educated people delay their marriage and prefer to have small family. Education, by making a frontal attack on orthodoxy and superstitions, induces people to family planning. When education is wide spread both boys and girls are sent to schools and colleges this automatically delays marriages and thus automatically reduces reproductive span of women.
- **Improving the status of women:** Although the constitution of India has guaranteed equality between men and women, there is discrimination in social life and position and status of women is inferior to that of men both socially and economically. This is perhaps

the most important reason education is less among women and in its absence, they are quite indifferent to family planning, however the discrimination between the men and women in the society leads to growth in family size. For many people, a son enhances the prestige of family, performs usual religious rites and provides security in old age. These wrong notions are based on false values and are relevant in modern society. But people will not shed their international ideas unless the status of women improves. In backward society women are not generally allowed to exercise their discretion in respect of number of children they should have.

- **Raising the minimum age of marriage:** Since Fertility rate depends to a great extent on the age of women at the time of marriage. so it is necessary that every possible social, legal and educative measures is undertaken to raise it. In India due to various factors, including backward social consciousness, and lack of education, average age of marriage has been very low. Even under the child **marriage restriction ACT 1903** the minimum age was 18 years for men and 15 years for women. In 1978, the child marriage restraint act was amended to raise the marriage to 21 years for men and 18 years for women, National population policy was amended to raise 21 years for men and 25 years for women with a view to restrict the rate of growth of population.

3. The Family Planning Programme

Importance of the family planning programme as a device to control population explosion is now universally recognized. In china, for example, the state approved of one child norm and has thus succeeded in bringing down the birth rate 21.6 per thousand as against 26 per thousand in India in 2012. China's success on this front is wide spread use of contraception. The following aspects of the family planning programme in this country deserve particular mention.

- **Public Information programme:** Under public information programme, couples in the reproductive age are explained the usefulness of family planning. Hence, the government has decided all media of publicity, including cinema, video, television to publicize the importance of family planning.
- **Incentives and Disincentives:** The government has introduced various schemes under which incentives are being given to those who accept family planning. The system of cash prizes has given some inducement to the people to go in for sterilization. Since Family planning is completely voluntary in the country, coercive methods have generally avoided. During the emergency, some excess were committed and forcible sterilizations were done. The Government can take a policy of decision that preference for employment will be given to the people who accept small family norm, Moreover, those who reject family planning may be denied certain facilities.

- **Family Planning Centers:** Establishment of family planning centers is an integral part of any family planning programme. Some attention has been given to this aspect of the programme in India. These centers provide various clinical facilities needed for family planning. In addition to these, clinical centers, a large numbers of contraceptive distribution centers should also be located in both urban and rural areas.
- **Research:** Research in the field of demography, communication action, reproductive biology and fertility control has to be given a high priority in any family planning programme. Generally this aspect is ignored in underdeveloped countries and undue reliance is placed on family planning devices more suitable for developed countries. The Government of India, however, realizes the importance of research to obtain maximum results within the constraints of resources allocated to the family planning programme.

2.3.2 National Population Policy

The national population policy, 2000 has outlined immediate, medium term and long-term objectives. The immediate objective is to meet needs of contraception, health infrastructure, personal health and to provide integrated service for basic reproductive and child health care. The medium term objective is to lower down the total fertility rates to the replacement level by 2010. The long term objective is to achieve a stable population by 2045. In this broad frame work, the national population policy, 2000 aims at the following:

1. Reduce maternal mortality ratio to below 100 per 1 lakh live births.
2. Reduce infant mortality rate to below 30 per one thousand live births.
3. Achieve immunization of children against all vaccine preventable diseases.
4. To achieve 100 per cent deliveries in hospitals and dispensaries.
5. Prevention and control of Communicable diseases.
6. Achieve universal access to information and counseling and services for fertility regularization and contraception with a wide basket of choice.
7. Facilities for safe abortions to be increased.
8. Promote delayed marriage for girls, not earlier than age 18 and preferably after 20 years of age.
9. Promote the small family norm to achieve replacement levels of total fertility rates.

In pursuance of the National Population Policy 2000, a National Commission of population has been set up. The commission will review the implementation of the National Population Policy in due time.

2.4 Occupational Distribution of Population of India

The occupational structure of a country refers to the distribution or division of its population according to the different occupation. We can divide various occupations into three categories.

1) Primary occupations

Primary occupation also called agriculture sector. Agriculture and allied activities it includes forestry, fishing, animal husbandry, poultry farming. Because their products are essential for human existence. They are carried with the help of the nature. In the developing countries, a large portion of the population is engaged in these activities.

2) Secondary Occupations

Secondary occupation also called Industrial sector. It includes mining and quarrying, manufacturing, electricity, gas and water supply, construction etc. This sector is invariably small in the third world countries and absorbs only a small section of the labor force.

3) Tertiary Occupations

Tertiary occupation is also called service sector or third sector. It includes Trade & commerce, transport, storage and communications, banking, insurance, real estate, community services, personal services, education and health. Tertiary activities help primary and secondary activities in the country.

There is a close relationship between the development of economy and changes in occupational distribution of population.

“A high average level of real income per head is always associated with a high proportion of the working population engaged in the tertiary Industries; low real income per head is always associated with a low proportion of the population engaged in tertiary production and a high percentage in primary production”-Colin Clark.

“We may say that in every progressive economy there has been a secondary sector of all kinds to still greater extent into tertiary sector”-A.G.B Fisher.

“When the development of a country takes place, the percentage of population engaged in primary sector shifts to industry and service sector”-Simon Kuznet.

“Economic development can be achieved by transforming an 85 per cent agricultural dependant country into a 15 per cent agriculturally dependent country”-Hans Singer.

Table 10: Occupational Distribution of Working Population in India

Year	Primary Sector	Secondary Sector	Tertiary Sector
1951	72.1	10.7	17.2
1981	71.8	12.2	16.0
2001	56.7	18.2	25.1
2011	48.9	24.3	26.8

Source: Misra and Puri - *Indian Economy Himalaya Publication House Mumbai - 2014..*

2.4.1 Trends in Occupational Structure During 1951-2011

According to above Table reveals that in the 2011 Census, 48.9 per cent of the labor force was employed in the primary sector or agricultural sector. It indicates the predominance of agriculture in the economy. But when we compare the percentage of agricultural labour force in 1951 and 2011, we notice that during the 1950's there was a significant decline in the relative importance of agriculture. The percentage of labor force declined from 72.1 in 1951 to 48.9 in 2011 Census. The Secondary sector in India still remains small inspite of all the attention that heavy industries got under the various plans. In 2011 Secondary sector accounted for 24.3 per cent of the labour as against 10.7 per cent of labour force employed in the manufacturing sector during planning period. The tertiary sector in India accounts for a little more than one-fifth of the labor force.

2.5 Meaning of Human Resources Development

Many statistical investigations carried out in the western countries have shown that output increased at a much higher rate than can be explained by an increase in physical inputs like labour and physical capital. The reason is that the quality of human beings as a productive source has been consistently improving due to improvement in education and skills, availability of health services etc. Therefore, along with physical capital formation, human development has also been playing a vital role in economic development the term Human Resources Development refers to the “process of acquiring an increase in number of persons who have the skills, education and experience which are critical for economic and political development of a country Human Resource Development is thus associated with investment in man and his development as creative and productive resource.

Schultz, argued that investment in education enhances human capital in its wider sense, investment in human capital means expenditure on health, Education training and social services in general of these indicators, Education has received most of the attention it contributes to the Development of Human Resources.

According to Schultz, there are five ways of Developing Human Resources.

1. Health facilities and services, broadly conceived to include all expenditure that effect the life expectancy, strength and stamina, and the vigor and vitality of the people
2. And the job training, including old type apprenticeship organized by firms
3. Formally organized education at elementary, secondary and higher levels
4. Study programs for adults that are not organized by firms, including extension programs notably in agriculture
5. Migration of individuals and families to adjust to changing job opportunities,

2.5.1 Importance of Human Resources Development

Human Resource Development plays an important role in economic development. In fact, effective use of physical capital itself is dependent on human resources. This is due to the reason that if there is under investment in human resources the rate at which additional physical capital can be productively utilized will be limited since technical, professional and administrative people required making effective use of material resources. Modern economists in recent years have pointed out that many Third World countries have remained underdeveloped on account of underdevelopment of human resources. Therefore, large scale investment in human resources are needed if physical capital available in these countries is to be exploited more fully and in a more efficient way. Education and skill training result in human resource development in the following manner.

2.6 Role of Education in Economic development

1. Education and Economic Growth

As noted above, that the investment in education promotes economic growth. According to Todaro and Smith, education contributes to economic growth in the developed and developing countries in the following ways.

- It helps in creating a more productive labor force and endowing it with increased knowledge and skills
- It helps in providing wide spread employment and income earning opportunities when more schools, colleges and universities come into existence.
- It helps in creating a class of educated leaders to fill vacancies left by depending expatriates or otherwise vacant positions in Government services, Public corporations, Private businesses and professions.
- It helps in providing basic skills and encourages modern attitudes in the diverse segments of the population.

2. Education and Reduction in Income Inequalities

Though the linkages between education and economic growth are very much in evidence in both developed and developing countries, those between education and reduction in income inequalities and poverty are difficult to establish. Most of the third world countries have launched up programs of universal education in the hope that they will improve the human capabilities of the poor people and enable them to increase their family earnings. In short, education is seen as a great egalitarian measure which would help in improving the human resources in general on one hand and on the others, It would enable the less privileged and poor classes of people to improve their economic lot.

3. Education and Rural development

Education can contribute significantly to rural development in a variety of ways. By widening the horizons of the knowledge of the rural people it can enable them to overcome ignorance and superstitions. Adoption of new agricultural techniques and new methods of production is rendered easier if the farmers are educated. Education can be oriented as to impart skills and attitudes useful in improving the quality of family life. In labor surplus economies like India, Education can help rural people in acquiring skills to set up cottage industries on their own so that, the disguised unemployed people can be faithfully employed in the villagers themselves.

4. Education and Family Planning

Education helps in modernizing and revolutionizing the way of thinking of the people. it enlightens them of the need to improve their standards of living and for purpose, to restrict the size of their families, therefore, education serves as the best method of their families, Family planning in the long run. Also, as more and more women become literate and seek employment, the fertility rates show a tendency to decline because up bring of children is comparatively difficult task for working women.

5. Other Benefits of Education

In addition to benefits discussed above education confers a number of other benefits in the society. The list would be as follows.

1. The current spillover income gains to persons other than those who have received extra education.
2. The spillover income gains to subsequent generations from a better educated present generation.
3. The supply of convenient mechanism for discovering and cultivating potential talent.
4. The meeting of the skilled man power requirements of growing economy
5. The provision of an environment that stimulates research in science and technology.
6. The tendency encourages lawful behavior and promotes voluntary responsibility for welfare activities.

7. The tendency to foster political stability by developing an informed electorate and competent political leadership.
8. The supply of certain measures of ‘**social control**’ by the transmission of a common cultural heritage.
9. The enhancement of the enjoyment of leisure by widening the intellectual horizons of both the educated and the uneducated.

6. Role of on-the-job-training

Productivity of physical capital is sustainability enhanced if an improvement in human capital is affected. It is on account of this reason that many firms in India provide on their job training to their workers. Such training increases the skill and efficiency of the workers and leads to an increase in production and productivity.

7. Education in India

In India, expenditure on education is not considered as an investment in human resources. Now public expenditure on education is most inadequate. Among 106 countries for which the relevant data are available India ranks as low as 86 in terms of proportion of the public expenditure on education to GDP. Recognizing the importance of education, public expenditure on education was increased considerably during the 11th plan. It is 4 per cent of GDP in 2011-12 about 43 per cent of the public expenditure on education was incurred for elementary education, 25 per cent for secondary education and balance 32 per cent for higher education.

The indicative 12th 5 year plan gross budgetary support for ministry of human resource development is rupees 4,53,728 crore of which rupees 3,43,028 crore is for department of school and secondary education and rupees 1,10,700 crore is for department of higher education. Under various plans education facilities have expanded at all levels in India and as a result and not only the literacy rate has risen but the percentage of children availing school education has also increased over the years. At present this country has abundant facilities for higher and technical education.

Sarva Shiksha Abhiyan (SSA)

Sarva Shiksha Abhiyan has been introduced during 2001-2002. With an aim to provide universal elementary education for all children in the 6-14 age group by 2010. Besides, the SSA intends to bridge social, regional and gender gaps, with the active participation of the community in the management of school. National program for education girls at elementary level (NPEGEL) is an important component of SSA. This program concentrates on education of girl child. Another important component of SSA is the education Guarantee Scheme+ Alternative and Innovative Education (**EGS + AIE**).

India has one of the largest education system in the world. 84per cent of rural habitation now has a primary school with in a distance of 1 km. the national policy on education (**NPE**) was made in 1986 and further modified in 1992. It emphasizes 3 aspects in respect of elementary education. NPE had set a goal of expenditure on education at 6per cent of the GDP and actual was 4per cent in 2011-12. Gross Enrolment Ratio (**GER**) has increased progressively from 32.1 in 1950-51 to 115 in 2011. The Sarva Shiksha Abhiyan (**SSA**) was launched in 2001-02.

2.6.1 Role of Health in Economic Development

Efficiency of workers depends on their health. Workers whose health is not good and who fall sick quite often cannot do their job efficiently and thus their efficiency is bound to remain low and improvement in the health of the workers automatically raises the national output. World development 1993 stated “improved health contributes economic growth in favor of ways:

- It reduces production losses caused by worker illness
- It permits the use of natural resources that had been totally or nearly inaccessible because of diseases
- It increases the enrolment of the children in schools and makes them better to learn, and it frees for alternative uses of resources that would otherwise have to be spent on treating illness
- The economic gains are relatively greater for poor people who are typically most handicapped by ill health and who stands to gain the most from the development of underutilized natural resources

Two things are necessary for good health.

1. Balanced and nutritional food
2. Medical care

Health Goals set by 12th plan 2016-2017

- 1) Reducing Maternal Mortality Rate (MMR) to 75 per 100000 live births.
- 2) Reducing Infant Mortality Rate (IMR) to 19 per 1000 live births.
- 3) Reducing Total Fertility Rate (TFR) to 2.1.
- 4) Providing safe drinking water to all.
- 5) Prevention & reduction of underweight children in under 3 years is expected to be 29per cent by 2015 and 27per cent by 2017.
- 6) Reducing anemia among women and girls by 28 per cent
- 7) Raising sex ratio of age 0-6 years from 914 to 935.

Six decades of hard work has resulted in considerable achievements in improving health standards in terms of life expectancy. Infant mortality rate and maternal mortality rate, small pox and plague have been eliminated and several other diseases like malaria, tuberculosis (TB), and diarrhea have been controlled to a large extent.

There has been fall in the incidence of certain diseases like T.B, leprosy and

polio. But a rise in the incidence of certain diseases like AIDS, blindness, cancer. These require immediate attention, care and action. There are certain weakness of Indian health care which need immediate attention. These relate to:

1. Unequal distribution of existing health institutions and manpower.
2. Mismatch between personnel and infrastructure.
3. Lack of an appropriate referral system.

2.6.2 Health Schemes in India

1. National Rural Health Mission (NRHM) was started in 2005 to provide accessible, affordable, and quality health services to rural areas. In the rural areas the government extended National Rural Health Mission (NRHM) to towns as National Urban Health Mission (NUHM) in 2013. By combining NRHM and NUHM Government renamed it as National Health Mission (NHM).
2. Accredited Social Health Activists (ASHAs) have been selected and trained in health care for various villages.
3. Janani Suraksha Yojana (JSY) was started to bring down Maternal Mortality Rate (MMR), According to this scheme nearly 3.5 crore women have been covered.
4. Pradhan Mantri Swasthya Yojana (PMSY) has been launched with the objectives of correcting regional imbalances in the availability of reliable health care services in the country.
5. Rogi Kalyan Samitis
6. Village Health and Sanitation Committees
7. Mobile Medical Units
8. Ayurveda Yunani Siddha Homeo (AYUSH) services.
9. Janani Sishu Suraksha Karyakramam (JSSK) was launched for mother and child care.

The 12th plan main aim is Universal Health Coverage (UHC) for all in the country. UHC broadly means ensuring equitable access to affordable and quality health services to all the people in India, Regardless of Income level, Social status, Gender, Caste or Religion.

2.7 Human Development Index

In recent years the search for an alternative to GNP as a measure of economic development has led to computation of the Human Development Index (HDI). The United Nations Development Programme (UNDP) introduced the HDI in its first Human Development Report prepared under the able stewardship of Mohbub UI Haq, and published in 1990. The measure has been enlarged and refined over the years and many related indices of human development like Gender Related

Development Index (GDI), Gender Empowerment Measure (GEM) and Human Poverty Index (HPI), Gender Inequality Index (GII), Multidimensional Poverty Index (MPI) have been developed in subsequent Human development Reports published annually by UNDP.

1. A longevity of life is measured in terms of life expectancy at birth.
2. Knowledge is measured in terms of education.
3. A standard of living is measured in terms of GDP per capita (PPP US\$)

Human Development Index measures the average achievement in three basic dimensions of human development.

Before calculating HDI, an index for each of three dimensions is calculated. For this purpose, maximum and minimum values are chosen for each indicator.

Table 11: Maximum and Minimum values for calculation of HDI

Indicator	Maximum Value	Minimum Value
1. Life expectancy at birth	83.6 years	20 years
2. Adult Literacy Rate	100	0
3. Gross enrolment ratio	100	0
4. GDP percapita (PPPUSD)	87478	100

Performance in each dimension is expressed as a value between 0 and 1 by applying the following formula.

$$\text{Human Development Index} = \frac{\text{Actual Value} - \text{Minimum Value}}{\text{Maximum Value} - \text{Minimum Value}}$$

Human Development Report 2014 has classified the selected countries into four categories.

- 1) Countries with the HDI value of 0.8 and above are grouped as the Very High Human Development Countries.
- 2) Countries with the HDI value ranging from 0.7 to 0.8 are grouped as High Human Development Countries
- 3) Countries with the HDI value ranging from 0.5 to 0.7 are grouped as Medium Human Development Countries and
- 4) Countries with the HDI value of less than 0.5 are in the Low Human Development Countries.

India has improved its HDI index from 0.42 in 1980 to 0.554 in 2012.

India was ranked among 177 countries improved from 138 in 1994 to 128 in 2005, but now it has declined to 132 in 2007, 134 in 2008, 136 among 187 countries in latest 2013 report.

2.7.1 Gender Related Development Index

HDI measures average achievement and the GDI adjusts the average achievement to reflect the inequalities between men and women. The three components used for the purpose are:

1. Female life expectancy
2. Female adult literacy and gross enrolment ratio and
3. Female percapita income.

If gender inequality did not exist, the value of GDI and HDI would be the same, but if the gender inequality exists, the value of GDI would be lower than that of HDI. The greater the difference between HDI and GDI, the more is the inequality. It may be noted that near gender equality exists in Norway, Canada, America, Britain, Japan. Countries which indicate gender inequality are Saudi Arabia, Pakistan, Iran, India, Egypt and Nigeria.

However, there is greater awareness in the world about gender inequality and efforts are being made to reduce gender inequality by promoting the education of women and giving them a better status in the family. Some countries are lagging behind due to cultural bias against women. However, women movements are promoting the causes of bringing about gender equality in them also.

2.7.2 Gender Empowerment Measure (GEM)

The Gender Empowerment measure was also introduced by the Human Development Report 1995. The GEM indicates whether women are able to actively participate in economic and political life, it focuses on participation, measuring gender inequality in key areas of economic and political participation and decision making. It, thus, differs from the GDI which is an indicator of gender inequality is basic capabilities. GEM for 75 countries. The top four rankings are occupied by the Nordic countries in the order- Norway, Sweden, Iceland and Denmark. These countries are not only good at strengthening the basic capabilities of woman, but they have also opened many opportunities to participate economic and political fields. There are three components, which are used for measuring GEM.

1. Participation of women in economic and political activities.
2. Gender inequality in economic and political participation and
3. Female empowerment.

2.7.3 Human Poverty Index (HPI)

The **Human Poverty Index (HPI)** was an indication of the standard of living in a country, developed by the United Nations (UN) to complement the Human Development Index (HDI) and was first reported as part of the Human Development Report in 1997. It was considered to better reflect the extent of deprivation in developed countries compared to the HDI. In 2010 it was supplanted by the UN's Multidimensional Poverty Index. The HPI concentrates on the deprivation in the three essential elements of human life already reflected in the HDI: longevity, knowledge and a decent standard of living. The HPI is derived separately for developing countries (HPI-1) and a group of select high-income OECD (Organisation for Economic Co-operation and Development) countries (HPI-2) to better reflect socio-economic differences and also the widely different measures of deprivation in the two groups

2.7.4 Multidimensional Poverty Index (MPI)

The 2010 Report featured a new multidimensional poverty measure that complements income-based poverty assessments by looking at multiple factors at the household level, from basic living standards to access to schooling, clean water and health care. About 1.7 billion people—fully a third of the population in the 104 countries included in the MPI—are estimated to live in multidimensional poverty, more than the estimated 1.3 billion who live on \$1.25 a day or less.

2.7.5 Physical Quality of Life Index (PQLI)

The **Physical Quality of Life Index (PQLI)** is an attempt to measure the quality of life or well-being of a country. The value is the average of three statistics: basic literacy rate, infant mortality, and life expectancy at age one, all equally weighted on a 0 to 100 scale. It was developed for the Overseas Development Council, in the mid-1970s by Morris David Morris, as one of a number of measures created due to dissatisfaction with the use of GNP as an indicator of development. PQLI might be regarded as an improvement but shares the general problems of measuring quality of life in a quantitative way. It has also been criticized because there is considerable overlap between infant mortality and life expectancy. The UN Human Development Index is a more widely used means of measuring well-being.

Steps to calculate Physical Quality of Life:

1. Find percentage of the population that is literate (literacy rate).
2. Find the infant mortality rate. (Out of 1000 births) Indexed Infant Mortality Rate = $(166 - \text{infant mortality}) \times 0.625$
3. Find the Life Expectancy. Indexed Life Expectancy = $(\text{Life expectancy} - 42) \times 2.7$
4. Physical Quality of Life =
$$\frac{\text{Literacy Rate} + \text{Indexed Infant Mortality Rate} + \text{Indexed Life Expectancy}}{3}$$

MODEL QUESTIONS

I. Write an essay on the following questions

1. Explain the theory of Demographic Transition.
2. What are the causes of high birth rate and low death rate in India?
3. What are the measures to control population explosion?
4. Bring out the main elements of population policy, 2000.
5. Explain the occupational distribution of population in India.
6. Define Human Resource Development. How do you improve it?
7. Explain the role of education in economic development.
8. Explain the importance of health in economic development.
9. What are the different indexes to measure Human Development?
10. What are the advantages and disadvantages of population?

II. Write the answers briefly for the following questions

1. Trends of world population.
2. Top 10 populous countries in the world.
3. Causes of high birth rate in India.
4. What are the family planning programmes in India?
5. Importance of human resource development.
6. What is the role of education in rural development?
7. Explain the education system in India.
8. Health programmes in India.
9. Physical Quality of Life Index (PQLI).

III. Write the answers in one or two sentences

1. Population Explosion.
2. Great dividing year of population.
3. Infant Mortality Rate (IMR).
4. Maternal Mortality Rate (MMR).
5. Birth Rate.
6. Death Rate.
7. Urbanization.
8. Joint Family System.
9. Occupational Distribution of population.
10. Primary Sector.

11. Tertiary Sector
12. Human Resource Development.
13. Literacy Rate.
14. Sarva Siksha Abhiyan.
15. Janani Suraksha Yojana.
16. Human Development Index (HDI).
17. Gender Related Index.
18. Gender Empowerment Measure.
19. Human Poverty Index.
20. Total Fertility Rate

GLOSSARY

$$\text{Literacy Rate} = \frac{\text{Seven year and above aged population} \times 100}{\text{Total Population}}$$

Infant Mortality Rate: It is calculated at a ratio of the number of deaths among the one thousand born Children in a year.

Death Rate: It is calculated at a ratio of the number of deaths among the one thousand population in a Year.

Population Explosion: When the birth rate exceeds death rate during a particular period of time.

Density of Population: Average number of persons living per square kilometer.

$$\text{Percentage of Increase in Population growth} = \frac{\text{Total Population}}{\text{Total Area}} \quad \text{or} \quad \frac{\text{Present population} - \text{previous population}}{\text{Previous Population}}$$

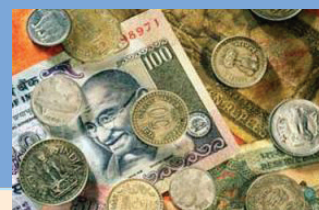
Compound Growth Rate of Population: Previous Population $(1+R/100)^n$; Where R= rate of increase in Population, n = number of years considered.

Total Fertility Rate: The number of live births by a woman during the entire reproductive period.

Maternal Mortality Rate: It is calculated at a rate of the number of delivery deaths among the 1 lakh Women in a year.

Reference Books

1. *Misra and Puri - Indian Economy Himalaya Publication House Mumbai - 2014.*
2. *Rudhar Dutt and KPM Sundaram, Indian Economy, S.Chand & Co, New Delhi - 2014.*



CHAPTER

3

NATIONAL INCOME

- 3.0 Introduction
- 3.1 Trends in the growth of India's National Income
- 3.2 Trends in distribution of national income by industry Origin
- 3.3 Share of Public Sector and Private Sector in Gross Domestic Product
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3.0 Introduction

Raising National Income is one of the most important goals of our Economic activity. Economic welfare of a country depends upon what goods and services are available for the consumption of its people. The economic welfare of a Community can best be measured by its National Income.

National Income may be defined as “The aggregate factor income (i.e; earning of labour and property) which arises from the Current production of goods and services by the nation's economy”.

As national Income is one of the indicators of economic development, the Government of India appointed the National Income Committee on 4th August, 1949, consisting of Professor P.C.Mahalanobis, Professor D.R.Gadgil and Professor V.K.R.V.Rao. The Committee submitted its final report in 1954. The salient features of National Income Committee Report were as under:

1. During 1950-51, agriculture and allied activities contributed nearly half of the National Income.
2. Mining, manufacturing and trading contributed about one-sixth of the National Income.
3. Commerce, transport and communications accounted for a little more than one-sixth of the total National Income.
4. Services accounted for about one-third of the total National Income.
5. The share of the government sector in Net Domestic Product was 7.6 percent in 1950-51.

Thus contribution of the agriculture and allied activities to the National Income reveals that much importance should be given to other than agricultural sector for the rapid growth of Indian economy.

3.1 Trends in the growth of India's National Income

The **Central Statistical Organization (C.S.O)** has furnished National Income estimates both at current and constant prices. Figures of National Income at current prices do not give a correct picture about the growth of the economy. National Income at current prices reflects the combined influence of two factors. They are: (a) the increase in the production of real goods and services and (b) the rise in prices.

If the increase in National Income is due to the first factor, it is an indicator of real growth because it implies that more goods and services become available to the people. If it is due to the second factor, it represents an unreal inflation of national income in money terms. Consequently, national income figures are deflated at constant prices to eliminate the effect of any change of price level during the period. National Income figures at constant prices, therefore, become comparable, but they conceal the population effect. To eliminate the effect of growth of population, per capita national product or per capita income is calculated.

Table 3.1: Net National Product at Factor Cost and Per capita NNP

Year	Net National product (Rs In crore)		Per capita NNP (in Rs)	
	At current Prices	At 2004-05 Prices	At current Prices	At 2004-05 Prices
1950-51	9464	255405	264	7114
1960-61	16169	385761	373	8889
1970-71	41294	541867	763	10016
1980-81	125761	727360	1852	10712
1990-91	471619	1202305	5621	14330
2000-01	1771118	2080565	17381	20418
2004-05	2629198	2629198	24143	24143
2005-06	3000666	2877284	27131	26015
2006-07	3501313	3149149	31206	28067
2007-08	4076878	3451829	35825	30332
2008-09	4705447	3664388	40775	31754
2009-10	5411104	3966407	46249	33901
2010-11(3R)	6406834	4293585	54021	36202
2011-12(2R)	7434965	4573328	61855	38048
2012-13(1R)	8255978	4728776	67839	38856
2013-14(PE)	9171045	4920183	74380	39904

Source: Central Statistics Office, Economic survey 2013-14
 1R: First Revised Estimates 2R: Second Revised Estimates
 3R: Third Revised Estimates PE: Provisional Estimates.

The above 3.1 table shows the growth rates of both Net National Product and per capita NNP at factor cost from 1950-51 to 2013-14 for a period of more than 6 decades. Prior to the Introduction of economic reforms in India, NNP at current prices during the year 1950-51 was Rs 9,464 crore, and it rose to Rs 4,71,619 crore in 1990-91. Net National Product at 2004-05 prices is increased from Rs. 2, 55,405 crore in 1950-51 to Rs 12, 02,305 crore in 1990-91. Per Capita NNP at current prices in 1950-51 is Rs 264, which rose to Rs 5,621 and in the same period the Per Capita NNP at 2004-05 prices increased from Rs. 7,114 to Rs. 14,330.

New economic reforms resulted in a rapid growth in net national income and per capita NNP. Per capita NNP at current prices increased from Rs 5,621 in 1990- 1991 to Rs 17,381 in 2000-01. Net National Product at current prices increased to Rs 91,71,045 crore in 2013-14 from Rs 4,71,619 crore in 1990-91 and at 2004-05 prices it was Rs 49,20,183 crore and Rs 12,02,305 crore respectively. Per capita NNP at 2004-05 prices rose to Rs. 74,380 in 2013-14 from Rs. 17,381 in 2000-2001.

Table 3.2: Annual average growth rates of Net National Income and per Capita NNP at 2004-05 prices. (Per cent)

Year		Net National Income at factorcost	Net National Income Per capita
First Plan	1951-56	4.2	2.4
Second Plan	1956-61	4.2	2.2
Third Plan	1961-66	2.6	0.3
Three Annual Plans	1966-69	3.7	1.5
Fourth Plan	1969-74	3.2	0.9
Fifth Plan	1974-79	4.9	2.6
Annual Plan	1979-80	5.9	8.2
Sixth Plan	1980-85	5.4	3.1
Seventh Plan	1985-90	5.5	3.3
Two Annual Plans	1990-92	2.8	0.8
Eighth Plan	1992-97	6.7	4.6
Ninth Plan	1997-02	5.5	3.6
Tenth Plan	2002-07	7.5	5.9
Eleventh Plan	2007-12	7.8	6.3

Source: Central Statistics Office, National Accounts Statistics, and Economic Survey (2013-14)

During the First and Second Plans, annual average growth rate of NNP was 4.2 per cent (at 2004-05 prices). However, during the Third Plan, annual average increase in national income slumped down to 2.6 per cent which was just sufficient to neutralize the growth of population. This is indicated by the fact that there was 0.3 rate of growth of per capita income during the Third Plan. This was largely the consequence of a serious drought in 1965-66 and thus the growth rate got depressed. During the Fourth Plan period the average annual rate of growth of national income declined to 3.2 per cent and that of real per capita income to 0.9 per cent per annum. During the Fifth Plan the average annual increase in national income was of the order of 4.9 per cent and that of per capita income was barely 2.6 per cent.

India's national income registered a growth rate of 5.4 per cent during the sixth plan (1980-85) with a per capita income growth rate of 3.1 per cent.

During the Seventh plan (1985-1990), India's NNP grew on an average at the rate of 5.5 percent per annum and the annual growth rate of per capita NNP was 3.3 percent. Obviously, Seventh Plan achieved its objective of 5 percent growth rate of NNP along with 3 percent targeted growth rate of per capita NNP. This was a welcoming development.

During the Eighth Plan NNP growth rate was 6.7 percent with a per capita growth rate of 4.6 percent. During the Ninth plan the annual growth rate of NNP decreased to 5.5 percent and also the per capita NNP to 3.6 percent. During the Tenth and Eleventh Plans the annual growth rates of NNP were 7.5 and 7.8 percent respectively. The annual growth rates of per capita NNP 5.9 and 6.3 percent during the same period show the slight improvement in the economic growth of India.

3.2 Trends in distribution of national income by industry Origin

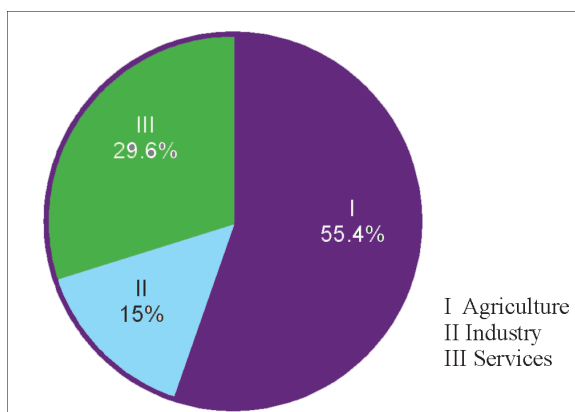
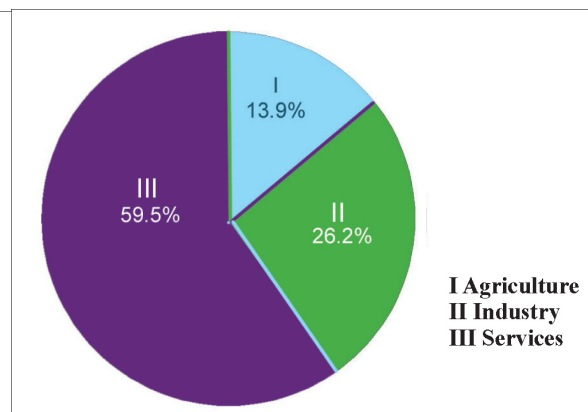
A very important aspect of the national income of a country is its sectoral composition, i.e., the contribution made to it by the different sectors of the economy. The development of the economy mainly depends upon sectoral contribution. If the contribution from agricultural sector is high, generally a country is said to be under- developed one

Table 3.3: Share of Gross Domestic Product by Industry of Origin (1999-2000 series)

	Percentage Distribution		
	1950-51	1980-81	2013-14*(PE)
I. Agriculture & Allied Services	55.4	38.0	13.9
II. Industry	15.0	24.0	26.2
(a) Mining & Quarrying	1.4	2.0	1.9
(b) Manufacturing	8.9	13.8	14.9
(c) Electricity, gas & water Supply	0.3	1.6	1.9
(d) Construction	4.4	6.6	7.4
III. Services	29.6	38.0	59.9
(e) Trade, Transport & Communications	11.3	17.4	26.4
(f) Finance, Insurance & Real Estate	7.7	7.5	20.6
(g) Community, Social and personal Services	10.6	13.1	12.9
Total	100	100	100

Source: Calculated from the data provided by Reserve Bank of India, *Handbook of Statistics of the Indian Economy (2011-12)* and CSO. Press Note, 31st May 2014, CSO. PE-Provisional Estimates * 2004-05 Economic survey

The share of primary, secondary and tertiary sectors contribution to Gross Domestic Product in 1950-51 and 2013-14 shown in pie-diagrams drawn below

1950-51**2013-14**

3.2.1 Contribution of the Primary sector to GDP (Gross Domestic Product)

During the post- Independence period, the share of the primary sector (Agriculture, Forestry and fishing) in the Gross Domestic product has varied from the maximum of 55.4 percent in 1950-51 to the minimum of 13.9 percent in 2013-14. The main cause of the decline is a rapid fall in the share of agriculture alone. There is a decline in the share of forestry to GDP. The share of fishery has remained more or less constant. In recent years, the country's economy has undergone some structural changes. Transport and trade, banking and insurance and other service sectors have grown faster than agriculture. Still, the agricultural sector remains an important sector in the Indian economy in terms of its share in the country's Gross Domestic Product.

3.2.2 Contribution of the Secondary Sector to GDP

The share of industry which includes mining, quarrying, manufacturing, construction and electricity, gas and water supply has shown a steady increase from 15 per cent in 1950-51 to 26.2 in 2013-14. Its share in 1980-81 was 24 per cent. From 1980-81, there was a slight improvement in the share of industrial sector to gross domestic product. Two major components of industry are manufacturing and construction. The share of manufacturing increased from 8.9 per cent in 1950-51 to 14.9 per cent in 2013-14. Similarly, the share of construction increased from 4.4 per cent in 1950-51 to 7.4 per cent in 2013-14. However, the share of the organized industrial sector declined and was just 8.4 per cent in 2011-12.

3.2.3 Tertiary sector contribution to GDP

The share of the Tertiary sector (trade, transport, financing, insurance, real-estate, banking, social and personal services and business services) indicated a sharp improvement from 29.6 per cent in 1950-51 to about 59.9 per cent in 2013-14. There was a significant increase in share of trade, transport and communications from 11.3 per cent in 1950-51 to 26.4 per cent in 2013-14. The share of finance, insurance, real estate and business services marginally declined from 7.7 per cent in 1950-51 to 7.5 per cent in 1980-81 and thereafter improved to 20.6 per cent in 2013-14. This shows a good sign which is essential for an under-developed country like India.

The changes in sectoral contribution reveal the following facts

1. Firstly, in India, agriculture still remains an important economic activity and any fluctuations in it have serious repercussions on the whole of the economy. However, the importance of the agriculture appears to be slowly declining. In the early years of the 1970's, its share in the Gross Domestic Product used to be around 50 per cent. It has now come down to 13.9 percent in 2013-14
2. Secondly, not only the country has gradually moved towards industrialization, but the industrial sector also has undergone a structural change.

3. The rapid growth of transport, communications, energy, banking insurance in the secondary sector reflects the expansion of economic infra-structure in the country.

The theory of economic growth also supports the structural change in the composition of national Product. The distribution of Gross Domestic Product in developed countries indicates a much higher share of industry and services and a relatively a lower share from agriculture. The disparity in per capita incomes between developed and under- developed Countries is largely a reflection of the disparity in the structure of their economies

Indian economy is passing through the process of transition from an agricultural economy to an industrialized one. In the process, a structural change in the composition of national income is inevitable. This structural change is taking place, though at a slow pace. The main reason for the slow rate of structural change in domestic output is the slow rate of growth of the manufacturing output.

3.3 Share of Public Sector and Private Sector in Gross Domestic Product

To achieve the objective of socialistic pattern of society, the Government of India observed mixed economy in our country. The 1948 and 1956 industrial policy resolutions classified the industries into different categories. Basic and key industries were established by the public sector, some were established jointly and remaining industries left to the private sector.

Private sector enterprises are characterized by ownership and management in private hands, personal initiative and profit motive. The importance of both the public and private sectors can be assessed with the contribution to gross domestic product. This can be shown in the following table.

Table 3.4: *Share of public and private sector in Gross Domestic Product
(at 1999-2000 prices in Rs. Crore)*

Year	National Income	Share of Public Sector	Percentage	Share of Private sector	Percentage
1950-51	2,04,924	16,394	8.0	1,88,530	92.0
1960-01	3,09,045	30,905	10.0	2,78,140	90.0
1970-71	4,37,719	61,281	14.0	3,76,438	86.0
1980-81	5,83,548	1,16,710	20.0	4,66,838	80.0
1990-91	9,67,773	2,28,394	23.6	7,39,379	76.4
2000-01	16,47,903	3,82,314	23.2	12,65,589	76.8

At 2004-2005 prices in Rs. Crore

2009-10	61,08,903	13,05,882	21.4	48,03,021	78.6
2010-11#	72,48,860	15,05,281	20.8	57,43,579	79.2
2011-12@	83,91,691	16,98,975	20.2	66,92,716	79.8
2012-13*	93,88,876	19,19,806	20.4	74,69,070	79.6

Source: 1. Central Statistics * First Revised Estimates @ Second Revised Estimates
Third Revised Estimates
2. Indian Economy, Datt and Sundharam

The above table 3.4 shows that the public sector share in Gross Domestic Product is only 8.0 per cent in 1950-51 and it rose to 23.6 per cent in 1990-91. During the same period, the share of private sector declined from 92.0 per cent to 76.4 per cent. It shows that the importance was given to public sector by the Government of India during pre-reform period.

Owing to New Economic Policy introduced in 1991, the share of public sector was decreased from 23.6 per cent in 1990-91 to 20.4 per cent in 2012-13. During the same period the share of private sector was increased from 76.4 per cent to 79.6 per cent. This improvement is the result of New Economic policy which gives priority to private sector.

3.4 Share of Organised and Un-organised Sector in Net Domestic Product

Organized Enterprises are defined by the C S O as all enterprises which are either registered or come under the purview of any of the Acts and/ or maintain annual accounts and balance sheets. All unincorporated enterprises and household industries other than the organized ones which do not maintain annual accounts and balance sheets are called unorganized sector.

The share of the organized sector has risen from 30 per cent in 1980-81 to 42.9 per cent in 2007-08. Consequently, the share of the unorganized sector declined from 70 per cent to 57.1 per cent during the same period. It may also be noted that the share of the organized sector in mining, manufacturing etc. improved from 56.8 per cent to 70.2 per cent that in the services sector improved from about 40 per cent in 1980-81 to 46 per cent in 2007-08. This shift in the composition of N D P from the unorganized sector to the organized sector is a consequence of the process of development.

3.5 Income Inequalities

The Government of India introduced new economic reforms in the early 1990's. Even after completing 25 years of post-reform period, India continues to struggle with several major problems like poverty, inadequate infrastructure and economic inequality.

A study by the World Institute for Development of Economics Research at United National University reports that the richest 1 percent of individuals alone owned 40 percent global assets by the year 2000. The three richest people in the world possess more financial assets than the lowest 48 Nations combined. The 85 wealthiest individuals in the world have a combined wealth equal to that of the bottom 50 percent of the world population.

3.5.1 Lydall and NCAER Estimates (1950)

In India from the estimates of Lydall and NCAER during the 1950's stated that the top 10 percent of the households had received about 35 percent of the National income. According to the estimates of Reserve Bank of India and Iyengar and Mukherjee, the top 10 percent households accounted for about 25 to 28 percent of national income. As per NCAER the bottom 20 percent of the households received about 8 to 9 percent of the National Income.

According to the National Survey of Household Income and Expenditure 2011, conducted by NCAER, a new assessment has been made with regard to size of the middle class in India. In this survey middle class is defined as household earnings are Rs. 2.5 lakh to 12.5 lakh annually, (at 2009-10 price level) increased over 12.7 per cent per annum between 2001-02 and 2010-11. Between 2001-02 and 2010-11, the total middle class households increased from 10.7 million to 31.4 million – an increase by 193 per cent.

According to NCAER "Factors such as the country's GDP growth, which is projected to be around 9 per cent, going ahead and high growth rate of urbanization will result in the increase of middle class in the country". Interestingly, as per the NCAER findings, the middle class that represents only 13.1 per cent of India's population currently owns 49 per cent of total number of cars, 21 per cent of TVs, 53.2 per cent of computers, 52.9 per cent of Air Conditioners, 37.8 per cent of microwaves and 45.7 per cent of credit cards.

3.5.2 NCAER, OJHA and V.V.BHATT (1960)

The NCAER and P.D.OJHA and V.V.Bhatt estimates during the 1960's on personal income together revealed that the bottom 20 percent of the population had a share of 7.5 percent of total personal income and the top 20 percent of the population had a share of 47 percent.

3.5.3 National Sample Survey

The Planning Commission in its Draft Five Year Plan 1978-83 (Janata Government Plan) observed from the National Sample Survey data (28th round) that in 1973-74, the lowest 20 percent households accounted for 9.5 percent of total consumption in rural areas while the highest 20 percent accounted for 38 percent. For the urban areas, the corresponding figures were 9.2 percent and 40 percent respectively.

3.5.4 Institute of Applied Manpower Research

The findings of Institute of Applied Manpower Research which are significant to formulate Twelfth Five Year Plan clearly said “In India, the distribution of assets is extremely unequal, with the top 5 percent of the households possessing 38 percent of the total assets and the bottom 60 percent of households owning a mere 13 percent”. This shows the economic inequality prevailing in our country.

Table 3.5: 3.6.5 Inequalities in Household Expenditure (1989-90 to 2010)
Percentage share of Household Expenditure by percentile groups of Households

Percentage group of House holds	1989-90	1994	1997	2005	2010
Lowest 20 percent	8.8	9.2	8.1	8.6	9.0
Second quintile	12.5	13.0	11.0	12.2	12.0
Third quintile	16.2	16.8	15.0	15.8	16.0
Fourth quintile	21.3	21.7	19.3	21.0	21.0
Highest 20 percent	41.3	39.3	46.1	42.4	43.0
Highest 10 percent	27.1	25.0	33.5	28.3	29.0

Sources: (1) For 1989-90, 1994 and 1997, World Bank, *World Development Report 1999/2000 Table 5, PP. 238-9*
 (2) For 2005 figures, World Bank, *World Development Indicators 2012 Table 2.9, PP. 74-6 and*
 (3) For 2010 figures, World Bank, *World Development Indicators 2013 Table 2.9.*

The above Table 3.5 shows the estimates of Household Expenditure of the lowest 40 percent during the period from 1989-90 to 1994. It was only 21.3 percent in 1989-90, which rose to 21.7 percent in 1994. The highest 20 percent Household expenditure decreased from 41.3 percent in 1989-90 to 39.3 percent in 1994. The share of highest 20 percent population rose from 39.3 percent in 1994 to 43 percent in 2010, while the share of the top 10 percent rose from 25 to 29 percent during the same period.

A report on income inequality in different countries released by The Organization for Economic Co-Operation and Development (OECD) in December 2011 has pointed out that inequalities in

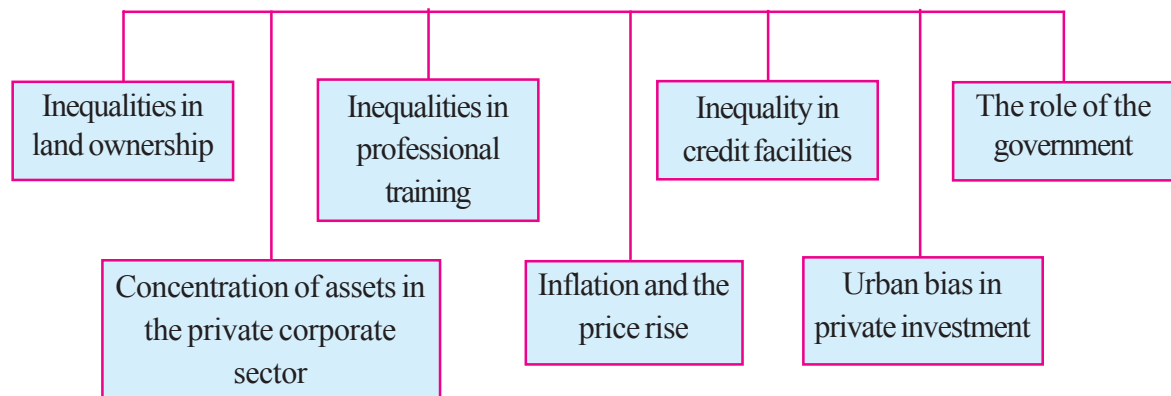
earnings in India have doubled over the past two decades. The top 10 percent of wage earners make 12 times more than the bottom 10 percent, compared to 6 times 20 years ago.

The income inequalities in India highlighted by these reports reveal that India's the richest 100 had a combined net worth of as high as Rs. 12,06,375 crores in 2011, which was almost 17 percent of India's Gross Domestic Product of Rs. 71, 57,412 crores in 2010-11.

3.6 Causes of Income Inequalities

Inequality in the distribution of National Income is one of the major problems which our planning process and economic policies have attempted to tackle. The main reasons for these inequalities are as under;

Figure 1: Causes of Income Inequalities



i) Inequalities in land ownership

There was concentration of landed property in India during the British period on account of Zamindari system. The Zamindari system was abolished immediately after independence. Yet the concentration of land ownership couldn't be broken. In 2010-11, 67 percent of total operational holdings were marginal holdings (< one hectare in size) but area operated under them was just 22.2 percent. As against this, large holdings (area of 10 and above hectares) were only 0.7 percent of the total holdings but operated 10.9 per cent of the total cultivated area.

Minhas, Dandekar and Rath and Bardhan have clearly stated that all agricultural workers and marginal and small farmers with less than 2 hectare holdings are poor. Big and large farmers not only have capacity to save, they also have an access to institutional finance. Naturally, they are attempting to improve the farm techniques. This causes income inequalities.

(ii) Concentration of assets in the private corporate sector

There is an extreme concentration of economic wealth in the hands of large industrialists. A survey conducted by NCEAR for the year 1975-76 indicated that the top 10 percent had accounted for 46.28 percent of the total wealth in urban areas as against a mere 11.67 percent wealth being in possession of the bottom 60 percent. Since 1991, concentration of wealth and economic power has been strengthened. For instance on March 31st, 1991, the large private industrial companies had aggregate assets worth Rs 45,830 Crores. As against this in 2013 – 14 Reliance Industries alone had assets worth Rs 3, 62,375 Crores. The top five private sector companies in the year were Reliance Industries, TATA motors, Bharati Airtel, TATA steel and Larsen and Toubro, and their combined assets were to the tune of Rs. 9,80,764 Crore.

(iii) Inequalities in professional training

Incomes of business executives, engineers, information technologists, lawyers and other professionals are high. In our country, training required for professional competence is not available to all. Children belonging to elite families have access to higher and professional education. Children of agricultural labourers, industrial workers and socially backward classes cannot hope to get this education. Improper parting of higher education and professional skill also causes unequal distribution of wealth and private property.

(iv) Inflation and the price rise

Since the mid 1950s prices have been raising continuously which decreases real national income of the poor people. The poor people are forced to spend their entire income on basic necessities, whereas it does not have much effect on the rich people. The industrialists, traders, and farmers with large marketable surplus have benefited to some extent from inflation. This causes widening inequalities between the rich and the poor.

(v) Inequality in credit facilities

The banks generally credit facilities to big entrepreneurs of business person. The advances to small enterprises, agriculturalists and agro- based units are very low. So, they mainly depend upon money lenders for advances on high rate of interests. This also causes income inequalities among different sectors of productive class.

(vi) Urban bias in private investment

While 70 percent of the population in this country lives in rural areas, about 70 percent of the private investment goes to industries in urban areas. The private investors are not interested to start industries in rural areas. Therefore, there is a distinct urban bias in the pattern of private investment. The rate of employment creation in the capital incentive sector is low, sometimes not even as fast as the rate of growth of the labour force. This naturally leads to inequality in income distribution.

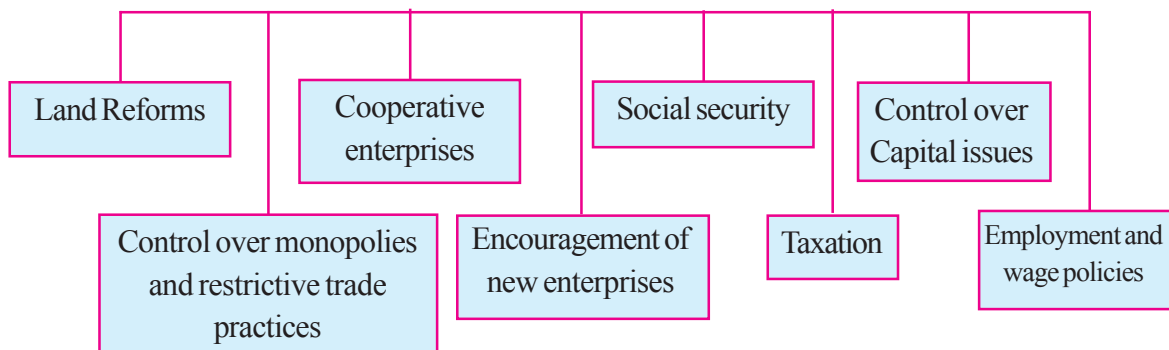
(vii) The role of the government

The public expenditure policies in the field of social welfare i.e., health, education, social security and public housing help the relatively well-off people more than they help the wretched poor belonging to the lowest income groups

3.7 Measures to control income inequalities

The main objective of economic planning is to reduce income inequalities and to maintain social justice. To achieve this, the Government of India initiated the following measures.

Figure 2: *Measures to control income inequalities*



(i) Land Reforms

Agricultural land was not properly distributed among farmers. Some farmers are possessing large holdings, some very small and some are agricultural laborers without having any cultivable land. Thus, legislative measures were undertaken to abolish landlords and other intermediaries and ceilings on holdings were fixed. Informal tenancy has been a common feature of traditional agricultural societies. Although attempts have been made to provide security of tenure, redistribution of land and fixation of fair rents, informal or oral tenancy has continued to exist even to this day. This causes economic backwardness of the tenant farmers. The implementation of land reforms in West Bengal state causes 18 percent increase in agricultural output and also reduced the income inequalities.

(ii) Control over monopolies and restrictive trade practices

The Monopolies and Restrictive Trade Practices Act was passed in December 1969, which came into force on June 1st, 1970. The Act provides for the control of monopolies and for the prohibition of monopolistic and restrictive trade practices. The Monopolies and Restrictive Trade Practices Commission appointed in August, 1970 has the power of

- (a) Regulating expansion, mergers and amalgamations and appointment of directors in respect of undertakings having assets of Rs 1 Crore and more and interconnected undertakings with assets of not less than Rs 20 Crores.

- (b) Regulating the starting of new undertakings which could become interconnected.
- (c) Control over and prohibition of monopolistic and restrictive trade practices.

(iii) Cooperative enterprises

Another instrument to balance the undue growth of big business in private sector is the decentralized sector in the form of cooperative enterprises. This sector works for common good rather than for private and personal gain. Profits earned by cooperative sector are shared by very large number of members. This leads to reduce income inequalities.

(iv) Encouragement of new enterprises

Special concessions and incentives provided to the new entrants in an industry can restrict the concentration of economic power. But care has to be taken that the old, well established concerns do not appear under a new name to defeat this policy. If the government strictly implements the rule not to give licenses to start industries by the already existing firms, it would definitely reduce concentration of economic power

(v) Social security

The government has repeatedly declared that it aimed at “Growth with social justice”. The government undertook so many social security measures such as workmen’s compensation and maturity benefits, fixation of minimum wages, the employee’s state insurance, employee’s provident fund, security for the old and disabled and family pension scheme for industrial workers and workers in mines and plantations. The social scientists and other experts insist that unemployment dole and old age pensions are the only measures which make a frontal attack on poverty and thereby reduce income inequalities. Unfortunately, these measures have not been extended to all the deserved persons in India as yet. These measures seek to make the poor less poor and narrow down the gulf between the rich and the poor.

(vi) Taxation

Indian tax system is progressive and has been designed to prevent concentration of wealth in a few hands. There is large undisclosed income of the people in the top most income bracket. As cautioned by Radhicka Kapoor, “In the debate on what is an appropriate poverty line for India, we must not lose sight of the impending crisis of rising inequality”.

(vii) Control over Capital Issues

Already the new capital issues are under government control. But it seems the control has not been effective checking monopolistic tendencies. In India many industries with monopolistic power yield huge incomes which are the cause for income inequalities. As a result of this, the Capital Issues Act 1956 was repealed in May 1992.

(viii) Employment and wage policies

The Government of India started many employment generation programmes to reduce income inequalities. For example; Integrated Rural Development Programme, National Rural Employment Programme, Rural Landless Employment Guarantee Programme, Jawahar Grama Samridhi Yojana, Mahatma Gandhi National Rural Employment Programme etc. These programmes provide income to the people to some extent. In India, hardly 10 per cent of the working population is presently employed in the organised sector. The wage rates allowed to the employees working in unorganized sector is very low. Implementation of minimum wages act leads to reduce income inequalities.

In this country, although rich and poor, literate and illiterate, man and women, all participate in electing the Government, yet the power always remains in the hands of the capitalists, landlords and rich farmers. Under these circumstances, one should not expect any positive approach from the government for the elimination of economic disparities.

Income inequalities may decline if strong and effective redistributive policies are implemented by the government. This is essential for a developing country like India to protect National Integration.

3.8 Unemployment in India

Unemployment means excess supply of labour over the demand for labour. The problem of unemployment is the fundamental problem of economic development. The main aim of almost all the theories of economic growth is to remove unemployment by increasing the level of employment. Unemployment is very difficult to define. Professor A C Pigou defines it as “A man is unemployed only when he is not employed and desire to be employed”. A man is willing to work but he is not getting work. Therefore he is called unemployed. In developed countries unemployment generally assumes two forms, viz., the Keynesian involuntary unemployment and temporary frictional unemployment. Unemployment in developing countries is both open and disguised like all other under developed countries. Unemployment is more in number in underdeveloped countries like India. India is suffering chronic under-employment or disguised unemployment in the rural sector and also with the existence of urban unemployment among the educated classes. The emergence of a class of frustrated unemployed youth, especially the educated unemployed, has been a strain on our existing socio-economic structure.

3.8.1 Concepts of Unemployment

The National Sample Survey Organization (N.S.S.O) evolved certain concepts and standardized them to measure employment and unemployment. They are:

1. **Usual Status Concept:** This concept is used to measure chronic or long-term unemployment. It measures the activity status, i.e. a person who remains unemployed for most of the time in the year. Thus, it appropriately measures open unemployment.

2. **Weekly Status Concept:** It implies the measurement of the persons who do not find work even for an hour on any day during the survey week. It is the appropriate measurement of 'Seasonal Unemployment'.
3. **Daily Status Concept:** This concept measures the activity status of a person for each day of the preceding 7 days. A person who works at least for one hour but less than four hours or more during a day is considered employed for a whole day. It is an appropriate concept devised to measure under-employment.

Out of these concepts of unemployment, the Current Daily Status concept provides the most appropriate measure of unemployment

3.8.2 Unemployment rate in India

Unemployment rate in India averaged 7.58 percent from 1983 up to 2012, reaching an all time high of 9.4 percent in 2009 and a record low of 5.20 percent in 2012.

Table 3.6: *Unemployment rates from 1977-78 to 2011-12*

(Percentage of labour force)

Year	Usual Principal Status(UPS)			Current Daily Status(CDS)		
	Rural	Urban	All India	Rural	Urban	All India
1977-78	3.26	8.77	4.23	7.7	10.34	8.18
1987-88	3.07	6.56	3.77	5.25	9.36	6.09
1999-00	1.96	5.23	2.81	7.16	7.74	7.31
2004-05	2.5	5.3	3.06	8.28	8.28	8.28
2011-12	2.3	3.8	2.7	5.7	5.5	5.6

Source: *Planning Commission, (2001) Report of Task Force on Employment Opportunities, NSSO 61st Round (2004-05), NSSO, 66th Round, NSSO, 68th Round (2011-12).*

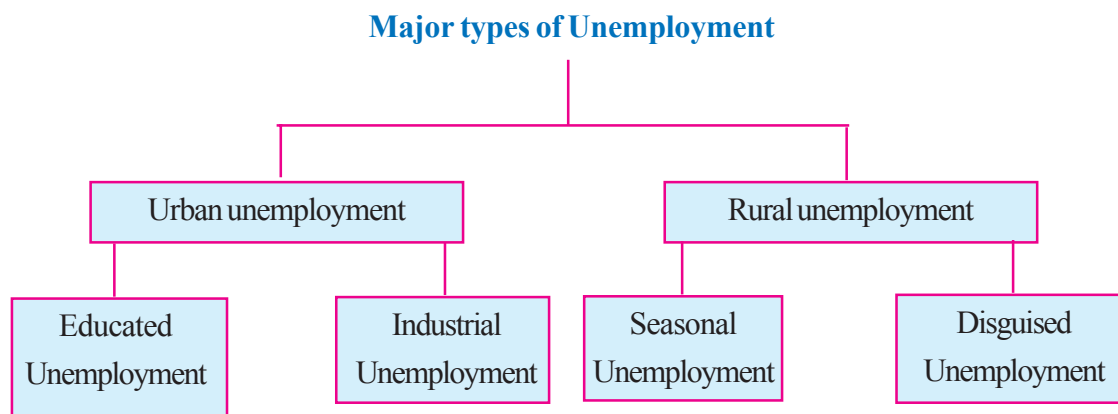
Unemployment as measured by UPS Orientation declined from 4.23 per cent in 1977-78 to 2.81 per cent in 1999-2000, but indicated an increase to 3.06 per cent in 2004-05. In 2011-12 unemployment on UPS criterion is estimated to be 2.7 per cent.

Unemployment in Current Daily Status (CDS) declined from 8.18 per cent in 1977-78 to 6.09 per cent in 1987 – 88, but the declining trend reversed to 8.28 per cent in 2004-05, in 2011-12, rate of unemployment on CDS basis is estimated to be 5.6 per cent. It is obvious that the UPS rates are modest and the CDS rates are quite high. The major problem of the Indian Economy is not open unemployment but under-employment.

3.8.3 Types of Unemployment

Most of the unemployment in India is structural. Structural unemployment arises when there is a drastic change in the economic structure of a country due to abnormal change in demand. Presently, we shall ignore Keynesian involuntary unemployment and the temporary frictional unemployment for the structural unemployment remains a greater cause of anxiety in India.

Unemployment is broadly defined into two types (A) Unemployment in Urban Areas and (B) Unemployment in Rural Areas.



A. Unemployment in Urban Areas

Two relatively important forms of Urban Unemployment are:

- (i) **Educated Unemployment:** Educated Unemployment is, by and large, a part of urban unemployment. As per the Planning Commission estimates, there were 68 lakh educated unemployed in 1992. No estimates of educated unemployment are available for recent years. The large number of educated unemployed shows, “a measurement between the kind of job opportunities that are needed and that are available in the job market”.

The defective educational system, with its theoretical base, lack of aptitude and technical qualifications for various types of work among job-seekers and maladjustments between demand and supply of educated workers are some well-known causes of educated unemployment.

- (ii) **Industrial Unemployment:** In India, the manufacturing sector has indeed expanded and employment in it has steadily increased. But, in percentage terms, its share in employment has failed to increase and has lowered from 10 to 12 percent over the years. One of the reasons for this is the low employment elasticity in the manufacturing sector. As a result, industrial unemployment increased. The other factors which have contributed to an increase in industrial unemployment over the years are many. First, there has been a large increase of the economically active population and labour force in

the country than the growth rate of the economy. Secondly, population in urban areas has grown faster than in rural areas, because of the migration on large scale from villages to cities. The industrial growth in India since independence has been very modest. Moreover, since early 1990s industrial growth has been jobless and has failed to absorb all those who migrated to cities with the hope of getting some job or the other. The decay of cottage and small-scale industries in the countryside has further contributed to the growth of unemployment

B. Unemployment in Rural Areas

Most of this unemployment is agricultural unemployment which may be classified into:

1. **Seasonal Unemployment:** Seasonal unemployment in agriculture is a normal phenomenon in India. In India farmers cultivating approximately 75 per cent of their land remain involuntarily unemployed for 3 to 4 months in a year and most of them fail to find some temporary employment in this period. The main reason for seasonal unemployment is lack of irrigation facilities.
2. **Disguised Unemployment:** Indian agriculture is characterized by the existence of Considerable amount of surplus labour. If they are withdrawn from the agricultural sector and put in other occupation or profession, it will not cause any decrease in agricultural output. In technological language, it is said that marginal productivity of such labour is zero. This kind of disguised unemployment is also comes underemployment.

C. Other types of unemployment

In addition to the above the following are also will be Considered as Unemployment of other types:

1. **Cyclical Unemployment:** If unemployment occurs as a result of trade cycles, it is called cyclical unemployment. Trade cycles refer to the frequent booms and depression, up swings and low swings. During the depression period, the volume of employment is reduced and some people those who are in the work force become unemployed. Keynes said that cyclical unemployment is the result of the deficiency in effective demand. Therefore, if effective demand increased, the level of employment can also be increased.
2. **Structural unemployment:** Structural unemployment is one of the main types of unemployment within an economic system. It focuses on the structural problems within an economy and inefficiencies in labour markets. Structural unemployment occurs when a labour market is not able to provide jobs for everyone who is seeking employment. There is a mismatch between the skills of the unemployed workers and the skills needed for the jobs that are available. It is often impacted by persistent cyclical unemployment. For example, when an economy experiences long-term unemployment individuals become frustrated and their skills become obsolete. As a result, when the economy

recovers they may not fit the requirements of new jobs due to their inactivity. When there is structural unemployment, workers may seek to learn different skills so that they can apply to new types of jobs.

3. **Under-employment:** Labour that falls under the underemployment classification includes those workers that are highly skilled but working in low paying jobs. Workers that are highly skilled but work in low skill jobs and part-time workers that would prefer to be full-time. This is different from unemployment in that the individual is working but is not working at their full capacity.

For example, an individual with an engineering degree working as a pizza delivery man as his main source of income is considered to be underemployed. Also, an individual that is working part-time at an office job instead of full-time is considered underemployed because they are willing to provide more employment, which can increase the overall output.

4. **Frictional unemployment:** Frictional unemployment is another type of unemployment within an economy. It is the time period between jobs when a worker is searching for or transitioning from one job to another. Frictional unemployment is always present to some degree in an economy. It occurs when there is a mismatch between the workers and jobs. The mismatch can be related to skills, payment, work time, location, seasonal industries, attitude, taste, and other factors. Frictional unemployment is influenced by voluntary decisions to work based on each individual's valuation of their own work and how that compares to current wage rates as well as the time and effort required finding a job.

3.8.4 Employment and Unemployment in India 1983 to 2011 - 12

Table 3.7

Million Persons

Year	Population	Labour force	Work force	No. of unemployed (3-4)	Unemployed rate (%)
1	2	3	4	5	6
1983	718.20	261.33	239.57	21.6	8.33
1993 – 94	894.01	335.97	315.84	20.13	5.99
1999 – 00	1003.97	363.33	336.75	26.58	7.32
2004 – 05	1092.83	419.65	384.91	34.74	8.28
2009 – 10	1174.1	428.9	400.8	28.1	6.6
2011 – 12	1227.4	440.4	415.7	24.7	5.6

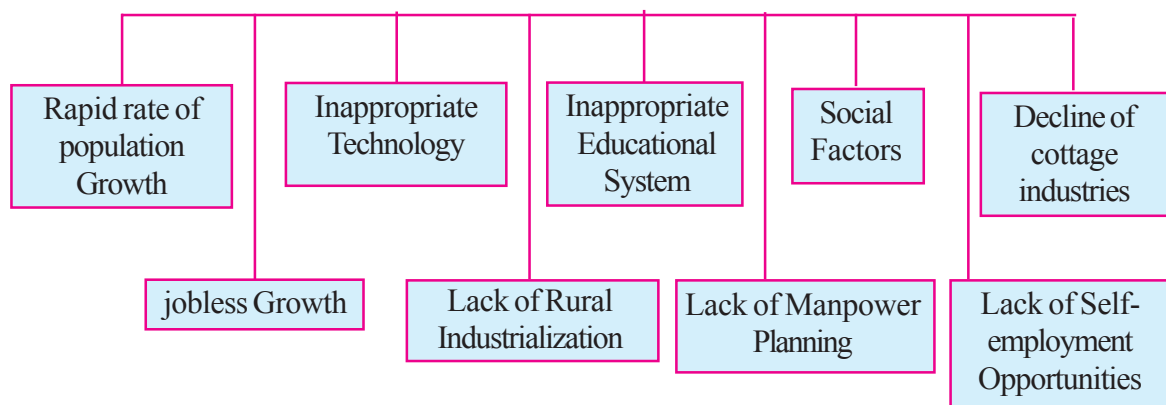
Source: *Planning Commission (2002), Report of Special Group on targeting Ten Million Employment Opportunities per year. NSSO 61st Round, NSSO 66th Round, NSSO 68th Round.*

The above table 3.7 reveals that on the basis of the NSS data, the SP Gupta special group estimated the number of unemployed to be of the order of 24.7 millions in 2011-12 as against 20.13 millions in 1993-94 (current daily status basis). The unemployment rate was 8.33 per cent in 1983 which declined to 5.6 per cent by 2011-12.

3.8.5 Causes for Unemployment in India

Obviously, widespread and growing unemployment is not due to any single factor, but it is the cumulative result of many causes discussed below:

Figure 3: Causes for Unemployment in India



- (1) **Rapid rate of Population Growth:** The most fundamental cause of widespread unemployment in India is the rapid rate of population growth which leads to increase in labour force. The rate of population growth rose to 2.2 per cent per annum during the 1960s, and, as a consequence the rate of increase in labour force also rose to 1.9 per cent per annum. As the population increased from 718.2 millions in 1983 to 1227.4 millions in 2011-12, correspondingly the labour force also increased from 261.33 millions to 440.4 millions respectively and the net increase in labour force is 179.07 millions. This is too big a number to be provided gainful employment at the present rate of growth of the economy.
- (2) **Jobless Growth:** During the first three decades of economic planning, the GDP growth rate was as low as 3.5 per cent per annum. In this period, employment increased at a moderate rate of 2 per cent per annum. The rate of growth of employment picked up considerably to 2.90 per cent per annum during the five year period 1999-00 to 2004-05 but again declined to almost zero per cent over the next five years i.e. from 2004-05 to 2009-10. Thus, the country could create only one million jobs during 2004-05 to 2009-10. This is despite the fact that in this three years period (2005-06, 2006-07, 2007-08) the rate of growth of GDP exceeded 9 per cent per annum. This shows that India has witnessed a phenomenon of jobless growth.

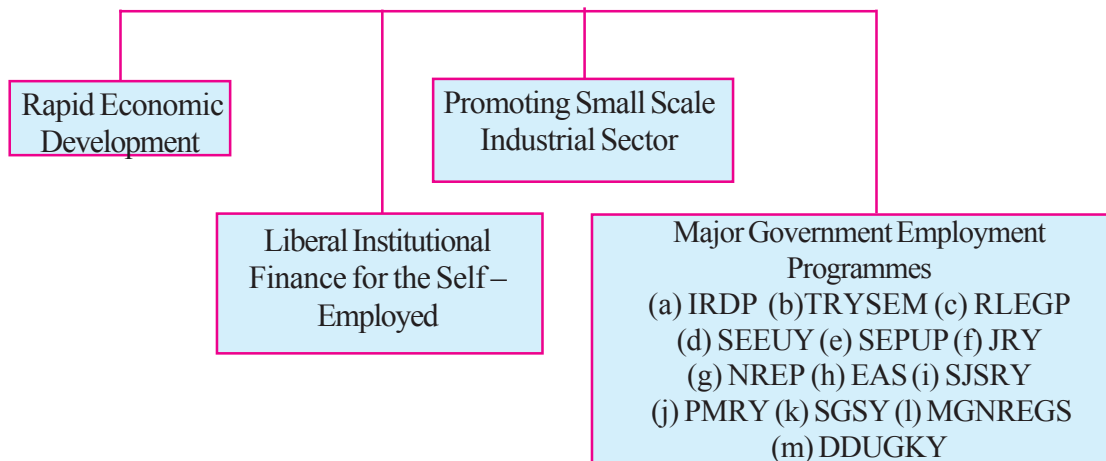
- (3) **Inappropriate Technology:** In India, while capital is a scarce factor, labour is available in abundant quantity. Under such circumstances, if market forces operate freely and efficiently, the country would have adopted labour-intensive techniques of production. However, not only in industries, but also in agriculture, producers are increasingly substituting capital for labour. W.A. Lewis asserts that investment in such a situation in capital equipment may be profitable to individual capitalists, but it is certainly not beneficial to the society, because it increases unemployment and not production. (W. A. Lewis, the Theory of Economic Growth, London, 1955 P. 356.)
- (4) **Lack of Rural Industrialization:** With regard to large rural unemployment and under employment, the underlying cause is the very heavy pressure of population on land and the backward nature of our farming. As a result, agriculture cannot provide employment opportunities for the far too numerous rural population.
- (5) **Inappropriate Educational System:** The educational system in India is defective. It is, in fact, the same educational system which Macaulay had introduced in the country during the British period. According to Gunnar Myrdal, India's educational policy does not aim at development of human resources. It merely produces clerks and lower cadre executives for the government and private concerns. Any educational system which fails to develop human resources properly will not be able to provide employment to all those who have received it. Myrdal considers all those who receive merely this kind of education not only as inadequately educated but also wrongly educated
- (6) **Lack of Manpower Planning:** The intake into various courses is not being planned on the basis of the projections of the demand for skilled manpower in future.
- (7) **Social Factors:** Since Independence, education among women has changed their attitude towards employment. Many of them now compete with men for jobs in the labour market. The economy has, however, failed to respond to these challenges and the net result is continuous increase in unemployment backlog.
- (8) **Lack of Self-employment Opportunities:** The rural marginal and landless households continue to remain unemployed or underemployed due to lack of self-employment. The well educated youth lacking entrepreneurship qualities waiting for years together to get government jobs at meager wages
- (9) **Decline of Cottage Industries:** In rural India, village or cottage industries are the only means of employment particularly of the landless people. They depend directly on various cottage industries for their livelihood. But, now-a-days, these are adversely affected by the industrialisation process. Actually, it is found that they cannot compete with modern factories. As a result of which the village industries suffer a serious loss and

gradually closing down. Owing to this, the people who work there remain unemployed and unable to maintain their livelihood

3.8.6 Remedial Measures

Unemployment is too serious an evil to be ignored. For each main type of unemployment, obviously separate sets of measures will be needed.

Figure 4: Remedial Measures to Remove Unemployment



1. Rapid Economic Development

This will open new avenues of employment, especially for the educated persons and skilled workers, and, by diverting surplus population from agriculture to industries, can be reduced rural unemployment.

2. Liberal Institutional Finance for the Self-employed

If adequate facilities are made available, millions of people may take to one business or the other producing goods or services. That holds out a great scope for the expansion of employment opportunities.

3. Promoting Small Scale Industrial Sector

In the manufacturing sector, major contributor to employment is the small scale and informal sector. If the Government provides much higher amount of credit as suggested by the Nayak Committee and also recently supported by the S.P. Gupta Study Group on development of small scale enterprises, it would go a long way in enlarging employment.

The large corporate sector has a total employment potential of 3.63 millions according to Annual Survey of Industries (1997-98) whereas the small sector had an employment of 17.9 millions in 1999-2000.

4. Major Government Employment Programmes

The Government of India implemented number of programmes for employment generation as discussed below:

- (i) **The Integrated Rural Development Programme (IRDP):** It was launched during 1978- 79 to provide self employment in a variety of activities like sericulture, animal husbandry and land-based activities in the primary sector, weaving, handicrafts etc., in the secondary sector and service and business activities in tertiary sector.
- (ii) **The Scheme of Training Rural Youth for Self Employment (TRYSEM):** This was initiated in 1979 with the objective of tackling unemployment problem among the rural youth. It aimed at training about 2 lakh rural youth every year to enable them to become self employed. The TRYSEM was merged into Swarnajayanti Gram Swarozgar Yojana in April 1999.
- (iii) **The Rural Landless Employment Guarantee Programme (RLEGP):** It was started on 15th August 1983, with the objective of expanding employment opportunities for the rural landless. The programme aimed at providing guarantee of employment to at least one from each landless household for about 100 days in a year.
- (iv) **Self employment to the educated urban youth (SEEUY):** This programme was launched in 1983. The objective is to provide self employment to the urban educated youth between 18 to 35 years. Loans are provided to the beneficiaries with a subsidy of 25 per cent by the Government of India.
- (v) **Self employment programme to the urban poor (SEPUP):** This programme was launched in 1986, with an aim of enabling the urban poor to set up their own economic enterprises. Loans up to Rs 50000 to 2,00,000 are provided. Out of the total unit cost 10 per cent of the amount must be contributed by the beneficiary. Bank should provide 65 per cent of the unit cost as loan. A subsidy of 25 percent will be given by the Government of India. This Programme has been merged with scheme of urban enterprises under NRY.
- (vi) **Jawahar Rozgar Yojana (JRY):** This programme was started in February 1989 for intensive employment creation in 120 backward districts of the country. Later NREP and RLEGP were merged into a single rural employment programme on April 1, 1989 in to the Jawahar Rozgar Yojana. The JRY was restructured with effect from April, 1999 and was renamed as Jawahar Gram Samridhi Yojana (JGSY). The aim of this programme was creation of infrastructure and durable assets at the village level so as to increase opportunities for sustained employment to the rural poor.

- (vii) **The National Rural Employment Programme (NREP):** The National Rural Employment Programme started in the Sixth Plan was meant to help that segment of rural population which largely depends on wage employment and has virtually no source of income during the lean agricultural period.
- (viii) **The Employment Assurance Scheme (EAS):** The EAS aimed at providing 100 days of unskilled manual work on demand to two members in the age group of 18 to 60 years in the agricultural lean season. During 1996-97 to 1999-2000, a total of 1,533.7 million man-day's employment was generated under the scheme.
- (ix) **The Swarna Jayanti Shahari Rozgar Yojana (SJSRY):** This scheme provides gainful employment to the urban unemployed and underemployed poor, by encouraging the setting up of self-employment ventures and also by providing wage employment and utilizing their labour for construction of socially and economically useful public assets. A total of 4, 06,947 beneficiaries have been assisted in the year 2012-13.
- (x) **Prime Minister Rozgar Yojana (PMRY):** It was designed to provide self-employment to more than a million educated unemployed youth by setting up seven lakh micro-enterprises under the Eighth Five Year Plan. This scheme provided employment to 7.4 lakh persons.
- (xi) **Swarnajayanti Gram Swarozgar Yojana (SGSY):** It was launched from April 1, 1999 after restructuring the IRDP and allied schemes to provide self employment to the rural poor. SGSY has been restructured as the National Rural Livelihood Mission (NRLM) with affect from April 1, 1913. To begin with, National Rural Livelihood Mission will ensure that at least one member from each identified rural poor household, preferably a woman, is brought under the Self-Help Group (SHG) network in a time bound manner.
- (xii) **Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS):** This scheme was launched from 2nd October, 2009. MGNREGS seeks to provide at least 100 days of guaranteed wage employment in a financial year to at least one member of every rural household whose adult members volunteer to do unskilled manual work. At least 33 per cent of the beneficiaries are to be women. Under MGNRES, wage disbursement through bank and post office is mandatory. This is likely to help in the "financial Inclusion "of the poor. MGNREGS provide a wage rate of Rs 100 per day to a worker. The focus of MGNREGS is on works relating to water conservation, drought proofing, land development, flood control and rural connectivity in terms of all roads. Panchayats have a key role in planning, implementation and monitoring of MGNREGS. This Act is also significant vehicle for strengthening decentralization and deepening the grass root democratic structure.

The total expenditure under this scheme was 39,661 crores in 2012-13 and generated 229.93 crore person-days of employment.

(xiii) Deen Dayal Upadhyaya Grameen Kaushal Yojana: Deen Dayal Upadhyaya Grameen Kaushal Yojana was launched on 25th September 2014 in view of 98th birth anniversary of Pandit Deenadayal Upadhyaya. Earlier the Yojana was known as Aajeevika Skills Development Programme (ASDP).

The Rationale Launching The Yojana

The Yojana was launched in light of solving huge problem of unemployment among the rural youth despite the fact that they have merits. In order to correct this match, Union Government decided to launch Skill Development Scheme.

Status of Skilled Workers in India

In India as against 12 million people entering the workforce every year during the last 10 years only 1 million youth were trained. Further out of 12 million people, only 10 per cent were skilled ones, while the percentage in European Union is 75 per cent and in China 50 per cent.

Main Features of D D U G K Y

The main features of the Deena Dayal Upadhyaya Kaushalya Yojana are

- ❖ The Yojana aims to give training 10 lakh rural youth for jobs in three years, that is, by 2017.
- ❖ The minimum age for entry under the yojana is 15 years compared to 18 years under the Aajeevika Skills Programme.
- ❖ Skill Development training centre's to be launched so as to address the unemployment problem in rural area.
- ❖ The skills imparted under the yojana will now be benchmarked against international standards and will compliment the **Prime Ministers Make in India campaign**.

This scheme was launched to enhance the employability of rural youth which is the key to unlocking India's demographic dividend. A sum of Rs. 1500 crores was allotted for this scheme in the 2015-16 budget.

3.9 Poverty

Concept of Poverty

Poverty is a great curse on humanity. Poverty can be defined as a social phenomenon in which a section of the society is unable to fulfill even its basic necessities of life. When a substantial segment of a society is deprived of the minimum level of living and continues at bare subsistence level, that society is said to be plagued with mass poverty. In India the generally accepted definition of poverty emphasizes minimum level of living rather than a reasonable level of living. In India about 230 millions comprising 17.59 per cent population are below poverty line during 2013. To understand the problem of poverty better, we may distinguish between Absolute Poverty and Relative Poverty.

Absolute Poverty: Absolute Poverty of a person means that his income or consumption expenditure is so meager that he lives below the minimum subsistence level. Because of his Absolute Poverty condition, he is not able to maintain his health and efficiency and, in fact he may be starving.

Relative Poverty: Relative Poverty merely indicates the large inequalities of income. Those who are in the lower income groups receive less than those in the higher income groups. The people with lower incomes are relatively poor compared with those with higher incomes, even though they may be living above the minimum level of subsistence.

3.9.1 Poverty Line

Poverty Line refers to the cut-off level of annual income of the households. Poverty line is estimated separately for Rural and Urban areas. The Poverty line is estimated on the basis of the following factors.

- A. Minimum subsistence level of consumption.
- B. The estimated cost of minimum nutritional diet.
- C. Per capita monthly consumption expenditure.

(a) Gaurav Datt's Study on Poverty

Gaurav Datt of the World Bank has made a study of poverty in India for the period 1951 – 1992 using NSS data. The poverty line is based on nutritional norm of per capita daily intake of 2400 calories in rural areas and 2100 calories for urban areas. This implies a per capita monthly expenditure of Rs 49 for the rural poverty line and Rs. 57 for the urban poverty line at 1973-74 prices.

(b) Tendulkar Committee

The Tendulkar committee estimated the new all India poverty line for the year 2004-05 for rural areas at Rs 446.68 per capita per month and for urban areas at Rs 578.80 per capita per month

(c) Planning commission definitions on Poverty Line

The planning commission has provided estimates of incidence of poverty since the early 1970. The committee determined the poverty line for rural population at Rs 49.63 (at 1973.74 prices) per capita per month while for urban population, poverty line was fixed at Rs 56.64 per capita per month.

According to the Planning Commission 2007, the per capita monthly expenditure of a person is Rs. 356 in rural areas and Rs. 538.6 in urban areas is called poverty line. If the private health and educational expenditure considered the rural poverty line increase from Rs. 356 to Rs. 392, the urban poverty line increases from Rs. 539 to Rs. 623.

On March 19, 2012, the planning commission released the estimates of poverty for the year 2009-10 computed from the 66th Round NSS (2009-10) data on Household Consumer Expenditure Survey. The poverty line was defined as Rs 22.40 per capita per day in rural areas and Rs 28.60 per capita per day in urban areas

Planning commission estimates based on 68th Round of NSSO (2011-12) data Rs 27.20 per capita per day for rural areas and 33.33 per capita per day for urban areas are below poverty line.

3.9.2 Estimates of Poverty Ratio:

Gaurav Datt has provided estimates of poverty for the period 1995-97. In 1993-94, according to these estimates, while 36.7 per cent of rural population was below the poverty line, in urban areas the incidence of poverty was as high as 30.5 per cent

The estimates of Poverty Ratio and number of poor at the national level for the years 1993-94 to 2011-12 derived from the expert group (Tendulkar Methodology) are given in the table.

Table 3.8: Estimates of Poverty (Tendulkar Methodology)

Year	Poverty Ratio			Number of Poor (in millions)		
	Rural	Urban	Total	Rural	Urban	Total
1993-94	50.1	31.8	45.3	328.6	74.5	403.1
2004-05	41.8	25.7	37.2	326.3	80.8	407.1
2009-10	33.8	20.9	29.8	278.2	76.5	354.7
2011-12	25.7	13.7	21.9	216.7	53.1	269.8

Source: Report of the Expert Group to Review the Methodology for measurement of poverty, Government of India Planning Commission, June, 2014.

From the table 3.8, the rural poverty is noticed as more than that of urban poverty. The rural and urban poverty were 50.1 per cent and 31.8 per cent respectively in 1993-94. It decreased to 25.7 and 13.7 respectively during the year 2011-12. The number of the poor below the poverty line was 328.6 million in rural area and 74.5 million in urban areas during 1993-94. It decreased to 216.7 million in rural areas and to 53.1 million in urban areas during the year 2011-12

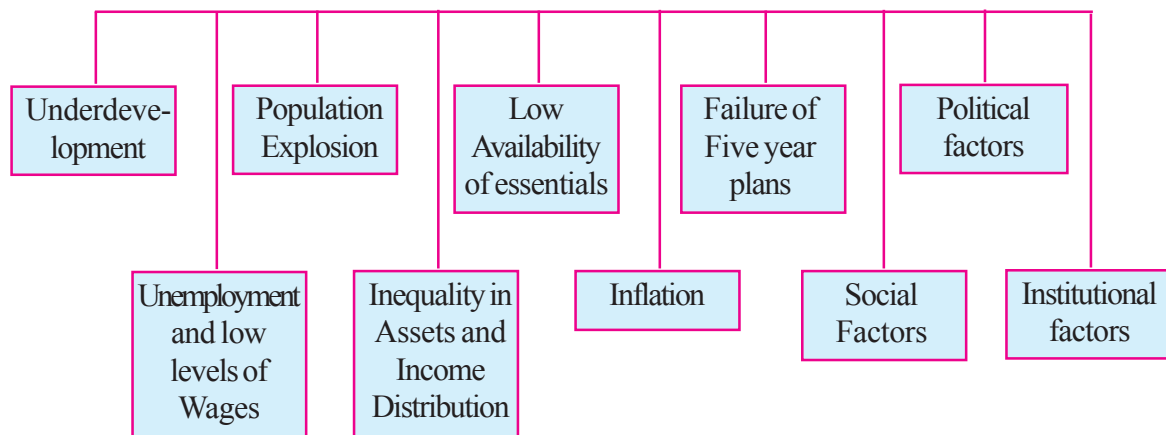
3.9.3 The Poverty Gap Index

The poverty gap index is defined by the mean distance below the poverty line expressed as a proportion of that line. The poverty gap thus measures the transfer that would bring the income of every poor person exactly up to the poverty line, thereby eliminating the poverty. In this way the poverty gap reflects the depth of poverty, as well as its incidence. However, the poverty gap index is insensitive to the extent of inequality among the poor. If income is transferred from a person to some one who is poor, the poverty gap index will not change.

3.9.4 Causes of Poverty

Poverty cannot be attributed to any single set of causes. It is a complex phenomenon and as such is the outcome of interaction of diverse factors, economic and non-economic.

Figure 5: Causes of Poverty



1. Underdevelopment

The root cause of poverty is the underdevelopment of Indian economy. Dandekar and Rath have argued that unviable and unprofitable farms with little capacity for capital accumulation have been responsible for rural poverty in India. Small and scattered holdings, lack of adequate inputs, lack of credit facilities and insecure tenancy system are all responsible for backwardness of Indian agriculture which causes rural poverty. Industrial development has failed to make any dent on poverty. It is due to the fact that highly capital-intensive industrialization has been associated with the increasing capital-output ratio and decreasing labour-capital ratio. Moreover, employment and income

generation for unskilled labour force have been minimal. So industrial sector also is a cause for poverty.

2. Unemployment and Low Levels of Wages

Poverty is caused by under-employment or unemployment coupled with low rates of wages. This is because supply of labour is more than that of demand for labour. Due to shortage of Capital, the industrial sector is not in a position to absorb more number of people. This causes poverty.

3. Population Explosion

In India population has increased from 361.09 millions in 1951 to 1210.19 millions in 2011. The population growth during 60 years is more than three and a half times. Due to scarce capital and low level of technology, it is not possible to provide sufficient goods services to the fast growing population. Rapid growth of population is another important cause for the prevailing poverty in the country. It is obvious that when a certain income has to be divided among too many people, the per capita income is bound to be low which in turn causes poverty.

4. Inequality in Assets and Income Distribution

The relative poverty is to be attributed to inequality in the distribution of National Income. Most of the agricultural labourers are in a state of poverty because; they have less than one hectare land to cultivate. Likewise, inequality in the ownership of industrial and commercial capital is one of the reasons of urban poverty in India.

5. Low Availability of Essentials

Another important cause for poverty in India is the low availability of essential commodities. The country is not able to produce sufficient goods and services as needed by the rapid growing population. The consumer goods shortage is responsible for low level of standard of living. There is a wide disparity in the consumption levels of the top rich and the bottom poor.

6. Inflation

Continuous rise in prices is another cause of poverty. When the prices rise, the purchasing power of money falls and it leads to impoverishment of the lower middle and poorer sections of the society. Inflation affects the living standards of the people having low incomes.

7. Failure of Five Year Plans

The main objective of the planning is to provide minimum level of living to all its citizens. It was felt that growth rate achieved during the five decades of planning would not be sufficient to remove poverty.

8. Social Factors

Economic development depends not only on available resources but also on social factors. Indian people lack initiative and resourcefulness. In short, dogmatic and fatalistic attitude is responsible for inertia, lack of initiative and dynamism. Thus, Indian social institutions and attitudes hamper economic progress and are responsible for perpetuating poverty. The caste system and joint family system and the laws of inheritance are a great obstacle to economic progress.

9. Political Factors

Being under foreign rule, India was exploited under the British regime. Since independence, the other political factors have adversely affected the economic progress. We have political leaders who have placed self before service and who do not hesitate to enrich themselves at the cost of the country. The Indian administration is known to be corrupt and inefficient. The legislators would not pass laws which may help the poor. Some times they may hit their interest.

10. Institutional Factors

There are certain institutional factors operative in rural areas as well as urban areas having a strong bearing on ownership, management and work. Semi-feudalism is an institutional factor responsible for rural poverty. The Social and Political institutions in rural areas have not allowed the land reforms and technological reforms to make a dent on rural poverty. The government is providing agricultural inputs like electricity, seeds, fertilizers and credit facilities at subsidized prices to the farmers. But these facilities are not catering the needs of poor farmers having small holdings and also the tenants. The institutional rigidities have not allowed equitable sharing of public goods such as education and health.

Thus, all factors, economic, social and political, have contributed to perpetuate poverty in India.

3.9.5 Remedial Measures to Reduce Poverty

In recent years, a two- pronged strategy was introduced by the government towards a solution to the problem of poverty in India.

1. The expansion of sectors which promise higher level absorption and
 2. Empowering the poor with education, skill formation and health, so that they can enter sectors which require higher competence and provide better remuneration which enable the poor to cross the poverty line. The problem solving strategies are:
- I. **Adoption of a strategy of pro poor growth instead of emphasizing liberalization and GDP growth:** Former Prime Minister Atal Bihari Vajpayee in his Independence Day Message (15th August 2001) stated “The fruits of liberalization have not adequately reached the poor and the people living in rural areas, inequalities have increased.” The Government has to pay attention to improve the economic conditions of 92 percent work force employed in unorganized

sector. Government should give priority to the removal of unemployment in unorganized sector. “Right to Work” should be made a basic human right. In this modal emphasise should be laid on development of irrigation and watershed development with people’s participation. Agricultural cooperatives should be strengthened.

II. Stimulation Agricultural Growth: The growth rate of Agriculture was 2.7% in the 9th P lan and only 1.7% in the 10th Plan. To overcome this type of slow growth rate, the Government of India appointed a high power commission under the Chairmanship of Dr. M.S. Swaminathan which suggested the following 5 point action plan for the farmers.

1. To undertake enhancement of soil health programmes.
2. To promote Water - Harvesting, Conservation and Equitable use by Empowering Panchayats.
3. To reduce the crop loan interest to 4 per cent.
4. To set up Krishi Vigyan Kendras for training the farmers.
5. To reduce the gap between what the rural producer gets and the urban consumer pays should be reduced.

III. Increasing the Productivity and Job Quality of the Unorganized Sector: The National Democratic Alliance Government appointed Special Group on Targeting 10 Million Employment Opportunities under the Chairmanship of S.P. Gupta in 2002 to emphasize the growth of unorganized sector as surest method to reduce unemployment and poverty.

IV. Improving the Share of Wages in the Process of Growth to Achieve Poverty Reduction:

Table 3.9

Share	1989-90	1994-95	2000-01	2001-02	2004-05	2009-10
Profit	19.1	40.6	24.9	24.2	55.6	56.2
Wage	70.8	52.4	54.6	44.0	37.7	36.5

Source: CSO, *Annual Survey of Industries, Various Issues*.

The table 3.9 explains wage share decline from 70.8% in 1989-90 to 36.5% in 2009-10. The share of profits which was merely 19.1% in 1989-90 rose to 56.2% in 2009-10. This drastic change in share of profits as against the fall in the share of wages is the cause of slow-down in poverty reduction.

V. Empowerment of the Poor through Education and Skill Formation: The development of a huge educational structure of 378 Universities and 18,064 Colleges, 152 Lakh Secondary and Higher Schools and 10.43 Lakhs of Primary and Upper Primary Schools helps to enrich the human resources that leads to reduce the poverty.

- VI. Empowerment through Provision of Better Health:** The strong link between poverty and health needs to be recognized. Long term illness and expensive illness can drive even the non-poor, into poverty. National Rural Health Mission (NRHM) and National Urban Health Mission (NUHM) are the two major initiatives to help the poor in the availability of health facilities. There is a need to extend health insurance for workers in the unorganized sector, in order to overcome from poverty trap.
- VII. Empowering the Poor Through Provision of Housing:** House is the basic need for both rural and urban poor. The country must launch a massive programme to provide housing in the form of Indira Aawas Yojana and basic civic amenities in a period of 20 years.
- VIII. Empowerment through Skill Formation for Expanding IT Sector:** The development of Information and Technology Sector provides number of employment opportunities which enable to reduce the poverty. This will be possible through the following measures
- Governments should provide subsidized higher education and vocational training to the poor.
 - Sanction a large number of merit scholarships for the poor.
 - Government should help the educational institutions both financially and infrastructure-wise to provide education to the poor.
- IX. National Rural Employment Guarantee Scheme:** The National Rural Employment Guarantee Act came into force in 2006 in India's 200 most backward districts; which subsequently extended to cover all districts from April 1st 2008. The Union Budget 2010-11, allotted Rs. 40,100 corers to provide employment for the rural people and certainly it helps to reduce the poverty.

For removal of poverty, we need two sets of measures (a) we must accelerate economic growth by increasing substantially our National Income and (b) our efforts of re-distributing National Income in favour of the poor should be more pronounced. Thus, accelerated economic growth and reduction of inequalities are both indispensable for a successful attack on mass poverty.

3.10 Micro Finance-Eradication of Poverty

Noble Laureate Muhammed Yunus is credited with laying the foundation for the modern Micro Finance Institutions with establishment of Grameena Bank in Bangladesh in 1976. Micro Finance Institutions in India exist as Non Governmental Organizations. A section of 25 companies and Non Banking Financial Companies (NBFC's) and Commercial Banks, Regional Rural Banks, Cooperative Societies and other large lenders have played an important role in providing refinance facility to Micro Finance Institutions.

“Micro Finance is the provision of Financial Services to low income clients or solidarity lending groups including consumers and self employed, who rationally lack access to banking and related services”. It covers a wide range of services like credit, savings, insurance, remittance and also non-financial services like training and counseling.

3.10.1 Features of Micro Finance

1. Borrowers are from the low income groups.
2. Loans are of small amount. (Micro Loans)
3. Short duration loans.
4. Loans are offered without collateral securities.
5. High frequency of re-payments.
6. Loans are generally taken for income generation purpose.

3.10.2 Need for Micro Finance

According to a latest research done by the World Bank, India is a home to almost 1/3 of the world's poor. Though many central and state governments' poverty alleviation programs are currently active in India, Micro Finance plays a major contributor to provide credit facilities. In the past few decades it has helped out remarkably in eradicating poverty. Reports show that people who have taken Micro Finance have been able to increase their income and thereby their standard of living.

Many of the Indians do not have a savings bank account and they are deprived of all banking services. Poor also need financial services to fulfill their needs like consumption, building of assets and protection against risk. Micro finance institutions serve as a supplement to banks and in some sense a better one too. These institutions not only offer micro credit but they also provide other financial services like savings, insurance, remittance and non- financial services like individual counseling, training and support to start own business. The borrower receives all these services at his/her door step and in most cases with a repayment schedule of borrower's confidence. But all this comes at accost and the interest rates charged by these institutions higher than commercial banks and vary widely from 10 to 30 per cent.

3.10.3 Channels of micro finance

In India micro finance operates through two channels.

- (i) **Self Help Group- Bank Linkage Programme:** This is the bank-led micro finance channel which was initiated by NABARD in 1992. Under the Self Help Group model, the members usually women in villages are encouraged to form groups of around 10-15. The members contribute their savings in the group periodically and from these savings small loans are provided to the members. This model has been very much successful in the past and it is becoming more popular. The self help groups are self- sustaining and

once the group becomes stable, it starts working on its own with some support from NGOs and institutions like NABARD and SIDBI.

- (ii) **Micro Finance Institutions:** Those institutions which have micro finance as their main operation are known as micro finance institutions. These institutions lend through the concept of Joint Liability Group (JLG) A joint liability group is an informal group consisting of 5 to 10 individual members who come together for the purpose of availing bank loans either individual or through the group mechanism against a mutual guarantee.

3.10.4 Micro Finance –Benefits and Limitations

Micro financing produces many benefits for poverty stricken, or low income households. One of the benefits is that it is very accessible. Banks today simply won't extend loans to those with little to no assets, and generally don't engage in small size loans typically associated with micro financing. Micro financing is based on the philosophy that even small amounts of credit can help end the cycle of poverty. Another benefit produced from the micro financing initiative is that it presents opportunities, such as extending education and jobs. Families receiving micro financing are less likely to pull their children out of school for economic reasons. As well, in relation to employment, people are more likely to open small businesses that will aid the creation of new jobs. Overall, the benefits outline that the micro financing initiative is set out to improve the standard of living amongst impoverished communities.

There are also many challenges within microfinance initiatives which may be social or financial. Here, more articulate and better-off community members may cheat poorer or less-educated neighbors. This may occur intentionally or unintentionally through loosely run organizations. As a result, many microfinance institutions require a large amount of social capital or trust in order to work effectively.

Critics say that micro credit has not increased incomes, but has driven poor households into a debt trap, in some cases even leading to suicide. They add that the money from loans is often used for durable consumer goods or consumption instead of being used for productive investments, that it fails to empower women, and that it has not improve health or education.

In short, micro credit has achieved much less than what its proponents said it would achieve, but its negative impacts have not been as drastic as some critics have argued. Micro credit is just one factor influencing the success of small businesses, whose success is influenced too much larger extent by how much an economy or a particular market grows.

MODEL QUESTIONS

I. Write an essay on the following questions

1. Explain the National Income Trends in India
2. Briefly explain the sectoral contribution to the National Income
3. What are the causes for inequalities in the distribution of income and Wealth
4. Briefly explain the measures to reduce income inequalities in India
5. What are the causes for poverty in India
6. Write about the remedial measures to reduce poverty in India
7. What is the role of Micro Finance in reducing the poverty in India
8. Explain the causes for unemployment and remedial measures to reduce unemployment

II. Answer briefly for the following questions

1. Explain the incidence of unemployment
2. What are the different concepts of poverty
3. what are the different types of unemployment
4. Write briefly about Employment Guarantee Act
5. Explain briefly about Deen Dayal Upadhyaya Grameena Kaushlya Yojana
6. Micro finance
7. M G N R E G S

III. Write the answers in one or two sentences

1. National Rural Employment Guarantee Scheme
2. Relative Poverty
3. Absolute Poverty
4. T R Y S E M
5. Disguised unemployment
6. Poverty Gap Index
7. Usual status concept of unemployment
8. Micro-finance
9. Per capita income

Glossary

National income: The volume of commodities and services produced during a given period counted without duplication.

Percapita income : National income /population.

Disguised unemployment: A person whose marginal productivity is zero or when more people are engaged in a job than actually required.

Under employment : Under utilization of labour force or not fully utilized.

Chronic unemployment : A person who remained unemployed for a major part of the year.

Absolute poverty : A person whose income or consumption expenditure is so meager that he lives below the subsistence level.

Relative poverty : The people with lower income are relatively poor compared with higher incomes, even though they may be living above the minimum level of subsistence.

Poverty gap : Poverty line –average consumption expenditure of the poor /poverty line.

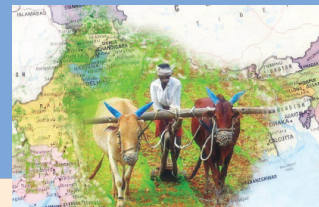
Poverty line : The poverty line as the midpoint of monthly per capita expenditure class having a daily calorie intake of 2400 per person in rural area and 2100 in urban area.

Micro-finance : The provision of thrift, credit and other financial services in small quantity to the poor people to raise their incomes and living standards.

Standard person year : A person working 8 hours a day for 273 days of the year is regarded as employed on a standard person year.

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CHAPTER

4

AGRICULTURE SECTOR

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4.0 Introduction

Agriculture plays a vital role in Indian Economy and is the backbone of Indian economy. It provides employment to around 55 per cent of the total work force in the country. It provides raw material for industries and market for industrial goods. It is the supplier of food for 121 crore people. India is the land of producing multiple crops. In our country agriculture is not only an important occupation of people but also a way of life, culture and custom. Even after six decades of industrialization, agriculture still occupies a place of pride. Agriculture has shown remarkable progress in the developed countries like Denmark, Australia, New Zealand etc. The countries like Sweden and Canada achieved good progress even though the percentage of people depends on agriculture is high. Every country assigns more importance to agriculture sector in initial stages of economic development.

India stands first in the World in the production of pulses, jute and milk and second in the production of rice, wheat, groundnut, sugarcane, cotton, vegetables and fruits. Thus, Indian agriculture occupies international importance. Agriculture development is central to economic development of the country.

4.1 Importance of agriculture in indian economy

The importance of agricultural sector can be illustrated by the following contributes.

1. Share of agriculture in the National Income

Agriculture Sector, including forestry, fishing, mining, quarrying and allied activities like animal husbandry, horticulture, silk industry etc., is significantly contributing to the Gross Domestic Product in India.

Table 4.1: *Share of agriculture sector in gross domestic product*

Year 1999-2000 Prices	Percentage share of Agriculture Sector in Gross Domestic Product.
1950-51	56.50
1970-71	45.90
1990-91	34.00
2000-01	24.70
2005-06	19.55
2006-07	18.51
2007-08 (2004-05) Prices	17.80
2008-09	15.70
2009-10	14.70
2010-11	14.50
2011-12	13.90
2012-13	13.60
2013-14	13.90

Source: *Economic Survey 2007-08. Statistical abstract of India 2008. CSO, National Accounts and Statistics – 2010, Economic Survey – 2013-14.*

The Table 4.1 shows that the share of agriculture in National Income has been declining gradually from 1950-51. This is mainly due to the development of non-agriculture sectors during the five years plans in the economy. The share of agriculture in national income declined gradually from 56.5 per cent in 1950-51 to 13.9 per cent by 2013-14. Still the share of agriculture in GDP is considerable. The share of agriculture in national income in U.K. and U.S.A. is 2 to 3 per cent. The proportion is about 7 per cent in France and 6 per cent in Australia.

2. Employment providing Sector

Agriculture dominates the economy to such an extent that a very high proportion of working population in India is engaged in agriculture.

Table 4.2: Population and Agriculture Workers (In Millions)

Population	1951	2011
1. Total population of India	361	1210
2. Total Working Population	140 (100%)	427.9 (100%)
3. Cultivators	70 (50%)	127.3 (29.7%)
4. Agricultural Labourers	28 (20%)	106.8 (25%)
5. Population employed on land	98 (70%)	234.1 (54.7%)

Source: *Agriculture Statistics at a Glance (2012), Various Rounds of NSSO Survey*

The data in Table 4.2 shows that agriculture provided employment to 98 million peoples in 1951. The number of people working on lands both the cultivators and agricultural labourers increased to 234 million in 2011. In terms of percentage, people working on land decreased from 70 to 54.7 during 1951-2011. According to the data, still the total population engaged in agriculture is 54.7 per cent. Agricultural labourers increased from 20 to 25 percent during 1951 to 2011. During the same time, cultivators declined from 50 per cent to 29 per cent which indicates the pauperization of rural farmers.

In case of developed countries the population engaged in agriculture is very much less. For example, in USA and UK only 2 per cent, in Japan and France 4 per cent and in Australia 6 per cent of the total work force are engaged in agriculture.

3. Importance in international TRADE

For a long time three agricultural based exports of India like cotton textiles, Jute and tea accounted more than 50 per cent. If we add other agricultural commodities the share of agriculture in exports will rise to 70 to 75 per cent.

At present we are exporting Sugar, Cotton, Tobacco, Rice, Cashew nuts, Spices, Oilcakes, Coffee, Tea, Fish, Meat, Fruits, Pulses etc., to foreign countries. By exporting all these products we are earning foreign exchange.

Table: 4.3: *Value of principal agricultural products export (in rs. crore)*

Year	Value of total Exports	Value of Agricultural Products Exported total exports	Percentage of Agricultural exports to
1960-61	642	284	44.2
1970-71	1,535	487	31.7
1980-81	6,711	2057	30.7
1990-91	32,553	6317	19.4
2000-01	203571	28,582	14.0
2010-11	11,42,922	1,11,393	9.7
2011-12	14,65,959	1,80,279	12.3

Source : *GOI (2009). Economic Survey 2008-09 and 2012-13, Agricultural Statistics at a Glance (2010).*

The Table 4.3 reveals that the total value of agricultural products exported was Rs. 284 Crore in 1960-61. This amount has increased to Rs. 1,80,279, Crore in 2011-12. The total value of agriculture exports, as a proportion of total exports declined from 44.2 per cent in 1960-61 to 12.3 per cent by 2011-12. As a result of liberalization after 1991 exports of agricultural products registered a significant rise. But its share has been declined from 44.2 percent in 1960-61 to 12.3 per cent in 2011-12 because the total exports of other sectors of the economy increased rapidly.

4. Effective social safety Net

Though agriculture presently contributes less than 15 per cent of Indians GDP yet it continues to employ more than half of the work force. If crops, animal husbandry, fisheries, agro-forestry, silk industry and horticulture are developed at household level, hunger and poverty will be alleviated. Green Revolution, along with white Revolution and Blue Revolution, provides income and employment to the rural poor by eradicating poverty. Thus, agriculture acts as an effective social safety net.

5. Food supplier of the expanding Population

The Hunger Index shows that India's rank is 55 out of 76 countries. According to FAO, India is a hunger affected country. Because of the heavy pressure of population the existing levels of food consumption in our country are very low. The per capita availability of food grains was 510.1 grams per day in 1991. But it has declined to 468.9 gms in 2013. Therefore, unless agriculture is able to increase continuously its marketed surplus of food grains a crisis will emerge. Though the production of total food grains is 255 million tonnes, yet food security is lacked. Hence, agriculture plays an important role in providing food for growing population.

6. Role of agriculture in Industrialisation

Industries which depend on agriculture products for their raw material are called agro-based industries. Industries like Cotton, Jute, Textile, Sugar, Flour mills, Edible oil etc., directly depend on agriculture for raw material. Some other industries like handloom weaving, rice husking, food processing, oil crushing, horticulture etc., are depend on agriculture. The development of agriculture sector will expand the demand for industrial goods. The growth of agriculture sector facilitates the supply of more capital and labour to the industrial sector. Thus the development of industrial sector facilities the development of agriculture sector by supplying inputs like machines, fertilizers, pesticides etc.

We can understand agriculture and industrial sectors are interdependent.

7. Market for industrial Products

Two thirds of the population of developing countries like India lives in rural areas. The purchasing power of these people in rural areas is too low to purchase industrial products. If steps are taken to increase agriculture produce and productivity, the income of the rural sector will increase. As a result of increase in income of those who depend on agriculture in rural areas causes demand for industrial goods. The increased demand for industrial goods leads to the development of industrial sector.

8. Other Factors

- a. The development of agriculture sector directly promotes growth in transport sector. By transporting the products of agriculture, transport sector earns income. Both of these sectors are interdependent in growth.
- b. Development of agriculture sector invites expansion of branches of banks into rural areas. These banks collect not only deposits from rural areas to form capital but also provides financial assistance to them.
- c. Agriculture development minimizes migration from rural to urban.
- d. Agriculture being the chief source for the supply of food and fodder to the cattle plays a crucial role in the development of animal husbandry and dairying.
- e. Farm tourism in rural areas can be developed through the development of agriculture.
- f. Agriculture and its allied sectors play a key role in protecting biodiversity.
- g. Both the Central and State Governments are allocating more funds in budget for the development of agriculture in order to accelerate the growth of farm sector. It implies the importance of agriculture.

Thus, agriculture occupies a vital role in the Indian Economy.

4.2 Features of Indian Agriculture

The following are the some important feature of Indian Agriculture.

1. Uncertainty in crop output

Monsoons and climatic conditions play a significant role in Indian agriculture which often affects agriculture productivity adversely. Moreover, floods and drought are quite common. Hence, Indian agriculture is rightly to be called a 'gamble on monsoons'. As a result of these unforeseen contingencies production and productivity are uncertain.

2. Feudal relation of Agriculture

After Independence Zamindari and Mahalwari systems were abolished and Ryotwari system came into existence. Ryots in Ryotwari system also leased out their lands to tenants. Under this system tenants do not possess security of tenure, regulation of rent and ownership rights. Consequently, these feudalistic relations adversely affected Indian agriculture.

3. Rural Indebtedness

After Independence the Government has initiated Co-operative Credit Societies and banks for providing rural credit. However, the small and marginal farmers continue to depend on money lenders for their requirements. These money lenders charge exorbitant rates of interest and manipulate accounts to their advantage. Hence, rural indebtedness prevailing in agriculture sector has become common. Because of indebtedness farmers are unable to invest more on agriculture to reap much harvest.

4. Dualism in Labour market

Because of pressure of population on land, wages in agricultural sector are considerably lower comparatively to the industrial and service sectors of the economy. Large number of workers are sticking to agriculture despite wages are low, as they are ignorant of better opportunities outside agriculture and unable to do jobs in other sectors. The cheapness of labour in the traditional agricultural sector causes that labour in agriculture sector to be used extensively rather than other sectors of the economy where wages are high.

5. Diversities in Agricultural sector

The nature of soil, magnitude of rainfall, irrigation facilities etc, vary from one region to another region. Similarly, drought conditions, floods, problems of water salinity etc, vary among various regions of our country. In the same way elements of nitrogen, phosphates and potash also differ significantly in different areas. The sizes of land holdings are differ in various regions. These variations affect cropping pattern.

6. Outmoded Farming techniques

Most of the Indian farmers continue to use outmoded farming techniques. The traditional agriculture depends on human and animal labour, rains and dung manure. Thus, this results in subsistence farming. As a result of new strategy in agriculture the use of hybrid seeds, chemical fertilizers, pesticides, machines etc, have taken place in agricultural operations. Hence, agricultural production increased in those areas which induced by new technology. Consequently, technological dualism has emerged in the country's agrarian sector.

4.3 Agricultural Labour in India

The number of people living in agriculture sector in developing countries like India is very high. Unfortunately agriculture labour belongs to economically depressed and socially backward sectors of rural economy. Even though other sectors of economy in India have been developed, it is observed that the number of people depend on agriculture for their survival is 263 million in accordance with 2011 census.

4.3.1 Meaning of Farm Labour

The people who work on agriculture sector for their survival can be treated as agricultural labour. Agricultural sector never provides full employment and wages continuously throughout the year. Hence, it is necessary to them to work in non-agricultural sector for livelihood.

The First Agricultural Labour Enquiry Commission 1951 has defined the farm labour as "The labour who work in agriculture sector more than 50 per cent of the working days in a year "is treated as agricultural labourer.

The Second Agricultural Labour Enquiry Commission – 1957 has defined "The Farm Labour as the labour who receive more than 50 per cent of their income from agricultural sector".

4.3.2 Classification of Agricultural Labour

The Agricultural Labour Enquiry Committee had classified agricultural workers into two types. They are 1.Casual Labour and 2.Attached Labour. Casual labour can be classified into:

- a. Small farmers who have very small holdings and are compelled to work in other farms to earn their livelihood.
- b. Tenants who work on leased land.
- c. Share Croppers who besides sharing the produce of land cultivated by them and work as labourers in other farms.

The living condition of attached labour is pitiable as they almost become bonded labour but the casual labour lead free and independent life.

4.3.3 The Growth of Agriculture Labour in India

Farm Labour can easily be defined but it is very difficult to estimate its number. According to the 2011 Census, the total population is 1210.6 millions out of which 833.5 million are rural population. Among them 144.3 million are agricultural labourers.

Table 4.4: *Growth of Farm Labour in India*

Year	Number of Agricultural Labour in Millions	Per cent in the total work force
1951	27.3	28.1
1961	31.5	24.0
1971	47.5	37.8
1981	55.5	37.5
1991	74.6	40.3
2001	106.8	45.6
2011	144.3	54.9

Source: *Agricultural Statistics at a Glance, 2013.*

The Table 4.4 shows that the number of agricultural labourers has increased from 27.3 million in 1951 to 144.3 million in 2011. The following are the most important factors responsible for continuous and enormous increase in the number of agricultural labour in India.

1. High growth rate of population.
2. Decline of handicrafts and cottage industries.
3. Eviction of small farmers and tenants from land.
4. Uneconomic holdings.
5. Increase in indebtedness.
6. Capitalist agriculture.

The class of agricultural labourers is the most exploited and oppressed class in rural hierarchy. They were victims of social discrimination and economic exploitation. Agricultural labour are caught in the vicious circle of poverty even after 6 decades of Independence.

4.3.4 Conditions of Agricultural labourers

1. Low Social Status

Most of the agricultural labourers are belonged to the depressed classes. They have been neglected for ages. Agricultural Labourers have been headed socially handicapped till now. In case of such farm labourers, exploitation has become common and they have not fought for their rights.

2. Unorganised

Agricultural labourers are living in scattered villages. Moreover, they are illiterates. Hence, they cannot easily be organized. As a result it is difficult for farm labourers to bargain with the land owners for good wages.

3. Seasonal Employment

Agricultural Labourers have to face the problems of unemployment and underemployment. They are employed while sowing and harvesting season but a substantial part of the year they remain unemployed. Unemployment and Underemployment are important factors of low income which result in low standards of living for agricultural labour.

4. Low Wages and Income

Agricultural wages and family incomes of agricultural labourer are very low. The wages of farm labourers vary from state to state. In case of attached labourers these wages are pathetic. In most of the states except Karnataka, Punjab and Uttar Pradesh money wages are low. With the advent of the green revolution, money wage rates started increasing. However, as prices also increased considerably, the real wage rates did not increase much.

5. Rural Indebtedness

Because of the low level of income agricultural labour generally seek debts. However, because of extreme poverty, they are not in a position to provide any security. Hence, it is inevitable on part of the farm labourers to resort non institutional organizations like land lords and money lenders for debt who collect high rate of interest. In fact the debt of agricultural labourers passes from generation to generation and become bonded labour.

6. Femanisation of Agricultural Labour

Female agricultural workers are generally forced to work harder. They are paid less wages comparatively to male workers,

7. High incidence of Child Labour

It is estimated that one-third of child labourers in Asia are in India. The largest numbers of child workers are engaged in agriculture. Wages paid to child labourers are too low which adversely affect the incomes of their households.

8. Lack of subsidiary professions

Another serious problem that is being faced by farm labourers is lack of non-agricultural occupations in the villages. As there is no work on the fields, agricultural labour has no other means to earn for subsistence. Thus, they are disguised and are burden on land.

4.3.5 Measures to Improve the Conditions of Agricultural Labour

1. Minimum Wages Act

The Minimum Wages Act was passed in 1948. According to this act every State Government was asked to fix minimum wages for agricultural labour within three years. According to this law while fixing the minimum wages, the total costs and standards of living in various states of the country or in different parts within the state are to be kept in view. At present except Jammu and Kashmir, Nagaland and Sikkim legislations have been passed by all States fixing the minimum wages.

2. Providing Land to Landless Labourers

The Government has distributed land to landless labourers with a view to improve their economic position. The surplus land obtained by enforcing Land Ceiling Acts and those donated in Bhoodan and Gramdan were distributed among the landless labourers. Approximately 70 lakh hectares of land has been distributed among landless labourers.

3. Provision of House Sites and Houses

Mostly, agriculture labourers do not possess their own houses. They used to live in huts made of mud which adversely affect their health as they are unventilated and insufficient to a family to live. Hence, laws have been passed by several states providing house sites. Governments have taken several steps during the plans periods to provide free house sites as well as construction assistance on subsidy basis through schemes like **Indira Avasa Yojana (IAY)**, **Minimum Needs Programme(MNP)** etc,. Among them the people belonging to the weaker sections should be the beneficiaries.

4. Organization of Labour Cooperation

During the Second Five Year Plan efforts were made for the formation of Labour Cooperatives. The cooperatives whose members are labourers undertake the contracts of projects such as construction of roads, digging of canals and tanks, afforesting etc,. They provide employment to farm labourers and also eliminate the exploitation.

5. Special schemes for providing Employment

A number of schemes have been initiated in planning period to provide employment to agricultural workers. Among them some important schemes are: **Rural Works Programme (RWP)**, **Crash Scheme for Rural Employment (CSRE)**, **Employment Guarantee Scheme (EGS)**, **Food for Work Programme (FWP)**, **National Rural Employment Programme**

(NREP), Rural Landless Employment Guarantee Programme (RLEGP), Jawahar Rozgar Yojan (JRY), Sampoorna Grameen Rozgar Yojana (SGRY), Drought Prone Area Programme (DPAP) etc.,. Similarly, the Government has introduced some agencies like Small Farmers Development Agency (SFDA), Marginal Farmers and Agricultural Labourer Development Agency (MFAL) etc, to improve the standards of living of the rural poor or agricultural labourers.

6. Sanction of Loans and Subsidies

Loans should be provided to the farm labourers at low rate of interest in order to start their own business. Sometimes Governments resort debt moratorium for immediate relief of debts of agricultural labour and marginal farmers.

7. Abolition of Bonded Labour

Both exploitation and slavery are inhuman activities and punishable offences. The Government of India passed a legislation known as the Bonded Labour System Abolition Act, 1976. However even after the passing of the act, the agricultural bonded labour is still existing in some parts of the country. Bonded Labour in farm sector can be abolished either educating the farm labourers or improving their economic conditions.

8. Development of Cottage Industries

In order to minimize the pressure of population on land and to improve the economic conditions of farm labour, the Government has been making efforts to start the Cottage and Small Scale Industries in the rural areas of the country. During plans various cottage and small industries have been set up in the villages and incentives are given to such units. Thus, pressure of population on land is being minimized and employment opportunities of farm labour in non-agricultural sector are being maximized.

In addition to these measures, Government has been implementing varies programmes for the welfare of farm labourers.

4.4 Land Utilisation Pattern

Land is the most important resource of natural resources of any country. Land has the characteristic of inelasticity in supply. The economic development of a nation is directly depend on the supply of land. Only a certain proportion of the land out of the total land is available for cultivation. Therefore, the rate of economic growth of a country depends on the optimal utilization of land. Hence, in a dynamic world, certain modifications can occur in the existing pattern of land utilization.

Table 4.5: Particulars of land utilisation (2009-10)*(In Million Hectares)*

1.	Total geographical area	328.72
2.	Total reported area	305.61
3.	Not available for cultivation	42.95
4.	Forests	70.04
5.	Permanent pastures & Other grazing land	10.14
6.	Land under misc, tree crops and groves	33.51
7.	Culturable waste land	12.85
8.	Fallow lands other than current fallow	10.48
9.	Current fallows	15.75
10.	Net area sown	140.02
11.	Area sown more than once	52.17
12.	Total cropped area	192.19

Source : *Directorate of Economics and Statistics, A.P.*

The Table 4.5 shows that the total geographical area of our country is about 328.72 million hectares. The total area reported is about 306 million hectares. The total cropped area is about 192 million hectares. The total area under fallow lands is about 26 million hectares and the area under forests is 70 million hectares. As a result of increased irrigation facilities culturable waste land has been declined to 12.85 million hectares. It is to be noted that still 43 million hectares are not available for cultivation.

In addition to this the Government has provided loans and subsidies to the farmers for land reclamation. Hence, more land has been brought under cultivation.

1. Recent trends in land utilisation

The reclamation of waste and fallow lands is in good progress as a result of land reforms consisting abolition of Zamindari and Jagirdari systems. Such reforms enabled tenants to reclaim the waste and fallow lands for which they have acquired rights.

2. Increase in the area sown more than once

Expansion of irrigation facilities along with high yielding variety crops with short gestation period resulted in significant increase in the area sown more than once.

3. Use of farm land for non-farm activities

Increasing demand for non-farm activities like industrialization, house sites, etc resulted in a short fall of culturable land. As a result, land brought under cultivation is marginal. In order to meet the requirements of rapidly growing population optimum use of land resources is essential.

4.5 Cropping Pattern

The economic development of any nation depends on the utilization pattern of natural resources like land, water, minerals etc,. The Cropping Pattern in a country depends on the fertility of soil, irrigation facilities etc,. The Cropping Pattern determines the development of a country.

Cropping Pattern is defined as “The pattern of utilization of total farm land for producing different crops in country at a point of time”.

Table 4.6: *Total area cultivated under important crops*
(Million Hectares)

Crop	1960-61	1970-71	1990-91	2000-01	2010-11	2011-12
Food grains	115.6	124.3	127.8	121.0	126.7	125.0
Cerals	92.0	101.8	103.2	100.7	100.3	100.2
Pulses	23.6	22.6	24.7	20.3	26.4	24.8
Rice	34.1	37.6	42.7	44.7	42.9	44.0
Wheat	12.9	18.2	24.2	25.7	29.1	29.9
Jower	18.4	17.4	14.4	9.9	7.4	6.3
Oil Seeds	13.8	16.6	24.1	22.8	8.6	27.2
Sugar Cane	2.4	2.6	3.7	4.3	4.9	5.1
Cotton	7.6	7.6	7.4	8.6	11.2	12.2
Potato	0.4	0.5	6.9	1.2	1.9	1.9

Source: GOI Economic Survey 2012-13

The Table 4.6 shows that the area under food grains was 115.6 million hectares in 1960-61 and rose 125 million hectares by 2011-12. The area cultivated under cereals rose to 8.2 million hectares in between 1960-61 to 2011-12. But at the same time the area under cultivation of pulses recorded negligible rise i.e. 1.2 million hecters. The area cultivated under food grains like Paddy, Wheat, Maize and the area under commercial crops like Sugar Cane, Cotton, Potato, and Oil Seeds recorded a significant increase.

As green revolution confined to particular crops like food grains and commercial crops, the area under pulses declined.

4.5.1 Factors affecting cropping pattern in India

The cropping pattern in India can be affected by various factors like physical, economical, technical and Government Policies.

I. Physical Factors

Physical factors play a vital role in determining the Cropping Pattern. These factors are classified below.

1. **Climate and Rainfall:** Climatic conditions and rainfall determine Cropping Pattern. Some crops require cool climate while some other crops require hot climate. For instance, apples will be produced in cool climate. Similarly, Rainfall will affect Cropping Pattern. For instance, crops like Paddy, Sugarcane require abundance of water while crops like Jowar, Bajra etc require moderate rainfall.
2. **Nature of soil and fertility:** Nature of soil and fertility determine the production of certain crops. For instance, wheat requires well drained silt and fertile loam soils but for cotton black soils are ideal.
3. **Irrigation Facilities:** Irrigation facilities also determine the Cropping Pattern. For instance Crops like Paddy, Sugarcane and Wheat etc, require assured irrigation facilities. Some other crops like Jowar, Maize, Ragi etc, will grow in the areas where irrigation facilities are insufficient.

II. Economic Factors

Economic factors affect Cropping Pattern. They are:

1. **Price and Income Maximization:** Generally, farmers try to maximize their income. Consequently, they produce those crops whose market prices are high. As a result of fixed procurement prices of wheat and rice and other Government controls, the farmers are induced to shift to cash crops like Sugarcane and Cotton etc, Prof. M.L Dantwala opined that the area under commercial crops is increasing in India as the farmers fetching higher returns.
2. **Farm Size:** There is a relationship between Farm size and cropping pattern. At first the small farmers are interested in producing food grains for their requirement but large farmers are used to produce both food grains and commercial crops. In recent past the trend has changed considerably. At present both big and small farmers are interested in producing food grains and commercial crops rather than food grains to maximize their incomes.

3. **Availability of inputs:** The availability of agricultural inputs like seeds, fertilizers, Pesticides machines etc affect the cropping pattern in our country. Infrastructural facilities such as transport, storage, marketing, water storage etc, influence the cropping pattern significantly.
4. **Insurance Against Risk:** Generally, the farmers resort diversified cropping pattern to minimize the risk of crop failure. If Government introduces crop insurance which protects the farmers against all risks in farming, the farmers will farm those insurable crops. Thus, insurance affects cropping pattern.
5. **Tenancy system:** Existing tenancy system in India influences the cropping pattern. Generally, the Landlord decides the cropping pattern to ensure maximum profit before he leases out his land.
6. **Social Factors:** Social environment, customs, traditions etc, also influence crop pattern to some extent. These factors induce farmers to cultivate traditional crops by using traditional varieties of seeds and methods.

III. Government Policies:

Policies of Government relating to different crops, exports, taxes, subsidies, supply of inputs, availability of credit, fixing support prices etc, can affect the cropping pattern in a significant manner.

4.5.2 Measures to correct the cropping pattern

Among all economists there is a common opinion that the cropping pattern in India is not suitable to satisfy the requirements of growing population. In order to maintain an optimum cropping pattern 'The National Council of Applied Economic Research (NCAER) has made the following suggestions for better cropping pattern in India

1. Government should enact some legislation fixing the production of certain crops in certain suitable regions.
2. Government should appoint officials at local level to encourage farmers to produce more of food grains to meet the requirements of the growing population.
3. Government should encourage mechanization in agriculture sector by supplying required machines at a cheaper rate.

Above all the factors, the economic factors are considered to be most important in affecting cropping pattern.

4.6 Organic/Natural Farming

Modern agriculture largely depends on the use of chemical fertilizers, pesticides and farm machinery. The application of such high inputs have increased production and labour efficiency, but leads to adverse effects on soil health and harm to the environment, low nutritional value with poor taste. The increased levels of chemical and pesticide residues in soil, water, food and fodder crops have also been noticed. Many of these pesticides used today may cause cancer, mutations and other problems. To protect environment as well as public health use of bio-fertilizers and bio-pesticides to produce chemical free food is much more important. This is possible only through sensitization, education and training of farmers. **Organic/Natural Farming is knowledge based rather than input based agriculture.**

Organic / Natural farming is a concept of living in synergism with nature. Natural farming builds the health of the soil, providing the foundation for healthy crops and good protectors of the land. Natural Farming enhances soil fertility and bio-diversity. The basic requirement in Organic / Natural Farming Agriculture is to increase input use efficiency at each step of farm operations. This is achieved partly through reducing losses and partly through adoption of new technologies for enrichment of nutrient content in manures.

To overcome the chemical and pesticide residues and health hazards associated with chemical pesticides, it is essential to popularize various indigenous methods of Organic/Natural farming practices like production and use of Vermicompost, Beejamruta, Jeevamrutha, Ganajeevamrutha, and botanical and natural pesticide like preparation of Neem seed kernel suspension (NSKS), Preparation of Cattle urine and dung extract, Preparation of Panchakavya, Amritpani, Neemastra, Brahmastra, Agniastra and importance of mulching etc.

There is an urgent need to wide popularization and preparation of these indigenous varieties of manure and bio-pesticides among the farming community to minimize the use of chemical fertilizers and pesticides to overcome adverse effects on soil, environment as well as on public health.

4.7 Irrigation

Irrigation is the most important required input for agricultural development in India. Water is indispensable to agriculture production. Rainfall in certain areas is very scanty as well as uncertain. As a result, cultivation may not be possible for the whole year. Even now 55 per cent of gross cropped area depends on rains. That is why Indian agriculture is called “a gamble in monsoons”. Hence, in such atmosphere irrigation facilities are essential for growing multiple crops throughout the year.

4.7.1 Types of irrigation techniques

Various irrigation techniques are mentioned below.

- a. **Surface irrigaiton :** In surface irrigation systems, water moves over and across the land by simple gravity flow in order to wet it.
- b. **Localized irrigation :** Localized irrigation is a system where water is distributed under low pressure through a piped net work.
- c. **Drip irrigaiton :** Under drip irrigation system water is delivered at or near root zone of plants, drop by drop.
- d. **Sprinkler irrigation :** In sprinkler or overhead irrigation system, water is piped to one or more central locations within the field and distributed by overhead high pressure sprinklers or guns.
- e. **Sub-irrigation :** Sub-irrigation is a method of artificially raising the water to moisten the soil from below the root zone usually for potted plants. A system of pumping stations, canals, weirs and gates allows increasing or decreasing the water level in ditches and there by controls the water table.

4.7.2 Classification of irrigation Schemes

- a. **Major irrigaiton Scheme:** Culturable Command area under this scheme should be more than 10,000 hectares
- b. **Medium irrigaiton Scheme:** Culturable command areas under this scheme vary in between 2000 and 10000 hectares.
- c. **Minor irrigaiton Scheme:** Culturable command area under this system should be up to 2000 hectares.

4.7.3 Sources of Irrigaiton in India

The sources of irrigation in India are mainly classified into four. They are 1) Canal irrigation, 2) Well irrigation, 3) Tank irrigation and 4) other sources.

**Table 4.7: The extent of land under various Sources of Irrigaiton
(in Million Hectares)**

Sources of Irrigation	2001-02	Share in Percentage	2011-12	Share in Percentage
Canals	15.20	27.00	16.01	25.00
Wells: a. Other Wells	11.95	21.00	10.77	16.00
b. Tube Wells	23.24	41.00	29.40	45.00
Tanks 2.19	4.00	01.93	3	
Other sources	4.34	07.00	7.12	11.00
Total	56.92	100.00	65.23	100.00

Source : Indian Economic survey 2013-14 and 2014-15.

The Table 4.7 reveals various sources of irrigation accounting 65.23 million hectares in 2011-12 compared to 56.92 hectares in 2001-02. Compared to 2001-02, irrigation through both canals and tube wells has shown increasing trend where as through tanks has shown a decline. The share of tube wells was 41 per cent out of the total share of wells which accounted 62 per cent in 2001-02 and rose to 45 per cent in 2011-12.

1. Canal irrigation

Canals are considered to be the important source of irrigation. Though construction and maintenance of canals are highly expensive, they can irrigate a wide extent of cultivated area. Canal irrigation is more prevalent in Uttar Pradesh, Punjab, Haryana, Rajasthan and West Bengal. The irrigated area under canals accounted 16.01 million hectares in 2011-12. Canals are classified into two types. They are A) perennial canals, B) Inundation canals.

- a. **Perennial canals:** These canals supply water throughout the year to irrigate lands as they are connected to the dams on rivers. Hence, they are called perennial canals.
- b. **Inundation Canals :** These canals are constructed for controlling floods. In summer these canals go dry. However these canals are of little use during drought when water is badly needed by farmers to a limited area.

2. Well Irrigation

Wells are important and dependable source of irrigation. Wells are classified into common wells and tube wells. These common wells irrigate less area comparatively with tube wells. The total area irrigated under other wells registered 10.77 million hectares in 2011-12 and the area irrigated under tube wells recorded 29.40 million hectares in 2011-12. Well irrigation is more prevalent in Uttar Pradesh, Punjab, Gujarat and Bihar. The Area irrigated under tube wells is more in Uttar Pradesh.

3. Tank Irrigation

Tanks form another source of irrigation. Tank irrigation is common in those areas where canal and well irrigation is not possible. Generally, tanks are filled with rain water and later they are used for agriculture. Tank irrigation is popular in Southern States like Andhra Pradesh, Tamilnadu and Karnataka. Tank irrigation is common all over the country except Punjab and Bihar. Total area under tank irrigation is 1.93 million hectares in 2011-12.

4.7.4 Importance of Irrigation

The following reasons explain the importance of irrigation in Indian context.

1. **Insufficient, uncertain and irregular rains :** The period of rainfall is restricted to only four months during monsoons. Even during monsoons the rainfall is scanty. Sometimes monsoons are delayed while some other times they are pre matured. This type of atmosphere results in drought conditions. Hence, with the help of proper development of irrigation, droughts and famines can be effectively controlled.
2. **Higher productivity on irrigated land :** Irrigation helps greatly in raising the productivity of land than unirrigated land. Because this enables the application of modern inputs like fertilizers, high yielding varieties of seeds etc. Consequently, yields of food grains under irrigation grew at an annual rate of 1.6 per cent to 2.6 per cent than unirrigated where it is merely either 1 per cent or negligible.
3. **Multiple cropping possible :** India is a land of tropical and sub-tropical climate. It has potentialities to grow crops throughout the year but rainfall is restricted to less than four months. Provision of irrigation facilities can make possible the growing of multiple crops throughout the year.
4. **Crucial role in new Agricultural strategy :** The successful implementation of high yielding varieties programmed depends on timely and adequate supply of water. These seeds require chemical fertilizers and substantial water at regular intervals of time. Therefore, irrigation facilities facilitates the expansion of new agricultural strategy to larger areas of land.
5. **Bringing more land under cultivation :** The total reporting area according to land utilization statistics was 305.56 million hectares in 2009-10. Of this, land not available for cultivation was 42.95 million hectares and fallow lands were 26.23 million hectares. Thus, some portion of the waste land can be brought under cultivation if there is availability of irrigation facilities.
6. **Prosperity :** Irrigation helps in stabilizing the output and yield level. Irrigation plays a protective role during drought years. Income and employment are positively related to output. Thus, irrigation facilities prevent fall in output during drought and achieve stability in income and output which in turn result prosperity.
7. **Indirect benefits of irrigation :** Expansion of irrigation facilities all over the country avoid disparities in the production of food grains. Irrigation promotes the growth of agriculture and allied sectors. Thus, increased production in agriculture stabilizes the prices of agricultural products.

Irrigation is important in India where agriculture is one of the prior sector of Indian Economy.

4.8 Productivity of Agriculture in India

Agriculture plays a predominant role in Indian Economy. The productivity in Indian Agriculture is too low when we compared to the agricultural productivity of other countries in the world. Agricultural productivity has two components. They are food grains and non-food grains. All kinds of pulses are included under food grains. Rest of the crops excluding food grains like sugarcane, cotton, jute, oilseeds, horticulture, floriculture, vegetables are included under non food grains. Since 1951, during five year plans much emphasis was laid on agricultural development. As a result of green revolution, particularly after 1965 there was a steady increase in the area under cultivation, area irrigated, area under high yielding varieties. Similarly, the production and productivity of agriculture also recorded a steady rise.

By productivity we mean an average production or yield per hectare but production we mean the total produce of land holding.

Table 4.8: Yield per Hectare of Major crops (kgs Per hectare)

Crop	1960-61	1980-81	1990-91	2000-01	2011-12	2012-13
1. Rice	1013	1336	1740	1901	2372	2462
2. Wheat	851	1630	2281	2708	3140	3118
3. Jowar	533	660	814	764	962	862
4. Bajra	286	458	658	688	1171	1214
5. Maize	926	1159	1518	1822	2478	2552
6. Pulses	539	473	578	544	694	786
7. Total food Grains	710	1023	1380	1626	2059	2125
8. Oil Seeds	507	532	771	810	1,135	1,169
9. Cotton	125	152	225	190	491	482
10. Jute	1049	1245	1833	2026	2389	2350

Source: Government of India Economic Survey 1980-81, Economic Survey, 2007-08, Reserve Bank of India, Handbook of statistics on Indian Economy 2012-13.

The Table 4.8 reveals the yield levels of the selected major crops have been increasing significantly during the period 1980-81 to 2012-13 when compared to the green revolution before year 1960-61. The yield of total food grains like rice and wheat increased by almost three times when compared to the year 1960-61. Among non-food grains, cotton, oilseeds and jute recorded a modest growth during the green revolution period. In case of pulses impressive growth has not taken place because green revolution has less effective in these crops.

4.8.1 International Comparisons

A comparison of productivity levels in Indian agriculture with the levels of other countries shows how low the productivity in Indian agriculture is.

Table 4.9: Productivity of Selected crops in selected countries, 2012

(Kgs per Hectare)

Crop/country	Productivity	Crop/Country	Productivity
1. RICE		4. MAIZE	
Egypt	9702	U.S.A	7744
Japan	5391	France	9085
Myanmar	4049	Argentina	7343
China	6744	Philippines	2856
Thailand	3000	China	5956
U.S.A.	8349	India	2507
India	3591	World	4494
World	4395		
2. WHEAT		5. GROUNDNUT	
China	4995	China	3575
France	7599	U.S.A	4699
Iran	1971	Vietnam	2134
Pakistan	2714	Brazil	3089
England	6657	Japan	2410
Egypt	6516	India	1179
India	3173	World	1676
World	3115		
3. SUGARCANE			
Argentina	71429		
Brazil	71304		
China	68111		
Colombia	125164		
Egypt	114983		
India	68344		
World	68854		

Source: Government of India Agricultural Statistics at a Glance-2013.

As shown in the Table 4.9 the productivity of some main crops like Rice, Wheat, Maize, Groundnut, Sugar cane etc., is very low when compared with the other countries of the world. Productivity of wheat and groundnut exceeded the world average but the productivity of sugarcane is almost near to the world average

4.8.2 Potential and actual productivity

Though the productivity in Indian Agriculture is lower than that of other countries yet it is much lower than the Potential.

Table 4.10: Potential and productivity

(Kgs per hectare)

Crop	Potential	Actual (2012-13)
Rice	4000/5810	2462
Wheat	6000/6800	3118
Jowar	3000/4200	862
Maize	6000/8000	2552
Cotton	700/850	482
Jute	2500/3000	2350
Sugar cane	96000/112000	66988

Source : Reserve Bank of India, *Handbook of Statistics on Indian Economy 2012-13*.

4.8.3 Causes for low productivity in agriculture

The causes for low level of agriculture productivity in India are manifold. They can be grouped into four broad categories.

I. General Causes

The following are the general causes for low productivity in agriculture sector.

- 1. Pressure of population on Agriculture:** Pressure of population on agriculture is heavy as a result of high growth rate of population and slow growth rate of other sectors of the economy. In 2011, about 263 million workers out of 348 million rural working populations are employed in agriculture. Increasing pressure of population on agriculture results, in the subdivision and fragmentation of holdings. Consequently, the productivity in agriculture sector remains low in India.
- 2. Social Environment:** The social environment of villages is an obstacle in agricultural development. The farmers in rural are illiterate, superstitious, conservative and

unresponsive to new agriculture techniques. The decline of joint family system and land hunger are also discouraging the rural atmosphere. Peasants who involve in factions, conflicts and litigations which are polluting the rural scenario are wasting their time and money. Hence, such peasants are not able to take proper care of their agriculture. Unless this atmosphere is changed, it is too difficult to enhance the productivity of agriculture.

3. **Lack of Infrastructural facilities:** Infrastructural facilities like transport, storage, credit and marketing are inadequate in rural areas to the growing population. The Nationalized Banks, Cooperative Societies and Agriculture Extension Service Centers are not covering the needs of all the villages. Hence, due to lack of these adequate infrastructure facilities, the agricultural productivity in rural areas is very low.
4. **Impact of the British Regime:** During British rule in India, they have not shown any interest in developing agriculture sector but made our economy as colonial one. Moreover, their policies like land tenure system, collection of land Cess gave a deadly blow to the Indian agriculture. They have shown interest in producing commercial crops like tea, coffee, jute, cotton etc., for export purpose. They treated our country as a major source of supply of raw materials and a big market for their products. No constructive steps were taken during British regime for farm development. Hence, the productivity in agriculture is low.

II Institutional Causes

The following are the institutional causes for low productivity in agricultural sector.

1. **Uneconomic Land Holdings:** According to the National Sample Survey, 52 per cent land holdings had a size of less than 2 hectares in 1961-62. In 2010-11, 85 per cent of total land holdings are less than 2 hectares. A large percentage of land is concentrated in the hands of a few landlords. As a result of laws of inheritance and other reasons there is a further division and fragmentation of land holdings. Hence, these small holdings are adversely affecting productivity of agriculture.
2. **Defects in Land Tenancy System:** The Indian agriculture system was adversely affected before Independence because of defectives in zamindari, Jagirdari, Mahalvari systems which exploited the farmers. After abolition of these systems after Independence, the entire land was brought under the Ryotwari System. Later, tenancy system came into existence as an outcome of Ryotwari System. In this system lack of certainty in rent, security of tenure and ownership right the tenants don't show any attention to develop agriculture. Hence, India has become less productive.

3. **Lack of credit and marketing facilities:** The cultivators are not able to invest requisite sources in agriculture due to lack of marketing facilities and required credit at fair rate of interest. Even support price policy and subsidies to inputs of agriculture fixed by the government are unsatisfactory. Moreover, lack of proper credit, the peasants are unable to purchase high expensive inputs like hybrid seeds, fertilizers, pesticides, machines, irrigation facilities etc, which are essential in new agricultural strategy. Hence, peasants follow traditional methods which result in low productivity.

III Technological Causes

1. **Outmodded Agricultural Techniques:** T.W. Schultz a famous economist opined that the peasants in India are still using traditional or outmoded techniques. Indian farmers are still using wooden ploughs, bullock carts, sickles etc,. Use of fertilizers and new high yielding varieties of seeds is also extremely limited. Hence, the productivity in agriculture is low. In recent years this situation has been improved due to the efforts of Government and spread of education.
2. **Inadequate irrigation Facilities:** Gross cropped area in India in 2010-11 was 198.97 million hectares but only 89.36 million hectares of land had irrigation facilities. It implies that 55 per cent of the gross cropped area continues to depend on rains. Rainfall is often insufficient, uncertain and irregular. In such atmosphere it is difficult to extend the new agricultural technology all over the country.
3. **Scarcity of agricultural inputs:** The supply of modern agricultural inputs like fertilizers, pesticides, hybrid seeds, farm machinery etc, are inadequate to meet the requirements of our country. In order to achieve high production in agriculture requisite supply of inputs is essential.

So far we have discussed the various factors which are obstacles for the high level of agricultural productivity.

IV Environmental Factors

Environment also plays a vital role in affecting the productivity of agriculture. Scientists observed that the yield of rice and wheat declining by 15 per cent for every 1° c increase in the temperature. Degradation of soil, changes in temperature, pollution of water and air etc., adversely affect the productivity of agriculture. Some important factors for environmental degradation are mentioned below.

1. Global warming
2. Soil degradation
3. The intensive cultivation of high yielding variety crops.

4. The reckless use of fertilizers.
5. Shifting cultivation.
6. Lack of environmental planning.
7. Displacement of the traditional practices of crops.

Government of India has recently estimated that nearly half of the country's 329 million hectares of soil could be categorized as degraded.

4.8.4 Measures to increase Productivity of Agriculture

The causes given above also suggest the measures to increase the productivity of agriculture. Some of the important measures are mentioned below.

1. Implementation of land reforms

Independent India has been implemented land reforms with a slogan 'land to the tiller. Land reforms will eliminate the institutional problems in Indian agriculture. As a part of land reforms tenancy reforms, consolidation of land holdings and cooperative farming must be implemented to enhance the size of land holding. Unless these institutional changes implemented, the tiller will have no hope to implement new agricultural techniques.

2. Provision of Irrigation facilities

The coverage of irrigation facilities in various states varies from 14 to 97 per cent. Among all States except Punjab, Haryana and Rajasthan there is a large gap between current level of irrigation facilities and irrigation potentiality.

Hence, Government has to start more number of major, medium, and minor irrigation projects to improve production and productivity of agriculture. Electric bore wells, lift irrigation facilities should be provided to the peasants of upland region.

The Government should make the farmers aware of the new irrigation techniques like drip irrigation, Sprinkling system, Integrated management of water and land etc.,

3. Development of various institutions

Government has to start more institutions to provide the required infrastructure facilities to the agricultural sector. Agriculture extension services like Agriculture Technology Management Agency (ATMA) to improve the productivity of lands, e-agriculture to enable the farmers to have information on prices and crop varieties, and adoption of Sloping Agriculture Technology (SALT) to achieve biodiversity should be provided all over the country to enhance productivity of agriculture.

4. Infrastructural Facilities

Infrastructural facilities can affect productivity of agriculture up to a greater extent. These facilities like transportation, fertilizers, pesticides, improved seeds, continuous supply of power, marketing, storage, credit etc, play a key role in the development of agriculture. Hence, Government should provide these facilities by implementing BHARAT NIRMAN successfully.

5. Farm Mechanization

Mechanization in agriculture results in the development of agriculture. Consequently, machines like harvesting threshers, transplanting machines, pump sets, tractors, sprayers, drills, electronic and diesel motors etc, should be developed by the Governments both Central and State to enhance the productivity of agriculture.

6. Control of Population Growth

According to the 2011 Census the growth rate of population is 1.64 per cent. Hence, the Government should put more efforts not only to check the high growth rate of population but also to improve other non farm sectors to lessen the pressure of population on agriculture.

7. Provision of credit and marketing facilities

New Agricultural Strategy requires inputs like high yielding varieties of seeds, fertilizers, insecticides, pesticides, agricultural implements and irrigation facilities which are highly expensive. Therefore, the Government has to strengthen the credit facilities of the peasants through Co-operative Banks, Commercial Banks, and Regional Rural Banks etc. Besides providing credit the Government has to reorient the existing marketing structure by co-operative markets to ensure better prices to the products of small farmers.

8. Literacy Programmes

Education enables the farmers to improve their productive efficiency. Hence, Government has to start more number of Adult Education Centers and Voluntary Organizations. Educated farmers can easily grasp and adopt various new techniques in agriculture both by some institutional and media services.

9. Agricultural Research

Indian Council of Agricultural Research, various Agricultural Universities and other institutions have been conducting research for evolving high yielding varieties of seeds. The research should also be extended for testing the quality of soil, measures for soil conservation, examining the diseases of affecting crops and improving the quality of agricultural implements. Similarly, research must be suggested that which crops are suitable for a particular region.

4.9 Land Holdings in India

The extent of land cultivated by the peasants is known as land holding. The average size of land holding in India is not only very small but also gradually declining. The average size of land holding was 2.28 hectares in 1970-71, 1.57 hectares in 1990-91 and 1.16 hectares in 2010-11.

The economic holding is defined as “That size of holdings which provide decent standard of living and employment to the members of the family”.

Table 4.11: Number and area of operational holdings in India

Category of Land	Number of Holdings (Million Hectares)			Area Operated (Million Hectares)			Average size of holdings (Hectares)		
	1980 -81	1995 -96	2010 -11	1980 -81	1995 -96	2010 -11	1980 -81	1995 -96	2010 -11
1. Marginal (less than 1 Hectares)	50.1 (56.4)	71.2 (61.6)	92.4 (67.0)	19.7 (12.1)	28.1 (17.1)	35.4 (22.2)	0.39	0.40	0.38
2. Small (1 to 2 Hectares)	16.0 (18.1)	21.6 (18.7)	24.7 (17.9)	23.2 (14.1)	30.7 (18.8)	35.1 (22.1)	1.45	1.42	1.42
3. Semi Medium (2 to 4 Hectares)	12.5 (14.0)	14.2 (12.3)	13.8 (10.1)	34.6 (21.2)	38.9 (23.8)	37.5 (23.6)	2.78	2.73	2.71
4. Medium (4 to 10 Hectares)	8.0 (9.1)	7.0 (6.1)	5.9 (4.3)	48.6 (29.6)	41.4 (25.3)	33.7 (21.2)	6.04	5.84	5.76
5. Large (10 Hectares and above)	2.2 (2.4)	1.4 (1.2)	1.0 (0.8)	37.7 (23.0)	24.2 (14.8)	17.4 (10.9)	17.41	17.21	17.37
All holdings	88.8 (100)	115.6 (100)	137.8 (100)	163.8 (100)	163.4 (100)	159.2 (100)	1.84	1.41	1.16

Note : Figures in brackets are percentage of total in the respective column.

Source: Ministry of Agriculture Annual Report (1994-95) and Agricultural statistics at a glance 2012.

4.9.1 Causes for Small Size of Holdings in India

Small size land holdings adversely affect the productivity of agriculture. The following are the causes for low productivity in agriculture.

1. **The Law of Inheritance:** The system of inheritance is causing for division and fragmentation of land holdings. According to the Law of Inheritance children have an equal share in father's property. Both the sons and daughters have equal share in father's property either in Hindu Law or in Mohammedan Law. Consequently, the division and fragmentation of land holdings are taken place. For instance, a land holding which is located at different places is equally distributed among four sons as four parts is termed as division. If all the four sons want to have an equal share in each division that results in 16 parts scattered throughout the village is termed as fragmentation.
2. **Pressure of population :** The population of India is growing at a faster rate of 1.64 per cent per annum, while land under agriculture has increased only marginally. Because of the unsatisfactory expansion of the non-agricultural sector and its inability to absorb the growing population led to subdivision of land holdings.
3. **Decline of joint family system :** All the family members live together under the joint family system and this kept the land holding intact. The break-up of this system with the advent of Westernization and the changes in the attitude of people led into individual families. As a result, subdivision and fragmentation of land holdings are taken place.
4. **Farmers indebtedness :** Most of the farmers in India are neck-deep in indebtedness. Frequently they are forced to sell off parts of their land to pay off the debts. It is observed that many money lenders in villages adopt unfair methods of lending and trap the illiterate peasants with a view keeping in mind to grab their lands. Thus, the land continues to get subdivided and fragmented.
5. **Land Hunger :** In India farmers of rural area are fond of land because of psychological, sentimental, social and economical attachments to land. Generally people in rural areas feel having land as a matter of prestige and social symbol. Hence, every son wants to have a share in father's land and is not willing to accept payment. This sort of attachment with land is called "Land Hunger". Because of this land hunger peasants are reluctant to leave their land even though it is uneconomical.
6. **The decline of handicrafts :** Decline of village handicrafts is an another important historical factor for the small sized holdings in our country. Those handicrafts had provided employment and a source of livelihood to the artisans. As a result of competition from machine made goods these artisans left their ancestral occupations and they were forced to depend on agriculture. Hence, this further increased subdivision and fragmentation.

4.9.2 Problems of fragmentation of land holdings

Small and fragmented land holdings impede agricultural progress. The following are the main disadvantages of sub division and fragmentation.

1. **Wastage of land :** Because of subdivision and fragmentation, the size of plots becomes so small. In Ratnagiri District of Maharashtra land holdings were often as small as 0.006 acres. It is not possible to cultivate on them. In addition to such wastage, another 3 to 5 per cent of land is wasted in drawing boundaries, hedges, pathways etc.
2. **Supervisory problems :** In general, agricultural activities are seasonal in nature. It is too difficult to supervise simultaneously the agricultural activities on scattered land holdings in various parts of the village. Hence, the productive efficiency will decline and the productivity will also be affected adversely.
3. **Difficulties in modernisation :** Small size land holdings are not suitable for mechanization. The small peasants are not able to invest on costly equipments like tractors, electric motors, sprayers, drillers, harvesting machines etc. There is no possibility to implant new technology to improve agricultural productivity in small holdings.
4. **disputes over boundaries :** Disputes over boundaries, hedges, pathways, theft of crops, grazing by animals belonging to other villages etc., are very common in villages. These litigations lead to Court causing wastage of valuable time and money. All these incidents disturb the rural atmosphere.
5. **Transportation of factors of production :** Transportation of factors of production like machines, cattle, seeds etc., from one holding to another causes wastage of time and money.
6. **Disguised unemployment :** Small land holdings fail to provide work to all members of the family. Small farmers are forced to work on their tiny plots due to lack of alternative employment opportunities. This situation led to disguised unemployment in agricultural sector.
7. **Utilization of labour and capital :** Small farmer cannot utilize optimally the services of labour and machines on their small holdings. This under utilization leads to substantial increase in the cost of production. Moreover they cannot get credit and marketing facilities adequately.

4.9.3 Measures to increase size of land holdings

So far we have observed various problems that arise as a result of small sized land holdings in our country. In order to achieve high productivity in agriculture it is essential to root out all the problems pertain to small land holdings. The following are the remedies to solve this problem.

1. Consolidation of land holdings.
2. Co-operative farming
3. Creation of economic holdings.

4.9.4 Consolidation of Holdings

Consolidation of holdings is a proper solution to the problems of scattered holdings. By consolidation we mean all the holdings of the village are pooled together into one compact block. Later, each farmer will be given land equal to his share in the total land as a single compact plot. The owners of scattered land holders may voluntarily exchange their pieces of land into one compact block. As it was not easy task, the State Governments have adopted coercive methods to the consolidation of holdings.

As a part of land reforms consolidation of land holdings in our county started in 1951-52. Some State Governments like Punjab and Haryana completed this task of consolidation. States like Maharashtra, Madhya Pradesh and Uttar Pradesh actively implemented this programme. But some other States like Jammu and Kashmir, Bihar and Orissa initiated the Programme. But the State Governments of Andhra Pradesh, Tamilnadu, Rajasthan, West Bengal, Assam have not enacted the laws of Consolidation.

According to the Annual Report of Ministry of Rural Development-2001, 4.5 million hectares in 1956, 33 million hectares in 1972, 45 million hectares in 1985, 61.10 million hectares in 1992 and 65 million hectares in 2001 have been consolidated. According to the Annual Report of Ministry of Rural Development-2004, total area brought under consolidation was 163.3 million hectares. Taking the Country as a whole only 49 per cent of the total cultivated area has been consolidated.

The progress of the consolidation process is very slow because of these reasons:

1. Farmer's emotional attachment to their ancestral land.
2. Variation in the quality of soil, from land to land.
3. Lack of reliable records pertain to the ownership of Land.
4. Lack of adequate trained staff to carry out the programme of consolidation.
5. Poor people belief that they get inferior lands in the consolidation process.
6. Neglecting the security of tenure to tenants while consolidating the lands.

Hence the Government should check all these defectives to create an effective economic holding.

4.9.5 Co-operative Farming

Co-operative farming as a part of land reforms suggested by experts as a good solution to the problems of small size land holdings. This type of farming is now in practice throughout the world. This programme succeeded in some countries like Germany, Denmark, Holland, USA and Italy by getting good returns. It has been indicated that 84.9 per cent holdings in India in 2010-11 are below 2 hectares having a share of 44.3 per cent in the total area cultivated. In such circumstances it is desirable to implement co-operative farming in India in order to fetch high production from agriculture.

4.9.6 Meaning of co-operative Farming

Co-operate farming indicates that all the farmers of a village form themselves voluntarily a society. After forming the society entire land holdings of the farmers will be pooled into one unit. Later they will handover their land, cattle, implements etc., to the society. The co-operative society will cultivate all these holdings as one farm. After harvesting the returns will be distributed among the farmers in proportion to their land handover to the society. In co-operative farming the farmers will never loose their ownership rights on land.

4.9.7 Various opinions on co-operative farming

In 1927, Royal Commission that appointed by British Government of India for the development of agriculture opined that co-operative farming is necessary in our country. It suggested that “If co-operation fails there will be a fall in the best hopes of the people”.

In 1928, Mahatma Gandhi expressed his views that co-operative farming alone can enable the Indian farmers to get proper returns in collective farming than individual farming.

In 1949, Kumarappa, the Chairman of Congress Agrarian Reforms Committee viewed that the efficiency of production in Indian agriculture cannot be increased significantly without introducing co-operative farming.

4.9.8 Advantages of Co-operative Farming

The following are the advantages in the co-operative farming as mentioned below.

1. **Increase in production:** Co-operative farming will bring more land into cultivation either consolidation of land holdings or bring into use waste land. Consequently, both the production and marketable surplus will increase.
2. **Large Scale Economies:** Large scale economies will occur in co-operative farming such as technical, marketing, financial economies etc,. As a result, the cost of production will decrease and the returns will be maximized.

3. **Land Development Activities:** Land development activities like Land conservation, Land reclamation, Construction of Water Sheds etc, can easily be made by co-operative farming societies. These activities will improve the production of agriculture.
4. **New Farm Technology:** Co-operative farming enables the farmers to adopt new technical implements in cultivation. New agricultural practices can be made in the farm sector. This results in agriculture development.
5. **Effective Farm Management:** Co-operative Farm societies can easily ensure effective farm management by appointing experts in agriculture science. It is possible to implement division of labour and specialization in farm activities. Hence, substantial increase takes place in the production of agriculture.
6. **Higher Demand for Labour:** The demand for labour increases because of intensive and extensive cultivation in farm sector. As a result, seasonal and disguised unemployment can be evicted from farm sector.
7. **Social Equality:** Co-operative farming inculcates the spirit of co-operation among the farmers of the society. Such a spirit of co-operation results in confidence, collective action, joint thinking and feeling of fraternity and friendship among the members of the society. Hence social equality can be achieved by treating every one alike.

4.9.9 Problems of Co-operative Farming

Indian farmers are not interested to join in the co-operative farming due to lack of proper understanding about the co-operative farming system. The following are the problems of co-operative farming.

1. **Opposition from Farmers:** The Farmers feared that they may lose their right of ownership of the land and their position will decline to the level of agricultural labour. Hence, peasants reluctant to join in co-operative farming.
2. **Management problems:** Generally, Indian farmers are used to operate the small land holdings but it is difficult to them to operate the large size holdings effectively. Due to lack of efficient managerial persons in villages the co-operative farming was discouraged.
3. **Danger of Unemployment:** There is a lot of scope for implantation of mechanization in co-operative farms which are large in extent. Usually mechanization generates unemployment by displacing labour with machines.
4. **Domination of Landlords:** The Landlords in the systems of co-operative farming never treat the small and marginal farmers equal to them. The interests of share croppers, marginal and small farmers cannot be protected because of the domination of Landlords in the co-operative farming.

5. Lack of trained Employees: Professional skill is necessary to operate and manage co-operative farms which are large in extent on contrary to the small individual holdings. Lack of such trained staff in our country, these co-operative farming societies are inactive.

6. Other Problems:

1. It is a voluntary programme without any motivation to the peasants.
2. Most of these societies are formed by big farmers to evade from ceiling on land holdings and to get some benefits from the Government.
3. The principles of distribution of profit between farmers and workers are not clearly defined.

The system co-operative farming failed to record a considerable progress in India as it was introduced by the Government on voluntary basis. Central Government has taken the responsibility of developing co-operative farming up to 1969. Later this task was entrusted to the State Governments.

Prof. Gunnar Myrdal has commented that “The technique of co-operative farming in India does not improve the agricultural sector in India”.

Daniel Thorner also pointed that the main weakness of co-operative farming in India is that the management of co-operative farming has been entrusted to those people who have no faith in this concept.

4.9.10 Creation of Economic Holdings

Creation of economic holdings is another important method to solve the problems of small size land holdings. In order to strengthen Indian Agriculture Sector it is inevitable to create economic holdings. Some economists have termed these economic holdings “Family holdings” or “Optimum holdings”. This concept is defined in the following ways.

1. The Congress Land Reforms committee in 1949 defined economic holding as “The size of land holding which provides decent standard of living and employment to the members of a family.”
2. According to Keating “Economic holding is a holding which allows a man a chance of producing sufficient to support himself and his family in reasonable comfort after paying his necessary expenses.”
3. According to Dr. Mann the economic holding as “one which will provide for an average family the minimum standard of life.”
4. The Government initiative is essential in classifying the lands on scientific and systematic manner in the process of consolidation of small holdings.

5. The Government has to take into consideration fertility, irrigation and transport facilities while valuating the tiny plots.
6. The Government should fix the minimum limit of land holding known as 'standard area' by enacting legislations.
7. The Government should implement legislative measures to check the high growth rate of population in order to lessen the pressure of population on land.
8. The Government should induce the extremely small land holders to give up their lands and to shift other occupations.

So far, it is the duty of the Government not only to create economic holdings but also maintain not to be divided. For this purpose the laws of inheritance should be modified in India in such a way to maintain the minimum size of land holdings.

4.10 Land Reforms in India

Agriculture Occupied a predominant role in Indian Economy but it has not been developed well. During British regime production in agrarian sector was very low because of defective institutional frame work. As the economic development of our nation is directly related to the agricultural sector, it is essential on part of the Government to implement institutional reforms in agrarian sector. Hence, the Government of India implemented institutional reforms to bring changes directly in agricultural sector after Independence. Such reforms are termed as land reforms. It is noted that technological changes in agriculture sector can work more effectively whenever institutional changes are implemented.

4.10.1 Definitions of Land Reforms

Various definitions of land reforms are mentioned below.

1. According to the U.N.O. "The redistribution of Land with a view to safeguard the interests of small, marginal farmers and farm labour is called land reforms"
2. According to the Planning Commission of India, "Any reforms of land, undertaken by the Government for Agriculture development are called land reforms"

Land reforms may be explained as the introduction of economic and non economic changes relating to land. In short the reconstruction of the rural economy on the basis of equality and social justice to achieve agricultural development is called land reforms.

4.10.2 Scope of land reforms

The Scope of land reforms entails A. Abolition of intermediaries B. Tenancy reforms including regulation of rent, security of tenure and right of ownership C) Ceiling on land holdings D) Consolidation of land holdings E) Prevention of Division and fragmentation and F) Co-Operative farming.

4.10.3 Objectives of land Reforms In India

In 1951 the Planning Commission of India has announced the following enviable objectives of land reforms.

- 1) The removal of the impediments that arise in the agrarian structure inherited from the past.
- 2) To eliminate all sorts of exploitation and social injustice within the agrarian system, to Provide Security for the tiller of the soil, assure equality of status and Opportunities to all Sections of Rural Population.

4.10.4 The need for land Reforms

1. **Agricultural Development:** Agricultural development takes place when land reforms are entrusted in agrarian sector to avoid the hindrances to agricultural Development. In such atmosphere technical reforms will be fruitful in agricultural Sector.
2. **Economic Development:** Agrarian Sector influences largely the economic development of our country. In order to attain sustainable growth rate in Indian agriculture, it is inevitable to implement land reforms. The growth of this sector is essential for the growth of other sectors like industry, trade and transport etc.,
3. **Social Justice:** Land reforms are aimed at alleviating rural poverty by distributing land among the landless, providing security to tenant, protecting the interests of tribals, Promoting consolidation of land holdings, providing access to woman on land. and providing house sites to the rural poor. Land reforms aim at achieving social justice in the economy by eradicating poverty and disparities in income.
4. **Increase in Agricultural Productivity:** Land reforms are essential to increase the Production and Productivity in Agriculture. For instance, provision of security and ownership rights to tenants and land less farm labour certainly improves the productivity in Agriculture.,

4.10.5 Salient Features of land Reforms

The Government of India has implemented various land reforms in the country after independence. The following land reforms are introduced for the welfare of depressed groups of farming community. They are

1. Abolition of Intermediaries
2. Tenancy Reforms
3. Ceiling on Land Holdings

4.10.6 Types of land tenure systems

At the time of Independence three types of land tenure systems were in existence in our Country.

1. **Zamindari System:** Lord Cornwallis introduced this system in Bengal in 1793. Under this settlement the zamindars were declared full proprietors of large area of land. According to this system Zamindars were responsible for the payment of land revenue to the Government either on permanent settlement or on temporary settlement. The amount of revenue that these zaminders have to pay to the British Government was fixed, while they were empowered to collect huge rent from the farmers. However, they did not show any interest in the development of farmer sector. Thus, these zamindars exploited both the farmers and Government without tilling the land. In this way the zamindari system adversely affected the development of Indian Agriculture.
2. **Mahalwari System :** This system was introduced first in Agra and Oudh by Lord William Bentic, Later it was extended to Punjab and Uthar Pradesh and Madhya Pradesh. In this system the whole village was treated as a unit as far as payment of land revenue is concerned. Under this system, payment of Land Cess is the collective responsibility of the villagers as they have collective ownership of land. The village head man namely Mahalwari collects the land revenue and deposits it in the treasury on nominal commission. In this system the direct relation lacked between Government and farmers due to the existence of middle man namely Mahalwari.
3. **Ryotwari System:** Thomas Manro introduced this Ryotwari System in Tamil Nadu in 1792. Later it was extended to Maharashtra, Berar and central India. In this system, the ryot had full rights regarding sale, transfer and leasing of land. Under this system no middleman exists between farmer and Government. The farmer pays land cess directly to the Government. The ryot is at liberty to sub-let his land and enjoys a permanent right of tenancy until he pays the land cess to the Government. Some elements of zamindari

tenure did appear in this system too because the peasants in ryotwari systems could sub-let their land. In this system like regulation of rent, security of tenure and ownership rights for tenants will arise.

4.10.7 Abolition of Intermediaries

Soon after independence the abolition of Zamindari System and its alien forms like Jagirdary and Inamdari Systems and Mahalwari System were abolished. The defectives pertain to the Ryotwari system were also regulated. The first Act to abolish intermediaries was passed in Madras in 1948. Later state after state enacted legislations abolishing intermediaries. As a result 30 lakh tenants and share croppers acquire owner ship rights over a total Cultivated area of 62 lakh acres. Compensation was paid to all the intermediaries on installment basis in our country unlike communist countries.

The Effects of Abolition of Intermediaries

The following are the advantages of the abolition of Intermediaries.

1. As a result of abolition of intermediaries, tenants became Owners of the land and the exploitation came to an end. This helped to secure social justice in agrarian structure
2. The Ownership right to the tillers of the land enabled them to have a direct contact with Government which resulted in agricultural development in India.
3. The Government Provided infrastructural facilities for the development of farm sector as the land revenue increased substantially.
4. A considerable area of cultivable waste land and private forests belonging to the intermediaries have been brought under cultivation.

4.10.8 Tenancy Reforms

Tenancy system is quite common under the zamindari and Ryotwari Systems. The farmers who take the land from the landlords on leased basis for cultivation called tenants. Tenants are classified into three categories. They are Occupancy tenants, Subtenants and Tenants at will.

1. **Occupancy Tenants:** Occupancy tenants are called permanent tenants because the rights of Occupancy tenants are permanent and inheritable. These tenants enjoy a fixity and security of tenure. No land lord can evict them until they pay the rent. The difference between Occupancy tenant and land lord is that the Occupancy tenant pays rent to the land lord while land lord pays rent to the Government.
2. **Sub Tenants:** Sub tenants are called as temporary tenants. Permanent tenant will lease out a part of land under their control to some other farmers who are called subtenants. These tenants donot have any ownership rights on the land which they cultivate on

temporary basis. These tenants are ruthlessly exploited. They can be evicted from land on minor pretexts. The rent fixed under this system is oral.

3. **Tenants at will:** The Position of tenants at will is precarious and pitiable. They are subjective to exploitation in the forms of enhancement of rent, eviction from the land without any reason.

Because of ruthless exploitation, Government implemented some tenancy reforms. They are regulation of rent, security of tenure and ownership right for tenants.

1. Regulation of Rent

During the pre-independence period rents were very high as a result of custom, inelastic supply of land and increasing population. Hence, in order to regulate rent various State Governments have enacted various legislations. The main objective of such legislations was to make the rent fair and reasonable.

S.No.	States	Share of rent in the total value
1.	Assam, Karnataka, Manipur and Tripura	$\frac{1}{5}$ th to $\frac{1}{5}$ th share
2.	Gujarat, Maharashtra and Rajasthan	$\frac{1}{6}$ th to $\frac{1}{4}$ th share
3.	Orissa and Bihar	$\frac{1}{4}$ th share
4.	Kerala	$\frac{1}{4}$ th to $\frac{1}{2}$ nd share
5.	Punjab, Haryana, Jammu and Kashmir	$\frac{1}{3}$ rd share
6.	Tamilnadu	33.3% to 40%
7.	Andhra Pradesh	
	(A) Delta Region	25% to 30 %
	(B) Upland Region	20% to 25%

The above information shows that the rents fixed in various states are different. In fact the rents paid by the tenants are more than the rents fixed. The first five year plan stated that the minimum rent should not exceed one-fourth or one-fifth of the total Produce.

However, legislations fixed minimum rent, the tenants are paying more rent because of their land hunger, weak socio economic conditions. Even law provides for security of tenure, tenants are not in a position to take advantage of it because most of the leases are oral and informal. Moreover, tenants are unable to resort legal process as it is costly.

2. Security of tenure

Tenants take much care in agriculture if they are provided security of tenure. Then only tenants can invest on lands for the purpose of development of land, like wells or tube wells, permanent fence, Preserving soil fertility etc. Due to the fear of loss of tenancy rights, the tenants do not show much personal interest on land.

Sir Arthur Young rightly observed “Give a man the secure Possession of a bleak rock and he will turn it into a garden; give him a nine years lease of a garden and he converts it into a desert”

3. Ownership Rights for tenants

So far as the right of ownership is concerned, tenants have been declared as the owners of land they cultivate. The main aim of tenancy legislation is to provide “Land to the tiller”. Accordingly, some states have passed legislations to confer right of ownership for tenants. They were allowed to purchase their holdings at a fair price determined by tribunals. As a result of laws concerned ownership rights for tenants in various states, 12.42 million tenants have acquired ownership rights over 6.32 million hectares of land.

4.10.9 Ceiling on Land Holdings

Ceiling on land is an important land reform. This is more essential not only to build rural economy on the basis of socialistic pattern of society but also imperative to save the rural masses from the exploitation. The ceiling on land holdings means statutory absolute limit on the amount of land which an individual cultivator or a household may possess. The supply of land is limited and the claimants for it possession are numerous. Therefore, it is unjust to allow exploitation by single individual over a large surface of land. Hence, the Government will take over the land beyond the limit of ceiling and redistributes it among landless labour and marginal farmers.

4.10.10 objectives of ceiling of land

1. To reduce inequalities in agrarian sector.
2. To enlarge the sphere of self employment.
3. To eliminate exploitation and to provide equal opportunities to all
4. To meet the desire that land must belong to the tiller.

4.10.11 Types of ceiling

Ceiling of land holding is of two types.

- (1) Ceiling on existing holdings
- (2) Ceiling on further acquisition of land.

4.10.12 Main features of land ceiling

The limit of ceiling varies from state to state. While imposing ceiling on land, the Government has taken into consideration the fertility of the land, intensity of cropping, irrigation facilities and methods of farming. A conference of chief Ministers held in July 1972 to bring uniformity on ceiling limits evolved new policies. The main decisions of the conference are as follow.

1. **Ceiling limit:** The ceiling on highly fertile lands which have an assured irrigation, where at least two crops are raised in a year has been fixed up to 18 acres. In case of the areas where there is provision for the raising of only one crop, the upper limit of ceiling has been fixed at 27 acres. For the remaining types of land ceiling has been fixed at 27 acres and in special cases, like hill areas and deserts the upper limit can exceed 54 acres depending on the discretion of the state Government.
2. **Unit of Application :** The unit of application shall be a family instead of an individual. The family is defined as consisting of husband, wife and children. For families with more than five children there is a provision for holding land in excess of ceiling for every additional but in no case the total land with a family exceed twice the ceiling limit of a family. Every major son will be treated as a separate unit for the application of ceiling.
3. **Exemptions:** Various states have enacted various legislations on the exemptions of land ceiling. For instance, plantation crops like coffee, rubber, tea, coco etc, lands under sugar industries, farms engaged in cattle breeding, dairying, co-operative farms and wood raising are exempted from ceiling. Similarly, lands under the agricultural universities using for crop research are also exempted.
4. **Distribution of surplus land:** The land obtained as surplus shall be distributed among the landless farm labor and marginal farmers. Government has to take special consideration to Schedule Casts and Schedule Tribes while distribution of surplus lands.

Table 4.12: Distribution of surplus lands

Details of lands	Area in lakh acres			
	As on 31.3.1980	As on 31.3.1985	As on 31.3.1990	As on 31.03.2004
1. Area declared as surplus	69.13	72.07	72.25	73.36
2. Area taken into Possession	48.50	56.98	62.12	64.97
3. Area distributed	35.50	42.64	46.47	54.03
4. No.of beneficiaries	24.75	32.90	43.60	57.46

Source: Ministry of Rural Areas and Development Report 2004-05.

The data in Table 4.12 shows as on March 31, 1980, 69.13 lakh acres were declared as surplus and by March 31, 2004 the surplus increased to 73.36 lakhs. Government had not taken into possession all the area declared as surplus.

The total area distributed was 54.03, lakh acres out of which 73.36 lakh acres declared as surplus in 2004. The beneficiaries have been increased from 24.75 lakhs in 1980 to 57.46 lakhs in 2004.

In addition to the distribution of 54.03 lakh acres of surplus land, an area of 147.5 lakh acres of Government waste land and Bhoodan Land of 27.75 lakh acres have been distributed among the landless and poor up to 2004.

M.L Dantwala has rightly said that the land reforms introduced in our country are in proper direction but the implementation part is in wrong direction.

Successful implementations of land reforms certainly result in the development of agriculture. Hence, the Government should implement reforms in the socio-economic conditions of the nation in order to achieve rapid growth rate in agrarian sector.

4.10.13 Reasons for poor performance of land Reforms

land reforms were started with good objectives, concentrating on the development and empowerment of the rural poor. Land reforms have faced a lot of hindrances in actual practice. The task force on agrarian relations pointed out the following reasons for the poor performance of land reforms.

1. Lack of strong political will.
2. Malafide transfers of land.
3. Lack of uniformity in land reforms laws.
4. Judiciary interference.

5. Lack of proper revenue records.
6. Exemptions for ceiling.
7. Unorganized rural poor.
8. Bureaucratic corruption.

4.11 Green Revolution

The Government of India has launched many institutional and non-institutional reforms for the development of agriculture sector which is the backbone of Indian economy. Among the non-institutional reforms new strategy of agriculture is the prior one. Hence, the Government of India has announced the New Agricultural Strategy in 1965 to ensure rapid agricultural progress. Consequently, substantial increase has taken place in the production and productivity of agriculture. Prof. Norman Borlog is the father of green revolution.

The new strategy of agriculture which resulted in revolutionary progress in the farm sector during the period 1960-70 is termed as 'Green Revolution'. William S. Gand is the first economist who used the term green revolution.

"A set of some revolutionary reforms meant for enhancing the agricultural productivity by installing the high yielding variety seeds along with other modern inputs to make the farmers more enthusiastic by transforming traditional agriculture to industry".

In other words, achieving high produce and productivity in farm sector by implementing hybrid seeds, fertilizers, pesticides, machines etc., and also by inducing farmers is called Green Revolution.

B.F John and J. Cowrie have described the Green Revolution as 'Seed Fertilizer Revolution' because seeds and fertilizers are playing significant role in enhancing the farm productivity.

In India, Dr. M.S. Swamynathan an eminent agriculture scientist and chief architect of green revolution suggested soil enhancement, sustainable use of water, requisite credit, appropriate technologies and proper marketing for agricultural development.

Green revolution as an integral part of "Rainbow Revolution" along with White revolution, Blue revolution, Yellow revolution etc, occupied a prior place in agricultural sector.

Table 4.13: Key indicators of agricultural progress

Crop	1950-51	1964-65	1990-91	2009-10	2012-13
Food grains (Million Tonnes)	51	89	176	218	255
Rice (Million Tonnes)	21	39	74	89	104
Wheat (Million Tonnes)	6	12	55	81	93
Oil seeds (Million Tonnes)	5	9	19	25	29.5
Sugarcane (Million Tonnes)	57	122	241	278	334.5
Cotton (Million Bales)	3	6	7	24	33.8
Jute (Million Bales)	3	4	8	11	11.1
Potato (Million Tonnes)	3	4	15	N.A.	43

Source: *Economic survey, 2012-13**Agricultural statistics at a glance 2013***Note :** *Cotton : Million bales of : 170 Kgs.**Jute : Million bales of 180 Kgs.*

The Table 4.13 reveals that the production of food grains and commercial crops has increased enormously. Total production of Paddy was 21 million tonnes in 1950-51 and rose to 104 million tonnes by 2012-13. During the same period Wheat rose from 6 million tonnes to 93 million tonnes and Oil seeds rose from 5 million tonnes to 29.5 million tonnes. Similarly, during 1950-51 to 2012-13 Sugarcane rose 57 to 334.5 million tonnes, Cotton 3 to 33.8 million bales, Jute 3 to 11.1 million bales and potatoes 3 to 43 million tonnes. Such a remarkable rise in the production of food grains and commercial crops is made possible by green revolution.

4.11.1 Factors responsible for the ushering of green revolution

I. Intensive Agriculture District Programme (IADP)

In 1964 Government of India has introduced this programme on the basis of recommendation of Ford Foundation Team. This programme was introduced in Seven Districts like West Godavari in Andhra Pradesh, Shahabad in Bihar, Raipur in Madhya Pradesh, Thanjavur in Tamilnadu, Ludhiana in Punjab, Aligarh in Uttar Pradesh and Pali in Rajasthan where assured irrigation facilities, high fertility, proper rainfall, and less hazards (like floods, drainage problem soil conservation problem etc.) are available.

Accordingly, the Government would provide the following incentives to the farmers of these selected Districts.

1. Agricultural inputs like fertilizers, pesticides, hybrid seeds etc., will be supplied to all the peasants of the selected districts at a subsidize rate.

2. New agricultural techniques will be familiarized and popularized among the farmers by conducting various experiments and demonstrations at farm level.
3. Facilities like credit, transport, marketing etc. will be supplied to the peasants.
4. The Government officials will review the progress of agriculture in the selected districts with a view to maintain high standards of cultivation.

Under this programme required modern inputs will be supplied to the farmers in single package. Hence, IADP is called “Package Programme”.

2. Intensive Agricultural Area Programme (IAAP)

In 1967, Government of India has introduced this programme with a view to extend the area under intensive cultivation. Under this programme intensive cultivation has extended to other districts of various States. Both the programmes IADP and IAAP are restricted to the intensive cultivation of selected regions but IAAP is limited to some crops only. As a result of intensive cultivation in the selected regions, the neighboring districts will also develop which is treated as spread effect. This programme had extended to 164 Districts in the Country.

3. High yielding variety programme (HYVP)

In the new farm technology High Yielding Variety of Seeds programme is crucial because it enables the Indian agriculture to ensure high productivity. Hence, Government of India initiated the programme in 1965.

Various types of hybrid seeds are innovated with collective efforts of Indian Council of Agricultural Research (ICAR), International Crops Research Institute for Semi-Arid Tropics (ICRISAT), Universities in Punjab and other research institutes. Consequently, considerable increase in the production of farm products is obtained. As a result of HYVP remarkable rise in the production of Paddy, Wheat, Sugarcane, Cotton etc, has taken place.

4. Introduction of Crops with short Gestation Period

Various crops with short gestation period have been developed in India with the continuous collective research of various organizations like ICAR, ICRISAT. Considerable decrease has taken place in the gestation period of Paddy, Wheat, Maize etc. For instance, the gestation period of Paddy decreased from 180 days to 120 days. Some kinds of Paddy like, IR8, IR20, 1001, 1010, Masuri, Basmati, Jaya, Padma etc, and Mexican type of wheat known as miracle wheat which have short gestation period are being produced by Indian farmers. Seeds of short gestation period facilitated the farmers either to produce two or three crops in a year or to increase the farm productivity.

5. Expansion of Irrigation Facilities

Agriculture research and experiments take place only in those areas where proper irrigation facilities are available. Hence, it is commented that green revolution is confined to those crops like Paddy, Wheat, Sugarcane, Cotton etc, which required assured irrigation facilities. So far all the high yielding variety seeds require more irrigation facilities. The area under the irrigation facilities increased from 21 million hectares in 1951 to 63 million hectares by 2010.

6. Farm Mechanization

Mechanization is an integral part of green revolution. Mechanization in the farm sector in the form of tractors, oil engines, electric motors, crushers, drillers, harvesting machines etc, enriches the operations in agriculture. As agricultural operations are being seasonal, mechanization is essential for timely operations in agriculture.

7. Consumption of Fertilizers and Pesticides

High yielding variety seeds are highly responsive to the use of fertilizers and pesticides. In order to achieve high production by using fertilizers and pesticides the Government of India has been providing subsidies to the fertilizers and pesticides factories. Hence high consumption of fertilizers and pesticides favorably affects productivity of agriculture.

8. Other Factors

Besides the reasons above, there are some other factors for successful implementation of new strategy.

- a. Agricultural Extension Services centers like **Rural Knowledge Centers, Agricultural Technology Management Agency (ATMA)** etc., are established by the Government of India.
- b. Adult education centers have been established by the Government to literate the rural people. As a result of it, educated farmers can make use the modern inputs in agriculture.
- c. Credit facilities are indispensable for the successful accomplishment of timely operations in agriculture. Consequently, the Government of India has been providing credit to the peasants through Commercial Banks, Regional Rural Banks, Primary Agricultural Cooperative Credit Societies etc.,

4.11.2 Impact of Green Revolution on Indian Economy

In general green revolution recorded a significant impact on our economy. The following are the significant impacts of the green revolution.

1. Boost up the production of cereals (food Grains)

The major achievement of this new strategy is to boost the production of major cereals like Wheat and Rice. The production of rice which stood at 35 million tonnes in 1960-61 rose to 104 million tonnes in 2012-13. The production of wheat was 11 million tonnes in 1960-61 increased to 255 million tonnes by the year 2012-13. The production of food grains increased to 257 million tonnes in 2012-13.

2. Increase in the production of commercial crops

Initially, the green revolution was mainly intended to increase the production of food grains. It did not affect initially the production of commercial crops like Sugarcane, Cotton, Jute, Oil seeds and Potatoes. Hence these crops failed to record a significant rise. However a significant rise in the out put of Sugarcane and a considerable rise in the outputs of commercial crops like Oil seeds, Potatoes etc, have taken place after 1973-74. The production of Sugarcane was 110 million tonnes in 1960-61 and increased to 358 million tonnes by the year 2011-12. Similarly the production of Oil seeds raised from 7 million tonnes in 1960-61 to 30 million tonnes in 2011-12.

3. Boost to Employment Generation

The successful adoption of green revolution has led to continuous expansions in area under crops, increase in total production and productivity. This technique enhanced the employment opportunities in agricultural sector because of multiple cropping and labour intensive crops like Rice, Potatoes, Fruits, Vegetable etc,. The entry of multinational companies into retail agricultural marketing has generated more employment opportunities.

4. Forward and Backward Linkages strengthened

Agriculture supplies raw material to industries which is known as forward linkage. Even in traditional agriculture forward linkage is strong. Industries supply inputs to agriculture which is known as backward linkage is weak. Now green revolution has created a larger demand for inputs produced and supplied by industries to agriculture. Thus, the new technology in agriculture has strengthened the backward linkage. In this way the linkage between agriculture and industry has got strengthened.

5. Improvement in Incomes

The green revolution resulted in increase in the incomes of the farmers in Kerala, Andhra Pradesh, Madhya Pradesh, Tamilnadu, Gujarat, Himachal Pradesh, Punjab and Haryana. Green revolution facilitated the farmers to follow the techniques of grading the products and selling their products directly to the corporate retail companies by avoiding middlemen. Such organized retail companies have provided remunerative prices to the farmers, qualitative products to the consumers at lower prices and control on inflation.

As a result of new technology in agriculture the productivity increased causing a raise in the incomes of farmers.

6. Decrease in Poverty

Some of the economists opined that green revolution created employment opportunities in various sectors like transport, fertilizers and pesticides industries, Banking and service sectors etc. . As a result of green revolution surplus in the production of food grains is achieved. The surplus of food grains is distributed among the poor through public distribution system at a cheaper price. Thus, it helps in eradication of poverty by increasing real incomes of the poor.

However, there is different opinion among economists on the impact of green revolution. Some economists advocated that green revolution confine to particular crops like Paddy, Wheat, Sugarcane, Cotton, and Oil Seeds. Similarly, it is limited to certain regions like Haryana, Punjab and Andhra Pradesh where adequate irrigation facilities are available. Green revolution has given birth to capitalist farming which is highly expensive but it discouraged the small farmers who are unable to invest more on agriculture. Thus, the small farmers failed to reap the fruits of green revolution up to some extent. Moreover, the application of new technology substituted human labor with mechanization resulted in unemployment. The reckless use of fertilizers and Pesticides caused pollution and thus green revolution adversely affected human health. Thus, green revolution promoted regional disparities and inequalities in incomes.

However, green revolution has recorded substantial quantitative and qualitative changes in Indian agriculture. Dr. Wharton opined that either advantages or disadvantages of green revolution depend on the pattern of how we are using the new technology.

4.12 RURAL CREDIT IN INDIA

Finance is the basic need for any economic activity. Agriculture occupied a place of pride in Indian economy. Hence, agricultural development is directly linked with the availability of adequate and timely credit. Due to lack of adequate and timely credit facilities Indian farmers are facing number of problems. Hence, agriculture development is directly linked with credit facilities. T.W. Schultz opined that lack of adequate credit is a serious hazard to the development of agriculture sector and became a serious hindrance in the modernization of traditional agriculture. Indian farmer is not able to make the maximum use of his time, labour and productive capacity of his land because of lack of adequate financial facilities. Hence, provisions of adequate and timely credit for peasants is indispensable for the development of farm sector.

4.12.1 Classification of farm credit

Generally, the volume of credit requirements of the farmers is being influenced by the farm size, techniques of production, availability of inputs and technology and family requirements of peasants. The financial requirements of Indian farmers can be classified into three types depending upon the period and the purpose for which they required. According to the all India Rural Credit Survey Committee Credit requirements of the peasants are classified into short, medium and long term credit.

1. **Short term credit:** The Farmers need funds for short periods of less than 15 months in order to meet their requirements like purchasing seeds, fertilizers and pesticides, wages, fodder for cattle, transport charges etc. These loans are normally repaid after the harvest.
2. **Medium term credit :** The farmers require finance for medium period ranging between 15 months and 5 years for the purpose of making some improvement on land, buying cattle, farm tools etc. The farmers will repay these loans in installments.
3. **Long term credit :** The famers need finance for the purpose of buying additional land, to make permanent improvements on land, to pay off old debts, and to purchase costly farm machines like tractors, harvesting machines, pump sets etc. These loans generally vary from 5 to 20 years.

4.12.2 Productive and unproductive loans

We can classify credit requirements of farmers into two types like productive and unproductive loans. Productive loans include to buy seeds, fertilizers and pesticides, implements to make permanent improvements on land like digging and deepening wells, fencing etc. Unproductive loans include expenditure on religious activities, marriages, festivals, ornaments etc.

4.12.3 Sources of agricultural credit

Credit plays a significant role in the farm activities. The credit needs of the peasants can be satisfied either by institutional or non-institutional sources. Credit plays an important role to meet the requirements of the farmers. But at present the importance of institutional credit has been steadily increasing in our country.

I. Institutional credit

The following are the some important sources of institutional credit.

1. **Government :** The Government had played a key role in providing credit for agricultural operations before emerging institutional credit organizations. Generally, the volume of credit supplied by the Government directly to the famer for farm operations is very low. The Government will sanction direct loans to the farmers whenever natural calamities

like drought, famine etc., are happened. The Government will sanction these direct loans at low rate of interest which are called as “Takkavi Loans”. These loans can be repaid by the farmers in easy installments. These loans are insignificant because of rigid rules in lending and are about 2.3 percent in the total requisite credit of the farmers.

- 2. Role of reserve bank of india :** Reserve Bank of India was established in 1935 and was nationalized in 1949. Since its inception, it has been rendering viable services for the development of rural areas. It has started Agriculture Credit Department and two separate funds in 1956 to supply to the agriculture sector. They are (1) National Agricultural Credit Fund, 2) National Agricultural Credit Stabilization Fund.

While the first one is intended to provide long term credit to the farmers and the second one is for providing additional finance to them during natural calamities. RBI provides credit to the peasants through State Co-operative Banks in the following ways.

a. Short Term credit

The RBI provides short term credit facilities to State Co-Operative Banks at a lower interest rate for a period of 15 months by providing rediscounting facilities on Government securities and debentures of land development bank.

b. Medium term credit

Since 1959 RBI has been providing medium term credit to the state co-operative banks for a period of 15 months to 5 years on the security of State Government at lower rate of interest less than the current rate of interest.

c. Long term credit

RBI provides long term credit to the State Governments for Agricultural Development activities. It purchases debentures of land development banks and sanctions direct loans to the State Governments to enable them to subscribe the share capital of Co-operative Banks. The long term credit varies from 5 years to 20 years.

d. Other services

RBI renders the following services also.

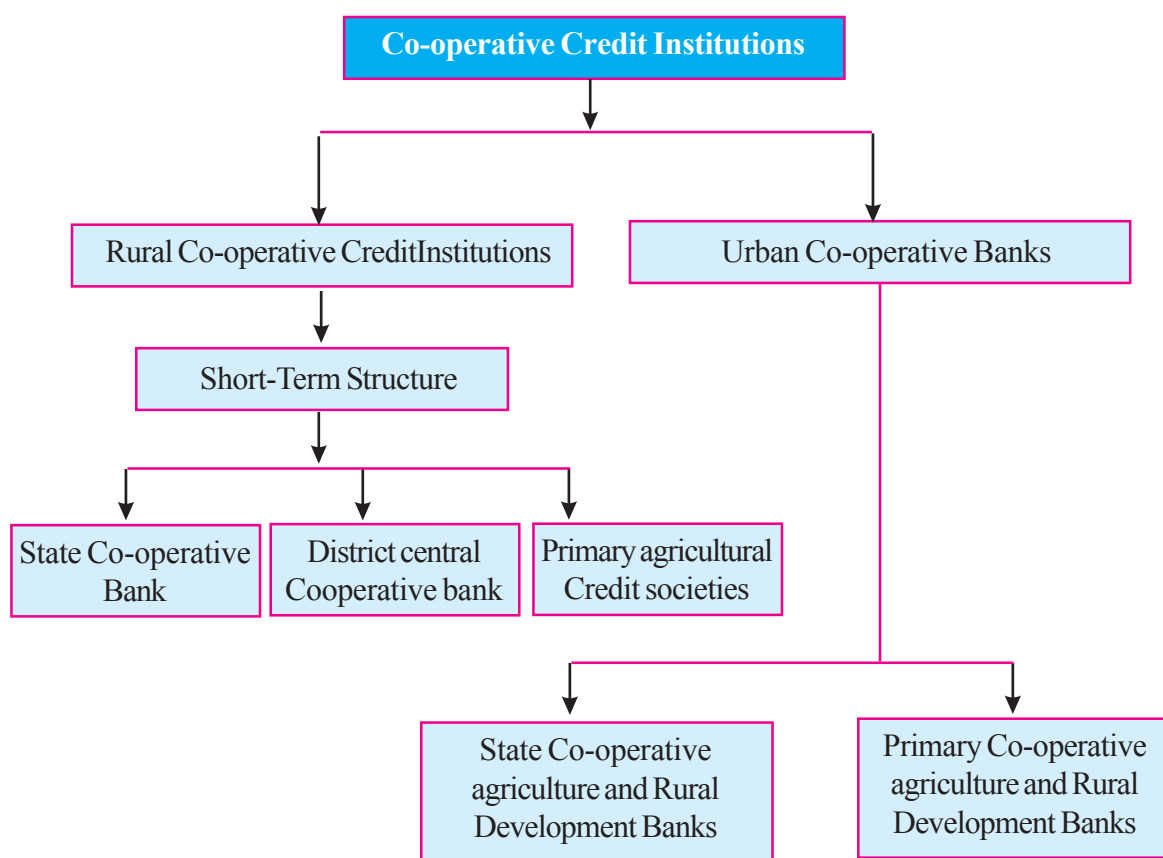
1. It provides credit to all the institutions which are engaged in rural credit.
2. It provides loans for Small Farmers Development Agency and Marginal Farmers Development Agency.

Moreover, RBI acts as an adviser to the Central and State Governments regarding Rural Credit.

Later the rural planning cell of RBI and the two National Agricultural funds which established by RBI are merged with NABARD.

- 3. Co-Operative Credit Societies:** Co-Operative Credit System was successfully implemented in Germany by providing cheap credit. Keeping it in view this co-operative movement was started in India in 1904. These societies were organized to relieve the indebtedness of rural people and to promote thrift.

The co-operative credit institutions in India have been organized into short term and long term structures.



The short term co-operative credit structure is based on a three tier structure. Primary Agricultural Co-operative credit societies (PACSS) are organized at village level. At the second tier are the District Central Co-operative Banks (DCCBs) organized at the District Level. At the third upmost tier are the State Co-operative banks (StCBs).

PACSS are organized at village level. They can be formed by any ten or more than ten persons. In order to strengthen PACSS financially the Reserve Bank of India, in collaboration with State Governments had been taking a series of steps. Commercial banks in India introduced a scheme of financing through PACSS for disbursing agricultural loans. The StCB advances loans to DCCBs in order to augment their capacity to advance loans to the village PACSS. PACSS are

organized at village level. The management of the society is under an elected body consisting of a president, secretary and treasurer.

The reorganization of primary agriculture co-operative credit societies in 1976 in the form of single window system which is intended for both short term and long term loans at single window in PACSs. At the end of March, 2012, 31 State Cooperative Banks, 370 District Co-operative Banks and 92432 Primary Agriculture Credit Societies for short term credit structure and 20 State Cooperative Agriculture Rural Development Banks and 697 Primary Cooperative Agriculture and Rural Development Banks for long term credit structure are in function.

The total volume of credit supplied by these co-operative Banks for agricultural sector has reached to Rs. 87,963 crore by 2012. The cooperative Credit system is organizationally and financially weak to meet the credit needs of agricultural sector. Hence, co-operation has failed, but co-operation must succeed.

4. Commercial Banks : Commercial Banks are defined “Those institutions which take up all types of banking activities with a view of profit”. For a long period of time up to 1950-51, the share of commercial banks in credit was 0.9 per cent which is very low. In those days commercial banks were lending credit to industries instead of agriculture where uncertainty prevailed. These banks started a viable role after nationalization of 14 banks in 1969 and 6 banks in 1980. The total number of branches have increased to 98,591 at the end of June, 2012. The public sector banks have been advanced an outstanding amount of Rs. 5,30,600 crores for agriculture at the end of March 31, 2013 which was 160 crores in 1969. There were 3,07,17,195 million agricultural borrowing accounts with commercial banks by 2008. Private sector banks also have been advanced on Rs. 1,11,900 crores as on March 31, 2013. As far as rural credit is concerned, the role of commercial banks is highly appreciable. Commercial banks are supplying credit to the rural areas in the following manner.

- a. Commercial banks are supplying credit for short term and long term requirements of the needy farmers in rural areas. They are providing short term crop loans which accounted 42 to 45 per cent of the total loans disbursed by commercial banks. Similarly, long term loans are extended by commercial banks for purchasing pump sets, tractors and other agricultural machinery which accounted 35 to 37 per cent of the total loans disbursed by commercial banks.
- b. Commercial banks are extending credit facilities to agricultural allied activities like dairying, poultry farming, piggyery, fisheries etc.

- c. Commercial banks in collaboration with Government Institutions are considerably working for the implementation of various rural development programmes like IRDP, JRY etc by sanctioning and disbursing credit to the beneficiaries.
- d. Commercial banks are indirectly helping the rural peasants by extending credit for fertilizers and pesticides companies, Food corporation of India, Central Ware Housing Corporation, Co-operative Credit Societies and Regional Rural Banks.

At present commercial banks are facing many problems in providing credit for rural development because of debt moratorium, pressure of over dues, lack of adequate bank branches etc.

5. **Regional Rural Banks:** According to the recommendations of the working group on Rural Banks headed by Prof. M.Narasimham, the Government of India issued an ordinance to establish Regional Rural Banks in our country on October 2, 1975. Consequently, five Regional Rural Banks were started. Later the number rose to 196. The Government of India amalgamated Regional Rural Banks in order to consolidating and strengthening them. As on March, 2013, the total number of branches of RRBs were 17,856 across 635 districts in 26 states and one Union Territory.

Generally the nationalized commercial banks are sponsoring the RRBs. Each Regional Rural Bank had an authorized capital of Rs. 1 crore and paid up capital of Rs. 25 lakhs. The share capital has subscribed by the Central Government 50% the State Government concerned 15% and the sponsoring commercial bank 35%. The National Agricultural Bank for Reconstruction and Development will supervise RRBs functions and act as a coordinating agency between RBI and RRBs.

The main objective of RRBs is to provide credit and other facilities to the small and marginal farmers, agricultural labourers, artisans and small entrepreneurs so as to develop commerce, agriculture, industry and other productive activities.

In 2011-12, RRBs provided 54550 crores to agriculture which accounted 10.65% of total institutional credit. At present these banks are functioning like other commercial banks

6. **National bank for agriculture and rural development (NABARD):** According to the recommendations of the Committee to review arrangements for institutional credit for Agriculture and Rural Development (CRAFICARD) National Bank for Agriculture and Rural Development was established in July, 1982. The rural planning and credit cell of RBI, National Agricultural funds and the Agricultural Refinance and Development Corporation (ARDC) are incorporated in NABARD. The authorized share capital of

this organization is Rs. 500 crore and the paid up capital of Rs. 100 crore is equally contributed by RBI and Central Government.

a. Functions of NABARD

Generally NABARD performs three main functions 1) Refinancing, 2) Institutional Development, 3) Inspection of client banks. Specially NABARD performs the following functions.

1. NABARD provides short term credits, medium term and long term credits to State Co-operative Banks, Regional Rural Banks, Land Development Banks and other Financial Institutions engaged in Rural Development and approved by Reserve Bank of India.
2. NABARD lends long term loans to State Governments to enable them to subscribe share capital of Co-Operative societies.
3. NABARD provides credit to agriculture, small scale industries, cottage and village industries, handicrafts and artisans with a view to achieve integrated rural development
4. NABARD undertakes inspection of Co-operative Banks and Regional Rural Banks and acts as an adviser to Government.
5. NABARD Coordinates the activities of Central and State Governments, the planning Commission and other Institutions entrusted with the development of small scale industries, cottage industries, handicrafts etc.
6. NABARD undertakes monitoring and evaluation of the projects undertaken by it.
7. NABARD lends long term loans to any institution approved by Central Government of India as far as it is concerned with agriculture and rural development.
8. NABARD maintains research and development fund to promote research in agriculture and rural development.

b. Disbursement of Refinance

NABARD has incepted several innovative schemes like Rural Infrastructure Development Fund (RIDF), Farm Innovation and Promotion Fund (FIPF), Kisan Credit Cards Scheme (KCC), Farmer Technology Transfer Fund (FTTF), Farmers club etc. NABARD role is crucial in strengthening rural credit structure in our country.

1. **Rural Infrastructure Development Fund (RIDF) :** RIDF in NABARD was incepted in 1995-96 with an objective of providing funds to State Governments and State-owned Corporations to enable them to complete various purposes like irrigation projects, watershed management, construction of rural roads, bridges, fisheries, cold storages

etc for rural development. The annual allocation of funds under the RIDF has gradually increased from Rs. 2000 crore in 1995-96 to Rs. 20000 crore in 2012-13. Aggregate allocation of funds over the period reached Rs. 1,72,500 crore. In addition to this, RIDF funded an amount of Rs. 18,500 crore for the rural roads which is the objective of Bharat Nirman Programme.

2. **Kisan credit card system (KCCS) :** KCC scheme was introduced in 1998-99 with a view to facilitate short term timely credit to farmers. Commercial banks, Regional Rural Banks and co-operative banks which are refinanced by NABARD are implementing this scheme. Since its inception till the end of August, 2012, Rs. 91676 crore have been issued to nearly 9.54 crore Kisan Credit Card Holders.
3. **Micro Finance:** The main aim of this programme is to bring banking service to the door steps of the poor. Micro finance is a novel approach to banking with the poor. Under this scheme bank credit is extended to the poor through Self Help Groups (SHGs) which were incepted by NABARD in 1986-87 as Non-Government Organisations. Micro credit attempts to combine lower transaction cost and high degree of repayments. The linkage between Self Help Groups and banks introduced and encouraged by NABARD. As on March 31, 2013, 73 Lakh Self Help Groups maintained saving accounts with banks with total savings of Rs. 8200 crore and 45 lakh Self Help Groups had cumulative bank loans of Rs. 39,400 crores. Non Government institutions are also playing an important role in providing micro finance. NABARD disbursed Rs. 3916.64 crore in 2012-13 to SHGs.
4. **Swarnajayanthi Gram Swarozgar Yojana (SGSY):** Swarnajayanthi Gram Swarozgar Yojana was launched by the Government of India on April 1, 1999 by combining various programmes like IRDP, TRYSEM, DWCRA and allied schemes. The main aim of this scheme is to uplift the poor above poverty line. SGSY mobilizes funds to uplift the poor above poverty line through SGHs on credit cum subsidiary basis. In order to empower women and weaker sections SGSY is restructured as “National Rural livelihood Mission (NRLM) with effect from April 1, 2010. Under this scheme up to 2011, 168.46 lakh Swarojgaries have been assisted with a total out lay of Rs. 42.168 crore. NABARD disbursed an amount of Rs. 111.72 crore to SGSY in its annual budget 2012-13

c. Progress of NABARD

The performance of NABARD and the amount to various sectors for the development of rural poor is presented in the table.

Table 4.14: Sector-wise Disbursement of Refinance (Crore)

Sl.No.	Purpose	2012	2012-13
1.	Minor irrigation	660.51 (4.28%)	739.27 (4.18%)
2.	Land Development	504.07 (3.27%)	817.69 (4.63%)
3.	Farm Mechanisation	2134.51 (13.84%)	2282.79 (12.92%)
4.	Plantation and Horticulture	1547.50 (10.03%)	1361.92 (7.71%)
5.	Poultry, Sheep, Goats Piggery and animal husbandry & Others	680.20 (4.41%)	411.29 (2.33%)
6.	Fisheries	91.88 (0.60%)	37.85 (0.21%)
7.	Diary Development	89.88 (5.77%)	872.87 (4.94%)
8.	Forestry	15.97 (0.10%)	7.80 (0.40%)
9.	Storage and Market Yard	157.47 (1.02%)	295.30 (1.67%)
10.	SGSY	211.98 (1.37%)	111.72 (0.63%)
11.	Non Farm Sector	3574.21 (23.18%)	5150.88 (29.14%)
12.	SC and ST Action Plan	4.26 (0.03%)	19.35 (0.11%)
13.	Self Help Groups (SHG)	3072.59 (19.39%)	3196.64 (22.16%)
14.	Others	1876.67 (12.17%)	1648.92 (9.33%)
	Total :	15421.70 (100%)	17674.29 (100%)

Source: NABARD Annual Plan.

The data presented in the Table 4.14 shows that the total amount of refinance is continuously increasing. It is observed that share of non farm sector is high i.e. Rs. 5150.88 (29.14%) crore in 2012-13. Minor irrigation, land development, mechanization, plantation, dairy development and self help groups derived much attention of NABARD in its disbursement of refinance. The total amount disbursed by NABARD in 2012-13 is Rs. 17674.29 crore.

II. Non institutional sources

The non-institutional sources of money lending are as follow.

- 1. Money lenders :** Money lenders are the major source of agricultural credit for a long period of time. Money lenders are of two types i.e. agricultural money lenders and professional money lenders. Agricultural money lenders combine farming with money lending. Professional money lender's occupation is only money lending. In the absence of adequate institutional credit facilities peasants are forced to depend on these money lenders. Generally, they lend money to the farmers at exorbitant rate of interest and for

unproductive purposes also. They are exploiting farmers by using unfair methods like manipulating accounts. At present the role of money lenders is gradually declining. For instance, the share of money lenders in the total farm credit was around 70 per cent in 1951 but it declined to 19.6 per cent in 2002. The borrowers can never come out of clutches of the money lenders once they are caught by them because lending money under this system is highly expensive and exploitative.

2. **Landlords :** Mostly small farmers and tenants depend on land lords in order to meet their financial requirements. Generally, landlords lend money both for productive and unproductive purposes at exorbitant rate of interest. They lend money to the neighbouring farmers at high rate of interest keeping in view of grabbing their lands. As a result of higher rates of interest the small and marginal farmers are bearing the risk of losing their lands to the landlords. Consequently, the small farmers are turned into landless labourers or bonded laborers. The share of landlords in the total farm credit was 15 per cent in 1951-52 and declined to 1 per cent in 2002.
3. **Traders and Commission Agents :** Traders and commission agents advance loans to agriculturalists for productive purposes against the crops without any legal agreement. They force the borrowers to sell their products at low prices to them and charge heavy commission on the produce of the farmers. This sort of lending takes place in case of commercial crops like cotton, tobacco etc. The share of traders and commission agents in the total farm credit was 55 per cent in 1951 and declined rapidly to 2.6 percent in 2002.
4. **Relatives And Friends :** Farmers often borrow from their relatives and friends in order to meet their temporary credit needs. These loans are generally contracted in an informal manner at low rate of interest or no interest and they do not involve in any sort of exploitation. Usually farmers repay these loans soon after harvesting. The share of these loans in total farm credit was 14.2 per cent in 1951 and declined to 7.1 per cent in 2002.

4.13 Rural Indebtedness

Rural indebtedness has been the evergreen companion of the Indian peasants. Rural indebtedness adversely affects the agricultural development. Generally, rural people borrow funds for both productive and unproductive purposes. It is found that a major portion of borrowed funds is spent on unproductive purposes which in turn does not give any income. Consequently, the rural people fail to pay off their debts promptly. Indian peasants borrow money year after year and they

never pay off their old debts fully. So far, the rural debt goes on accumulating and the rural poor are caught in the clutches of money lenders. This is known as rural indebtedness. Accordingly, the farmers when once enter into debt, are unable to come out of it. Royal commission on Agriculture remarked that, “The Indian farmer is born in debt, lives in debt and dies in debt.”

4.13.1 Estimations Of Indebtedness

Many estimations either institutional or individual have estimated the magnitude of indebtedness in rural areas.

Table 4.15: *Amount of debt by occupational categories*

Total Amount of Debt (Crores)				Share of Cultivators in (%)	
Year	Cultivators	Non-Cultivators	Total	Total Debt	Share of Cultivators in Households
1971	3374	474	3848	87.7	72.4
1981	5737	456	6193	92.6	76.3
1991	17668	4543	22211	79.5	66.1
2002	81709	29,759	1,11,468	73.3	59.7

Source: *NSS 59th Round - 2002.*

Data provided in Table 4.15 shows the amount of debt of rural households has been increasing. The total debt in 1991 was Rs. 22,211 crores and rose to Rs. 1,11,468 crore in 2002 by over 500 percent, In 2002, 60 percent cultivator households have registered a share of 73 percent of total debt.

The share of Cultivators debt was peaked at 93 percent in 1981 and it declined to 80 percent in 1991 and fall further to 73 percent in 2002.

Table 4.16: *Average amount of indebtedness per household in rural areas*

(In Rupees)

Year	Cultivators	Non-Cultivators	Total Rural Households
1971	605	223	500
1981	803	205	661
1991	2294	1151	1901
2001	9261	4991	7539

Source: *RBI bulletin-1999*

The data in Table 4.16 reveals that the average amount of debt per rural household was Rs. 500 in 1971 and rose to Rs. 7539 in 2002. The data in the table obviously shows that the average debt of Cultivators household is higher than that of Non-Cultivators Household.

4.13.2 Causes for Rural Indebtedness

A majority of rural households are in indebtedness. Among the rural households, indebtedness is highly prevalent in cultivators household, especially in the case of marginal and small farmers. Generally, these households are borrowing from non-institutional sources at a high rate of interest which results in rural indebtedness. The following are the main causes for increasing rural indebtedness in India.

1. **Ancestral Debt:** The most important cause of the existing rural indebtedness is the ancestral debt which is inherited from ancestors. Generally, farmers in India not only inherit property but also debts of their ancestors. In fact, the volume of inherited debt should be limited to the extent of inherited property. Generally, peasants in India feel it is their pious duty or religious obligation to take the ancestral debt as debt of honour. Hence, many of the rural poor in our country are starting their career with a heavy burden of ancestral debt.
2. **Poverty:** The basic cause of the indebtedness of the farmers is their Poverty. The farmers have to borrow for various purposes, as he has no past savings of his own. Poverty, either forces the peasants to borrow or prevents them to pay off debts. Thus, Poverty seems to be a major factor responsible for aggravating the problem of rural indebtedness in India.
3. **Natural Calamities:** Another cause of rural indebtedness is that Indian agriculture is still a gamble in monsoons. Frequent failure of monsoons results in drought. On the other hand, excessive rains cause havoc in the form of floods which damage crops. Similarly, other factors such as storms, fire etc, also adversely affect crops. All these problems force the farmers to borrow funds.
4. **Extravagance of the farmers:** It has been observed that Indian farmers spend more on social and religious functions like marriages, festivals, births, funerals, dinners, ornaments etc, beyond their capacity. All these funds borrowed for such unproductive purposes cannot be paid off easily.
5. **Moneylenders:** Moneylenders are the main source for the provision of credit facilities in the rural areas. Moneylenders are least interested in the well being of farmers. Hence, they tempt the farmers to borrow funds for unproductive purposes at high rates of

interest keeping in view to grab of their valuable assets. They adopt many unfair methods to exploit the rural people.

6. **Small size land holdings:** The average size of Land holdings in India is very small due to sub- division and fragmentation of land holdings. When the holdings are small, modernization of agriculture becomes impossible. Consequently, the returns from these small holdings are not encouraging and are uneconomical. On account of this reason the farmers incur debt.
7. **Litigations:** Litigation either civil or criminal is another cause of rural indebtedness. People in rural areas generally indulge in various kinds of disputes like disputes over boundaries, pathways, fencing etc,. They regard winning a legal battle as a matter of personal or family prestige and not hesitate to go even to the apex court. Hence, their valuable time and money is being wasted and this adversely affect farm production. All these lead to increase in their debts.
8. **Passion for Land:** The peasants have a tremendous Passion for Land and desire to make improvements on Land. These improvements on Land should be done through saving and not through borrowing. But farmers mostly borrow for these purposes.
9. **Other Causes:** In addition to the above causes, purchase of household luxuries, spending on bad habits, increasing cost of cultivation, dependence on non-institutional sources, expenditure on medicines, lack of support prices for the crops etc, are becoming responsible factors for increasing rural indebtedness.

4.13.3 Remedial Measures

In view of growing magnitude of rural indebtedness and its evil consequences, steps have been taken immediately to provide relief. This can be achieved with the joint efforts of Government and voluntary organizations.

1. **Expansion of Institutional credit:** In order to reduce the dependence of the rural people on moneylenders, the Government should provide timely and adequate credit through Commercial banks, RRBs, Co-operative Credit societies etc. Consequently, the rural people get relief of their debts.
2. **Regulation of Moneylenders:** The Government should enact legislations to control moneylenders. These legislations should consist of licensing and registration of money lenders, maintenance of accounts in prescribed form, fixing maximum rate of interest, furnishing receipts to debtors after payment etc.

3. **Debt Moratorium:** Central Government and State Governments are resorting the policy of debt moratorium for redemption of debt of the marginal farmers, small farmers and landless laborers as it was introduced during the period of emergency. In the same way, the Government should evolve proper policies in order to reduce the debt burden of rural people. For instance, rebate for one time settlement of unpaid amount may be implemented.
4. **Educating the farmers:** All the farmers in rural areas should be educated. Then only they can understand various legislations pertaining to ancestral debt and fixed rate of interest. Education enables the farmers aware of unnecessary expenditure on litigations, social and religious activities. Hence, adult education centers should be started in rural areas to educate the peasants.
5. **Supply of inputs:** The institutional credit sources should sanction loans to the rural poor not in the form of cash but in the form of inputs in order to avoid unproductive expenditure. Such mode of sanction definitely enhances the repaying capacity of the debtor and minimizes the problem of indebtedness.
6. **Others:** In addition to the above the Government has to frame various schemes to eradicate poverty and Employment which in turn increase the income and the repaying capacity of rural poor. Coverage of women farmers under micro-finance methodology must be increased.

It is miserable to note that the peasants are committing suicide because of indebtedness. Like a fly in the cobweb which can rarely escape, so also, the farmer once caught by the indebtedness can rarely come out of its clutches.

4.14 Agricultural Marketing

In India, agriculture was done formerly on a subsistence basis. In those days villages were self sufficient, people used to exchange their goods with in the village under barter system. Agriculture has become commercial with the development of means of transport and storage facilities. Now a days the farmers are growing those crops which fetch them a better price. The development of agriculture depends not only on the productivity but also on the existing system of marketing in the Country. Hence, marketing of agricultural produce is considered as an integral part of agriculture. National Commission on Agriculture defined Agricultural Marketing is “a process which starts with the decision to produce a saleable farm commodity and it involves all aspects of market structure of the system”. From the above definition agriculture marketing can be understood as the process of selling the product of the farmers at the market price. In India, the marketing efficiency of the peasants is very low. It can be examined in this chapter.

4.14.1 Stages of agricultural marketing

Peasants cannot sell away all their products instantaneously after harvesting. These products must go through a series of stages before they are actually marketed. Such stages are called stages in agricultural marketing. These stages are mentioned as follow.

1. **Assembling :** The total produce of various farmers from various places should be brought to one place. The process of pooling up of small surpluses of individual farmers in the market of the producing areas is called assembling.
2. **Transportation :** All the farm products must be transported from the producer markets to the consumer markets. Transportation facilitates the availability of goods in the market.
3. **Grading :** All the assembled products should be graded and standardized according to their quality and durability. This grading facility enables the consumers to buy qualitative products and enables the farmers to get fair prices.
4. **Processing :** All the agricultural products assembled and graded cannot be used directly. Hence, those products should be made useful for consumption. For instance, paddy, pulses, oil seeds etc., cannot be used directly for consumption. Hence those goods require process for consumption.
5. **Sampling :** Samples are to be made from the graded, standardized and processed produce. This sampling process enables the consumer to choose the best goods from the market.
6. **Packing :** All the farm products whether processed or not must be packed properly to ensure better quality. Packing protects the goods from all sorts of deterioration of quality.
7. **Storing :** All the farm products processed and packed cannot be sold immediately. They have to be preserved in store houses until they are sold. Some perishable goods require cold storages.

4.14.2 Marketable surplus and marketed surplus

All the producers cannot sell their produce immediately after harvesting. They keep a part of their produce for the purpose of wages, consumption, seeds etc. The surplus still available at the farmers after meeting all these requirements is called marketable surplus. Marketable surplus is the potential surplus available for marketing. The actual portion that marketed out of marketable surplus is termed as marketed surplus.

In case of commercial crops both marketable surplus and marketed surplus are equal while in case of food grains marketed supply will be lower than marketable surplus.

4.14.3 The Modern Market Approach

As a result of globalization the Indian market has turned from traditional mode of life to quasi professional area. Today India is witnessing super market revolution. The multinational companies like Reliance, Tatas, Godrej, Bharati, Sriram, Mother Dairy, Hindustan Liver, Mahindra and Mahindra etc., have entered into agricultural marketing and selling fresh vegetables, fruits, meat, fish, rice etc. Such entry of multinational companies is possible due to the market reforms in India and is called “Agri-retailing Revolution”. These companies are paying attention to “Supply Chain Management”. They are paying attention on providing seeds, fertilizers, irrigation, technology, credit, cold storages, processing facilities, transport facilities and selling of farm products.

4.14.4 Problems of Indian Agricultural Marketing

Agricultural marketing system in India is highly exploitative. Hence the farmers are deprived of getting fair prices for their produce. The following are the main defectives of agricultural marketing in India.

1. **Existence of middleman :** The number of middlemen between the farmers and final consumers are too many and the margin going to them is too large. They exploit the illiterate peasants by adopting various unfair methods and pay less to the farmers. According to many studies middlemen are grabbing 60 to 70 percent of the market prices.
2. **Malpractices in the market :** The middlemen and the merchants unite together to cheat the peasants by paying lower prices. The secret methods of buying and selling, defective weights and measures, grabbing the produce in the form of samples, charities etc., are the defectives in agricultural markets. Moreover, payments to the farmers for selling their products are made in installments instead of single settlement. No dispute settlement body is in existence to settle the disputes between the farmers and traders. Hence, the farmers incur heavy losses in selling their products.
3. **Inadequate facilities of transport :** The available means of transportation is inadequate and miserable. Most of the villages are not linked by railways and pucca roads. Still bullock Carts are used to transport products. Hence many of the farmers are forced to sell their products at nearby local “Mandis” and are deprived of getting fair prices.
4. **Lack of storage facilities :** Most of the farmers in villages are not possess sufficient storage facilities to store their products. They used to store their products in pits, mud vessels and Kutcha store house which are unscientific methods. As a result of these unscientific methods of storage nearly 10 to 15 percent of agricultural produce is eaten by rats and bandicoots etc. Moreover, the quality of agricultural produce deteriorates. Consequently, the farmers are compelled to sell their products soon after harvest, even at lower prices.

5. **Lack of market information :** The Indian farmers do not have proper information about the prices that are prevailing in various markets as they are residing at remote villages. They are deprived of getting reasonable prices for their products because of lack of information. Because of illiteracy they are unable to know changes in demand, supply, prices and government price policies.
6. **Lack of Grading and standardisation facilities :** Different varieties of agricultural products are not properly graded in our country. Generally, the farmers mix all the products irrespective of their qualities. Consequently, the buyers declare any produce inferior and quote lower prices for such stocks. Thus, the farmer producing better qualities are not assured of better prices. If the farmer's products are graded, superior products will secure higher prices to the farmers.
7. **Lack of credit facilities :** The Indian farmers are poor and they have to depend on village money lenders for credit. Lack of adequate institutional credit is mainly responsible for the defects in agricultural marketing in India. Integrity is lacked between credit and marketing in the farm sector. Thus, he is compelled to sell of the produce immediately after the crop is harvested though prices at that time are very low.
8. **Lack of organisation among the farmers :** Generally, farmers live in scattered villages and they are unorganized. Hence, peasants sell their produce on individual basis while the traders are strong and well organized to buy on collective basis. In such circumstances, the traders will interrupt the price hike of farm products. Obviously the peasants are exploited and are unable to get proper price for their products.

4.14.5 Remedial measures

After Independence the Government of India adopted a number of measures to improve the system of agricultural marketing.

1. **Regulated markets :** Regulated markets have been started with view to ensure remunerative price to the products of the peasants, narrow down the price spread between the producers and consumers and to reduce the non-functional margin of the commission agents. The regulated markets check all unfair practices prevalent in the marketing of farm produce. In most of the states Act of Agricultural Marketing has been passed. In 1951, more than 200 regulated markets were started in India. By the end of March, 2005 the number of regulated markets increased upto 7521.

Regulated market Committee consists of representatives of the State Government, the Local Bodies, the farmers, the traders and the Commission Agents. The important functions of this committee are highlighted in India are as follows :

1. Fixation of charges for weighing and brokerage etc.
2. Enforcing the use of standardized weights.
3. Providing up to date information of market prices. The existing prices of all products should be notified clearly.
4. Prevention of unauthorized deductions and under hand dealings.
5. Market licenses are given to the middlemen and their number is to be minimized.
6. Settling of disputes among the parties arising in market operations.
7. Ware houses and cold storages should be provided to the farmers wherever necessary.

Most of the states have enacted legislations to regulate agricultural markets. Considerable success has been achieved in states like Punjab and Haryana, where regulated markets have been established. While establishing regulated markets preference is given to the areas where commercial crops like cotton, jute, tobacco etc, are produced. However, regulated markets helped the farmers in getting reasonable prices for their produce. As much as 80% of agricultural products are sold at regulated markets.

2. **Co-operative marketing:** The first co-operative marketing society was started in India in 1915 which was successfully implemented in Denmark.

Co-operative marketing societies have been started with the purpose of giving credit to the farmers and marketing their surplus products. According to this system all the farmers of a village form together into a co-operative marketing society to sell their products at a fair price rate. The members of the society sell their products to the society. As soon as they supply the products to the society, they get an advance to carry their agricultural operations. As soon as the products are sold, the society pays the farmers the balance amount by deducting the advances already paid. These societies are maintained by efficient paid staff. Each society covers number of villages. These cooperative societies sell their products at high prices in order to provide remunerative prices to their members.

The following are the advantages of cooperative marketing. They are :

1. Strong collective bargaining takes place instead of weak individual bargaining in cooperative marketing. Hence, prices of farm produces will be remunerative.
2. The co-operative marketing has its own storage and warehousing facilities. Thus, it can avoid damage to agricultural products through rains, rats, thieves etc, and ensure better prices.
3. These markets encourage farmers by providing grading and standardizing facilities and discourage them from adulterating their products.
4. Cooperative marketing control the flow of supplies and thus influences the prices.

5. Cooperative marketing agencies advance loans to the peasants and ensure them wait for better price.
6. The cooperative marketing reduces cost of transportation by arranging quick and cheap means of transportation to the peasants.

Keeping in view these advantages in cooperative marketing societies, the Government and Reserve Bank of India are encouraging these societies through National Development Bank of India.

3. **Contract farming :** Contract farming is another good remedy for solving the problems of agricultural marketing in our country. Contract farming is defined as “That farming in which sale contract is made between farmers and users of farm products”. For instance, some tobacco companies in Andhra Pradesh have sale contracts with the producers of tobacco. In the same way industries like Sugar, Cotton, Jute etc, have sale contracts with the farmers. The following are the benefits of contract farming.

1. Fluctuations in the prices of farm products can be minimized. Hence, certainty the income of farmers can be maximized.
2. Peasants will receive credit and technological support from the industries with whom they have sale contract.
3. Since the prices of these products are fixed well in advance the farmers put sincere effort to maintain quality of the products which have sale contract.
4. Collective sale contracts of farmers provide better result than individual contracts.

4. **Rythu Bazars :** The Government of Andhra Pradesh has introduced the concept of Rythu Bazars on 26th January, 1999 as a better programme for marketing agricultural products. These markets are established in urban and semi-urban areas. In these markets the farmers will sell their farm products directly to the consumers without the interference of middlemen. All the farm goods like Rice, cereals, pulses, vegetables fruits etc, are available in these markets at reasonable prices. Both the farmers and consumers are the beneficiaries in these Rythu Bazars. These markets should be encouraged by the Governments because consumers are getting qualitative goods at a reasonable price. Similarly, the farmers are also getting remunerative prices for their products in the absence of middlemen.

Gradually middlemen are entering into this system. Keeping in view the objects of Rythu Bazars Government has to check properly the entry of middlemen in these markets. It is better to implement Rythu Bazars all over the country.

5. **Faciliteis of grading and stadardisation :** The Government of India has done much to grade and standardize many agricultural goods. For this purpose Government of

India enacted legislation in 1937 and established grading centers at Jaipur, Bhopal Nagpur, Bhubaneswar Shillong etc. The physical and chemical properties of farm products are analyzed in these laboratories. To facilitate grading, standards have been laid down for 162 agricultural and allied goods like cotton, vegetable oils, ghee, cream, butter, eggs, rice, wheat, jiggery, pulses, honey, ground spices etc. The graded goods are stamped with a seal of Agricultural Marketing Department – AGMARK (AGMARK is simply an abbreviation for Agricultural Marketing). As a result the “AGMARK” goods have wider market and better prices.

6. **Warehousing facilities :** If storage facilities are provided, the farmers will not be compelled to sell their products at lower prices immediately after the harvesting of crops. Hence, many warehouses have been constructed by the Central Government throughout the country. As a result, the farmers will store their products until they get fair prices. This facility enhances the bargaining capacity of peasants. On the basis of receipts issued against the products stored in the godowns, the farmers can also obtain credit from commercial banks and cooperative credit societies. This facility enhances the staying power of farmers to wait till they get fair prices.
7. **Transport facilities :** Transportation plays an important role in making market system effective and useful. Cheap and easy means of transportation encourage the farmers to carry their products to the market and create confidence among the farmers. This will enhance the bargaining power of the farmers. Hence, every village has to be linked with pucca roads and bullock carts should be replaced by tractors etc.
8. **Credit facilities :** It is noted that Indian agriculturist is always remaining under debt. The availability of adequate finance pulls him out of the pressure of money lenders to sell his products at unfair prices. Consequently, Government of India has established institutions like Primary Agricultural Cooperative Credit Societies, Commercial Banks, Regional Rural Banks etc.
9. **Market information :** The farmers should have perfect knowledge of prevailing market prices. This enables the farmers to get benefits of efficient marketing. Thus, market information relating to the prices can be provided to the farmers through Radio, Television, News Papers etc.

CONCLUSION

Theories of economic development pointed out that shift of labour from agriculture sector to industrial and service sectors leads the development of all sectors. However, the Indian experience tells that despite impressive growth of industrial sector, there has not been absorption of labour from the Indian agriculture sector. The share of agriculture sector to the GDP has been declined tremendously. Labour in the agriculture sector remained more or less constant since independence. All these trends point out new pattern of economic development is very much needed.

MODEL QUESTIONS

I. Write an essay on the following Questions

1. Explain the importance of agricultural sector in the Indian Economy.
2. Explain the present conditions of agricultural labour and suggest the measures to improve the conditions of agricultural labour.
3. What are the factors affecting cropping pattern in India? Suggest the measures to correct the cropping pattern.
4. What are the causes for low productivity in agriculture in India ? Suggest some measures to improve it.
5. Explain various sources of irrigation and its importance.
6. What are the causes for small size of land holdings in India ? Mention the problems of small holdings.
7. Explain the advantages and disadvantages of Co-operative farming.
8. Explain the tenancy reforms in India.
9. Briefly explain various land reforms in India.
10. Explain the factors responsible for “Green Revolution” in India and its impact on Indian economy.
11. What are the various sources of rural credit in India?
12. What are the causes for rural indebtedness? Suggest some remedial measures to reduce it.
13. Explain the role and progress of NABARD in the field of agriculture and rural credit.
14. Explain the defects in agricultural marketing and suggest some remedial measures.

II. Write the answers briefly for the following questions.

1. Explain the features of Indian agriculture
2. Explain the present conditions of agricultural labourers
3. Explain the factors affecting cropping pattern
4. Explain the importance of irrigation
5. What are the causes for low productivity?
6. Examine the present pattern of land utilization
7. Consolidation of land holding
8. Creation of Economic land holding
9. Need for land reforms
10. Abolition of intermediaries

11. Ceiling on land holdings
12. Reasons for poor performance of land reforms
13. Describe the impact of Green Revolution on Indian Economy
14. Role of Regional Rural Banks in rural credit
15. Primary Agricultural Co-Operative Credit Societies
16. Commercial Banks and rural credit
17. Role of Reserve Bank of India in Rural Credit
18. Defects in the Agricultural marketing in India
19. Various stages of agricultural marketing
20. Regulated markets
21. Co-Operative Marketing
22. Contract Farming.

III. Write the answers in one or two sentences.

- | | |
|--------------------------------|---------------------------|
| 1. Agriculture sector | 2. Agro based industries |
| 3. Food security | 4. Land reclamation |
| 5. Cropping pattern | 6. Perennial canals |
| 7. Drip irrigation | 8. Sprinkler irrigation |
| 9. Land reforms | 10. Organic farming |
| 11. Economic holding | 12. Farm mechanization |
| 13. Consolidation of holding | 14. Co-operative farming. |
| 15. Objectives of land reforms | 16. Zamindari System |
| 17. Ryotwari System. | 18. Occupancy Tenant. |
| 19. Green Revolution | 20. IADP |
| 21. IAAP | 22. HYVP |
| 23. RIDF | 24. Kisan Credit Card |
| 25. SGSY | 26. Micro Finance |
| 27. Assembling | 28. Processing |
| 29. AGMARK | 30. Marketable Surplus |
| 31. Rythu Bazar | |

GLOSSARY

Agriculture Sector Agriculture sector is the sector which includes forestry, fishing, mining and quarrying and allied activities like animal husbandry, horticulture etc., along with agriculture.

Food Security : Food security is such a security which enables the people to have all time enough food for an active and healthy life.

Cropping pattern : Cropping pattern is the pattern of utilization of total farm land for producing different crops in a country at a point of time.

Organic Farming : Organic farming is the farming which uses natural fertilizers and pesticides

Land Reclamation: Land reclamation means regaining the ownership on land after abolition of Zamindari System to make the land useful.

Productivity: Productivity is the average yield of a hectare but production we mean the total produce of land holding.

Land reforms: Land reforms are the introduction of economic and noneconomic changes relating to land in order to achieve social justice and agricultural development.

Consolidation of land holdings: Consolidation of land holdings mean all the holdings of the village are pooled together into one unit.

Perennial canals: Perennial canals are those which flow permanently throughout the year.

Drip Irrigation : Drip Irrigation is the system where water is delivered at or near root zones of plants, drop by drop.

Economic holding: Economic holding is the size of holding which provides a decent standard of living of the members of the family.

Farm Mechanisation: Farm mechanization is the implementation of machines like tractors, pump sets, harvesting machines etc., in agricultural operations.

Co-operative farming: Co-Operative farming means where the total land of a village pooled into one unit and farmed together.

Occupancy tenants: Occupancy tenants are those tenants whom cannot be evicted by land lords until they pay rent.

Micro Finance: Micro Finance is the provision of finance on a small scale to the rural and urban poor.

Marketable surplus: Marketable surplus is the available surplus for marketing after meeting all the requirements of the farmers.

Processing : Processing is the conversion of agricultural products into consumption.

AGMARK : AGMARK is simply an abbreviation for agricultural marketing which is the symbol of quality of produce.

Rythu Bazar : Rythu Bazar is a market where there is no existence of middle men between farmer and buyer.

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CHAPTER

5

INDUSTRIAL SECTOR

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|-----|---------------------------------------------------------------------------|------|----------------------------------------------------------------------|
| 5.0 | <i>Introduction</i> | 5.8 | <i>Foreign Direct Investment</i> |
| 5.1 | <i>Significance of the Indian Industrial Sector in Post-Reform Period</i> | 5.9 | <i>Special Economic Zones (SEZs)</i> |
| 5.2 | <i>Industrial Policy Resolution 1948</i> | 5.10 | <i>Causes of industrial backwardness in India</i> |
| 5.3 | <i>Industrial Policy Resolution 1956</i> | 5.11 | <i>Small Scale Enterprises (MSMEs)</i> |
| 5.4 | <i>Industrial Policy Resolution 1991</i> | 5.12 | <i>Industrial Estates</i> |
| 5.5 | <i>National Manufacturing Policy</i> | 5.13 | <i>Industrial Finance in India</i> |
| 5.6 | <i>Disinvestment</i> | 5.14 | <i>The Industrial Development under the Five Year Plans in India</i> |
| 5.7 | <i>National Investment Fund (NIF)</i> | | <i>Model Questions</i> |
| | | | <i>Glossary</i> |
| | | | <i>References</i> |

5.0 Introduction

Industrialization is the process of manufacturing consumer goods and capital goods and of building infrastructure in order to provide goods and services of both individuals and businesses. As such industrialization plays a major role in the economic development of underdeveloped countries like India with vast manpower and varied resources. According to Jawaharlal Nehru, “If we are to industrialize, it is of primary importance that we must have the heavy industries which build machines”.

Development of Industrial and agricultural sectors are interdependency. Industrial development depends upon food products available for employees working in industrial sector at lower rates. This induces the efficiency of industrial labour. The development of the agro-based industries such as sugar, jute and textile industries depends upon the production of respective raw materials from the agricultural sector. Agricultural sector development further depends upon the availability machinery like pump sets, crushers, tractors, harvesters, seed drillers and other agricultural inputs produced in the industrial sector. The rapid development of the country depends upon the development of the sectors other than agriculture even though agriculture and industrial sectors are interdependency. In the words of Hansinger economic development means changing 80 per cent agrarian working population to 15 per cent agrarian working population.

5.1 Significance of the Indian Industrial Sector in Post –Reform Period

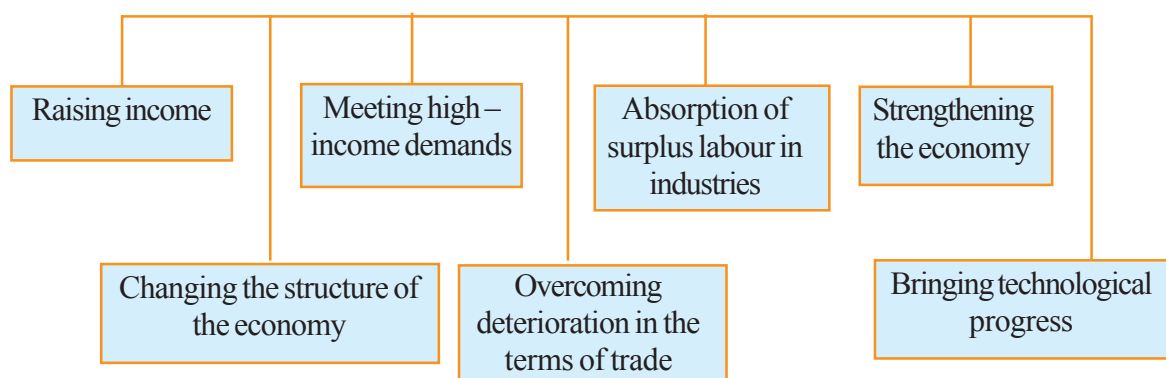
The long-term average annual growth of industries comprising mining, manufacturing, and electricity, during the post-reform period between 1991-92 and 2011-12, averaged 6.7 per cent as against Gross Domestic Growth of 6.9 per cent. The share of industry including construction in GDP remained generally stable at around 28 per cent in the post-reform period. As per provisional estimates for 2013-14, share of industry sector in GDP (constant prices) is declined to 26.1 per cent following contraction in both mining and manufacturing. The share of manufacturing, which is the most dominant sector within industry, also remained in the 14 to 16 per cent range during this period. The share is modest when compared to that of China (above 40 per cent) and some of the East Asian Countries (above 30 per cent).

The industrial sector share in employment also increased from 64.6 million (16.2 per cent) in 1999-2000 to 102.1 million (24.3 per cent) in 2011-12. The increase in employment opportunities is the result of expansion of construction sector, mining and manufacturing sectors. In the light of importance, the role of industrialization is as follows.

5.1.1 Role of Industrialization in India

Industrialisation is a prerequisite for any country, in particular underdeveloped country like India. The major sectors like Agriculture and Tertiary sectors depend upon the available production of equipment and machinery at reasonable prices by the industrial sector. Industrialization paves the way for increased incomes of the people thus leading to a higher standard of living which in turn results in further industrialization. Industrialisation has the following advantages.

Figure 1 : Advantages of industrialisation



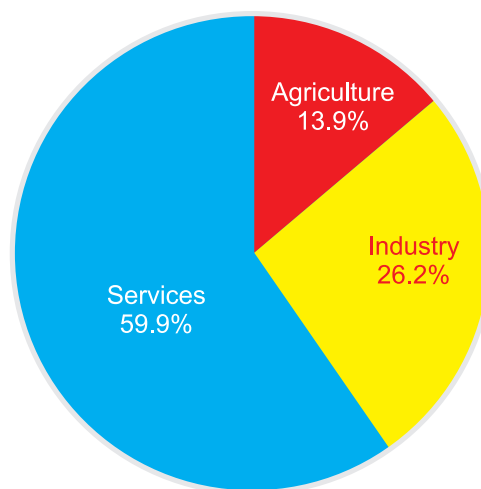
1. Raising Income

The first important role is that industrial development provides a secure basis for a rapid growth of income. The empirical evidence suggests a positive relationship between the high level of income and industrial development. In the industrially developed countries, for example, the per capita income is very high whereas for the industrially backward countries it is very low. Per capita income in 2012 in Germany was \$44,010, Japan \$47,870, U.K. \$38,250, USA \$50,120 and India only at \$1530 per annum.

2. Changing the Structure of the Economy

Secondly, in order to develop the economy underdeveloped countries need structural change through industrialization. History shows that in the process of becoming developed economy the share of the industrial sector should rise and that of the agricultural sector decline. This is possible only through deliberate industrialization. As a result, the benefits of industrialization will 'trickle down' to the other sectors of the economy in the form of the development of agricultural and service sectors leading to the rise in employment, output and income. Sectoral contribution to domestic product at factor cost in USA is 1.8per cent from Agriculture, 20.8per cent from Industry and 77.3per cent from Services. In India sectoral contribution to gross domestic product is 13.9per cent from Agriculture, 26.2per cent from Industry and 59.9per cent from Service sector during the year 2013-14 (provisional).

Figure 2: Sectoral Share in gross domestic productive (%)



3. Meeting High-Income Demands

Thirdly, beyond certain limits, the demands of the people are usually for industrial products alone. After having met the needs of food, income of the people is spent mostly on manufactured goods. This means the income-elasticity of demand for the manufactured goods is high and that of agricultural products is low. To meet these demands and increase the economy's output, underdeveloped countries need industrialization

4. Overcoming Deterioration in the Terms of Trade

Fourthly, underdeveloped countries like India need industrialization to free themselves from the adverse effects of fluctuations in the prices of primary products and deterioration in their terms of trade. Such countries mainly export primary products and import manufactured goods. The prices of primary products have been falling or are stable whereas the prices of manufactured products have been rising. This led to deterioration in terms of trade of the Under Developed Countries. For economic development such countries must shake off their dependence on primary products. They should adopt import substituting and export oriented industrialization strategy.

5. Absorption of Surplus Labour in Industries

The next advantage is underdeveloped countries like India are characterized by surplus labour and rapidly growing population. To absorb all the surplus labour it is essential to industrialise the country rapidly. It is the establishment of industries alone that can generate employment opportunities on an accelerated rate.

6. Bringing Technological Progress

Another advantage is Research and Development is associated with the process of industrialization. The development of industries producing capital goods i.e., machines, equipment enables a country to produce a variety of goods in large quantities and at low costs, make for technological progress and bring in change in the outlook of the people. This results in bringing about an industrial civilization or environment for rapid progress which is necessary for any healthy economy.

7. Strengthening the Economy

Finally industrialization of the country can provide the necessary elements for strengthening the economy. In this regard the following points may be noted.

- a) Industrialization makes possible the improvement of structures like railways, dams, etc. which cannot be imported. These economic infrastructures are essential for the future growth of the economy.
- b) It is through the establishment of industries that one can impart elasticity to the system and overcome the historically given position of a primary producing country. Thus, with

industrialization we can change the “comparative advantage” of the country to suit its resources and potentialities of manpower.

- c) Through industrialization the requirements for the development of agriculture can be met. For example, improved farm-implements, chemical fertilizers, storage and transport facilities, etc., appropriate to our own conditions can be adequately provided only by our own industries.
- d) The industry development imparts to an economy dynamic element in the form of rapid growth and a diversified economic structure which make it a progressive economy.
- e) Industrialization is needed to provide the economic security to the country. This consideration becomes all the more critical where some international crisis develops. In such situation, dependence of foreign sources for defence materials is a risky affair. It is only through industrial development in a big way that the national objective of self-reliance in defense materials can be achieved. Major industrial policy resolutions since Independence are discussed in the following.

5.2 Industrial Policy Resolution 1948

After independence, India desires to advance industrially as quickly as possible. The government has accordingly devoted its attention to the question of developing a sound industry policy. On April 6, 1948, the country's central government announced a very comprehensive policy with regard to industries.

5.2.1 Objectives

- a. To establish a social order where justice and equality of opportunities could be assured to all the people.
- b. To promote rapid rise in the standard of living of the people through exploitation of latent and available resources of the country.
- c. To accelerate production to meet the needs of growing population.
- d. To provide more opportunities for employment.

5.2.2 Industries were divided into four categories as per 1948 Resolution

- (i) Schedule ‘A’ consists of three industries namely manufacture of arms and ammunition production and control of atomic energy and ownership and management of railway transport. These industries are to be under the absolute monopoly of the central government.
- (ii) Schedule ‘B’ included coal, iron and steel, aircraft manufacturing, ship building, manufacture of telephone, telegraph and mineral oils. Out of the industries mentioned in

schedule 'B', some already owned by private sector would be allowed to continue in the same sector for a period of 10 years. On the expiry of such period, the government may take over such units by paying compensation.

- (iii) Third category industries were subjected to the control and regulation of the central government. It comprised certain basic industries such as automobiles, tractors, electronics, engineering, heavy machinery, machine tools, fertilizers.
- (iv) The rest of the industries not covered by category one, two and three were included in category four. This category was open to private enterprise, individuals and cooperatives. However, the state was allowed to enter into this field.
- (v) The resolution emphasized the predominant role of small scale industries for fuller utilization of local resources of the country and reaching the goal of self-sufficiency in consumer goods. As such, the state was to extend financial assistance for their expansion.
- (vi) The government recognized the need for securing the participation of foreign capital and enterprise.

1948 Policy Resolution laid a firm foundation for a mixed economy where both public and private sectors would march together towards the goal of rapid industrial development. The 1948 policy resolution reiterated the right of the state to acquire industrial undertakings in public interest but it also reserved an appropriate sphere for the private sector.

5.3 Industrial Policy Resolution 1956

First Five Year Plan has given importance to agricultural sector, but it has not achieved expected growth rate in the economy. As per the Directive Principles of the State Policy laid down in our Indian Constitution, Parliament of India had accepted the "Socialistic pattern of society" as the basic aim of social and economic policy. These important developments necessitated a fresh statement of Industrial policy which was adopted in April 1956 replacing the Resolution of 1948.

5.3.1 Objectives

- a. To accelerate the rate of economic growth and to speed up the industrialization of the country.
- b. To develop heavy industries and machine-making industries
- c. To expand public sector and to build up a large and growing cooperative sector.
- d. To reduce disparities in income and wealth.
- e. To reduce the regional imbalances.
- f. To establish the socialistic pattern of society
- g. To prevent private monopolies and the concentration of economic power in different fields in the hands of a small number of individuals

5.3.2 Main features

A. The 1956 Industrial Policy classified the industries into 3 categories

- a. Category A has 17 industries which have been left to the exclusive responsibility of the state for their establishment and development. All industries of basic and strategic importance or in the nature of public utility service were put in the public sector. They are iron and steel, atomic energy, heavy machinery, coal, mineral oils, railway transport, telephone, telegraph, electricity .
- b. Category B has 12 industries which will be progressively state-owned and the state will take the initiative to set up new units. At the same time, private enterprise will also have opportunity to develop in this field either on its own or with state participation. Ex: Aluminum, machine tools, fertilizers, synthetic rubber, sea transport.
- c. Category C consists of all the rest which are not included in category A and B. The development of these industries will be left to the initiative and enterprise of private sector.

B. Public and Private Sectors

It is clearly stated that the government has the right to start any industry not included in schedule A and schedule B where the needs of planning requires. Likewise in appropriate cases, privately-owned units may be permitted to produce an item falling under schedule A.

C. Cottage and Small Scale Units

The state would support cottage and small scale enterprises by restricting volume of production in the large scale sector, by differential taxations, or by direct subsidies and would also support small scale units by providing modern technology which is invaluable to compete with large scale units.

D. Removing Regional Disparities

In order to remove regional disparities, government should develop infrastructure facilities and start government owned units in backward regions.

E. Role of Labour

It is obvious that the living and working conditions of workers should be improved in order to raise their standard of efficiency. To provide these, there should be joint consultation of workers and technicians by the management wherever possible.

F. Foreign Capital

Foreign investors have been given clear assurance for the safety of their interest and facilities for investment.

The 1956 Industrial Policy Resolution may be described as an economic constitution which induced rapid industrialization in India. No mention was made on the nationalization of private industries as mentioned in 1948 policy. This policy expects mutual cooperation between public and private sectors and has given much importance to cottage and small scale units which are giving scope for larger employment generation. The public sector is expected to provide the congenial conditions and infrastructure which facilitate the growth of the private sector.

5.4 Industrial Policy Resolution 1991

Industrial Policy Statement 1991 brought rapid structural changes in the economy of India. It goes back to laissez- faire propounded by classical economists. Most of the state owned units were running with huge losses. Foreign exchange reserves came down to a barest minimum. Government was not interested to run the state owned units. So as part of economic reforms generally known as liberalization, privatization, globalization (LPG), and a new industrial policy became inevitable.

5.4.1 Objectives

- a. To build on the gains already made in the industrial sector.
- b. To correct the distortions or weaknesses that may creep in the pattern of industrial growth
- c. To maintain a sustained growth in productivity and gainful employment and
- d. To attain technological dynamism and international competitiveness.

5.4.2 Main features

In order to explore and exploit the industrial potential of the country, the following decisions have been taken.

a. Delicensing

- (i) Industrial Licensing will be abolished for all projects except for those which are important for security, strategic, social and environmental reasons and items of elite's consumption. License is not necessary for the items produced in small scale sector. License is required to establish the following industries viz., coal, petroleum, motor cars, alcoholic drinks, cigars, industrial explosives, hazardous chemicals.
- (ii) **Reservation for the public sector:** Establishment of key and strategic industries reserved for public sector are arms and ammunition, defense equipment, atomic energy, mineral oils, railway transport.
- (iii) **Automatic clearance of imports of capital goods:** The government permits imports of capital goods like machinery, without any conditions if the foreign exchange needed for the imports is met from foreign equity capital.

- (iv) **Location policy:** In locations other than cities of more than one million population, there will be no requirement of obtaining industrial approvals from the central government except for industries specified in Annexure II originally. In cities with a population of more than 1 million, industry other than those of a non-polluting in nature, were required to be located outside 25 kilometers of the periphery.
- (v) **Abolition of convertibility clause:** The mandatory convertibility clause will no longer be applicable for term loans from the financial institutions for new projects. This has provided them an option of converting part of their loans into equity, if felt, necessary by their management.

b. Foreign investment policy

According to the new industrial policy approval will be given for direct foreign investment up to 51 per cent foreign equity in high priority industries. Special Empowered Board would be constituted to attract substantial investment that would provide access to high technology and world markets. FDI is prohibited only in the following sectors in 1991 industrial resolution. They are (1) retail trading (2) atomic energy (3) lottery business (4) gambling and betting

c. Foreign technology agreements

Automatic approval for technology agreements in high priority industries should be given. No permission will be necessary for hiring of foreign technicians and foreign testing of indigenously developed technologies.

d. Public sector policy

Public sector will not be barred from entering areas not specifically reserved for it. Board for Industrial and Financial Reconstruction (BIFR) is constituted to undertake the revival of sick public units and to protect the interest of workers affected by rehabilitation.

e. MRTP Act

The conditions in the Monopoly Restrictive Trade Practices (MRTP) Act that monopolies should get prior approval of the government for expansion, for establishment of new undertakings, merger, amalgamation, take over and appointment of directors will be removed. The Act will concentrate more on controlling unfair or restrictive trade practices.

The new industrial policy statement can be regarded as a realistic economic constitution governing the growth of industrial sector. It will certainly give an impetus to the inflow of foreign investment and technological up-gradation in Indian Industries. It is expected to act as an instrument to promote optimal size and pattern of industrial growth.

5.5 National Manufacturing Policy

After a long gap there was a major industrial policy initiated by the UPA government in 2011. The highlights of the policy were given below.

India's recent economic growth has been due to a massive surge in the services sector with the manufacturing sector continuing to stagnate, contributing 15-16 per cent of Gross Domestic Product. As against this, the manufacturing sector in china accounts for about 42 per cent of Gross Domestic Product.

In fact, India's manufacturing sector is only about 13 per cent of that of China's. It is now being increasingly recognized that unless India's manufacturing sector picks up strongly, it will be difficult to sustain rapid economic growth on the one hand, and provide productive employment opportunities to the increasing labour force on the other hand. Hence, Government of India brings back industrial policy into focus in the form of National Manufacturing Policy (NMP) on November 4, 2011.

5.5.1 Government of India – National manufacturing policy

The National Manufacturing policy envisages simplification of business regulations without diluting their purpose. Recognizing the importance of small and medium enterprises (SMEs) in the country's economy, the policy contains dedicated interventions for small and medium enterprises in addition to the interventions for manufacturing industry generally. These interventions relate primarily to technological up gradation, adoption of environment, friendly technology and equity investments. Skill development, to make young people employable, has been given high priority in the policy through fiscal incentives for the private sector and government schemes, National Investment and Manufacturing Zones (NIMZs) are also provided for on- lands which are degraded and uncultivable.

5.5.2 Objectives of National Manufacturing Policy (NMP)

1. Increase manufacturing sector growth to 12- 14 Per cent over the medium term
2. Increase the share of manufacturing in gross domestic product from the present level of about 16.0 per cent to 25 per cent by 2022.
3. Create 100 million additional jobs in the manufacturing sector by 2012.
4. Create appropriate skills among the rural migrant and urban pour for their easy absorption in manufacturing.
5. Increase domestic value addition and technological depth in manufacturing.
6. Enhance global competitiveness of Indian manufacturing.

India is a young country with over 60 per cent of its population in the working age group. With over 220 million people estimated to join the work force in the next decade, the manufacturing sector will have to create gainful employment opportunities for at least half this number.

5.5.3 National Investment and Manufacturing Zones- Its features

1. The State Government would be responsible for the selection of suitable land having an area of 5000 hectares in size
2. At least 30 per cent of the total area proposed under NIMZs will be utilized for location of manufacturing units.
3. A Special Purpose Vehicle (SPV) will be constituted to discharge the affairs of NIMZs.
4. The State Government would facilitate the provision of water, power connectivity, and other infrastructure and utilities linkages.
5. The Central Government will bear the cost of master planning and will improve/provide external physical infrastructure linkages to NIMZs including rail, road, airports, and telecommunications in a time-bound manner,
6. The Central Government will provide financial support in the form of viability gap finding (VGF) not exceeding 20 per cent of project costs,
7. Soft loans from multilateral financial institutions will be explored and the developers of NIMZs will be allowed to raise external commercial borrowings (ECBs) for developing internal infrastructure of the NIMZs.

5.5.4 Adverse effects of National Manufacturing Policy

1. No specific targets are fixed on value added and so the goal is expressed in vague terms which make its monitoring impossible,
2. The target fixed to achieve a 25 per cent in gross domestic product appears to be virtually impossible.
3. Sunil Mani rightly pointed out, it is not correct to assume that firms in a cluster are more innovative than the firms that are not a part of the cluster
4. As far as pronouncements on issues such as technology acquisition, skill up gradation, public procurement, trade policies etc., are connected, NMP does not state anything new.
5. NMP has failed to identify a small set of manufacturing industries in which India has a competitive position or is likely to attain one in the near future

5.6 Disinvestment

Now we discuss major initiative taken up by the Government of India.

The Government of India in July 1991 initiated the disinvestment process in India, while launching New Economic Policy (NEP). The new industrial policy provides that, "In order to raise resources and encourage wide public participation, apart of the government share holding in the public sector would be offered to mutual funds, financial institutions, general public and employees". This is a process for disinvestment in the public enterprises.

5.6.1 Salient features of the disinvestment Policy are

- (i) Citizens have every right to own part of the shares of Public Sector Undertakings.
- (ii) Public Sector Undertakings are the wealth of the Nation and this wealth should rest in the hands of the people.
- (iii) While pursuing disinvestment, Government has to retain majority shareholding, i.e. at least 51 per cent and management control of the Public Sector Undertakings.

5.6.2 Developments regarding Disinvestment

On 5th November 2009, Government approved the following action plan for disinvestment in profit making government companies:

- (i) Already listed profitable Central Public Sector Enterprises (CPSEs) (not meeting mandatory shareholding of 10 per cent) are to be made compliant by 'Offer for Sale' by Government or by the CPSEs through issue of fresh shares or a combination of both.
- (ii) Unlisted Central Public sector Enterprises (CPSEs) with no accumulated losses and having earned net profit in three preceding consecutive years are to be listed.
- (iii) Follow-on public offers would be considered taking into consideration the needs for capital investment of CPSE, on a case by case basis, and Government could simultaneously or independently offer a portion of its equity shareholding.
- (iv) In all cases of disinvestment, the Government would retain at least 51 per cent equity and the management control.
- (v) All cases of disinvestment are to be decided on a case by case basis.

Major disinvestment receipts, since 2004-05 have come from sale of equity shares of National Thermal Power Corporation Limited (NTPC) RS 2684.07 crore, Maruti Udyog Limited (MUL) (Not a CPSU) Rs. 2277.62 crore, power Grid Corporation of India (PGCIL) Rs. 994.82 crore, Oil India Limited Rs.2247.05 crore NMDC Limited Rs. 9930.40 crore, Coal India Limited Rs.

15,199 crore and Power Finance Corporation (PFC) Rs. 1144.55 crore. Up to 30-1-15, the Government of India got Rs. 1, 79,625.25 crores through disinvestment process that should be utilized to provide social infrastructure and to under take other development activities in the country.

5.7 National Investment Fund (NIF)

The amount received in the form of Disinvestment will go into the National Investment Fund. The Government of India constituted the National Investment Fund (NIF) on 3rd November, 2005, into which the proceeds from disinvestment of Central Public Sector Enterprises were to be channelized. The fund was to be maintained outside the Consolidated Fund of India. The NIF was initialized with the disinvestment proceeds of two CPSEs namely Power Grid Corporation of India Limited (PGCIL) and Rural Electrification Corporation (REC) amounting to Rs 1814.45 crore.

5.7.1 Salient features of National Investment Fund

- (i) The proceeds from disinvestment of CPSEs will be channelized into the National Investment Fund which is to be maintained outside the Consolidated Fund of India.
- (ii) The corpus of the National Investment Fund will be of a permanent nature.
- (iii) The Fund will be professionally managed to provide sustainable returns to the Government, without depleting the corpus. Selected Public Sector Mutual Funds will be entrusted with the management of the corpus of the Fund.
- (iv) 75 per cent of the annual income of the Fund will be used to finance selected social sector schemes, which promote education, health and employment. The residual 25 per cent of the annual income of the Fund will be used to meet the capital investment requirements of profitable and revivable CPSEs that yield adequate returns, in order to enlarge their capital base to finance expansion/ diversification.

The NIF corpus was thus managed by three Public Sector Fund Managers. The income from the NIF corpus investments was utilized on selected social sector schemes, namely the Jawaharlal Nehru National Urban Renewal Mission (JNNURM), Accelerated Irrigation Benefits Programme (AIBP), Rajiv Gandhi Gramin Vidyutikaran Yojana (RGGVY), Accelerated Power Development and Reform Programme, Indira Awas Yojana and National Rural Employment Guarantee Scheme (NREGS).

The allocations out of the NIF will be decided in the Government Budget. For Financial year 2013-14, Government has approved allocations from the NIF towards spending on recapitalization of Public Sector banks and capital expenditure of Indian Railways. Another important aspect of development is Foreign Direct investment. The following section examines the role of Foreign Direct Investment.

5.8 Foreign Direct Investment

Apart from being a critical driver of economic growth, foreign direct investment (FDI) is a major source of non-debt financial resource for the economic development of India. Foreign companies invest in India to take advantage of cheaper wages, special investment privileges like tax exemptions, etc. For a country where foreign investments are being made, it also means achieving technical know-how and generation of employment.

The continuous inflow of FDI in India, which is now allowed across several industries, clearly shows the faith that overseas investors have in the country's economy.

The Indian government's policy regime and a robust business environment have ensured that foreign capital keep flowing into the country. The government has taken many initiatives in recent years such as relaxing FDI norms across sectors such as defense, PSU oil refineries, telecom, power exchanges, stock exchanges, Automobile Industries, Drugs & Pharmaceutical and Chemicals.

5.8.1 FDI Inflows

According to a recent report by global credit rating agency Moody's, FDI inflows have increased significantly in India in the current fiscal. This, according to Moody's, is due to India's current pro-growth policies. Net FDI inflows totaled US\$ 14.1 billion in the first five months of 2014-15, representing a 33.5 per cent increase from the same period in 2013-14. Total FDI inflows into India in the period April 2000–November 2014 touched US\$ 350,963 million.

Mauritius is again emerging as the largest source of FDI in India, accounting for an inflow of US\$ 83,730 million in the April 2000–November 2014 period. According to official data, the inflow of foreign investment from Singapore amounted to US\$ 29,193 million, followed by the UK at US\$ 21,761 million and Japan at US\$ 17,557 million during April 2000–November 2014.

5.8.2 Government Initiatives towards FDIs

India's cabinet has cleared a proposal which allows 100 per cent FDI in railway infrastructure, excluding operations. Though the initiative does not allow foreign firms to operate trains, it allows them to do other things such as create the network and supply bullet trains.

The government has notified easier FDI rules for construction sector, where 100 per cent overseas investment is permitted, which will allow overseas investors to exit a project even before its completion. It also said that 100 per cent FDI will be permitted under automatic route in completed projects for operation and management of townships, malls and business centres.

With the objective of encouraging foreign firms to transfer state-of-the-art technology in defence production, the government may increase the FDI cap for the sector to 74 per cent from

49 per cent at present. India is expected to spend US\$ 40 billion on defence purchases over the next 4-5 years, mostly from abroad.

The Union Cabinet has cleared a bill to raise the foreign investment ceiling in private insurance companies from 26 per cent to 49 per cent, with the proviso that the management and control of the companies must be with Indians.

The Reserve Bank of India (RBI) has allowed a number of foreign investors to invest, on repatriation basis, in non-convertible/ redeemable preference shares or debentures which are issued by Indian companies and are listed on established stock exchanges in the country. In an effort to bring in more investments into debt and equity markets, the RBI has established a framework for investments which allows foreign portfolio investors (FPIs) to take part in open offers, buyback of securities and disinvestment of shares by the Central or state governments.

India will require around US \$1 trillion in the 12th Five-Year Plan (2012–17), to fund infrastructure growth covering sectors such as highways, ports and airways. This requires support in terms of FDI. During the year 2013 foreign investment was dumped into the sectors such as automobiles, computer software and hardware, construction development, power, services, and telecommunications

5.9 Special Economic Zones (SEZs)

The Government of India announced Special Economic Zones policy in April 2000. This policy aims at rapid economic growth supported by quality infrastructure complemented by an attractive fiscal package, both at the Central and State level, with minimum possible regulations. In India, while passing the SEZ Act in May 2005 and came in to effect from February 2006, the following objectives were laid down:-

- (i) Generation of additional economic activity.
- (ii) Promotion of exports of goods and services.
- (iii) Promotion of investment from domestic and foreign sources.
- (iv) Creation of employment opportunities; and
- (v) Development of infrastructure facilities.

5.9.1 Special Economic Zones in India

Up to 2013 number of formal approval Special Economic

Zones were 577. Number of SEZ notified and functioning are 389 and 170 respectively. The total units approved are 3589 and these units provide employment to 10, 74,904 persons (as on March 31 2013). The Special Economic Zones exports are Rs.4, 76,159 crore during the year

2012-13. As per the provision of the SEZ Act 2005, 100 per cent Foreign Direct Investment is allowed.

5.9.2. Government Incentives to Special Economic Zones

Government of India offers the following fiscal and incentive packages to Special Economic Zones:

- (i) Exemption from custom duties, central excise duties, service tax, central sales tax and securities transactions tax to both the developers and the units;
- (ii) Tax holidays for 15 years, i.e., 100 per cent tax exemption for 5 years, 50 per cent for the next 5 years and 50 per cent of the ploughed back export profits for the next 5 years;
- (iii) 100 per cent income tax exemption for 10 years in a block period of 15 years for SEZ developers.
- (iv) Provision of standard factories at low rents with extended lease period;
- (v) Provision of infrastructure and utilities;
- (vi) Single window clearance and simplified procedures

5.9.3 Advantages of Special Economic Zones

Special Economic Zones are expected to give a big push to exports, employment and investment. In fact, the Government of India has been systematically projecting SEZs as “Carriers of Economic Prosperity”. The advantages of SEZs are as follows:-

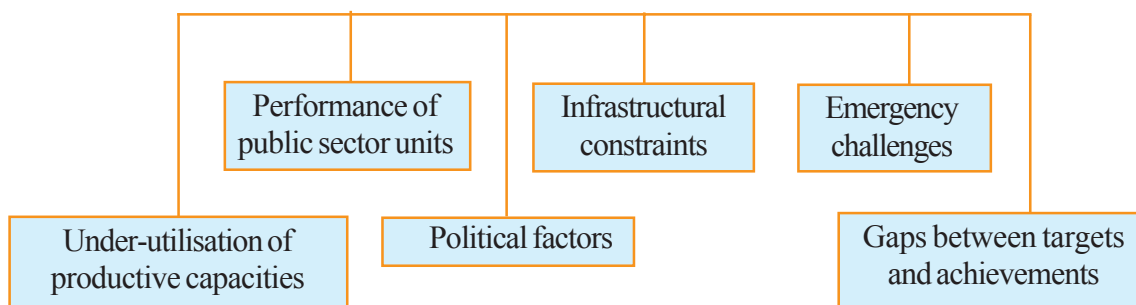
- (i) Boost economic growth at an extremely fast rate;
- (ii) Usher in affluence in rural areas;
- (iii) Provide large number of jobs in manufacturing and other services;
- (iv) Attract global manufacturing and technological skills;
- (v) Bring in private and public sector investment from both home and abroad;
- (vi) Made Indian firms more competitive and
- (vii) Help to slow down rural-urban migration.

To conclude, it may be stated that the standing committee report on SEZ in June 2007 is a path breaking document which indicates the direction in which the country must move if it wants to pursue industrialization with a human face.

5.10 Causes of industrial backwardness in India

India could not achieve the desired growth rate in the industrial sector even though it is rich in natural resources and has huge working population. Even after completion of eleven Five Year Plans, there is wide gap between targets fixed and targets achieved. Rakesh Mohan opines that there is a gap of 20 per cent on an average between the targets fixed and targets realized in each Plan annually. The reasons for this are as follow:

Figure 3 : Reasons for industrial backwardness in India



1. Under-utilization of productive capacities

Many of the industrial units failed to utilize the existing productive capacities fully. There are many reasons for this. Among them is raw material scarcity, low technical know-how etc. For example during 2005-06, out of 203 public sector enterprises, the capacity utilization was below 50 per cent by nearly 67 per cent of the units.

2. Performance of public sector units

Prior to liberalization, there was a phenomenal growth of the public sector. Many of the public sector units were under losses. The number of loss making units decreased from 105 in 1999-00 to only 63 in 2011. However, the losses increased from Rs.10,302 crores in 1999-00 to Rs.27,602 crores in 2011-12.

3. Political factors

In many situations, political factors influence decision about location of projects not considering feasibility. This approach leads to a considerable wastage of capital resources.

4. Infrastructural constraints

One of the major constraints in industrial development is poor quality and high cost of infrastructure, particularly power and transport network. All such infrastructural constraints not only showed adverse effect on industrial growth but also reduced the competitiveness of Indian industries that were fast emerging in the new global economic environment.

5. Gaps between targets and achievements

In the earlier period of Planning, achievements were below the targets. Rakesh Mohan has observed, “The average industrial growth rate achieved over thirty-five to forty years has been about 6.2 per cent rate to the average of about 8 per cent projected.”

6. Emergency challenges

As a founder member of the World Trade Organization, India has withdrawn all quantitative restrictions on imports. This resulted into the closure of a number of industrial units. Thus, the industrial sector facing so many problems.

5.11 Small Scale Enterprises (MSMEs)

Architect of 2nd Five Year Plan P.C. Mahalanobis aptly stated the importance of Large Scale Industries and at the same time he emphasized prominence of the development of small scale enterprises.

In his own words, “In view of the meagerness of capital resources there is no possibility, in the short run for creating much employment through the factory industries. Now consider the household or cottage industries, they require very little capital. About six or seven hundred rupees would get an artisan family started with any given investment, employment possibilities would be ten or fifteen or even twenty times greater in comparison with corresponding factory industries.”

In the industrial policy resolution of 1948 and 1956, the small sector was given special role for creating additional employment with low capital investment. A new thrust was given in favour of small units by the Industrial Policy Statement of 1977.

5.11.1 Definitions

In 1950, the government grouped small scale industrial undertakings into two categories; those using power but employing less than 50 persons and those not using power but employing less than 100 persons.

In 1966, the small scale enterprises were defined as undertakings with a fixed capital investment of less than ‘ 7.5 lakhs and ancillaries with a fixed capital investment of ‘ 10 lakhs.

During 1997, on the recommendations of Abid Hussain Committee, the government raised the investment limit on plant and machinery for small units and ancillaries to ‘ 3 crores and that for tiny units to Rs.25 lakhs.

In 2000 the government reduced the investment in plant and machinery from Rs.3 crores to Rs.1 crore, but the limit for investment in tiny units had been retained at Rs.25 lakhs. Until 2006, the government had defined Small scale Industries and within the Small Scale, it provided a definition of Tiny Enterprises and no definition was provided for Medium Scale Enterprises.

With effect from October 2, 2006, not only the three categories have been clearly defined, but a comprehensive act called “Micro, Small and Medium Enterprises Development Act” came into force reveals that micro or tiny enterprises would cover all enterprises with investment in plant and machinery of less than Rs.25 lakhs, for small enterprises with investment between Rs.25 lakhs and Rs.5 crores and for medium enterprises with investment between Rs.5 crores and Rs.10 crores. Further MSME sector in India constitutes enterprises with investment in plant and machinery less than 10 crore in manufacturing and less than 5 crore in case of service sector.

Large scale industry, where investment is from Rs 10 crore to 100 crore

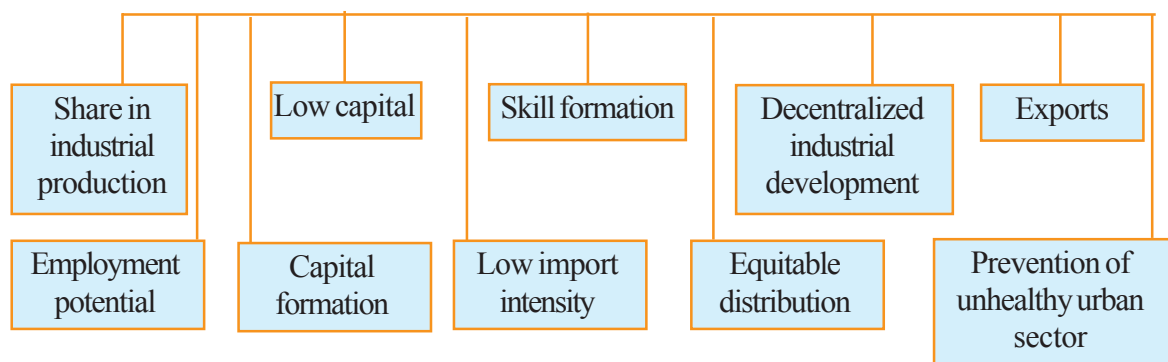
Mega industries are those where the investment will be more than Rs 100 crore

5.11.2 Importance of Micro, Small and Medium Enterprises (MSMEs)

The micro, small and medium enterprises have been accepted as the engine of economic growth and for promoting equitable development. The major advantage of the sector is its employment potential at low capital cost. The labour intensity of the MSME sector is much higher than that of the large enterprises. In India, the MSMEs play a pivotal role in the overall industrial economy of the country. In recent years the MSME sector has consistently registered higher growth rate compared to the overall industrial sector.

Small scale enterprises should be developed as complementary to large scale enterprises because lakhs of people depend upon them for their livelihood.

Figure 4: Importance of small scale enterprises (MSMEs)



(i) Expansion of Small Scale Industrial Sector and its share in Industrial Production:

The rapid growth of small scale units from 2006-07 onwards contributing much to India's gross domestic product.

This can be find clearly from the following table:

Table 5.1 : Overall performance of Micro, Small and Medium Enterprises(MSMES)

Year	Number of MSMEs (In lakhs)	Fixed Investment (Rs.in crores)	Production (Rs.in crores)	Employment (No in lakhs)
2001-02	105.2	1,54,349	2,82,270	249.3
2002-03	109.5	1,62,317	3,14,850	260.2
2003-04	114.0	1,70,219	3,64,547	271.4
2004-05	118.6	1,78,699	4,29,796	282.6
2005-06	123.4	1,88,113	4,97,842	294.9
2006-07	361.8	8,68,544	13,51,383	805.2
2007-08	377.4	9,17,437	14,35,179	842.2
2008-09	393.7	9,71,407	15,24,235	881.4
2009-10	410.8	10,29,331	16,19,355	922.2
2010-11	428.8	10,94,893	17,21,553	965.7
2011-12	447.7	11,76,939	18,34,332	1,012.6

Note: Data up to 2005-06 refer to only Small-scale Industries.

Data from 2006-07 refer to Micro, Small and Medium Enterprises.

Source : Government of India, Ministry of MSME, Annual Report 2012-13, Table 2.1, PP.15-16.

The total number of units in Small Scale Industrial Sector stood at 105.2 lakh in 2001-02 and this number rose to 123.4 lakh in 2005-06. The total number of MSME units in 2006-07 was 361.8 lakh and this number rose to 447.7 lakh in 2011-12. The out put of Small Scale Units in 2001-02 was Rs.2, 82,270 crore and this rose to Rs.4, 97,842 crore in 2005-06. The out put of MSME units in 2006-07 was Rs.13, 51,383 crore and this rose to Rs.18, 34,332 crore in 2011-12. This shows that MSME sector contributes about 8 per cent of GDP and about 38 per cent of Manufactured out put. (Ref: Government of India, Economic Survey 2012-13, MSME Annual Report 2013-14).

- (ii) **Employment potential:** The small scale industries are labour intensive. In the small scale enterprises capital labour ratio is low. An amount of investment in the big industry provides employment to one person, whereas with the same amount 8 persons will be employed in the small enterprises. The small enterprises generated employment

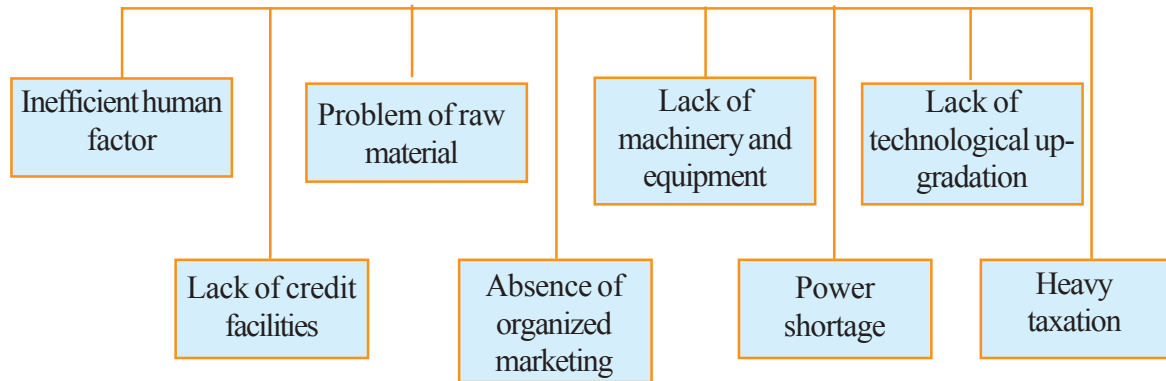
opportunities to the tune of 191.4 lakh persons in 1994-95, 249.3 lakh persons in 2001-02 and it increased to 1012.6 lakh persons in 2011-12.

- (iii) **Low capital:** Small scale enterprises are capital light i.e. they need relatively smaller amount of capital than that required by large scale enterprises. As capital is scarce in an under-developed country like India, importance should be given to small scale enterprises.
- (iv) **Capital formation:** The spreading of industry over the country side would encourage the habits of thrift and investment in the rural areas.
- (v) **Skill formation:** A small scale enterprise does not require any sophisticated skill. But it provides industrial experience and serves as a training ground for a large number of small scale managers, at least some of whom may develop the capacity for managing large-scale undertakings.
- (vi) **Low import intensity:** Low import intensity in the capital structure of small scale enterprises reduces the need for foreign capital or foreign exchange earnings and thus obviates balance of payment difficulties.
- (vii) **Decentralized industrial development:** Development of small scale industries will bring about dispersion or decentralization of industries and will thus promote the object of balanced regional development. These industries should be developed with the locally available man power, raw material and capital.
- (viii) **Equitable distribution:** The profits earned by small scale enterprises distributed among large number of entrepreneurs leads to decentralization of income and wealth.
- (ix) **Exports:** The contribution of small scale enterprises to earn foreign exchange is very high. The value of exports increased to Rs.1,643 crores in 1980-81 and to a record figure of Rs.1,77,600 crores in 2006-07. The share of exports from the small scale sector represents about 31.1 per cent of total exports in 2006-07.
- (x) **Prevention of unhealthy urban sector:** By providing remunerative employment in the rural areas, these industries will relieve congestion in over-crowded urban centers and thus prevent environmental pollution.

5.11.3 Problems of small scale industries

Small scale enterprises are facing number of problems like lack of capital, low technical skill, managerial ability, lack of raw materials and lack of marketing contracts.

Figure 5 : *Problems of small scale industries (MSMEs)*



1. **Inefficient human factor:** Most of the rural people are illiterates and lack technical know-how in the areas of production, finance, accounting and marketing management.
2. **Lack of credit facilities:** The small industrialists are generally poor and there are no facilities of cheap credit either. They fall into the clutches of the money lenders who charge very high rates of interest. Thus, they are caught up in the vicious circle of debt trap.
3. **Problem of raw materials:** The quantity, quality and regularity of the supply of raw materials are all highly unsatisfactory since, they purchase in small quantities and so are charged high prices. According to an estimate, about 40 per cent of such units have become sick owing to non-availability of raw materials regularly.
4. **Absence of organized marketing:** Since marketing is not properly organized, the helpless artisans are completely at the mercy of middlemen. The small scale units have to face the competition from large scale units in marketing their products. The small scale units cannot afford to spend lavishly on advertisement to promote their sales.
5. **Lack of machinery and equipment:** Small scale units are facing inadequate modern machines and equipment. This leads to low productivity in small scale units.
6. **Power shortage:** In recent years power shortage and frequent power cuts played havoc with small scale industries. More hours of power cut are there in rural areas which affect the growth of small scale units.
7. **Lack of technological up-gradation:** It is found that the levels of productivity and technology used by the small scale sector are not globally competitive. Without technological upgradation these units may not serve in a globally integrated economy.

8. **Heavy taxation:** Cottage and small scale industries have also to bear a heavy burden of taxation both on raw materials and also on finished goods.

5.11.4 Development of Micro, Small Scale and Medium Enterprises

Small scale industries are facing so many problems like lack of credit, raw materials, power supply technology and marketing contracts. Hence the Government of India has initiated the following remedial measures.

- a. Several appropriate boards were started by the Government of India to help small scale units for their overall development. For example The All India Handicrafts Board. The Cottage Industries Board, etc.
- b. Government has levied a cess on the corresponding large scale industries to assist cottage and small scale industries.
- c. The government has offered temporary protection by means of subsidy or by reserving a sphere of production exclusively for small scale industries.
- d. To enable the cottage and small scale industry to compete with factory goods, appropriate excise duties have been imposed on industrial products, while small units have either been exempted or offered concessional rates of duty.
- e. State Bank of India and other financial institutions are providing credit facilities to small scale industries.
- f. The Government of India has set up tool room and training centre facilities at Kolkata, Ludhiana and Hyderabad with a view to effecting technological up gradation of the small scale sector.
- g. The Small Industries Development Bank of India (SIDBI) was established in 1989 to meet the long standing demand of small scale industries for financial assistance.
- h. Foreign Direct Investment (FDI) is encouraged in small scale industries for better technological transfer.

5.12 Industrial Estates

Industrial Estates were established in the year 1955 by Small Scale Industries Board for the development of small scale industries. An Industrial Estate is a group of Small Scale Units constructed on an economic scale in suitable sizes with facilities of water, transport, electricity, banks, post offices, watch and ward, first aid and is provided with special arrangements for technical guidance and common service facilities. The industries set up in these estates are also entitled to various incentives granted by the government for Small Scale Units through the Small Scale Departments and State Financial Corporations.

5.12.1 Objectives

- a. To promote the development of small scale industries.
- b. To relieve congestion in the industrial areas of metropolitan towns.
- c. To bring about a balanced dispersal of industries in semi-urban and rural areas;
- d. To relieve unemployment and under-employment in rural areas;
- e. To encourage the growth of ancillary industries in the large-scale industries sector.

During the first two Plans, 66 estates were completed against a target of 120 estates. According to the Sixth Plan (1980-85) by March 1979, there were 662 completed industrial estates wherein 13,467 small scale units were functioning. The production from these units amounts to Rs.636 crores and the units are providing employment to about 2.2 lakh persons.

A working group appointed by Reserve Bank of India about the progress of industrial estates reveals;

- a. General failure to bring about a dispersal of industries
- b. Wrong location of estates
- c. Faulty planning and execution of estates.
- d. Lack of effective machinery to supervise the day-to-day operations of estates.

The success of industrial estates depends upon suitable location, proximity to markets, transport, availability of skilled workers, housing and other worker amenities, construction cost in relation to existing rental levels in the location, availability of equipment and raw materials, adequacy of power and other utilities.

5.13 Industrial Finance in India

Soon after independence, the Government of India set up series of financial institutions to be of special help to the private sector industries in the matter of finance. Industry needs capital expenditure for the purchase of land, construction of building, installation of machinery etc. Besides this, funds are also required for the purchase of raw materials, for stores, for marketing and for meeting day-to-day requirements of the industry.

The following are the main sources from which the Indian industry draws finance:

- a. Shares
- b. Debentures
- c. Public deposits
- d. Commercial banks
- e. Industrial financial institutions

Rapid industrialization needs adequate medium and long term loans. Industrialization requires lot of funds to start up new units and to modernize existing units. Some of the industrial financial institutions are:

- a. Industrial Finance Corporation of India, (IFCI)
- b. State Financial Corporations (SFC's)
- c. Industrial Credit and Investment Corporation of India (ICICI)
- d. The Industrial Development Bank of India (IDBI)
- e. Small Industries Development Bank of India (SIDBI)
- f. Industrial Investment Bank of India (IIBI)
- g. Venture Capital Funds (VCF)
- h. LIC and GIC

5.13.1. Industrial Finance Corporation of India

The Government of India set up the Industrial Finance Corporation of India in July 1948 under a special Act. The corporation was authorized to issue bonds and debentures in the open market, accept deposits from the public and also borrow from the Reserve Bank of India.

Functions

- (i) It granted loans and advances to industrial concerns and subscribed to the debentures floated by them.
- (ii) It guaranteed loans raised by the industrial concerns in the capital market.
- (iii) It underwrote the issues of stocks, shares, bonds and debentures of industrial concerns.

The loans sanctioned by IFCI increased from Rs.210 crores in 1980-81 to Rs.1860 crores in 2000-01.

5.13.2 State Financial Corporations

The Government of India passed the State Financial Corporation Act in 1951 and made it applicable to all the states.

Functions

- (i) To guarantee loans raised by industrial concerns which are repayable within a period not exceeding 20 years and which are floated in the public market.
- (ii) To underwrite the issue of stocks, shares, bonds or debentures of industrial concerns.
- (iii) To grant loans and advances to industrial concerns repayable within a period not exceeding 20 years.
- (iv) To subscribe to debentures floated by industrial concerns.

Besides SFC's there are 28 State Industrial Development Corporations which promote industrial development in their respective states.

5.13.3 Industrial Credit and Investment Corporation of India

It played facilitating role in consolidation in various sectors of the Indian Industry, by financing, mergers and acquisition. The ICICI, groups financing and banking operations both wholesale and retail, have been integrated into a single company effective from May 2002.

Functions

- i. It offered long-term and medium-term loans, both rupee loans and foreign currency loan.
- ii. Participated in equity capital and in debentures and underwrote new issues of shares and debentures.
- iii. Guaranteed loans from other private government source.
- iv. Provided financial services such as deferred credit, leasing credit, installment sale, asset credit and venture capital.

Loans disbursed by ICICI increased from Rs.180 crores in 1981 to Rs.31,660 in 2001.

5.13.4 The Industrial Development Bank of India (IDBI)

The Industrial Development Bank of India was set up in July 1964, to provide long term finance to industry. In February 1976 the IDBI was made an autonomous institution, but under the control of Government of India. It provides finance for modernisation, expansion and diversification. It has to coordinate the activities of all agencies which are concerned with the provision of finance for industrial development. The amount of assistance disbursed by IDBI till the end of March 2004, from the date of establishment, totaled Rs 1,75,572 crore. IDBI was converted into an IDBI bank in October 2004.

Functions

1. The IDBI provided direct financial assistance to industries in the form of loans, underwritings and direct subscription to shares, debentures and guarantees
2. It provides indirect financial assistance to industries by providing finance to State Financial Corporations, State Industrial Development Corporations and Commercial Banks
3. The IDBI initiated certain financial and non-financial measures to encourage industries in backward areas. It provides financial assistance in the form of loans at concessional rates, concessional refinance assistance to projects in backward areas and special concessions to projects in North-Eastern area the bill rediscounting scheme.
4. It provides training in project evaluation and development of entrepreneurship.
5. It also operated a Technical Consultancy Organization (TCO) to undertake feasibility status, project appraisals, industrial and market potential surveys.

6. IDBI provides training to new entrepreneurs.

The amount of assistance disbursed by IDBI till the end of March 2004, from the date of establishment, totaled Rs 1,75,572 crore. IDBI was converted into an IDBI bank in October 2004.

5.13.5 Small Industries Development Bank of India (SIDBI)

The small industries development bank of India was set up by the Government of India in April 1990 as a wholly owned subsidiary of IDBI. SIDBI is now the principal financial institution for promotion, financing and development of small scale industries in the country.

Functions

- (i) SIDBI refinances loans and advances
- (ii) Provides loans at less interest rates by establishing National equity fund, Mahila Udyam Nidhi and Mahila Vikas Nidhi
- (iii) Direct financial assistance is provided to the export products manufactured by small scale sector.
- (iv) Extends finance materials to scarce raw materials and marketing by small scale sector.
- (v) Provides financial support to National Small Industries Corporation for providing, leasing, hire-purchase and marketing support to units in the small scale sector.

The advances provided by the above financial institutions lead to regional imbalances in the country. The Government of India is to take initiation and direct the financial institutions to provide assistance to the units to be established in backward areas.

5.13.6 The Industrial Investment Bank of India

The government did not want sick industrial units to shut down because this would lead to retrenchment of employees and large scale unemployment of industrial workers. To provide financial, technical and managerial assistance to sick units, Industrial Reconstruction Corporation of India (IRCI) was set up in 1971. The Government of India converted the IRCI into Industrial Reconstruction Bank of India (IRBI) on March 20, 1985. IRBI was reconstituted into a full-fledged new financial institution called Industrial Investment Bank of India (IIBI) in March 1997

The cumulative financial assistance sanctioned and disbursed by IIBI up to March 2004 was Rs 14,050 crore and Rs 13,396 crore respectively. The financial assistance sanctioned by IIBI in 2003-04 was Rs 2,412 crore while assistance disbursed was Rs 2,252 crore. As the IIBI was suffering operating losses and also poor financial position, IIBI is in the process of voluntary winding up.

5.14 The Industrial Development under the Five Year Plans in India

India has attained self sufficiency in almost all consumer goods. Growth of capital goods production has been especially impressive. An impressive industrial capacity has been achieved in mining and metallurgical industries, chemical and petrochemical industries, fertilizer production, capital goods industry, engineering industries, power and transport industry, construction industry etc.

The industrial pattern in India has undergone a marked change as a result of Five Year Plans, especially since the beginning of the Second Five Year Plan (1956-61). The number of bigger industrial establishments has multiplied and the proportion of producer goods in the composition of manufacturers has registered a striking increase. Heavy and basic industries have come to occupy an important place in the industrial structure of India.

- I. First Plan (1951-56):** Owing to the small size of the First Plan, insufficiency of funds and greater urgency of agricultural development, the First Plan did not make any big provision for industrial development. The public sector outlay in this Plan was only Rs.900 crores. The overall industrial production increased by 39 per cent i.e. about 8 per cent per year.
- II. Second Plan (1956-61):** The actual investment in the public sector on organized industry was Rs.870 crores in the Second Plan. The private sector investment in the industrial sector was to the tune of Rs.675 crores. It comprised 27 per cent in the Second Five Year Plan's total outlay. The index number of industrial production (Base 1950-51=100) rose from 139 per cent in 1955-56 to 194 in 1960-61 i.e. with an average annual rate of 11 per cent.
- III. Third Plan (1961-66):** The overall financial outlay in industrial sector during the Third Plan was Rs.3000 crores, out of which the outlay in the public sector was about ' 1700 crores and that in the private sector was Rs.1300 crores. An overall target of 7 per cent increase in industrial production was envisaged in the Plan. In short, during Third Plan a vast basis for future industrialization emerged as a result of the completion of markets in the areas of heavy machines, heavy chemicals, heavy electrical and steel.
- IV. Fourth Plan (1969-74):** During the Fourth Plan, the actual outlay on organized industry was Rs.2700 crores in the public sector. The private sector investment was around Rs.2250 crores. The actual performance during the Fourth Plan in the industrial sector was very disappointing. Its average annual growth rate was hardly 5 per cent as against the Plan target of 8 per cent.

- V. Fifth Plan (1974-79):** The Fifth Plan assigned a very important place to the development of industries with a view to achieving self-reliance and social justice. The public sector outlay on industrial development was around Rs.9700 crores. This Plan emphasized rapid growth of core sector industries, substantial increase in the production of mass consumption goods and the development of industrially backward areas. The average rate of industrial growth during the Plan was targeted at 8.1 per cent per annum. However, the actual growth rate was only 5.2 per cent per annum.
- VI. Sixth Plan (1980-85):** The public sector outlay of Rs.23,000 crores was envisaged during the Sixth Plan period. The larger allocations were made to steel, coal, fertilizers and petrochemical sectors. A review of the industrial progress during the Sixth Plan reveals that a growth rate of 5.45 per cent as against 7 per cent was achieved.
- VII. Seventh Plan (1985-90):** The total investment in the industrial sector was Rs.22,460 crores or 12.5 per cent of the total Plan outlay. This Plan emphasized the need of ensuring adequate supply of wage goods and articles of mass consumption. The Seventh Plan achieved the targeted industrial growth rate of 8.5 per cent. It has been made possible because of adequate infrastructure and liberalization policy of the government.
- VIII. Eighth Plan (1992-97):** The Eighth Plan was formulated under a new environment when a number of reforms in industrial, fiscal, trade and foreign investment policies were introduced in the economy - commonly called as economic liberalization. Eighth Plan allocated a total investment of Rs. 38,083 crores for industry and mineral production (at 1991-92 prices). The actual outlay worked out to be Rs.31,382 crores. The overall rate of industrial production witnessed an average growth rate of 7.3 per cent against the target of 7.4 per cent in the Eighth Plan.
- IX. Ninth Plan (1997-2002):** Ninth Plan allocated Rs.69,972 crores for industry at 1996-97 prices. Ninth Plan targeted a growth rate of 8 per cent for industry, but it achieved only 5 per cent due to slow growth rate of the world economy.
- X. Tenth Plan (2002-07):** In the Tenth Plan public sector outlay was Rs.44695 crores at 2001-02 prices. Industrial performance in the Tenth Plan period improved to a respectable level of 8.9 per cent from the very low level of growth rate of 4.3 per cent in the Ninth Plan. This revival of industrial growth is a major achievement of the policy in recent years.
- XI. Eleventh Plan (2007-12):** The total outlay in the Eleventh Plan (Both centre and states) is estimated at Rs. 36,44,718 crores. During this Plan, the targeted growth rate in industrial sector was 10-11 per cent. The Eleventh Plan aims at double digit growth

both in the fields of manufacturing and industry. For this, it remained critical to improve the performance of the core sectors (steel, coal, cement, oil, fertilizers and refined petroleum) to sustain this growth. The target rate of growth was more or less achieved in case of industry.

XII. Twelfth Plan (2012-2017): Twelfth Plan envisages an investment of fifty lakh crores in 5 years. Out of this total investment of fifty lakh crores over a period of 5 years, the private sector is expected to provide 25 lakh crores. This shows the importance given to private sector as part of new economic policy. To achieve the industrial growth rate to the tune of 9.5 per cent, it would require much faster growth in the manufacturing, as well as in electricity, gas and water supply sectors.

MODEL QUESTIONS

I. Write an essay on the following questions

1. Explain the importance of industrial sector in India
2. Briefly review the 1948 industrial policy resolution of India
3. Discuss the 1956 industrial policy resolution of India
4. Critically evaluate the 1991 new industrial policy resolution of India
5. Write about National Manufacturing Policy of India
6. Explain the disinvestment policy of India
7. Explain the role of Foreign Direct Investment in economic development of India
8. Critically examine the role of Special Economic Zones in Indian economic development
9. Mention the various causes for industrial backwardness in India
10. What are the merits and demerits of small scale enterprises in Indian economy
11. Briefly explain the Indian industrial growth rate during the Five Year Plans
12. Discuss major sources of industrial finance in India

II. Answer briefly the following

1. Industrial Finance Corporation of India
2. Industrial credit and Investment Corporation of India
3. Industrial Estates
4. Special Economic Zones
5. Explain the need of Foreign Direct Investment in India
6. National Investment Fund
7. Objectives of National Manufacturing Policy
8. National Investment and Manufacturing Zones
9. Write briefly about MSMEs
10. The Industrial Investment Bank of India

III. Answer in two or three sentences

- | | |
|-------------------------------|---------------------------|
| 1. SIDBI | 2. IDBI |
| 3. State Finance Corporations | 4. Disinvestment |
| 5. MRTP Act | 6. Special Economic Zones |
| 7. Foreign Direct Investment | 8. Industrial estates |
| 9. MSMEs | 10. ICICI |
| 11. IFCI | 12. Globalization |

Glossary

Mixed economy: Co-existence of public and private sectors

Industrialization: Process of manufacturing consumer goods and Capital Goods

Lessaize Faire: Free trade economy

Globalization : An expansion of economic activities across political boundaries of all the Nations in the World

Disinvestment: Withdrawal of government investment from the public sector

SEZ : Aims at rapid economic growth supported by quality infrastructure complemented by an attractive fiscal package

Large scale industry: An industry where the investment is from 10 to 100 crore rupees

Mega industry: Industries whose maximum investment will be more than rupees 100 crore

Industrial estates: An area in which a number of small scale industries are established

Micro industry: An industry where the investment in plant and machinery does not exceed rupees 25 lakhs

Small scale enterprises : The investment in plant and machinery is more than Rs. 25 lakhs, but does not exceed Rs. 5 crore

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CHAPTER

6

TERTIARY SECTOR

6.0 *Introduction*

6.1 *Importance of Services Sector*

6.2 *India's Services Sector*

6.3 *State-Wise Comparison of Services*

6.4 *Infrastructure Development*

6.5 *Tourism*

6.6 *Banking and Insurance*

6.7 *Communication*

6.8 *Science and Technology*

6.9 *Software Industry in India*

Model Questions

References

6.0 Introduction

The term 'tertiary' means third in the order. You have seen that the Indian economy is broadly divided into three sectors viz., the primary, secondary and the tertiary. While the primary sector is generally referred to as Agricultural sector and the secondary as Industrial sector, the third one or the tertiary sector is otherwise called the Services sector.

Tertiary or services sector provides a host of services to both agriculture and industry which mainly include economic services such as transport, communications, electricity, banking, finance, insurance, storage, trading and sales promotion. Education & training, research & extension, health and environment constitute social services or social infrastructure. They are also called infrastructural facilities. While economic development of any nation directly depends on agriculture and industry, these two sectors in turn depend on availability of various economic and social services provided by the tertiary sector. In the process of economic development importance shifts from agriculture to industry in the beginning but later services sector becomes more important than the other two. In fact, services sector makes economic development more sustainable.

All three sectors - agriculture, industry and services need capital for their development. But the World Bank rightly observes that agriculture and industry need more natural capital whereas services sector requires more human capital.

6.1 Importance of Services Sector

Services sector has become very prominent in world's economies. The importance may be highlighted in terms of its contribution to GDP, employment and exports. USA ranks first in Total GDP in the world where as India occupies 10th place. In terms of GDP of Services Sector also the USA stands first while India holds 11th rank. In the Tables 6.1, 6.2 and 6.3 the particulars of the top 10 countries with highest total /over-all GDP are shown for international comparison with India and also to highlight the importance of services sector across the world.

1. Share in GDP

The share of GDP is high in many countries. Table 6.1 shows the particulars of select countries. The particulars show that the contribution of services sector to the overall GDP of those countries is very high. UK has the highest share of service sector followed by USA and France. Compared to China, India has more share. It can also be observed that the share of service sector increase between 2001 and 2013 in every country shown in the table. This highlights the fact that services sector is playing a crucial role in the economic growth/ development of those countries.

Table 6.1: *Share of Services Sector in GDP in Select Countries*

S.No.	Country	Share in GDP (%)	
		2001	2013
1.	USA	77.6	78.6
2.	China	40.5	46.1
3.	Japan	69.0	72.4
4.	Germany	68.8	68.4
5.	France	74.7	78.5
6.	U.K.	73.6	79.2
7.	Brazil	67.1	69.4
8.	Italy	70.5	74.4
9.	Russia	55.6	59.8
10.	India	51.3	57.0

Source: *Economic Survey, 2014-15*

2. Share in Employment

Share in employment is another parameter to assess the importance of any sector in an economy. Table 6.2 shows the share of services sector in the total employment of the countries

included in the table. Except India and China all other top countries with high GDP in 2001 and 2013 have share of service sector in total employment between 60% and 80%. This underlines the vital role played by the service sector in these countries in providing employment. The share of service sector in total employment in 2013 is 28.1% in India which is less than its share in China which is 35.7%.

It may be observed here that in case of both India and China, the share in GDP is higher than the share in employment. It can be said that in terms of employment other sectors particularly agriculture continues to be more important in these two countries.

Table 6.2: *Share of Services Sector in Employment in Select Countries*

S.No.	Country	Share in Employment (%)	
		2001	2013
1.	USA	75.0	81.2
2.	China	27.7	35.7
3.	Japan	63.9	69.7
4.	Germany	64.6	70.2
5.	France	69.9	74.9
6.	U.K.	73.8	78.9
7.	Brazil	59.4	62.7
8.	Italy	63.1	68.5
9.	Russia	58.6	62.3
10.	India	24.0	28.1

Source: *Economic Survey, 2014-15*

3. Share in Total Exports

Exports are now-a-days considered growth engines of every economy. Export bring foreign exchange. If exports grow more than imports the balance of payments position will be comfortable. Table 6.3 shows the share of service sector in total exports of 10 countries with highest over-all GDP.

Table 6.3: Share of Services Sector in Total Exports

S.No.	Country	Share in Total Exports (%)	
		2001	2013
1.	USA	27.2	29.5
2.	China	11.0	08.5
3.	Japan	13.6	16.9
4.	Germany	12.8	16.5
5.	France	19.8	29.0
6.	U.K.	30.1	35.1
7.	Brazil	13.0	13.4
8.	Italy	18.9	17.6
9.	Russia	09.9	11.0
10.	India	27.9	32.5

Source: *Economic Survey, 2014-15*

As seen from the particulars given in the table, the services sector has a reasonably good share in total exports in UK (35.1%), India (32.5%), USA (29.5%) and France (29.0%). In all other countries service sector's contribution is not much. In other words, in terms of exports the role of services sector in these countries may not be significant.

The importance of services sector is growing across the world. Service sector is the major role for the social and economic growth of a country. It is the largest growing sector today globally, contributed substantially to foreign investment flows, exports and employing more people than any other sector. Services sector with an around 57 percent contribution to the Gross Domestic Product (GDP) has made rapid strides in the last few years and emerged as the largest and fastest growing sector of the economy. This chapter not only focuses an different aspects of services but also covers many important services.

6.2 India's Services Sector

Services in India are emerging as a prominent sector in terms of contribution of National and States incomes, trade flows, Foreign Direct Investment (FDI) inflows and employment. The following broad grouping of activities can be considered to form the part of the service sector.

1. Trade
2. Hotels and Restaurants

3. Transport (including Railways and Transport by other means)
4. Storage
5. Communication
6. Banking and Insurance
7. Real Estate and Business services
8. Public administration and defence
9. Construction
10. Other services including education, medical and health, religious and other community services, legal services, recreation services.

6.3 State-Wise Comparison of Services

State wise comparison of services share in the gross state domestic product (GSDP) of different states and Union Territories in 2012-13 shows that the services sector is the dominant sector in most of the states of India, states and Union Territories such as Chandigarh, Delhi, Kerala, Mizoram, West Bengal, Tamil Nadu, Maharashtra, Nagaland, Tripura and Karnataka have higher than all India shares.

Chandigarh and Delhi are at the top with an equal share of 86.9 percent followed by Mizoram with 66.1 percent. The share of services in the GSDP of all the states/Union Territories for which data is available was more than 40 percent except for Arunachal Pradesh at 29.9 percent and Sikkim at 30.6 percent.

Table 6.4: *Share and Growth of the Services Sector in Selected States (2012-13)*

State	Share (%)	Growth (%)
Chandigarh	86.9	6.0
Delhi	86.9	9.0
Mizoram	66.1	4.0
Arunachal Pradesh	29.9	4.8
Sikkim	30.6	7.0
Bihar	55.0	17.2
Goa	50.0	17.1
Kerala	60.0	5.5

Source: *Economic Survey 2013-14, Government of India, Ministry of Finance, Department of Economic Affairs, Economic Division July 2014- Oxford University Press pp 177.*

Note: *Shares at current prices, growth rate at constant (2004-05) prices.*

In 2012-13, Bihar had the highest services growth of 17.2 percent followed by Goa at 17.1 percent. Arunachal Pradesh on the other hand had the lowest services growth at 4.8 percent followed by Kerala at 5.5 percent. Some states like Goa and Tripura have been consistently showing double – digit growth in the services sector in the last five years. The former is on account of growth in tourism and the latter in banking and insurance.

6.4 Infrastructure Development

Provision of quality of infrastructure services is a necessary condition for achieving sustained economic growth. The Government recognizing the critical importance of the infrastructure sector has given top priority to the development of various infrastructure services such as power, transport, banking, communication etc. Investment in these heads are very heavy. They need more technology. The Government therefore, has created an environment suitable for private participation including foreign investment in infrastructure sector. All this comes as a part of liberalization policy of the Government.

Infrastructure is categorized into two groups. They are Economic infrastructure and social infrastructure. These consists of

- (i) Energy: Coal, electricity, oil and non-conventional sources.
- (ii) Transport: Roads, Railways, Shipping and Civil Aviation.
- (iii) Communications: Posts and telegraphs, telephones, telecommunications and so on.
- (iv) Banking: Finance and insurance
- (v) Social overheads: Health and hygiene and education.

The infrastructure services have many constituents. These are some important constituents of infrastructure which are the sub-sectors of tertiary sector. These important constituents of the tertiary sector are discussed below.

6.4.1 Power

Power plays an important role in the economic development of a country. There is a direct correlation between the economic growth, per capita income and the per capita consumption of power. Power is an essential input of all productive economic activities. Electricity generation by power utilities during 2013-14 was targeted to go up by 6.9 percent to 975 billion units. The growth in power generation during 2013-14 was 6.0 percent as compared to 4.0 percent during 2012-13. In February 2014 the Government of India approved changes in mega power policy for provisional mega power certified projects.

6.4.2 Transport: Roadways, Railways, Water ways and Civil Aviation

Transport means conveyance of people or property from one place to another. These services provide a link between production, distribution and consumption activities. Roadways, railways, airways, water ways are the important means of transport. These infrastructure directly accelerate the development of agriculture and industry. Transport is one of the largest industries in the world. Particularly in developing economies like India, expansion of transport facilities is fundamental for achieving the targets of planned development.

Particularly the important means of transport facilities like road, rail, waterways and civil aviation and their performance is discussed below.

6.4.2.1 Roadways

The principle mode of connectivity between places is roadways. In addition to carrying traffic independently, the roadways are the main feeders to the railway, ports, harbours and which form an important part of an integrated transport network.

India has one of the largest road networks in the world, spread over 48.65 lakh km. It comprises national highways, express ways, state highways, major district roads, other district roads and village roads with following length distribution (Table 6.5).

Table 6.5: Road Networks in India (as on May 2014)

S.No.	Type of Roads	Length of Roads (in Km)	Percent
1.	National Highways	92,851	1.9
2.	State highways	1,42,687	2.9
3.	Other roads	46,29,462	95.2
	All Roads	48,65,000	100.0

Source: *Economic Survey 2013-14, Govt. of India, Ministry of Finance, July, 2014, pp, 200*

The above table reveals that District and village roads constitute 95.2 percent of the total road network in our country. National and state highways constitute only 4.8 percent.

Advantages of Roadways

1. Road transport connects all the villages and regions and finally it connects to the railways.
2. Road transport provides transports the goods to the railway station.
3. Road transport help the farmers particularly the perishable products easily and quickly to mandis and towns.
4. The chances of delay, damages are less incase of road transport.
5. Road transport does not require heavy capital, expenditure.

6. Road transport is more flexible when compared to other means of transport. It can provide door to door service.
7. Road transport help the defence of the country. It is the best way to reach destination in border areas and hill tracts.

Inspite of this encouraging performance, the road transport has been facing some problems. It is suffering from high prices of inputs, high maintenance costs and such other factors. All these short comings are to be solved for their better performance.

6.4.2.2 Railways

Railways play a very important role in economic development. Because it provides the principle mode of transportation for freight and passengers. The broad objective of Indian railways is to develop a strategy to be a part of an effective multi-model transport system and to ensure an environment friendly and economically efficient transport movement.

Table 6.6: Progress of Railways from 1950-51 to 2012-13

S.No.	Particulars	1950-51	2000-01	2012-13
1.	Route length (000's kms)	53.6	63.0	65.4
2.	Revenue earning from goods carried (Rs. Crores)	139.3	23,045.4	83478.8
3.	Earning from passengers (Rs.crore)	98.2	10515.1	31322.8

Source: *Economic Survey 2013-14, Govt. of India, July 2014*

The above table reveals the progress of railways during the period 1950-50 to 2012-13. The railways have launched number of schemes to attract private participation. They have incorporated the Indian Railways Catering and Tourism Corporations (IRCTC) to improve rail catering and hospitality. The average rate per passenger – kilometer (paise) has gone from 1.5 paise in 1950-51 to 28.5 paise in 2012-13.

6.4.2.3 Water Transport

Water transport is the another important means of transport. Shipping is an important indicator of both commodity and services trade of any country. It plays an important role in the Indian economy with around of 95 percent of its trade by volume and 68 percent in terms of value being transported by sea. Water transport in India is of two types. They are Inland water transport and International Water Transport (Shipping).

Inland Water Transport

Inland Water Transport was very much used in India in ancient days. India has about 14,500 kms of naviagable waterways like canals and rivers etc. The Inland Waterways Authority of India

(IWAI) undertakes the development and regulation of inland water ways, which was established on 27th October 1986.

International Water Transport

The International Water ways may be classified into Coastal Shipping and Overseas Shipping.

The total traffic carried by both the major and non- major ports during 2013-14 was around 980.49 million tones. In 2012-13 the cargo handled by major ports registered the growth of 5.0 percent. This can mainly be attributed to an increase of 1.8 percent in the cargo handled at major ports. In contrast, traffic at non major ports grew at around 9.6 percent during 2013-14 as compared to 9.8 percent in 2012-13. During 2013-14, Ennore Port recorded the highest growth in traffic (52.9 percent) followed by Paradeep (20.3 percent).

6.4.2.4 Civil Aviation

Air transport has a vital role in the economic development of the country. It is the modern and quickest transport. In India the first commercial flight started on February 18th, 1911. It was a Journey by a French Pilot from Allahabad to Naini for a distance of 10 kms. The first domestic air route between Karachi and Delhi was opened in December 1912. The real progress in civil aviation started in 1920. The successive plans have also allocated increased amounts for the development of civil aviation. The growth of civil aviation is presented in Table 6.8

Table 6.7: Growth of Civil Aviation

Particulars	2012-13	2013-14
Domestic Passenger traffic	116.37 million	122.43 million
Domestic Cargo	0.78 MMT	0.84 MMT
International Passenger Traffic	43.3 million	46.62 million
International Cargo	1.41 MMT	1.44 MMT

Source: *Economic Survey 2013-14 pp 202.*

The Airports Authority of India (AAI) is a major Airport Operator managing 125 airports across the country including 26 civil enclaves at defence airports and is also entrusted with the sovereign function of providing air traffic services in India.

6.5 Tourism

Tourism is the sub-sector of tertiary sector in general and services industry in particular. By international dimensions tourism we may call invisible trade and smokeless industry. It has many economic and non-economic benefits both for developing and developed countries.

WTO defined tourism as “the activities of persons (tourists) traveling and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes”.

Tourism may be Domestic Tourism and International Tourism. When the tourists travel within their country, it is called as domestic tourism, whenever the tourists of a given country travel within another country it is called as international tourism. Naturally, International Tourism needs passport, visa etc.

Tourism and Economic Development

Many developed and developing nations receive a major proportion of their National income from tourism. The contribution of tourism to the economic development of a country is give below.

1. Tourism provides revenue to the Government
2. Tourism creates employment facilities for women
3. It provides regional development.
4. It is a source of foreign exchange earnings.
5. Tourism sells indirectly the environmental resources
6. It can be used as a means of reducing poverty.
7. It builds partnership with private sector.

Tourism in India

According to world travel and tourism council estimates the tourism sector in India contributed around 6.6 percent of India's GDP in 2012 and supported 39.5 million jobs, which is 7.7 percent of its total employment, India's share in world tourist arrivals increased from 0.4 percent in 1997 to 0.63 percent in 2013. A world Economic Forum 2013 study of tourism competitiveness, rated India at a low of 65 among 140 countries. India was ranked 21 on tourism natural resources, 67 on ease of business environment. As a result of all these things to develop tourism sector, the inflow of foreign tourists and foreign exchange earnings have increased significantly in our country.

6.6 Banking and Insurance

A well – developed banking system is a necessary pre-requisite for achievement of economic development. Banks play an important role in mobilization of savings and investments. Banks are the efficient agents of capital formation in the economy and give access to use the resources in a productive way. Most developing countries have remained backward due to low level of capital formation. But, the presence of a sound banking system would create decent atmosphere for the promotion and savings and hence capital formation.

Banking system in India has been playing a very important role in the process of economic development. Depending upon the nature of the activity performed by them, banking system in India may be classified into the following categories. They are

- a) Commercial Banks
- b) Cooperative Banks
- c) Central Bank (Reserve Bank of India)

The commercial Banks were nationalized in phased manner in 1969 and 1980. They are classified as public sector (nationalized) banks and private sector banks. The State Bank of India and its associates along with another 20 banks are the public sector banks. The Indian scheduled banks, which are not nationalized and branches of foreign banks operating in India are called as private sector banks.

Under Cooperative Banking System, State Cooperative Banks, District Central Cooperative Banks (DCCB) and primary to the short term credit. State Cooperative Agriculture and Rural Development Banks and Primary Agriculture and Rural Development Banks provide long term credit.

The Reserve Bank of India (RBI) is India's Central Bank was established on 1st April 1935 and was nationalized on 1st January 1949. RBI is the Supreme Monetary Authority in the country. It keeps the reserves of all scheduled banks, which were included in the 2nd schedule of RBI and which were not included is called as "Non-Schedule Banks".

Branch Expansion

In India the branch expansion of commercial banks have started soon after their nationalization. Table 6.8 shows the progress of branch expansion of commercial banks.

Table 6.8: Branch Expansion of Public Sector Banks and other Commercial Banks

S.No.	Bank Group	2006	2010	2013
A.	SBI and its Associates	13920	17444	20217
B.	Nationalized Banks	34764	423557	52925
C.	Regional Rural Banks	14532	15564	17446
D.	Other scheduled commercial banks	6672	10517	16062
E.	Foreign Banks	261	310	335
F.	All Commercial Banks	70189	86239	107045

Source: *Economic Survey 2013-14, Statistical Appendix pp 47. Government of India, Ministry of Finance, July, 2014.*

Sectoral Deployment of Credit

After nationalization, the deposits of the commercial banks increased sufficiently with the expansion of bank deposits, there was a continuous expansion of bank credit. RBI directed that 40 percent of the aggregate bank credit should go to these priority sectors. Table 6.10 shows the flow of credit to different sectors.

Table 6.9: Credit to Different Sectors

(Percent)

S.No.	Sectors	2012-13	2013-14
1.	Agriculture and allied activities	7.9	13.5
2.	Industry (Micro, Small, medium and large)	15.1	13.1
3.	Services	12.6	16.1
4.	Personal Loans	14.7	15.5
5.	Priority sector	8.4	22.0

Source: *Economic Survey 2013-14 pp. 89.*

From the above table 6.9 shows that among the major sectors, credit to agriculture, services and the priority sector recorded higher growth as compared to 2012-13, while that to industry marginally declined as compared to 2012-13.

6.6.1 Insurance

A Healthy and Developing Insurance Sector is of vital importance to every modern economy. It encourages the savings habit, provides a safety net to rural and urban enterprises and individuals, and generates long term funds for infrastructure development. Development and insurance is therefore, necessary to support continued economic growth. Social security and person reforms also benefit from a mature insurance industry.

Since its opening up in 2000 the number of participants in the insurance industry has gone up from 7 insurers (including LIC), 4 public –sector general insurers, 1 specialized insurer, and the General Insurance Corporation (GIC).

There are two major constituents of insurance industry in India. They are:

1. Life Insurance
2. Non – life Insurance (General)
 1. **Life Insurance:** LIC offers schemes, policies and plans to investors. Particularly the main objective of LIC is giving protection against risks of death and channelizing the funds for the benefit and the economy in the socially oriented sectors. During 2013-14 Life Insurers underwrote first-year premium of Rs.1,19,641 crore as against Rs.1,07,361 crore during 2012-13 registering a growth of 11.44 percent.
 2. **Non – Life Insurance:** The General Insurance Companies deal with non-life Insurance. The GIC was approved as the Indian Reinsurer on 3rd November 2000. It offer fire, marine, motor, health and other insurance. During 2013-14, non-life insurers including standalone health insurers and specialized insurers (Export Credit Guarantee Scheme) and Agriculture Insurance Company (AIC) underwrote premium worth Rs.77,583 crore as against Rs.69,089 crore during 2012-13, registering a growth of 12.23 percent.

Micro Insurance

Micro Insurance is a recent concept in the field of micro finance. Micro Finance is being offered along with credit and savings. Micro insurance regulations issued by the insurance regulatory and development authority (IRDA). Micro insurance services can be availed with low premium. The members of self help groups, farmers, small scale entrepreneurs, migrant workers and tribals are the target group for this micro-insurance.

There were 17,052 micro insurance agents operating in the micro insurance sector as of and 2012-13, as 35 percent increase as compared to 2011-12. In micro-insurance life, individual new business premium in the year was Rs.109.68 crore under 50.36 policies. The Group business amounted to Rs.218.03 crore premium under 139.81 lakh lives in 2012-13.

6.7 Communication

The communication system is an integral part of the development process. Communication means the transmission of information. By providing necessary information about markets and supply of goods, the communication system helps to bring buyers and sellers together. Thus helps to accelerate the development of the economy.

Communications system consists of posts and telegraphs, telecommunications, broad casting, television, information services and internet /Broad Band Services. A services of reform measures by the government, innovations in wireless technology, and active participation by the private sector played an important role in the growth of the telecom sector in the country.

6.8 Science and Technology

Science and Technology have a vital role in improving the quality of human life. Science means “Accumulation of Knowledge” and technology means “refinement in tools” to achieve rapid economic development, application of science and technology to agriculture, industry, transport as to all other economic and non-economic activities etc is very essential.

The Department of Science and Technology plays a very important role in promotion of science and technology in the country. The government of India announced the science and technology policy – 2003 to give a direction to the future programmes. Technology vision – 2020 Covering 17 important sectors of the economy was formulated.

The department of science and technology is also devoted to evolving and implementing programmes to promote applications of science and technology to improve the quality of life especially for the disadvantaged sectors of the society.

6.9 Software Industry in India

The software industry is the main component of the information technology in India. The software Industry started in the early 1960's. The industry expended greatly with the rise of the personal computers in the mid 1970's. During the early years of present century, software developed gradually as a service. Thereafter with the revolution brought by information technology, software services have grown as an industry. Software industry naturally migrates from high cost countries to low cost countries.

Major business services include computer related services, research and development (R&D) accounting services, legal services and renting of machinery. The dynamic business services with a share of 5.6 percent in India's GDP grew by 14.1 percent in 2012-13.

This sector is also a big employment generator with direct employment in the IT services projected to grow of 5.6 percent, reaching 3.1 million jobs in 2013-14. Indirect job creation is projected at 10.0 million. The national policy on information technology (NPIT) envisages revenues of the IT expending from US\$100 billion in 2011-12 to US \$300 billion by 2020 and exports from US\$69 billion in 2011-12 to US \$200 billion by 2020.

MODEL QUESTIONS**I. Write an essay on the following questions**

1. Define tertiary sector. Explain the importance of tertiary sector in Indian Economy.
2. Infrastructure contributes to the economic development of a country. Explain.

II Write the answers briefly for the following questions.

1. Explain the contribution of GDP in services sector
2. What are the activities considered under the India's services sector.
3. What are the advantages of Road ways.
4. Explain the importance of Railways
5. What is Tourism? Explain its importance in Indian Economy.
6. Explain the Banking system in India.
7. What are the major constituents of insurance industry in India.

III Write the answers in one or two sentences.

- | | |
|----------------------------|--------------------------------------|
| 1. Service sector | 2. Infrastructure |
| 3. Transport | 4. Water transport |
| 5. Civil aviation | 6. Tourism |
| 7. LIC | 8. GIC |
| 9. Micro Insurance | 10. Communication |
| 11. Science and technology | 12. Performance of software industry |

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CHAPTER

7

PLANNING AND ECONOMIC REFORMS

- 7.1 *Meaning of Planning*
- 7.2 *NITI Ayog*
- 7.3 *Five Year Plans in India*
- 7.4 *XII Five Year Plan*
- 7.5 *Regional Imbalances*
- 7.6 *Role of Trade in Economic Development*
- 7.7 *Economic Reforms in India*

- 7.8 *GATT*
- 7.9 *WTO*
- Model questions*
- Glossary*
- References*

7.1 Meaning of Planning

Planning or Economic Planning is the main characteristic feature of socialistic and mixed economic systems, which follow planned development strategy. In common usage planning can be understood as a technique of a conscious effort made to achieve certain predetermined objectives.

In view of planning commission “Economic plan is a symbol of Independence and it provides a medium through which the society or its representatives can articulate a view of the country’s Economic Situation”.

An economic plan may be defined as an outline or broad statement of schemes or programmes designed or evolved to realize certain pre-determined economic objectives, in a particular order of priorities, according to a strategy within a specified period of time. The technique that a State follows to achieve economic development through economic plans is called economic planning.

Thus, planning means, the efforts taken to reach the already set goals during a particular time period or directing the economic activities in a systematic way to reach the set goals.

In India, Five Year Plans are started in 1951. So far, we have completed Eleven Five Year Plans and six annual plans and now we are in the era of Twelfth Five Year Plan (2012 -2017).

Features of Planning

The following are the features of economic planning.

1. Determination of objectives keeping in view the socio-economic situation in the country.
2. Estimation of natural, human and capital resources available in the country.
3. Determination of priorities among the objectives.
4. Evolving a suitable developmental strategy for realization of the objectives.
5. Formulation of specific programmes to achieve the objectives and determine the plan outlay and investment.
6. Allocation of resources among different sectors in accordance with the priority of objectives.
7. Constitution of an institution or a central body to formulate, organize and review the plans.

Need for Planning

The following factors emphasise the need for economic planning in any country.

1. To achieve steady economic development of the economy.
2. To find solutions for the economic problems such as poverty, unemployment, economic inequalities and regional imbalances.
3. To make provisions for the development of social infrastructure like education, health, sanitation etc., and economic infrastructure like power, water, transport and communication etc.
4. To ensure optimum and judicious allocation of resources to the present needs without affecting the need of the future generations.
5. To achieve balanced regional development.

Types of Planning

Plans may be of any form/type which is discussed under.

- a. **Perspective Plan:** A Perspective Plan is a macro plan formulated for a period of 15 to 20 years, keeping in view the long term needs and long term objectives.
- b. **Five Year Plans:** Five year Plans are designed for a period of five years. A Five Year Plan is an integral part of perspective plan. After the completion of five years, the achieved targets will be reviewed.
- c. **Annual Plans:** Annual plan is a part of a Five Year Plan. The targets of Five Year Plans are divided into annual targets and detailed plans will be prepared year-wise.

- d. **Rolling Plans:** This kind of plan does not have a fixed period of time. It has only duration and moves forward. As it moves forward, the completed year will be deleted and next year will be added. So the plan rolls continuously. This concept was introduced by Gunnar Myrdal and suggested to Government of India by Prof. Lakdawala in 1978. (During Janata Government period). It was discontinued after 1979 due to collapse of the Government.

7.1.1 Pre-independence Efforts

Recognizing the importance of planning for achieving economic development, many attempts were made at planning prior to the Indian independence.

1. In 1934, Sri M. Visveswaraiah, an engineer and former Diwaan of Mysore State published a book titled “Planned Economy for India”, in which he prepared and suggested a plan for ten years. It was the first blue print of Indian Economic Planning.
2. In 1938, the Indian National Congress, headed by Pandit Jawaharlal Nehru made a National Planning Committee and suggested some recommendations.
3. In 1943 eight industrialists of Bombay prepared “A plan for Economic Development of India” popularly known as “Bombay Plan”.
4. Sriman Narayan Agarwal, inspired by the economic views of Mahatma Gandhi formulated a Plan in 1944, known as ‘Gandhian Plan’.
5. ‘People’s Plan’ was drafted and suggested by M.N. Roy, a humanist leader in 1945.
6. In 1950, Sri Jaiprakash Narayan, a Sarvodaya leader published a plan called ‘Sarvodaya Plan’.

But all these efforts were unable to put in action, due to various political and economic pressures.

7.1.2 Planning Commission

After Independence, on 15th March, 1950, the Planning Commission was set up by a resolution of cabinet of the Government of India. It was established in accordance with article 39 of the Constitution, which is a part of Directive Principles of State Policy. It has autonomous status and acts as an advisor to the Government. Since it was not established by any act of legislation, it possesses no legal status. It’s office ‘Yojana Bhavan’ is in New Delhi. The Indian Prime Minister is its ex-officio Chairman and five full time members were also nominated. The first chairman was Jawaharlal Nehru, the then Prime Minister. A Deputy Chairman coordinates all the works of Planning commission. The First Deputy Chairman was Guljarilal Nanda. Montek Singh Ahluwalia was it’s last Deputy Chairman. The cabinet ministers of key portfolios also the ex-officio members. Experts in various fields like economics, industry, science and technology and general administration will be appointed as full time members.

From 1st January 2015, Planning commission replaced by NITI Ayog.

Objectives and functions of Planning Commission

Preparing plans for the most effective and balanced utilization of the country's man power, physical and capital resources is the obligation of Planning Commission. The Planning Commission's functions can be outlined in the following way:

1. To make an assessment of the material, capital and human resources of the country and to examine whether they are sufficient to meet the nation's requirement.
2. To define the stages, on the basis of priority, in which the plan should be carried out and propose the allocation of resources for the due completion of each stage.
3. To indicate the factors that tend to retard economic development and to find feasible ways to overcome these factors.
4. To determine the conditions for the successful execution of the plan.
5. To determine the nature of the machinery required for securing the successful implementation of each stage of the plan in all its aspects.
6. To appraise from time to time the progress achieved in the execution of each stage of the plan and to recommend alternative policy measures when they are needed.

The States prepare their plans in accordance with their priorities. Based on these State plans, the Planning Commission formulates a plan for the whole economy keeping the national priorities and the availability of resources in view. The Central Cabinet discusses the draft plan and makes changes, if any. Later, it is discussed by the National Development Council consisting of Chief Ministers and Lt. Governors. Then it goes to the Parliament for approval. After the approval of the Parliament, the plan gets a final shape. Indian Economic Plans are designed for a period of five years.

7.1.3 National Development Council

This is also a non-constitutional body. It was formed in 1952 and its main responsibility is to examine the (draft) plans prepared by the Planning Commission. Prime Minister of the country acts as the Chairman of this council, Plans cannot come into force without the approval of the National Development Council. With the replacement of NITI Ayog, Governing Council Members (All CMs and Lt. Governors) become part of it. So the role played by NDC will be limited now.

7.2 NITI Ayog

On 1st January, 2015, the 65 years old Planning Commission was replaced with NITI Ayog (National Institution for Transforming India Ayog). In Hindi, it literally means ‘Policy Commission’. It is a policy think-tank of Government of India that replaces Planning Commission and aims to involve the states in economic policy-making in India. Mr. Narendra Modi, the Prime Minister of India is the Chairman and Mr. Arvind Pagaria, a US-based economist is appointed as Vice-chairman.

Apart from the Chairman, it comprises of a Governing Council (All CMs (29 states) and Lieutenant Governors (7 in number) of UTs), Regional Councils, experts, specialists and a full time organizational body including Vice-chairman.

Planning Commission Verses NITI Ayog

NITI Ayog differs from Planning Commission in the following aspects.

SN	Aspect	Planning Commission	NITI Ayog
1	Financial powers	Enjoyed the powers to allocate funds to ministries and states.	It is only advisory body, or a think-tank. No powers to allocate funds.
2	Full-time members	Last Commission had eight full-time members	The number of full-time members could be fewer than planning commission
3	Part-time members	No provision for part-time members	Number of part-time members as per the need from time to time.
4	States' role Constitution	States' role was limited to NDC and to annual interaction	Expected to play a more significant role as now they are part of NITI
5	Nature	It reported to NDC, which had CMs and Lieutenant Governors	The Governing Council itself consists of CMs and Lt. Governors.
6		Imposed policies on states, made allocation of funds and approve the proposed projects.	It is a think-tank, can suggest policies to governments but no power to impose policies.

7.3 Five Year Plans in India

During the last 65 years of planning, eleven five year plans were implemented. The First Plan was launched in the year 1950-51 and ended in 1955-56. The duration of Second and Third Plans were 1956-61 and 1961-66 respectively. There was a plan holiday for three years from 1966-69, but Annual Plans were implemented postponing the commencement of the Fourth Plan. The Fifth Plan, which commenced in 1974 was terminated in 1978 after 4 years of implementation by the Janata Government, on the advice of Prof. Lakdawala, the then Deputy Chairman of the Planning Commission. Rolling Plan was implemented during 1978-79. However, the Congress Government discontinued the rolling plan from 1979 and implemented the Sixth Plan from 1980. Thus there was a gap of one year (1979-80) between the Fifth Plan and Sixth Plan. The Sixth Plan during the

period of 1980-85 and the Seventh Plan between 1985-90 went off as per the schedule. Then, between 1990 and 1992 there was an unofficial plan holiday, due to economic and political instability in the country. The Eighth Plan, which started in 1992, was successfully completed in 1997. The Ninth Plan was started in 1997 and ended successfully in 2002. The Tenth Plan was started in 2002 and successfully came to an end by 2007. The Eleventh Plan was started as per the schedule and continued from 2007 to 2012. At present Twelfth Plan is running from 2012 and will end by the year 2017.

7.3.1 General Objectives of Planning in India

Economic planning was envisaged to be an effective means of achieving speedy economic development of a country. Though each plan has its own specific objectives, planning as such has certain but the general objectives listed below.

General Objectives of Planning

- a. To increase the annual growth rate of the economy.
- b. Increasing the per capita income and standard of living of the people.
- c. Achieving speedy industrial development.
- d. Self-sufficiency in the production of food grains.
- e. Removal of regional imbalances in economic development.
- f. Eradication of poverty.
- g. Increasing the employment opportunities.
- h. Removal of inequalities of income and wealth.
- i. To bring steady growth through price stabilization (controlling inflation and deflation)

7.3.2 Five Year Plans: A Brief Review

India started implementing economic plans since 1st April, 1951. It has been striving hard to achieve its goals. From 1951 to 2015, we have implemented, Eleven Five Year Plans. Due to some political and economic compulsions, implementation of Five Year Plans was interrupted forcing as the Plan Holiday. Ex: 1966-69, 1990-92 etc. Annual plans were implemented during such periods. Now Twelfth Five Year Plan is being implemented.

A brief review is presented on the targets fixed in different plans, the net increase in the national income, the achievements and the failures etc., in the forth-coming discussion.

Table 7.1: Objectives of Different Plans (1951-2015)

Plans	Plan Period	Objectives
I	1951-56	Agricultural and irrigation development(Harrod-Domar Model)
II	1956-61	Development of large scale industries(P.C. Mahalanobis Model)
III	1961-66	Self-sufficiency in food grains production
IV	1969-74	Steady growth, self-reliance and Gareebi Hataao
V	1974-79	Poverty eradication and self-reliance
VI	1980-85	Poverty eradication through gainful employment
VII	1985-90	Increase in food grain production and productivity
VIII	1992-97	Human resource development
IX	1997-02	Equality, economic growth with social justice
X	2002-07	Equality, social justice, enhancement in the quality of human resources
XI	2007-12	Inclusive Growth
XII	2012-17	Faster, Sustainable and more inclusive growth

Source: “India 2015 – a Reference Annual”, Publication Division, Ministry of Information and Broadcasting, GOI.

- a) **Objectives :** It may be observed from Table 7.1 that the focus of plan strategy was shifting from plan to plan within the broad general objectives, depending upon the economic progress achieved and changing seriousness and relevance of the problems.

While the First Plan focused on agriculture, Second Plan gave priority to industrialization. Since the food situation worsened, Third Plan set self-sufficiency in food grain production as its main goal. Steady growth and self reliance became the twin objectives in the Fourth Plan. With persisting poverty, poverty eradication emerged as the major objective during V and VI Plans. Gradually, the focus shifted to equity, social justice, inclusive growth and quality of human resources.

- b) **Sectoral Allocations:** To achieve the objectives set in different plan periods, the resources are allocated among different sectors of the economy can be seen from the following Table 7.2

Table 7.2: Sector-wise Share in the Plan Expenditure

(in Percentages)

Plans	Agriculture and irrigation	Industry	Energy	Transport & Communications	Social services	Total Rs. In crores
I	31	6	13	27	22	1960
II	20	24	10	28	18	4600
III	21	23	14	25	17	8580
IV	24	23	15	20	18	15900
V	22	26	19	18	17	39430
VI	24	16	28	16	16	109290
VII	22	13	28	19	18	218730
VIII	21	10	27	21	22	485460
IX	20	8	26	19	27	859200
X	20	4	27	21	28	1525639
XI	20	4	23	18	35	3644718

Source: Plan Documents, Planning Commission, various issues, GOI.

The above table shows the sector-wise allocation of plan outlays of the public sector. From the above table it is concluded that

- Agriculture and irrigation consistently received major share in view of the need to achieve self sufficiency in food grains and support industry by providing adequate raw material. Need for increased public investment in irrigation was recognized.
- Allocation to the industrial sector, was 6 percent during First Five Year Plan. But from Second Plan onwards the allocation increased and ranged between 23% and 26%, till the V plan, declined to a range of 10 to 16 % between Sixth and Seventh Plans. From Ninth Plan onwards industrial sector received meager allocation in public sector outlay. This is because of the privatization and the private sector becoming a major player.
- It is clear from the Table that the allocations to energy, transport and communications sectors had larger share of allocation. This highlights the importance given to infrastructural facilities in all plans.

- d. Allocation for the energy sector doubled between First and Tenth Five Year Plan.
 - e. Allocations to the social services has been consistently high during all the plans. Expansion of education and health services was made possible by this allocation. Social welfare also received major funding.
 - f. The total expenditure of each plan is almost doubling from the previous plan.
 - g. Public sector share in the beginning is over taken by the Private sector but situation changed thereafter because of economic reforms.
- c) Shares of public and private sectors:** Since India is a mixed economy the public and private sectors coexist. While planning is directive in nature in the case of public sector, it is indicative incase of private sector. The planning commission formulates the plan specifying plan outlay to public and private sectors separately.
- The public Sector was played a major role till 1991 when economic reforms were introduced the share of public sector in total outlay rose from 54% in first plan to 70% in fifth plan but gradually declined to 48% in 9th plan.
- d) Financing :** The various sources from which financial resources are arranged for the plans can be classified into (i) domestic sources (ii) external sources. Among the domestic sources the more important are taxation, public borrowings, domestic savings and surplus of the public enterprises. Among the external sources are the grants, loans and capital inflow received by one country from other countries.

India came to depend heavily on external sources and deficit financing for meeting the financial needs of the first three plans. In the later plans, self reliance came to be accepted as the most desired objective. In the sixth plan about 92 percent of the total financial needs were met domestically including deficit financing which accounted for 14.2 percent and the balance was from external sources. In Seventh Plan external sources constituted not exceeded 8.4 percent of the total plan outlay. Similarly, during Eighth Plan 9 percent and for 9th plan 6.9 percent of the resources were pooled from external sources. After the Ninth Plan, dependence on external sources comedown substantially.

7.3.3 Performance of Eleven Five Year Plans in India

Achievements

The situation on the eve of planning was pretty bad. Though some plans have not fully realized their targets, the achievements made by planning in India are quite remarkable. The following account reveals the concrete achievements of the five year plans.

- a. Increase in National and Per capita Income:** One of the basic objectives of planning in our country is to increase national and per capita income. As a direct consequence of

economic planning, India's national and per capita income rose, though not as rapidly as the planners planned and anticipated.

The national income rose from Rs. 1.32 lakh crores at the beginning of the First Plan to Rs. 47.67 lakh crores by the end of Eleventh Plan i.e 2012 at 2004-05 base year prices.

On the other hand the per capita income in real terms has increased at a much lower rate, due to high rate of population growth. Per capita income at 1993-94 prices had risen from Rs. 3687 to Rs. 39,168 at 2004-05 prices by the end of Eleventh Plan. Following table reveals the targeted growth rates and achieved growth rates during each plan.

Table 7.3: Targeted and Actual Growth Rates under various Plans

(in percentages)

Plans	Targets	Actual Growth Rates
I	2.1	3.6
II	4.5	4.3
III	5.6	2.8
IV	5.7	3.3
V	4.4	4.8
VI	5.2	5.7
VII	5.0	6.0
VIII	5.6	6.8
IX	6.5	5.4
X	8.0	7.8
XI	9.0	8.3
XII	8.0	- - -

Source: Various Five Year Plan Documents

Raj Krishna was an Indian economist. He is most famous for the phrase "Hindu rate of growth" which he coined for India's low rate of GDP growth between the 50s and 80s.

The Hindu rate of growth is a derogatory term referring to the low annual growth rate of the planned economy of India before the liberalization of 1991, which stagnated around 3.5% from 1950s to 1980s, while per capita income growth averaged 1.3%. The reason for this according to him is the Hindu outlook of fatalism and contentedness.

From the table it is evident that the most of the plans achieved even more than the targeted rates. Ex: First, Fifth, Sixth, Seventh and Eighth Plans. Third plan was a big failure at it achieved only 2.8 growth rate against 5.6 percent of targeted growth. Global

economic recession after 2009 affected the growth rates of Indian plans to be registered below the target rates. Gross Domestic Savings also increased from 8.9 percent in 1950-51 to 30 percent by 2012-13.

- b. Progress in Agriculture:** During the last 60 years, the government had spent on an average 23 to 24 percent of the plan outlay in each of the Five Year Plans on the development of agriculture and allied activities. As a direct result of this plan outlay and introduction of New Agricultural Strategy during 1960s, agricultural production and productivity increased remarkably. This revolutionary changes in agriculture is termed as Green Revolution.

India attained self-sufficiency with regard to the food grain production. The food grain production increased from 50.8 mts. in 1950-51 to 264 mts. of record grain production in 2014. Similar trend can be observed in case of non-food crops like oil seeds, sugarcane and cotton etc.

However the production of pulses has not grown much.

- c. Progress in Industry:** Foundation for rapid industrialization was laid in the second planning itself. Many basic and capital industries were set up. Steel plants at Bhilai, Durgapur and Rourkela were established during the second plan. During the last Eleven Plans, the Government had invested heavily on development of industries. Nearly 55 percent of the total plan outlay was allocated for industrial development. A considerable progress in the production of various industries such as steel, aluminum, engineering goods, chemicals, fertilizers and petroleum products can be witnessed.

The production of coal had gone up from 32 mt in 1950-51 to 583 mt by 2011-12. Production of iron ore went up from 3 mt in 1950-51 to 167 mt, i.e., 56 times increase by 2011-12. The generation of electricity which was only 5 bkw at the beginning of the First Plan to 877 bkw by 2011-12.

- d. Development of Infrastructure:** Another achievement of great significance is the creation of economic and social infrastructure which is the prerequisite of faster economic growth. This can be observed as:

- ❑ Total literacy rate in India which was mere 18.3 percent during First Plan increased to 74 percent in which male literacy is 82 and female literacy is 66 percent.
- ❑ As a result of Five Year Plans, India developed as Health Tourist Centre, in the sense that the health expense is very less in India and attracting foreign patients.
- ❑ A short fall can be observed in Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR), and Child Mortality Rates (CMR).

- ❑ **Indian transport system** by all means (road, rail, water and civil aviation) on the eve of economic planning in 1950-51 improved a lot. The growth of network of Indian railways was 53,596 km in 1950-51, has increased to 63,220 km. presently. Track distance of Indian Railways was 59,315 km. in 1950-51 and raised to 80,908 km. at present (36.4 percent growth). Likewise, National Highways (92,851 kms.), State Highways (1,63,898 kms.), major and other district roads (17,05,706 kms.), and rural roads (27,49,805 kms.) also registered a massive progress by 2012.. Ports also improved in all dimensions like tonnage capacity, facilities, cargo capacity and revenue. . It is serviced by 13 major ports, 200 notified minor and intermediate ports. Indian ports combined together maintained 555.5 million tones of corgo handling in the year 2013-14, the vessel traffic to the tune of 20,402 million tones and 7,465 million tones of container traffic.
- ❑ **The Indian Air Lines and Air India** both were merged and formed as the National Aviation Company of India Limited (NACIL) in November 2010. The merged has been renamed as Air India Limited. Presently, India is striving hard to be the 4th big among the aviation markets by 2020. And the third in terms of domestic market after US and China. The Airports have grown on all the three major parameters. Which are (i). passenger numbers, (ii). Aircraft movements, (iii). Cargo Carriage. India is becoming increasingly integrated with the global economy. India's total merchandise trade as the percentage of GDP increased from 29.5 percent in 2004-05 to 44.1 percent in 2013-14. India's merchandise exports as a percentage of GDP increased from 12.6 percent in 2004-05 to 18.1 percent in 2013-14. Thus, transportation system developed remarkably by their network, revenue and consumer satisfaction.
- ❑ **ENERGY** : Coal, electricity and petroleum are important sources of energy.
- ❑ **Coal**: The power sector is a major consumer of coal, using about 80 percent of the country's coal production. Coal-fired thermal units account for around 66% of total power generation in the country. Coal continues to be the main stay for the power sector. Coal is the main source of energy in the country. More than 95% of the coal production in India is of non-cooking coal. During 2012-13, 557.5 million tones of coal (including lignite) was produced while in 2011-12 the production was 540.8 million tones.
- ❑ **Power**: Electricity generation by power utilities during 2012-13 was 911.65 billion kWh. Installed capacity as on March 31, 2013 was 2,25,793 MW, comprising 1,53,848 MW from Thermal Power, 39,623 MW from Hydro Power, 27,542

from Non-Conventional sources and 4,780 MW from Nuclear Power. Hydro and thermal power generation is given a big boost.

- ❑ **Petroleum and Natural Gas** – During the financial year (2012-13), production of crude oil is estimated at 37.86 million metric tonnes (MMT), which is about 0.60 percent lower than the crude oil production of 38.09 MMT during 2011-12. The production of natural gas, including Coal Bed Methane (CBM) for 2012-13 is 40.679 billion cubic metres (BCM) which is 14.47 per cent lower than the production of 2011-12.
 - ❑ **Cement** : During 2011-12, totally, 223.5 million tonnes of cement was produced in the country, registering about 6.7 per cent increase over the previous year 2010-11.
 - ❑ **Telecommunications** : The total number of telephone subscribers (basic and mobile) rose from 76.5 million in 2004 to 922.04 million at the end of January 2014. Tele-density in the country rose from 7.02 per cent in March 2004 to 74.50% at the end January 2014.
 - ❑ **Banking**: After 2009, the Indian banking scenario is going to change dramatically. Presently, the commercial banking system consists of 164 banks and 80,369 bank offices; out of these as many as 108 (including 82 regional rural banks) and 71,998 bank offices (including 15,415 offices of RRBs) are in the public sector. In addition, 74,505 ATMs are in operation. The three constituents of commercial banking structure in India are: public sector banks, private banks and foreign banks. The public sector banks (26 of which SBI Group Banks (6), Nationalized Banks (20)), Private Sector Banks (20) of which old Banks 13, New Banks 7), Foreign Banks (43). The Public Sector Banks own about 71 percent of the assets of the banking system, continue to play an important role in responding to the changes in the economic environment.
 - ❑ **Irrigational facilities** also widened through the construction of major, medium and minor projects.
- e. **Diversification of Exports and Imports**: As a consequence of the policy of rapid industrialization, India's dependence on foreign countries for the import of capital goods has declined. Due to the introduction of new economic reforms in 1990s, Indian exports and imports underwent a drastic change. Quite a good number of consumer goods, elite consumer durables imported earlier, are now being produced indigenously. This has led to import substitution. This is due to the inherence of quality management in production process. The value of exports from the country increased from Rs. 606 crore in the First Plan to 16,35,261 crores in the beginning of Twelfth Plan.

- f. **Development of Science and Technology:** Another significant achievement is the growth of science and technology and development of technical and managerial cadres. Our dependence on foreign experts has reduced and moreover India has now become a supplier of experts to every corner of the globe in the fields of information technology, communications, doctors, engineers, scientists and managerial expertise. Ex: Technology development Board (TDB) has signed 15 agreements with industrial concerns with a commitment of Rs. 83.73 crores out of a total project cost of Rs. 302.65 crores to assist companies for commercialization of technologies in various sectors of company viz. health, biotech, chemical, engineering, agriculture, energy and waste utilization and ICT. National Mission of Nano Science and Technology – an Umbrella programme was launched in 2007 to promote research and development in Science and Technology. During 2013-14 India secured third position in the world in terms of scientific publications in Nano Science and Technology. Communications and Information Technology also modernized postal department, Banks, Railways and Other Administrative departments, Corporations, Educational Institutions towards digitalization in India at present.
- e. **Development of a huge Educational System:** One of the great achievements of planning era is placing India in second largest educational system of the World. The annual enrolment of students at primary, secondary, higher and technical education levels is growing year after year. The annual status of education report (ASER) 2012, states that 96.5% of all rural children between the ages of 6-14 were enrolled in school. Another report of 2013, reveals that there were 229 million students were enrolled in different accredited urban and rural schools of India from Class I to XII representing an increasing of 2.3 million students over 2002, total enrollment and a 19 percent increase in girl's enrollment. Indian higher education system has expanded at a fast pace by adding nearly 20,000 colleges and more than 8 million students in a decade from 2000-01 to 2010-11. All India growth of student enrollment in higher education increased from 34.0 lakhs during 1984-85 to 146.25 lakhs in 2009-10 with an annual average growth rate of 6.01. Total enrolment at all levels in 2011 is 169.7 lakhs. Total number of Universities in the country are 573 and 33,023 colleges are functioning by 2011.

Failures

The Indian economy has made significant progress over more than sixty five years of planning era. Still there are many weaknesses which point out towards the failures of Indian plans in many ways. Some of the failures are presented as under:

- a. Despite more than sixty years of planned economic development, still there exist the problems of poverty and unemployment. In 2012 the Indian Government stated 21.9

percent of its population is below its official poverty limit. (About 300 million people), Likewise the from 1983 till 2011 unemployment rates in India averaged 9 percent reaching an all time high of 9.4 percent during December 2010 and a record low of 3.8 percent in December 2011. The NSS data reveals the number of unemployed to be of the order of 26.58 million during 1999-2000 and 28.1 million during 2009-10.

- b. In spite of the several measures taken under land reforms, still there exist inequalities regarding land, income and wealth. Distribution of surplus lands not completed.
- c. One of the objectives of Indian Five Year Plans was to establish an egalitarian society. This could not be achieved so far.
- d. The plans are not able to control the volume of black money and corruption. In Feb 2012 Central Bureau of Investigation (CBI) said that Indians have \$500 billion illegal money (Black Money) based on a statement made to India's Supreme Court in July 2011.
- e. We still have to go a long way to reach the target of Health to All.
- f. Plans failed to achieve balanced regional development. Haryana per capita income is more than 4 times than that of Bihar. Insurance of poverty of Goa is 5.09 where as it is 29.43 in Uttar Pradesh. Since the all India average of incidence of poverty is 21.92. This clearly indicates the imbalances among the regions of India.

Dominance of Service Sector

The Services Sector with an around 57 percent contribution to the GDP has made rapid growth and emerged as fastest growing sector of the Economy besides being the dominant sector in India's GDP, it has also contributed substantially to Foreign Investment flows exports and employment. The compound annual growth rate (CAGR) of services sector GDP was 8.5 percent for the period 2000-01 to 2013-14. While Industrial (Manufacturing) sector accounts for 26% of GDP.

There is no doubt that India has achieved commendable progress through economic planning. Despite India's vast achievements in agriculture and industry, the UNDP's Human Development Report 2013, ranks India 136th among 186 countries. India is ranked one among ten fast growing economies in the world. However, we can say that India has to travel a long way in the path of development.

7.4 Twelfth Five Year Plan (2012-2017)

The Government on 4th October approved the 12th Five Year Plan (2012-17) document that seeks to achieve annual average economic growth rate of 8.2 per cent, down from 9 per cent envisaged earlier, in view of fragile global recovery. The theme of the Approach Paper is “faster, sustainable and more inclusive growth”. During the 11th Plan (2007-12), India has recorded an average economic growth rate of 7.9 per cent. This, however, is lower than the 9 per cent targeted in 11th Plan. According to officials the projected average rate gross capital formation in the 12th Plan is 37 per cent of GDP. The projected gross domestic savings rate is 34.2 per cent of GDP.

Main Objectives

The main objectives of Twelfth Five Year Plan with its central aim “Faster, Sustainable and more Inclusive Growth” are discussed under the following heads.

a. Economic Growth

- ❖ Real GDP Growth Rate of 8.0 per cent.
- ❖ The per capita income should grow at 6.5 per cent per annum.
- ❖ Agriculture Growth Rate of 4.0 per cent.
- ❖ 10 percent annual growth rate of manufacturing or industrial sector.
- ❖ Industrial Sector Growth Rate of 7.6 per cent.
- ❖ Service Sector Growth Rate of 9.0 per cent.
- ❖ Every State must have a higher average growth rate in the Twelfth Plan than that achieved in the Eleventh Plan

b. Poverty and Employment

- ❖ Head-count ratio of consumption poverty to be reduced by 10 percentage points over the preceding estimates by the end of Twelfth Five Year Plan.
- ❖ Generate 50 million new work opportunities in the non-farm sector and provide skill certification to equivalent numbers during the Twelfth Five Year Plan.

c. Education

- ❖ Increase in literacy to 85 percent by 2017.
- ❖ Mean Years of Schooling to increase to seven years by the end of Twelfth Five Year Plan (Sarva Siksha Abhayan).
- ❖ Enhance access to higher education by creating two million additional seats for each age cohort aligned to the skill needs of the economy (RUSA).
- ❖ Eliminate gender and social gap in school enrolment (that is, between girls and boys, and between SCs, STs, Muslims and the rest of population) by the end of the Twelfth Five Year Plan.

d. Health

- ❖ Reduced IMR to 25 and MMR to 1 per 1000 live births, and improve Child Sex Ratio (0-6 years) to 950 by the end of the Twelfth Five Year Plan.
- ❖ The outlay on health would include increased spending in related areas of drinking water and sanitation.
- ❖ Reduce Total Fertility Rate to 2.1 by the end of Twelfth Five Year Plan.
- ❖ Reduce under-nutrition among children aged 0-3 years to half of the NFHS-3 levels by the end of the plan.

e. Infrastructure, Including Rural Infrastructure

- ❖ Increase investment in infrastructure as a percentage of GDP to 9 percent.
- ❖ Increase the Gross Irrigated Area from 90 million hectare to 103 million hectare.
- ❖ Provide electricity to all villages and reduce AT&C losses to 20 per cent by the end of Twelfth Five Year Plan.
- ❖ Connect all villages with all weather roads by the end of Twelfth Five Year Plan.
- ❖ Upgrade national and state highways to the minimum two-lane standard by the end of Twelfth Five Year Plan.
- ❖ Complete Eastern and Western Dedicated Freight Corridors by the end of Twelfth Five Year Plan.
- ❖ Increase rural tele-density to 70 per cent.
- ❖ Ensure 50 per cent of rural population has access to 55 LPCD piped drinking water supply and 50 per cent of gram panchayats achieve the Nirmal Gram Status by the end of plan.

f. Environment and Sustainability

- ❖ Increase in forest and tree cover to 33 percent.
- ❖ Increase green cover (as measured by satellite imagery) by 1 million hectare every year during the Twelfth Five Year Plan.
- ❖ Add 30000 MW of renewable energy capacity in the plan.
- ❖ Reduce emission intensity of GDP in line with the target of 20 per cent to 25 per cent reduction by 2020 over 2005 levels.
- ❖ Cleaning of all major polluted rivers.

g. Service Delivery

- ❖ Provide access to banking services to 90 per cent Indian households by the end of the plan.
- ❖ Major subsidies and welfare related beneficiary payments to be shifted to a direct cash transfer by the end of the Twelfth Plan, using the Aadhar platform with linked bank accounts.

Sectoral Allocation for Public Sector Resources-Eleventh Plan Realisation and Twelfth Plan (2012-17) Projections

S. No.	Heads of Development	Total Outlay Centre						States and Uts						Total Centre, States and Uts					
		Eleventh Plan			Twelfth Plan			Eleventh Plan			Twelfth Plan			Eleventh Plan			Twelfth Plan		
		Amount	% Share	Amount	% share	increase	%	Amount	% Share	Amount	% share	increase	%	Amount	% Share	Amount	% share	increase	%
1.	Agriculture & Allied	60683	3.00	134636	3.11	121.87		102422	6.20	228637	6.85	128.23		163105	4.44	363273	4.74	122.72	
2.	Rural Development	179925	8.888	267047	6.16	48.42		108284	6.56	190417	5.71	75.85		288209	7.84	457464	5.96	58.73	
3.	Special Area programme	0	0.00	0	0.00	0		42817	2.59	80370	2.41	87.71		42817	1.16	80370	1.05	87.71	
4.	Irrigation & Flood Control	2325	0.11	17212	0.40	639.98		227008	13.74	404800	12.13	78.32		229334	6.24	422012	5.50	84.02	
5.	Energy	504082	24.89	1085997	25.06	115.44		180188	10.91	352468	10.57	95.61		684271	18.61	1438466	18.75	110.22	
6.	Industry & Materials	147510	7.28	292090	6.74	98.01		38143	2.31	85212	2.55	123.4		185653	5.05	377302	4.92	103.23	
7.	Transport	409869	20.24	819482	18.91	99.94		203316	12.31	384690	11.53	89.21		613185	16.68	1204172	15.70	96.38	
8.	Communication	58516	2.89	80984	1.87	38.4		0	0.00	0	0.00	0		58516	1.59	80984	1.06	38.4	
9.	Sc. Tecno & Environment	50615	2.50	130054	3.00	156.95		18682	1.13	37296	1.12	99.64		69297	1.88	167350	2.18	141.5	
10.	Economic Services	45724	2.26	181476	4.19	296.89		43652	2.64	124136	3.72	184.38		89376	2.43	35612	3.98	241.94	
11.	Social Services	556080	27.46	1274261	29.40	129.15		641496	38.84	1390582	41.68	116.77		1197576	32.57	2664843	34.74	122.52	
12.	General Services	9797	0.48	50500	1.17	415.46		45800	2.77	57459	1.72	25.46		55597	1.51	107959	1.41	940.18	
	Total	2025128	100.00	4333739	100.00	114		1651808	100.00	3336068	100.00	101.96		3676936	100.00	7669807	100.00	108.59	

Source: Planning Commission Twelfth Five Year Plan - 2012-17 Draft

7.5 Regional Imbalances

India presents a picture of extreme regional variations. Relatively speaking, some states are economically advanced while others are backward. Even within the states, some regions are more developed while others are under developed and backward. The co-existence of relatively developed and economically under developed states and even regions within each state is known as Regional Imbalances. Regional imbalances may be natural due to unequal natural endowments or man made in the sense that some regions are preferred for investment. This kind of regional imbalances are not desirable from the point of view of a country's economic development. Therefore, the disparities are to be rectified to enhance the welfare of the people. The following indicators make it clear to know about regional imbalances in India.

a. States Percapita Income

We can classify the states in India into two categories on the basis of percapita income i.e., developed and developing states. We now compare the percapita incomes of these two categories so as to check, whether regional imbalances present or not.

Table – 7.4: State-wise Percapita Income in India (in Rupees) (at base year prices)

States/Regions	2004-05	2012-13
Developed States		
Haryana	37,972	65,500
Punjab	33,103	48,409
Maharashtra	35,915	66,066
Kerala	31,871	53,877*
Gujarat	32,021	57,508*
Tamil Nadu	30,062	59,113
Andhra Pradesh	25,321	44,089
Developing States		
Assam	16,782	24,198
Rajasthan	18,565	28,851*
Odisha	17,650	25,584
Madhya Pradesh	15,442	26,514
Uttar Pradesh	12,950	18,891
Bihar	7,914	14,994

Source : RBI, Hand Book of Statistics for Indian Economy.

Note : Percapita of some states is for 2011-12 (* marked)

From the table it is observed that regional balances prevail in India with wider income disparities among the states.

- a. Haryana's percapita income is more than 4 times the percapita of Bihar.
- b. Haryana, Punjab, Maharashtra etc., having high percapita income and hence called developed states.
- c. The then combined Andhra Pradesh is in the last of developed states list.
- d. Bihar, Uttar Pradesh, M.P etc., having less percapita and treated as developing states.

b. Poverty

Poverty in any society is considered as an important indicator of economic backwardness. Poor are to be found everywhere in India, but the percentage of people below poverty line is different from one state to another. The poverty differentials in different states of India are shown in the following table.

Table 7.5: State-wise Incidence of Poverty in India (in percentages)

Rank	States	Incidence of poverty
1	Goa	5.09
2	Punjab	5.26
6	Andhra Pradesh	9.20
7	Jammu and Kashmir	10.35
10	Tamil Nadu	11.28
11	Meghalaya	11.87
13	Rajasthan	14.71
14	Gujarat	16.63
17	West Bengal	19.98
19	Karnataka	20.91
20	Uttar Pradesh	29.43
21	Madhya Pradesh	31.65
24	Bihar	33.74
25	Arunachal Pradesh	34.67
26	Manipur	36.89
28	Chhattisgarh	39.93
**	All India Average	21.92

Source: *Annual Report, RBI, 2013.*

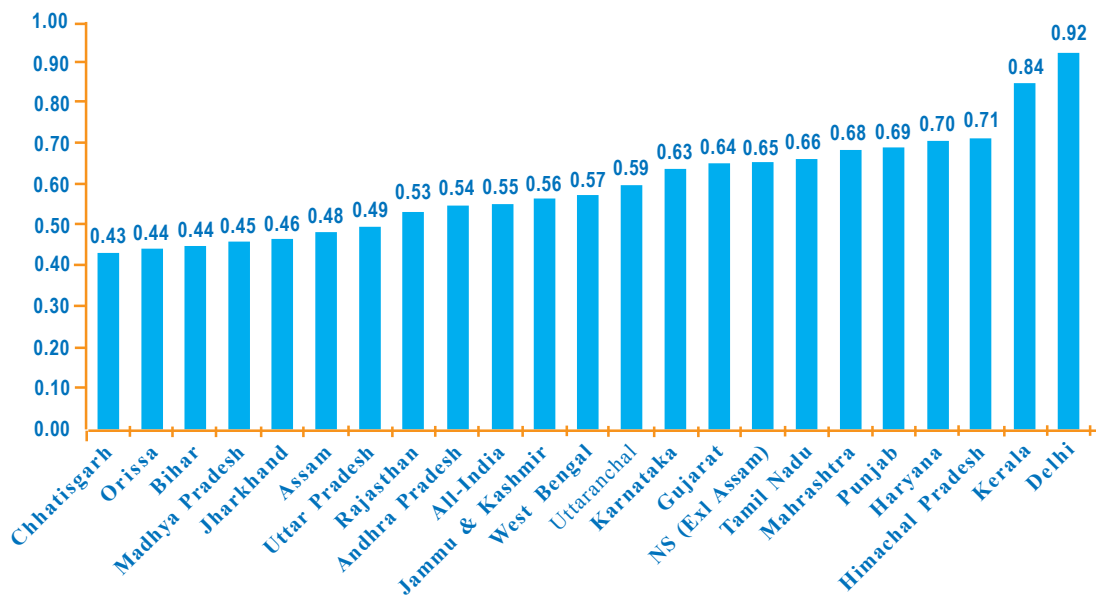
From the table 7.5, the following important points can be noted.

- ◆ As per the RBI Report, 2013, Indian average poverty figure is 21.92
- ◆ Goa is in 1st place with least poverty incidence of 5.09 percent.
- ◆ Andhra Pradesh poverty incidence is in single digit (9.2)
- ◆ Goa, Punjab, Kerala etc., are on the top of the list.
- ◆ Manipur, Jharkhand and Chhattisgarh are at the bottom of the list.
- ◆ Incidence of poverty in Chhattisgarh is around 8 times greater than that of Goa.

c. Human Development Index

The aim of Economic development in any economy is human welfare. In modern times, Human Welfare is measured in terms of the average life expectancy, literacy and percapita income. Human Development Index (HDI) embraces the above three aspects. This HDI will be high for developed areas and low for backward areas. Following figure shows the rank and value of HDI for different states.

Figure: 7.1: HDI values for Indian states in 2011



Source: Human Development Report, 2011.

- ◆ From the above figure it is observed that Delhi having highest HDI value of 0.92, very close to 1 mark followed by Kerala.
- ◆ Chhattisgarh, Orissa, Bihar, MP etc., are low HDI states with their HDI value less than 0.5.
- ◆ Rajasthan, AP, J&K, Bengal etc., are in Middle HDI group with HDI value above 0.5
- ◆ HDI value varies from 0.43 (Chhattisgarh) to 0.92 (Delhi).

7.5.1 Causes of Regional Imbalances

Regional imbalances stand in the way of a Nation's integrity, economic growth and development. Before taking the measures to rectify regional imbalances, it is imperative to know the causes of regional imbalances. They are:

- a. **Geographical Reasons:** Physical geography controls economic growth in developing countries than the developed countries. For Ex: Himachal Pradesh, Hill districts of UP, Northern Kashmir etc., remained backward mainly because of inaccessibility.
- b. **Climate Conditions:** Climate too plays an important role in the economic development of many regions in India, regions with adverse climatic conditions reflected in low agricultural output and absence of large-scale industries.
- c. **British Rule:** Historically, the existence of backward regions started from the British rule in India. The British helped the development of only those regions which are endowed with conducive facilities to drain Indian wealth to their country like Calcutta, Bombay etc.
- d. **Concentration of Industries:** New investment, in the private sector has a tendency to concentrate in already well developed areas, thus reaping the benefits of external economies. Since, well developed area offers private investors certain basic advantages viz., skilled labor, infrastructure, transport etc.
- e. **Scarcity of Natural Resources:** Certain regions are endowed with natural resources, whereas some regions are not. Those regions with great natural resource endowment are developed faster.
- f. **Lack of Infrastructural Facilities:** Those regions where there are no proper roads, electricity, telecommunication, drinking water, education, medical, technical, training facility, credit facilities etc., they tend to remain underdeveloped.

7.5.2 Measures to Balanced Regional Development

As the problem of regional imbalances is multidimensional and peculiar one, it is very difficult to bring balanced regional development. Though steps have been launched since Second Five Year Plan in this direction, still a lot is required to do. However, following things can be done to attain a balance between different regions.

- ◆ Transfer of funds from the central pool to backward states.
- ◆ Starting of industries by the Government in the backward regions, as private sector having bias towards developed regions.
- ◆ Providing infrastructural facilities like electricity, telecommunications, transport etc., in backward regions.
- ◆ Encouragement to industrial decentralization through regional planning and micro level planning.
- ◆ Formation of Industrial Estates in backward areas.
- ◆ Special policies to the regions where frequent floods and drought occur.
- ◆ Central assistance to develop hill and tribal areas.
- ◆ Encouragement to small scale industries.
- ◆ Provision of subsidies, tax concessions, tax holidays etc.,

7.6 Role of trade in Economic Development

The role of international trade in economic development is significant. In modern days all countries irrespective of their financial status are depending on participating in international trade. Economists found a positive association between country's participation in international trade and its level of economic growth.

7.6.1 International Trade and Economic Development

The international trade plays a very vital role for the development of economies of the developing countries. It provides the urge to develop the knowledge and experience that makes development possible and this means to accomplish it.

- a. **Increases Output:** Due to international trade when a country specializes in the production of few goods and division of labour, it exports the commodities which it produces cheaper in exchange for what others can produce at lower cost. It gains from trade through increased output, national income which is useful to break vicious circle of poverty and promotes development.
- b. **Expands Market:** Developing countries are hampered by the small size of domestic markets which fail to absorb sufficient volume of output. This leads to low inducement to investment. International trade widens the market and increases the inducement to invest.
- c. **Increases Employment:** Due to international market opportunities, under-developed countries started exploiting unutilized resources which will reduce unemployment and

under employment. As people's income rises, domestic savings and investments increase. Human resources will be utilized optimally.

- d. **Increases Internal and External Economies:** Expansion of productive activities and expanded market opportunities leads to a number of internal and external economies, and hence to reduction of cost of production. There are the direct gains from international trade.
- e. **Indirect Benefits:** By enlarging the size of the market and the scope of specialization, international trade makes a greater use of machinery, encourages inventions and innovation and raises labour productivity. It also makes people available new products, tempts them to work harder to save and accumulate capital.
- f. **Import of Capital Goods against Export of Staple Commodities:** International trade helps to exchange domestic goods having low growth potential for the foreign goods with high growth potential. The staple commodities of underdeveloped countries are exchanged for machinery, capital goods, raw materials etc., which will boost economic development. Ex: India exports agricultural products to USA and imports modern machinery.
- g. **Important Educative Effect:** International trade helps in importation of ideas, skills and technical know-how from the developed countries and stimulates technical progress in UDCs. So underdeveloped countries have to change their poor educational, technical, productive systems so as to raise their competitiveness.
- h. **Basis for Importation of Foreign Capital:** Developing countries are capital scarce economies. This condition restricts the economy in all fields to move ahead. If a country actively participates in international trade, the unused capital resources of rich countries will flow and utilized effectively in capital poor countries. Foreign capital not only helps in increasing employment, output and income but also smoothen the adverse balance of payments and inflationary pressures.

7.6.2 Adverse effects of International Trade

Though international trade benefits a country in various dimensions, it also negatively affects the interests of a nation.

- ❑ As underdeveloped countries attempt to cut costs to gain a price advantage, many workers in these countries face low pay, substandard working conditions and even forced labor and abusive child labor.
- ❑ According to critics, the increase of corporate farms in developing countries increases pesticide and energy use, and host countries ignore costly environmental standards.

- ❑ Gunnar Myrdal, an economist argued that the foreign trade having strong Back Wash effects, it means the trade is always in favour of advanced nations and against the developing countries.
- ❑ The International demonstration effect through foreign trade adversely affected capital formation in UDCs.
- ❑ In the opinion of Prebisch, there has been a secular deterioration in the terms of trade of the less developed countries.

7.7 Economic Reforms in India

Until June 1991, India followed a very restrictive economic policy characterized by exclusion of private sector from many important industries. The economic and political conditions forced the government to implement New Economic Reforms (NER) in 1991.

7.7.1 Conditions that forced the Government for reforms

Following conditions forced the Government to think about economic reforms at that time.

- ❑ Mounting fiscal deficit
- ❑ Increase in adverse balance of payments
- ❑ Gulf crisis and oil burden on the economy
- ❑ Fall in foreign exchange reserves to its record low. (only \$1 billion)
- ❑ Rise in prices and double digit inflation rate
- ❑ Poor performance of the public sector – losses, inefficiency.
- ❑ World Bank's force to implement reforms in return of its financial help.

7.7.2 Economic Reforms

The Congress Government led by the then Prime Minister Mr. P.V. Narasimha Rao and Finance Minister Dr. Manmohan Singh announced the New Economic Reforms and new industrial policy as its part on 24-07-1991. All the reforms can be summarized under the following heads.

1. Liberalization
2. Privatization
3. Globalisation (LPG)

7.7.3 Liberalisation

It refers to the relaxation of previous government restrictions usually in the areas of social and economic policies. Thus, when Government liberalizes trade, it means it has removed the tariffs, subsidies and other restrictions on the flow of goods and services among the countries.

- a. As an important measure of liberalization of the government abolished licensing for all except 18 industries, gradually the number of industries requiring license has been now reduced to five.

- b. Another measure is removing the upper limit of assets in respect of firms covered by MRTP Act.
- c. Broad banding of licensing was introduced so that industrial units are not required to obtain separate licenses for similar production processes.
- d. FEMA (Foreign Exchange Management Act): It replaces the FERA (Foreign Exchange Regulation Act) of 1973. It came into operation from June 1st 2000. It aims to consolidate and amend the law relating to foreign exchange with the objective of facilitating external trade and payments and for promoting the orderly development and maintenance of foreign exchange markets. (thus it facilitates smooth globalization process).

Economic liberalization is the lessening of government regulations and restrictions in an economy in exchange for greater participation by private entities; the doctrine is associated with classical liberalism. Thus, liberalization in short is “the removal of controls” in order to encourage economic development.

Thus, liberalization is relaxing Governmental control over private sector regarding production, location, investment, prices etc. It transforms the private sector from a restricted regime into a free regime.

7.7.4 Privatization

The term ‘privatization’ connotes a wide range of ideas. Privatization is a process by which the government transfers the producing activity from the public sector to the private sector. It is the general process of involving the private sector the ownership or operation of a state-owned enterprise. Thus, the term refers to private purchase of all or part of a company. It covers contracting out, leases, franchise arrangement. Of course, disinvestment is an integral part of privatization.

Disinvestment: Disinvestment is the process through which privatization could take place. Since the beginning of 1980s, the functioning of the public sector began to be questioned. Consequently, the question of privatization of public sector was debated. The disinvestment policy of the Government of India has evolved over a period. The Industrial policy statement of 24th July 1991 stated that the Government would divest part of its holdings in selected PSEs, but did not place any cap on extent of disinvestment. Major disinvestment receipts since 2004-05 have come from sale of equity shares of National Thermal Power Corporation Limited (NTPC), Maruthi Udyog Limited (MUL), Power Grid Corporation of India, Engineers India Limited (EIL), Coal India Limited (CIL), Shipping Corporation of India Limited (SCIL) and Rural Electrification Corporation Limited (RECL), Etc.

Privatization is the process of transferring the ownership rights on production units either fully or partially to the private individuals or companies.

Privatization may be in three forms. On ownership measure, privatization means full transfer, partial increment of private ownership or even management buy-out (selling of assets to the employees). On organizational measure, privatization implies providing a sufficient degree of autonomy in decision-making to private sector, leasing out public enterprise or even restructuring it. On operational measures, it means changing public sector enterprise to compete on par with private sector.

Rationalisation of Privatization

According to the supporters of privatization, the following advantages could be drawn from the privatization and disinvestment.

- a. **Improvement in Efficiency and Performance:** The private sector introduces the profit-oriented decision making process in the working of enterprise leading to improved efficiency and performance. Moreover, private ownership establishes a market for managers, which improves the quality of management.
- b. **Fixing responsibility is Easier:** While personnel in the public enterprises cannot be held responsible for any lapse, even when responsibility is defined many pressures and forces operating to reduce its effective implementation. On the other side responsibilities are clearly defined and the personnel are bound to follow them.
- c. **Capital Market Discipline:** Private sector firms are subject to capital market discipline and scrutiny by financial experts. In fact, the ability to raise funds in the capital market is critically dependent on performance, but not so in the case of Public enterprises. They have easy access to credit and budgetary support, irrespective of their performance.
- d. **Political Interference:** According to Bimal Jalan, former Governor of RBI, political interference is unavoidable in public corporations and is a major cause of decline in operational efficiency. Political recommendations, interferences are common in public sectors. Most Governments also impose non-economic objectives on public enterprises.
- e. **Succession Planning:** Many public sector enterprises remain, headless for long periods of time. This causes confusion and delay in decision making as nobody is sure how the new incumbent will act on the policy decision. But in case of private sector enterprises and the heir-apparent is identified early.
- f. **Response is quick in private sector:** Success of business require spot decisions without having to worry too much and about not having consulted others. In fact, delayed

decision making is often equivalent to making no decision at all. In public sector we can see the least or nil response time.

- g. Remedial Measures are Taken Early in Private Sector:** Private sector firms are more subject to liquidation, threat of takeover, and loss of assets for owners than public sector enterprises. When owners stand to lose control over assets, there is greater likelihood of remedial measures being taken earlier.

Critique of Privatization

- a. Privatization will encourage growth of monopoly power in the hands of big business houses.
- b. Private enterprises may not show any interest in buying shares of loss-making and sick enterprises as their main objective is profit maximization.
- c. Projects with long gestation period will not take up by private sector as they expect immediate return for their investment.
- d. The private sector may not uphold the principles of social justice and public welfare.
- e. Labour, employee interests will be neglected by private enterprises.
- f. Huge and unhealthy competition among private units may lead to high mass production, wastage of resources and other environmental issues.

7.7.5 Globalization

Globalization means integrating domestic economy with the world economy. It is a process which draws countries out of their isolated situation and makes them join rest of the world in order to establish a new world economic order. It is the process of integrating various economies of the world without creating any hindrances in the flow of goods and services, technology, labour etc.

So, globalization is the process of integrating or synchronizing domestic economy with the world economy or in simple words it is the process of opening up of domestic economy doors to the rest of the world.

Globalization therefore, implies unrestrictive conditions of international trade among countries in respect of:

- a. Goods and services
- b. Capital in-flow and out-flow
- c. Free flow of technology and expertise
- d. International free movement of labour.
- e. Free movement of gold among nations.
- f. Unrestricted flow of capital goods (machinery, equipment) among countries etc.

Essential Conditions for Globalization

There are some essential conditions to be satisfied on the part of the domestic economy as well as the firm for successful globalization of the business. They are:

- a. **Business Freedom:** There should not be unnecessary Government restrictions which come in the way of globalization, like import restrictions, restrictions on sourcing finance, foreign investment etc. So, liberalization is the pre-condition for globalization.
- b. **Infrastructural Facilities:** The extent to which an enterprise can develop globally from home country base depends on the infrastructural facilities like water, transport, electricity, finance etc.
- c. **Government Support:** Although unnecessary Government interference is a hindrance to globalization, Government support can encourage globalization. Government support may take the form of policy and procedural reforms, development of common facilities like infrastructural facilities.
- d. **Resources:** Resources often decide the ability of a firm to globalize. Resourceful companies may find it easier to thrust ahead in the global market. Resources include finance, technology, R and D capabilities, managerial expertise etc.
- e. **Competitiveness:** The competitive advantage of the company is an important determinant of success in global business. A firm may derive competitive advantage from any of the factors such as low costs and price, product quality, product differentiations, technological superiority etc.
- f. **Orientation:** A global orientation on the part of the business firms and suitable globalization strategies are essential for globalization.

Cases for Globalization

- a. It is argued that globalization of under developed countries will improve the allocative efficiency of resources, reduce the capital-output ratio and increase labour productivity and ultimately boost economic development.
- b. Foreign capital will be attached and with its entry, updated modern technology will also enter the nation.
- c. Global competition makes the price reduce and production of qualitative goods by the firms.
- d. Expansion of market took place as the market for domestic products now do not be restricted to the country's political boundary.
- e. Due to wide production opportunities domestically, the employment opportunities also increase.

- f. Wide range and variety of goods will be available to the consumer and consumer preference will be given utmost importance.
- g. The efficiency of banking and financial sectors will improve, as there will be competition from foreign capital and foreign banks.

Cases against Globalization

- a. Due to globalization tremendous redistribution of economic power at world level ultimately translate into a redistribution of political power.
- b. One study reveals that globalization resulting in moving of countries away rather than coming closer to each other as is expected.
- c. It increases the pressure on economies for structural and conceptual readjustments.
- d. It is ridiculous that government asking their public to go through the pains and uncertainties for the sake of uncertain benefits yet to come.
- e. Most of the developing nations particularly, India arguing continuously that globalization in practice benefiting advanced countries rather than developing, as all expect in general.

Measures towards the Globalization

To pursue the objective of globalization, following measures were initiated by the government.

- ☐ Rupee was devaluated against major currencies in 1991 and again in 1994.
- ☐ Steps taken towards full convertibility on current account. Some steps also taken for capital convertibility partially.
- ☐ Import liberalization is implemented through reduction of customs duty from 90% to just 10% by 2007.
- ☐ Foreign Direct Investment floodgates have been open. FDI up to 26%, 49%, 51%, and 74% and even up to 100% has been allowed in different industries.

Impact of Globalization on Indian Economy

- a. India's share in the world exports raised from 0.53 percent in 1991 to 1.7 percent by 2013.
- b. Foreign currency reserves which were as low as one billion US dollars, grow up to 333 billion US dollars by the end of February, 2015.
- c. Exports now finance more than 65 percent of imports.
- d. Control over country's current account deficit is observed.
- e. The growing rate of external debt decreased drastically when compared to pre-reform period.
- f. International confidence in India has been restored.

- g. Indian consumers are now enjoying wide variety of quality goods at lower prices.
- h. Employment situation worsened in the era of globalization. The growth rate of employment actually declined from 2 percent to 0.98 percent after globalization.
- i. The pressure of MNCs, IMF and World Bank force governments to take decisions regarding reforms actually leading to the closure of small and medium enterprises.
- j. Globalization also widened the income inequalities among the people and even among regions too.

7.8 General Agreement on Tariffs and Trade (GATT)

During great depression of 1930's, the international trade was badly affected and various countries imposed import restrictions for safeguarding their economies. This action and retaliation reaction of countries leads to a sharp decline in world trade. So to liberalize the trade among nations, the Allied powers continued their effort. 23 nations agreed to continue extensive tariff negotiations for trade concessions in general, which were incorporated in General Agreement on Tariffs and Trade. This was signed on October 30, 1947 and it came into force on January 1, 1948, when other nations had also signed it. On January 1, 1995, the GATT disappeared and passed into history when it was merged in the World Trade Organization (WTO).

Objectives of GATT

The objectives of the GATT were based on a few fundamental principles contained in the cost of International Trade conduct.

- a. **Most Favoured Nation Principle (MFN):** The basic principle of GATT is that all member countries have to accept MFN clause. It rules out any preferential treatment among nations regarding trade policy. That is, if a member country provides tariff concession to another member, it has to apply to all other members unconditionally. Likewise, if a country imposes trade restrictions on one of the other member so as to protect domestic industry, it will be invariably applied on all other members.
- b. **Protection Through Tariffs only:** Its fundamental component was negotiated balance of mutual tariff concessions among contracting parties. The contracting parties should not raise import tariffs above the negotiated rate bound. The bound tariff rates negotiated were generalized to all contracting parties.
- c. **Non-discrimination, Reciprocity and Transparency:** All contracting parties of GATT must follow the principles of

- ☐ Non-discrimination – any trade restriction or concession to any contracting party will be applied to all other members automatically subject to special exemptions.
 - ☐ Reciprocity – trade restriction or concession by one party, same action can be taken by the opposite party.
 - ☐ Transparency – there should not be any secrete or hidden contacts among the contracting parties. Everything should be transparent and open to all.
- d. **Multilateral Negotiations:** GATT acts as a platform to the contact parties for their multilateral negotiations. It organizes and coordinates the negotiations made by its members.
- e. **Council of Settlement Disputes:** GATT also acts as a destination for consultation, conciliation, and settlement of disputes for the contracting parties. It also provides waivers in case of exceptional cases. When any member brings complaints to the notice of GATT against actions that violated the rules and laid objectives of GATT by any other member, the complaint will be assigned to the independent experts for verification and settlement.

Table 7.6: GATT Round

Round	Year	Venue	Issues and outcomes
First	1947	Geneva (Switzerland)	Signature on the first GATT Agreement
Second	1949	Anesi (France)	
Third	1950-51	Torquay (England)	
Fourth	1956	Geneva	Induction of European Community for the first time and 20 percent tariff reduction
V Dillan Round	1960-61	Geneva	33 percent reduction in restrictions on manufacturing goods
VII Kenedy Round	1964-67	Geneva	
VIII Tokyo Round	1973-79	Geneva	
VIII Uruguay Round	1986-93	Punta Del Este (beginning in Uruguay and closing at Geneva)	Agriculture, Service, TRIPS, and TRIMS related issues.

7.9 World Trade Organization

7.9.1 Evolution

The signing of the Final Act of the Uruguay Round by member nations of GATT in April 1994 paved the way for the setting up of the World Trade Organization (WTO). An agreement to this effect was signed by 104 members. The WTO Agreement came into force on January 1, 1995 and India became a founder member of the WTO, by satisfying the WTO Agreement on December 30, 1994. Yemen joined WTO as its 160th member in 2013. GATT was replaced by WTO as GATT was not really an organization and merely a legal arrangement. Its head quarter is at Geneva.

7.9.2 Difference between GATT and WTO

The WTO is not an extension of the GATT but a successor to the GATT. It completely replaces GATT and has a very different character. The major differences between the two are the following.

GATT	WTO
1. It had no legal status	It has legal status
2. It was not created by the governments and legislatures	It has been created by international treaty ratified by the governments and legislatures of the member states.
3. It was not an agency of the United Nations Organization	It has co-operative relationship with the UNO
4. It has a set of rules and procedures relating to multilateral agreements of selective nature. There were separate agreements on separate issues which were not binding on members. Any member could stay out of an agreement. Only those who signed the agreement could be penalized on default.	The agreements which form part of the WTO are permanent and binding on all members. Action can be taken against any defaulting member by all the member states.
5. The GATT disputes settlement system was dilatory and not binding on the parties to the disputes.	The WTO dispute settlement mechanism is automatic, faster and binding on the parties.
6. The GATT was a forum where the member countries met once in a decade to discuss and solve world trade problems.	It is properly established rule-based world trade organization where decisions on agreements are time bound.
7. The GATT Rules applied to trade in goods.	The WTO covers not only trade in goods and services but also trade-related aspects of intellectual property rights and number of other agreements.
8. It has a small secretariat managed by a Director General.	It has a large Secretariat and a huge organizational set-up.

7.9.3 Features of WTO

- a. It is the main organ of implementing the Multilateral Trade Agreements.
- b. It has global membership. At present it has 160 members in it.
- c. It is the forum for negotiations among members. (MTAs and PTAs)
- d. It has wider scope than GATT.
- e. It is a full-fledged international organization
- f. All members having equal opportunity and has one vote.
- g. It has legal personality. Members shall endow its rules otherwise it can take actions.

7.9.4 Objectives of WTO

- a. It aims at raising standard of living, ensuring full employment and large and steady growth, expanding the production and trade in goods and services among the global countries.
- b. To allow for the optimal use of the world's resources in accordance with the objectives of sustainable development. This also considers environmental protection with economic growth.
- c. To ensure the developing and least developed countries secure a share in the growth in international trade.
- d. To convince the member countries for reciprocal and mutually advantageous arrangements through reduction of tariffs and other trade barriers.
- e. To develop an integrated, more viable and durable multilateral trading system.

7.9.5 Functions of WTO

The WTO has the following functions.

- a. WTO facilitates the implementation, administration and operation of world trade agreements.
- b. It provides the forum for trade negotiations among its member countries.
- c. It shall handle trade disputes.
- d. It shall monitor national trade policies of the member countries.
- e. It shall provide technical assistance and training to developing countries.
- f. It maintains harmonious and co-operative relationship with IMF and IBRD and its affiliated agencies.

7.9.6 Important Agreements in WTO

The Agreement establishing the WTO consists of various aspects of Uruguay Round negotiations like Agreement on Agriculture, Agreement on Market Access, Agreement on Services

and Disputes Settlement Body etc., but most important and very controversial agreements are TRIMs and TRIPs. Let us now go through these aspects for conceptual clarity.

Trade Related Investment Measures (TRIMs)

It calls for national treatment of foreign investment and removal of quantitative restrictions. It identifies 5 measures for the elimination of qualitative restrictions. A country as it become the member of WTO, has to accept the entrance of foreign investment into it, and has to remove all restrictions, subjected to certain exceptions provided by WTO. All such specific measures being applied by any member were to be notified within 90 days of the entry into force of the agreement establishing WTO.

Trade Related Intellectual Property Rights (TRIPs)

The Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is an international agreement administered by the World Trade Organization (WTO) that sets down minimum standards for many forms of intellectual property (IP) regulation as applied to nationals of other WTO Members. It legally protects the intellectual property of an individual or a business firm or of a nation against illegal usage by others. The scope of agreement was also widened to cover patents, copyrights and protection of undisclosed information. Such product patent will be available for 20 years. In the case of copy rights and related rights, protection will be available for 50 years.

7.9.7 WTO and India

The Government of India has made a number of commitments to WTO. The main commitments are in the following fields.

- a. As a member of the WTO, India bound about 67 percent of its tariff lines.
- b. Special permission was given by WTO regarding Quantitative Restrictions (QRs) to India for its recovery from its balance of Payments crisis. But in 2000, QRs on 714 items and in 2001 on 715 items were removed on the advice of WTO.
- c. Indian Government passed Patent Amendment Act in 1999 and make appropriate amendments at par with the TRIPs agreement of WTO.
- d. Under the General Agreement on Trade in Services, India made commitments in 33 activities in which Foreign Service providers will be allowed.
- e. India's legislation on Customs Valuation Rules, 1998, has been amended to bring parallel to the provisions of the WTO Agreements.

As India entered in the second decade of the 21st century, it is necessary to know how to launch the new way of reforms or what may also be called operation 2-G (Second Generation Reforms). The Government of India continued the reformation programme for economic growth and development of Indian Economy.

In stage 1 the priorities were given to reduce inflation, Restore growth, Change in macroeconomic rules, Reduce size and scope of the state, Tax reform and budget cuts, price liberalization, private sector deregulation, Easier Privatization, High visibility, Trade and foreign investment liberalization and so on.

In stage 2 focus is on improving the social conditions increase international competitiveness, maintain macroeconomic stability, boost competitiveness of the private sector, reform production, financing and delivery of health care, education and other public services, reform of labour markets, restructuring of Government, upgrading regulatory capacities, sectoral conversion, restructuring central and state relations and so on.

Conclusion

It has to be acknowledged that the reform process will not be able to achieve socio-economic objectives, because the private sector is merely concerned with profit motive. Whereas, the liberalization process has reduced the role of the public sector investment.

The former president of USA, W.J.Clinton while speaking in Hyderabad on March 24th 2000 on the need to harness new technologies like info-tech for eradicating poverty emphasized “Millions of Indians are connected to the internet, but millions more are not yet connected to fresh water, nutritious food”. The former prime minister Manmohan Singh also is of the view “The Challenge before us is to combine of Economics of growth with the Economics of equity and social justice. We have no option but to walk on two legs”.

MODEL QUESTIONS**I. Write an essay on the following questions**

1. Define Planning and what are the objectives of planning?
2. Explain the objectives of Twelfth Five Year Plan.
3. Briefly review the achievements and failures of Eleven Five Year Plans.
4. Explain the causes of regional imbalances in India.
5. Explain the measures taken for balanced regional development.
6. Explain the role of International Trade in Economic Development.
7. Define Globalization and what are the essential conditions of Globalization in India?
8. Explain the impact of Globalization on Indian Economy.

II Write the answers briefly for the following questions.

1. Types of Planning
2. Planning commission
3. Explain the objectives of planning commission
4. Explain at least Three Failures of Plans
5. Reasons for regional imbalances in India
6. Enumerate 3 points in justification of Privatization?
8. Role of international trade
9. Objectives of GATT
10. Objectives of WTO
11. Difference between GATT and WTO
12. Functions of WTO

III Write the answers in one or two sentences.

- | | |
|--------------------------------------------|------------------------------------------|
| 1. Define Plan | 2. What is Rolling plan |
| 3. Concept of Plan holiday | 4. Define Perspective plan |
| 5. What is an Annual plan, give an example | 6. Backward States in India |
| 7. Define Regional Imbalances | 8. Balanced regional Development |
| 9. What is Liberalization | 10. Explain the concept of Privatization |
| 11. Define Globalization | 12. Concept of TRIPS |
| 13. What do you mean by TRIMS | 14. The clause of MFN |
| 15. Define Disinvestment | 16. GATT |
| 17. WTO | 18. Uruguay Round |
| 19. FDI | |

Glossary

Planning : It is a technique of conscious effort made to achieve certain predetermined objectives.

Self Reliance : Able to decide things by yourself rather than depending on other people for help.

Self Sufficiency : Able to produce everything that you need without the help of other people.

Plan Holiday : The gap that occurred in the planning process.

Economic Infrastructure : Transport, Power, Telecommunications, Banking, Insurance, Engineering etc.

Social Infrastructure : Education, Health, Drinking Water, Hygiene, Nutritious Food etc.

HDI : Measurement of Human Welfare in terms of Life expectancy, Literacy and per capita Income.

Liberalization : It refers to relaxation of previous Government restrictions usually in the areas of social and economic policies. Thus, when Government liberalized trade it means it has removed the tariff, subsidies and other under employment restrictions on the flow of goods and services between the countries.

Privatization : It is the general process of involving the private sector in the ownership or operation of a State owned enterprise.

Globalization : It is the process of integrating various economies of the world without creating any hindrances in the free flow of goods and services, technology, capital, even labour or human capital.

Disinvestment : The sale of the public sector equity to the private sector.

FDI : Investment in a foreign country where the investor retains control over the investment.

MFN : Any concession given to any Nation was automatically extended to all the member countries of the GATT.

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CHAPTER

8

ENVIRONMENT AND SUSTAINABLE ECONOMIC DEVELOPMENT

Model questions

Glossary

References

- 8.1 *Environment*
- 8.2 *Economic Development*
- 8.3 *Environment and Economic Linkages.*
- 8.4 *Harmony between Environment & Economy*

8.1 Environment

The word **Environment** is derived from the French word **environner** which means **to surround** or **encircle**. Everything which surrounds us may collectively be termed as the environment. We are surrounded by both living and non-living things. The living things are called as **biotic** part (physical environment) and non-living things as **abiotic** part (biological environment) of the environment. It is a basic life system as it provides air we breathe, the water we drink, the food we eat and the land where we live.

In narrow sense, environment is a combination of physical and biological elements that affects the life of an organism. In wider sense, environment also includes the man-made environment such as social, economic, cultural, political and intellectual activities of the man. The man-made environment also affects the physical and biological components of the environment. So, the environment and living organs are having two way relationship.

In fact, there are several environments. For ex: aquatic environment, terrestrial environment, urban environment. The abiotic structure of the environment consists of water and other liquids, gases, particles and solids, rocks, hills, mountains, deserts, grasslands, land, energy etc., The biotic structure of the environment consists of flora (plants) and fauna (animals). Biologically, all living creatures are classified as animals.

The biotic (living) and the abiotic (non-living) structures of the environment live together depending on each other and influencing each other. These two structures have a two-way linkage.

8.1.1 Components of Environment

According to National Environmental Policy Act (NEPA) of USA, 1969, the term 'Environment' includes physical, social, cultural, economic and aesthetic dimensions. According to Rau and Wooten, environment can be viewed in four dimensions.

1. **Physical Environment:** It covers the physical, chemical and biological elements such as land, climate, vegetation, wild life surrounding land uses and physical character of the area, infrastructure, air and noise pollution levels.
2. **Social Environment:** It includes a large number of factors such as population and its density, community composition, religious, education, community facilities like schools, parks, hospitals, recreational and cultural facilities. Some social factors will overlap the economic factors.
3. **Economic Environment:** All economic factors like employment, unemployment levels and sources of income, availability of factors of production, demand patterns, poverty levels etc. are come under this category.
4. **Aesthetic Environment:** This category comprises historical, archeological or architecture of objects or sites, scenic areas, views and landscapes. People derive pleasure by seeing such objects.

As the environment consists of all these different components, it is considered to be a completely inter-disciplinary discipline. We need the knowledge of Physics, Botany, Zoology, Geology, Geography, Agriculture, Chemistry, Economics, Education, Demography, Ecology, Sociology, Philosophy, Political Science, Biotechnology, Biochemistry and Genetics to understand what an environment is.

This chapter focusses only on physical environment. Here after it is referred as environment, which consists of physico-chemical surrounding in which both living and non-living organisms live.

8.1.2 Concepts of Environment

We have environment around us consists of living and non-living things with their inter dependency and mutual interaction. A study of all these aspects is called as **ecology**. To understand environment and its nature, a primary information of its basic concepts is needed. Eco-system, biodiversity, greenhouse effect, global warming, climate change, acid rains, ozone depletion are some of the basic concepts of environment.

- A. Eco-system:** The British ecologist A.G. Tansley coined the term Ecosystem in 1935. An Ecosystem is a region with a **specific and recognizable landscape** (form) such as forest, grassland, desert, or coastal area. The living community of plants and animals in any area together with the non-living components of the environment constitute as ecosystem. It includes plants, trees, animals, fish, birds, microorganisms, water, soil, and people of that region. The law of growth and decay also applicable to the ecosystem where living and non-living things generated and destroyed and a state of balance is maintained by the environment which is also known as “stability of ecosystem”.
- B. Biodiversity:** The word biodiversity was coined by Walter Rosen in 1986. Living organisms are different in their size, colour, shape and structure. The genes, environment and ecosystem decide this variety and complexity in the living organisms. This complex collection of innumerable organisms is known as biodiversity. The **variety and variability among living organisms** is called as biodiversity. So far science identified 1.75 million species in which various types of plants, insects, fungi, bacteria, viruses, algae etc., are included. Biodiversity having various advantages. In the view point of economics, it provides food and fodder to the human and cattle population. It is providing medication through wild plant medicated species. It is useful to industry as it provides various inputs like fibers, wood, sources of energy, oils, lubricants etc. Biodiversity is also generating income through tourism and recreation.
- C. Greenhouse effect:** It is a phenomenon in which the atmosphere of a planet traps radiation emitted by the sun, caused by gases such as carbon dioxide, water vapor, and methane that allow incoming sunlight to pass through **but retain heat radiated** back from the planet’s surface. It is a process by which thermal radiation from a planetary surface is absorbed by atmospheric greenhouse gases, and is re-radiated in all directions. Since part of this re-radiation is back towards the surface and the lower atmosphere, it results in an elevation of the average surface temperature above. Greenhouse effect may leads to many serious environmental issues such as radiation, climate change, monsoon direction and its efficiency, and so on.

- D. Global Warming:** Global Warming is the increase of Earth's average surface temperature due to the effect of greenhouse gases, such as carbon dioxide emissions from burning fossil fuels or from deforestation, which trap heat that would otherwise escape from Earth. Due to this, during the past century, the global atmospheric temperature has risen by 1.1°F and sea level has risen several inches. Some of the long term results of global warming are melting of polar ice with a resulting rise in sea level and coastal flooding, extinction of species as ecological niches disappear, more frequent tropical storms etc.
- E. Acid rain:** Acid rain is a broad term referring to a mixture of wet and dries deposition (deposited material) from the atmosphere containing higher than normal amounts of nitric and sulfuric acids. These acid rains are the result from both natural sources, such as volcanoes and decaying vegetation, and man-made sources, primarily emissions of sulfur dioxide (SO₂) and nitrogen oxides (NO_x) resulting from fossil fuel combustion. Acid rain makes the trees and plants grow very slower and even to die. So it affects the agriculture and forestry. The acidity of the water does not just affect species directly; it also causes toxic substances like aluminum to be released into the water from the soil, harming fish and other aquatic animals. Statues, buildings, vehicles, pipes and cables can also suffer from acid rains. The worst affected are things made from limestone or sandstone (buildings of all form) as these types of rock are particularly susceptible and can be affected by air pollution in gaseous form as well as by acid rain.
- F. Ozone Depletion:** Reduction in the amount of ozone (O₃) in the stratosphere is called ozone depletion. It happens due to high levels of chlorine and bromine compounds in that layer. The origins of these compounds are chlorofluorocarbons (CFC), used as cooling substances in air-conditioners and refrigerators. As ozone depletes, more ultraviolet (UV) radiation comes to earth and causes damage to all living organisms. UV radiation seems responsible for skin cancer and other skin complications.

8.2 Economic Development

The word economic development is attracting more attention of all countries in modern times. In the previous chapters only we discussed the meaning and definition of economic development. We can conclude that economic development is inclusive of economic growth with progressive changes in the socio economic structure of a country. It is a long term phenomenon and a dynamic process. A country to achieve economic development has to increase its national income through the increased production of goods and services over a period of time. According to Economics, production of goods and services require resources (inputs or factors of production). Though

production requires natural resources, human resources, and capital resources, but natural resources are very crucial for the production of goods and services. Economy totally depends on environment for these natural resources.

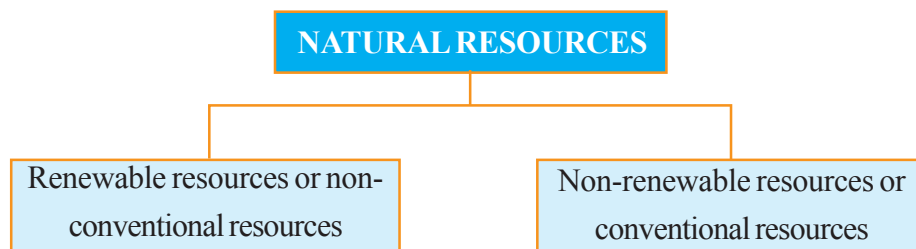
8.2.1 Natural Resources

Earth is a reservoir of resources. The resources are put into production process. Whenever they enter into consumption process directly, they acquire value. Scarcity is the inherent quality of resource. If the resource is not scarce, it cannot be called as a resource, as it has no value. Resources available in the environment, which are useful for living organizations, are called as Natural Resources. They are available with nature in raw form. They have to be extracted and purified. Water, air, minerals etc., are the natural resources. They are also important sources of energy. Main features of natural resources available in environment are:

1. The stock of resource is fixed.
2. The stock is fixed by nature.
3. The changes in the stock are subject to a natural, biological or bio-chemical rate.

8.2.2 Classification of Natural Resources

Natural resources are classified on the basis of their quantity, mutability and re-usability. However, it would be convenient to classify the natural resources into the following general categories.



1. **Renewable Resources:** The natural resources which can be used permanently without depletion are called renewable resources. They are not exhaustible. They have the capacity to regenerate themselves, within a short period. Their stock is not fixed. Renewable resources are also known as non-conventional resources. For example: solar, wind, tidal, geothermal energy.

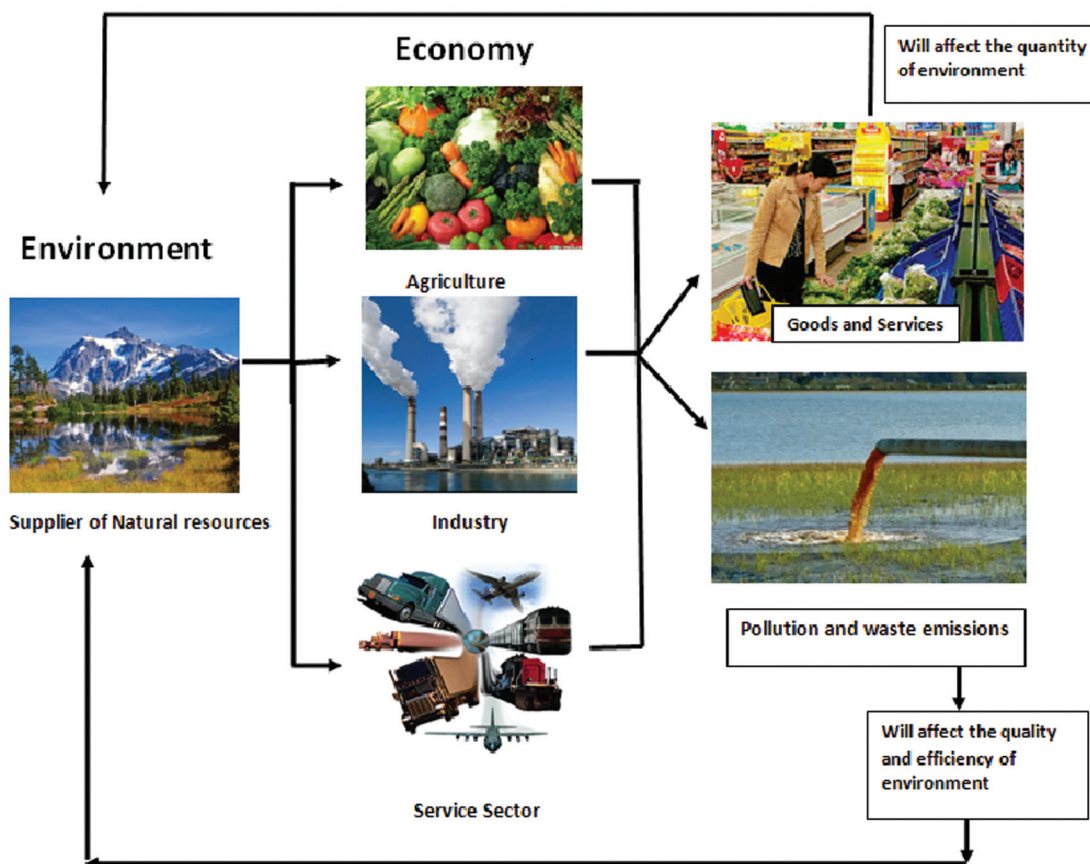
If renewable resources are consumed at a faster rate than their rate of biological growth, depletion of the stock takes place. Finally, if the consumption continues, a stage is reached, where the availability of those resource becomes fully exhausted. This fact emphasizes the need for optimum utilization of those resources without wastage.

2. **Non-Renewable Resources:** The natural resources which will exhaust by use are called as non-renewable resources. They cannot be regenerated. Once we exhaust these resources, they will not be available for use. The more is the extraction, that resource will not be available for the future use. They are also called conventional resources. Ex: gold, silver, copper, fossil fuels, oil, gas etc.,

8.3 Environment and Economy linkages

The above discussion on the environment explains the importance of environment. It acts as the supplier of raw materials to the economy and absorbs the wastes discharged by the economy. However, in modern days, the reckless and exploitative behavior of the economic activity is setting a limit to the efficiency of environment to supply the resources. The capacity of the environment to absorb the wastes is also declining. In 1966, Kenneth. E. Boulding, the British Economist warned the world about the consequences of overuse of environmental resources. He said that earth is a spaceship with a limited amount of life support resources. He warned the mankind to minimize the consumption rather than to maximize it. Following figure explains how economic activities are bringing pressure on environment.

Figure: 8.1: *Environment and Economic activity*



In the figure we can observe that, environment is supplying natural resource as the raw material to different sectors of the economy namely agriculture, industry and service sector. These sectors are using this material and are producing goods and services. Production of goods and services will decrease the quantity of environment. More the production, more will be the physical usage of environment and hence decrease in the quantity of resources.

On the other side economic activities also release wastages and pollution elements in different forms into the environment. This is adversely affecting the quality of environment. It directly reduces the ability of environment to absorb pollution. Environment can bare and tolerate pollution elements to a certain levels only. Beyond that, it fails to absorb which ultimately reduces its quality. To minimize the adverse effects on environment and to maintain a harmony between environment and economic development, we have to control pollution and degradation of environmental assets caused by economic activities. Let us now discuss them in detail.

8.3.1 Environmental Pollution

Environment is a gift of nature. It is simple and also complex. It would be simple so as long as it is clear. It becomes complex when there is undesirable changes in its basic features. When there are changes in the environment, which are undesirable, we simply say it is polluted.

We know that an economic activity of man leads to generation of waste. They are discharged into environment. These discharges may be substances [eg. smoke], chemicals [sulphurdioxide] or factors [heat]. These wastes or by-products discharged into the environment, lead to undesirable changes in it. These are called pollutants. The pollutants change the original nature of the environment, adversely.

A pollutant is a physical agent which is found more than the normal levels, changes the physical, chemical or biological characteristics of the resources that environment is supplying.

Pollution can be natural or man-made. Natural pollution comes from volcanic eruptions, emission of natural gas, soil erosion, ultraviolet rays etc. This type of natural pollution is adjusted by nature itself. These are not much dangerous. Most of the pollution is man-made. The most dangerous factors to the environment are population explosion, automobiles and industries. Most of these man-made pollutions start as local problems and later threaten the entire globe. Air pollution leads to ozone depletion, global warming and ecological imbalance.

8.3.2 Types of Pollution

Pollution is an undesirable change in physical, chemical and biological characteristics of the environment. This environmental pollution can be classified into various types among which air, water, soil, noise pollutions are important forms. Other forms of pollutions are solid waste pollution, thermal pollution, radioactive pollution etc.

1. Air Pollution

Air is not a gas itself but the combination of various individual gases like oxygen, hydrogen, carbon dioxide, nitrogen etc. Air constitutes about 80 percent of the man's daily intake by weight. We breathe about 2200 times a day, inhaling 16 to 20 kgs of air. The respiratory system of all living things depends on air only. But air is polluted by various human activities, which disturb the natural combination of gases it consists. Pollution decrease the quantity of oxygen which is must for survival of living things and raises carbon dioxide and nitrogen levels.

“The excessive concentration of contaminated substance in the air which adversely affects the wellbeing of the individuals, living organs and property of all forms” is called as air pollution.

Causes for Air Pollution

It is estimated that 2 billion tonnes of air pollutants are released every year. Besides natural sources, a number of man-made sources are causing air pollution. Burning of fire woods for domestic purposes, burning of fossil fuels, industrialization, agricultural activities, vehicular emissions,

Bhopal gas tragedy

The Bhopal disaster or Bhopal gas tragedy was a disaster that resulted from an accident. It happened at a Union Carbide subsidiary pesticide plant in the city of Bhopal, India. On 3 December 1984, the plant released 42 tonnes of toxic methyl isocyanate (MIC) gas, exposing more than 500,000 people to toxic gases. The first official immediate death toll was 2,259. A more probable figure is that 8,000 died within two weeks, and it is estimated that an additional 8,000 have since died from gas-related diseases.

nuclear tests, deforestation, mining power generation, refrigeration industries, etc., are the sources of air pollution.

Effects of Air Pollution

Air pollution adversely affects people, plants, animals, aquatic life and materials. It leads to health disorders in human beings: damages the leaves of the plants and trees; interferes with photosynthesis and plant growth. Air pollution discolours the historical monuments; breaks down the exterior paint on cars and houses and deteriorates the quality of natural beauty sites.

Ex: Taj Mahal in 1998, when the white marble of the famous monument began to turn yellow, warning bells went off. India's Supreme Court ordered to restrict industries around the monument and suggested to ban movement of automobiles 500 meters surrounding it. It is note worth to remember Bill Clinton, the former president of USA, saying that pollution had done “what 350 years of wars, invasions and natural disasters have failed to do.”

Air pollution affects the stratosphere and climatic conditions. Global warming, acid rains, depletion of ozone layer, changes in the distribution of solar energy, rising temperatures, occurrence of droughts, changes in the natural plants, crops, insects, livestock and increased ultraviolet radiation are the effects of air pollution.

2. Water Pollution

Like air, water is very essential for the existence of all the living organisms. It accounts for about 70 percent of the weight of the human body. In the total available water in various forms only 0.003 percent is only available to us. 97% of water is in the form of oceans, and 2.977 percent is locked in the form of glaciers. This proportion makes water a precious resource without which there is no life on the earth. Water that is found in streams, tanks, rivers and artificial reservoirs is called surface water. Water that percolates into the ground is called as ground water. Water is also very essential in each and every stage of economic activity.

Water pollution is defined as “the addition of some substance or factor present in water which degrades its quality, so that it becomes health hazard or unfit for use”.

Increased human and economic activities make the water impure for consumption. Water is losing its quality and become unfit for drinking or even for cropping purpose. Not only surface water, but underground water also gets polluted due to extensive economic activities. Ex: The Ganga Action Plan or GAP was a program launched by the Government of India in April 1986 to reduce the pollution load on the river Ganga. But the efforts to decrease the pollution level in the river became abortive even after spending millions of rupees. Therefore, this plan was withdrawn on 31 March 2000.

Save Ganga Movement is a widespread Gandhian non-violent movement supported by saints and popular social activists across the Indian States Uttar Pradesh and Bihar in support of a free Ganga (clean Ganga). The movement is supported by Ganga Seva Abhiyanam. Union Water Resources Minister Uma Bharti announced recently that “Ganga will be cleaned in a “qualitative manner” within next two years”.

Causes of Water Pollution

Domestic wastes and sewage, silt, industrial effluents, fertilizers and pesticides production and consumption, accidental oil spills, compounds of toxic metals, mining wastes etc. are major pollutants that makes water impure.

Effects of Water Pollution

Water pollution generates the following effects.

1. Transmits the water-borne diseases and cause heavy economic burden in the form of medication.
2. Deteriorates the quality of drinking water which makes it unfit for direct use in economic activities.
3. Sea food become contaminated and affects country's foreign exchange earnings with its decreased exports.

4. Depletes oxygen in water. Brings undesirable changes in temperature and breeding of fish, which is having serious repercussions on country's aquatic resources.
5. Leads to loss of human days due to illness, which will cause production slowdown.

3. Soil Pollution and Land degradation

Soil is the upper layer of the earth's crust. It is formed by weathering of rocks. It is a gift from nature to man. It is a living resource and supports human life. The health of the soil decides the quality of plants, ground water and productivity of all crops grown. Due to human activities land is subjected to alteration in its element composition and losing its quality which is called soil pollution. When soil's productive potential is changed, the land is said to be degraded. Ex: According to 1992 Earth Summit Report, when compared to 100 years ago, American soils are 85% depleted of the minerals and elements that we need to assimilate for our wellbeing. Whereas Asian lands depleted by 74%.

Soil pollution is defined as "Unfavourable alteration of soil quality by disturbing the natural composition which decreases soil productivity."

Causes for Soil Pollution

Soil pollution or land degradation is primarily caused by soil erosion, in which the fertile upper surface of the land erode and land become barren. It happens due to deforestation, extensive cultivation, mining activities etc. Desertification is another reason for land degradation which makes land lifeless sea of sand. Desertification is spreading due to over grazing, extensive use of poor soils, alkalization and salination of soil.

Soil is also degrading because of excessive use of chemical fertilizers and pesticides leads to acidification which changes chemical properties and destroy plants and agricultural sector on the whole. Filling of wastages and other disposals into the land also causes land degradation. For example, the container of the coke took nearly 100 years to digest in the soil which in turn degrades the land fertility.

Effects of Soil Pollution

In general, soil pollution affects human beings, agricultural productivity and also fertility of the soil. The following are the important effects of land degradation.

1. Central nervous system of the human beings is affected and also causes cancer and other health problems which in turn affects quality of human resource.
2. Affects photosynthetic activity and hence lowers yield in agricultural, dairy, poultry etc.
3. Increases the concentration of soluble salts and causes salination of soil which will reduce area under cultivation and challenges the food security.

4. Contaminate the quality of underground water which will intensify water scarcity.
5. Fertility of the soil decreases and it alters the food chain of animals.

4. Noise Pollution

Generally, we hear various types of sounds in and outside of our surroundings. Sound is a form of energy. Any vibration can produce sound. Sound spreads through the solid and liquid medium. Some sounds are pleasant and some or not. This intensity of sound is measured in decibels (dB). Each increase of one dB represents a large intensity of sound.

Sound is different from 'Noise'. Anything between 50 to 90 dB a deep, loud and unpleasant sound is called noise. As per the Environment (Protection) Rules, 1997, the permitted noise level is 125db for humans. As a rule, the sound which is pleasing to the ears, sweet and comfortable to hear is defined as sound.

“Any noise generated above 125 dB and produces harmful effects in environment and causes health hazards to human being” is called as noise pollution.

Delhi people have started complaining of age-related hearing loss as early as 60 years of age, says a study conducted by the Centre for Occupational and Environmental Health at Maulana Azad Medical College (MAMC). New study warns 'dangerous' levels of noise pollution in New Delhi are causing age-related hearing loss 15 years earlier than normal. (Normal age of such hearing loss is 75 years as per the science).

Causes of Noise Pollution

Noise pollution may be indoor or outdoor. Sounds generated from home appliances, living room etc are indoor noise pollution and noise generated by transport vehicles, loud speakers, industries etc are outdoor noise pollution. Sound pollution is mainly generated by Thermal Power plants, Mining activities, aerodromes and various means of transportation.

Effects of Noise Pollution

Noise pollution affects the quality of environment as well as life on earth. Noise pollution leads to the following effects.

1. Pollutes the essence of music and Speech.
2. Affects communication.
3. Leads to temporary or permanent hearing loss.
4. Affects the functioning of various systems of human body. Hypertension, sleeplessness, digestive disorders are some of the ill effects of noise pollution.
5. Causes irregular or faster pulse beats and increases in blood cholesterol levels.
6. Causes irreparable damage to unborn babies.

8.3.3 The Basic Causes for Environmental Pollution or Degradation

Environmental degradation is slightly different form pollution. Environmental degradation is decrease in the quality of environment, whereas, the pollution is the contamination of the nature (air, soil, water) with harmful substances. Environmental changes may be driven by many factors including economic growth, population growth, urbanization, intensification of agriculture, rising energy use and transportation etc. The basic factors for environmental degradation are discussed below.

1. Social Factors: Social factors, which are responsible for environmental degradation are briefly discussed below.

- (a) **Population:** Population is an important source of development, yet it is a major source of environmental degradation when it exceeds the threshold limits of the support systems. Unless the relationship between the multiplying population and the life support system is stabilized, development programmes, howsoever innovative, are not likely to yield the desired results.

India supports 17 percent of the world population on just 2.4 percent of world land area. Its current rate of population growth at 1.77 (2011 census) per annum continues to pose a persistent population challenge. In view of the linkages between population and environment, a vigorous drive for population control need hardly be overemphasized.

- (b) **Poverty:** Poverty is said to be both the cause and effect of environmental degradation. The circular link between both concepts is an extremely complex phenomenon. Inequality may faster unsustainability because, the poor, who rely on natural resources more than the rich, deplete natural resources faster as they have no real prospects of gaining access to other types of resources. Although there has been a significant drop in the incidence of poverty expressed in terms of percentage, (29.5 % according to Rangarajan Committee and 21.9% according to Suresh Tendulkar Committee for 2011-12) but in absolute terms the number of people living below poverty line is quite significant.
- (c) **Urbanization:** Lack of opportunities for gainful employment in villages and the ecological stresses is leading to an ever-increasing movement of poor families to towns. Mega cities are emerging and urban slums are expanding. According to 2001 census 28.6 crores of people were living in urban areas which was 27.82 percent of population for that year. By 2011, it increased to 37.7 crores which is almost 30 percent of the total population. Such rapid and unplanned expansion of cities has resulted in degradation of urban environment.

2. **Economic Factors:** To a large extent, environmental degradation is the result of market failure, i.e. the non-existent or poorly functioning markets for environmental goods and services. In this context, environmental degradation is a particular case of consumption or production of externalities reflected by divergence between private and social costs (or benefits). Lack of well-defined property rights may be one of the reasons for such market failure. On the other hand, market distortions created by price controls and subsidies may aggravate the achievement of environmental objectives.

India's economic growth was only 3.5 percent at the dawn of independence. But due to economic reforms in early 1990's and speeding up of reforms in the second phase in early 2000's made Indian growth rate very nearer to double digit (10%). The manufacturing technology adopted by most of the **industries** has placed a heavy load on environment especially through unscrupulous use of resources and energy, as is evident in natural resource depletion, contamination of air, water and land, health hazards and degradation of natural eco-system.

Transport activities have a wide variety of effects on the environment such as air-pollution, noise from road traffic and oil spills from marine shipping. Transport infrastructure in India has expanded considerably in terms of network and services.

Direct impact of **agricultural development** on the environment arises from farming activities, which contribute to soil erosion, land salination and loss of nutrients. The spread of green revolution has been accompanied by over exploitation of land and water resources, and the use of fertilizers and pesticides has increased manifold.

3. **Institutional factors:** The Ministry of Environment and Forest (MOEF) of the Government of India is responsible for protection, conservation and development of environment. The ministry works in close collaboration with other Ministries, State Governments, Pollution Control Boards and a number of scientific and technical institutions, universities, non-Governmental organisations etc.

Environment (Protection) Act, 1986 is the key legislation governing environment management. Other important legislations in the area include the Forest (Conservation) Act, 1980 and the Wildlife (Protection) Act, 1972. The weakness of the existing system lies in the enforcement capabilities of environmental institutions, both at the Centre and at the State levels. There is no effective coordination among various Ministries/Institutions regarding integration of environmental concerns at the planning stage of the project.

8.3.4 Economic Impacts of Environmental Degradation

Economic development and environmental degradation (Pollution) move in the same direction. Mindless and ruthless exploitation of natural resources leads to degradation of physical environment. Though, environmental degradation adversely affects many things, let us now discuss the economic impacts of environmental degradation in particular.

1. **Effects on Human Health:** Environmental degradation has adverse effects on human health, which may lead to raise the labour absenteeism. Ill health causes to decrease the efficiency of labour which in turn leads to low productivity.
 - (i) **Air Pollution:** Air pollutants like carbon monoxide, nitrogen oxides, hydrocarbons, particulate matter etc., attack human health through respiratory system. Diseases like bronchitis, lung cancer, eye irritation and skin irritation etc. are caused by air pollution.
 - (ii) **Water pollution:** Water is significant vehicle in transmission of diseases. Various disease-producing organisms such as viruses, bacteria and protozoa are transmitted through water. These organisms cause dysentery, typhoid, cholera and infectious hepatitis.
 - (iii) **Sound Pollution:** Sound pollution affects human health in many ways. Loud noise causes disturbances in sleep and lead to different side effects. It leads to damage of hearing, interference with work tasks and speech, diversion of concentration, hypertension, tachycardia (fast heart beat) and irritation.
2. **Effects on Agriculture:** Environmental degradation negatively affects the agricultural sector. Agricultural productivity as well as quality of agricultural products will be deteriorated due to environmental degradation.
 - (i) **Air Pollution:** Air pollutants such as sulphur-dioxide fumes damage vegetation, particularly lettuce, barley and white-pine are sensitive to sulphur-dioxide. Air pollution most commonly damages leaves of plants. Air pollution damage to plants is indicated by the yellowing of the leaves due to chlorophyll loss. All these problems adversely affect agriculture production. There are strong indications that air pollution changes the climate. Acid rain is a resultant of air pollution which affects agricultural production and productivity negatively.
 - (ii) **Water pollution:** Water pollution highly affects the productivity of irrigated land. Polluted water contains inorganic salts, particularly chlorides. If irrigation water evaporates in the field, the salt concentrates in the wet soil. If they are allowed to accumulate, fertility of land diminishes and eventually land becomes barren.

- (iii) **Soil Pollution:** Soil erosion, salination, desertification etc., reduce the quality and quantity of cultivable land. Mining activity also reduces cultivable land and leads to soil erosion. Hence, soil pollution reduces the extent of cultivable land and quality of land that in turn adversely affects the agricultural production.
3. **Effects on Industry:** Environmental pollution affects the industrial production. The quality of products also deteriorate due to degradation of environment.
- (i) **Air Pollution:** Particulate matter affects buildings, fabrics and cars. Sulphur oxides speed the deterioration of building materials especially marble and limestone. Fabrics and leather and steel are damaged when exposed to sulphur oxides. Nitrogen oxides can fade sensitive dyes. Air pollution causes depreciation of machinery and deterioration of quality of products.
- (ii) **Water Pollution:** Water pollution may reduce the utility of water for industrial purposes. The range of quality required or desirable in industrial production is very wide. Cooling water can often be of comparatively low sanitation but the presence of waste heat and of corrosive materials is undesirable, some industrial processes require unusually soft water, others can tolerate hard water. So polluted water can involve substantially high costs for industries like the costs of purifying the water, of repairing damaged equipment or of making excessive adjustments to industrial processes themselves.
- (iii) **Soil Pollution:** Mineral and mineral oils are part and parcel of land and they are lost forever. Coal and petroleum products are essential for producing power. Various minerals are used as raw materials in industrial production. The indiscriminate exploitation of mineral resources hampers industrial development.
4. **Effects on Livestock:** Environmental degradation has evil effects on livestock health that in turn reduce the animal products. Most hazardous pollutant of animal health is fluoride. Dairy cattle are most sensitive to fluoride. Fluorides reduce milk production and attack teeth and bones producing lameness. Chronic fluorosis eventually leads to death. If animals are contaminated by air born lead, animals loose appetite, develop dry coats and muscle spasms and frequently suffers with paralysis.
- Water also affects animals in similar way as it goes into the body of animals directly. Digestive system get affected, and even the reproductive system of livestock also change significantly.

5. **Effects on Aquatic Food Resources:** Water pollution has negative effect on fisheries. Fish may be killed directly by specific toxins or through oxygen depletion. The changes in temperature affect their breeding and their fitness as food. Common pesticide like DDT may also kill fish. Where rivers carry waste-waters from the plastics, paint, chemical and paper industries and flow into coastal rivers, the fish in the rivers are affected by the concentration of mercury in their bodies. Eating such fish is dangerous to human health.
6. **Other Effects:** Apart from the above economic impacts of environmental degradation, some other issues also happen which will in turn intensify the above consequences. The bio-diversity with diversified species of animals, plants and other living organs will be affected and moreover the interrelationship among these species get disturbed. The food chain relationship among various creatures break or weaken.

Ozone layer which is a protecting blanket of the earth from hazardous rays from the space will become thin or deplete or get hole (Ozone Hole) brings the creatures in direct contact with UV rays.

With the degradation of environment the levels of greenhouse gases rises in the atmosphere which retain the heat and radiation from re-reflecting into the space. All these results in global warming where the content of water in solid form converts into liquid form and increases the sea levels from some inches to some meters over the period. This inundates fertile cultivable lands through the coastal areas.

8.4 Harmony between Environment and Economy

Economic development is very essential in the current global competition. But the problem is economic development is at the cost of environment. Both having a negative relation in the sense that, if we choose development, we have to forgo the environmental considerations. If only environment protection is our motto, then we will remain backward. So, a harmonious balance is to be maintained where the dream of development become true without affecting the environment.

8.4.1 Need for the Protection of Environment

Environment is a common property. It belongs to the total living organizations of the world. Everyone – humans, animals, plants and trees, birds and fish is using, enjoying and experiencing the products of the environment. Particularly human beings, out of their greed, are overusing this public resource. As a result, it is becoming weak and even unable to discharge its natural functions.

Though almost all economists pay attention for environment protection apart from the economic development, but we are neglecting their cautions, and are continuing the exploitation of our environment. The Environment must be protected –

1. To meet both the needs of present generation and the future generations.
2. For distributional equity (environment and economic activity)
3. To preserve human, physical and natural capital.
4. To avoid threats for faunal and floral species and biological diversity.
5. To prevent further degradation of delicate ecosystems.

To protect the environment the Government of India has taken a large number of steps in constitutional, legal and administrative fields.

Measures to Preserve Environment

1. Moral persuasion, which is an appeal to reduce pollution in the broader interests of the society and making people involved in the environmental protection activities.
2. Methods of recycling should be made compulsory in which production units are restricted to maintain certain level of environmental quality or to install a specific treatment of pollutants.
3. Fiscal controlling techniques should be implemented such as
 - (a) levying of an affluent charge or pollution charge, and revenue so collected should be redirected for the purpose of environmental protection.
 - (b) giving subsidies on pollution control equipment and encouragement of eco-friendly techniques of manufacturing.
 - (c) refundable deposit, which is collected from the polluters and refunded after his activities cease.
 - (d) pollution permits should be fixed and to see each production unit is functioning within the these limits.
 - (e) industrial permits should be linked with the maintenance of plantation in proportion to its production activity.
4. Government investment programmes such as waste treatment plants, slum clearance and management of wild life refugees, reforestration and afforestation are some policy instruments available to control pollution and preserve environmental equity.
5. As the children are the future citizens, awareness on environment and its protection should be introduced as a part of their curriculum. An effort is made by the government in this direction and now environmental education is mandatory part in education system from school level and onwards.
6. So far, Government of India enacted some of the following acts for environmental protection.

- a. The Wild life Protection Act, 1972
- b. The Water (prevention and control of pollution) Act, 1974 amended in 1978 and 1988.
- c. The Air (Prevention and Control of Pollution) Act, 1981
- d. The Air (Prevention and Control of Pollution) Rules, 1982
- e. The Forest (conservation) Act, 1980 amended in 1988.
- f. The Environment (protection) Act, 1986.
- g. Government of India started Central Pollution Control Board (CPCB) in 1974 with its head office in Delhi. It has seven zonal offices and maintains regional pollution control boards at state and district levels.

The NGO's and other organizations and institutions, people are trying to promote the awareness about environmental protection in India in recent times.

8.4.2 Afforestation

Forests occupy an important place in our environment. They are so important as air and water. They perform essential social, economic and environmental functions. They are the producers of oxygen and guardians of ozone layer. Forests are the sources for rainfall, regulation of climate and products like wood, paper, timber, medicinal plants. They absorb carbon dioxide and other greenhouse gases. They provide a comfortable temperature in the environment. Biodiversity possible only with forests. There is no environmental equilibrium without forests.

India State of Forest Report 2011 gives the details of forest in India. As per the present assessment, the Forest and Tree cover of the country is 78.29 million ha, which is 23.81% of the geographical area of the country. In comparison to the 2009 assessment, after taking into account the interpretational changes, there is a decrease of 367 square km in country's forest cover. Environmental scientists claim more than 30% of forests in the total geographical area of India.

Reasons for Deforestation

Forests are exploited due to various causes such as population growth, poverty and unemployment in India, raising demand for land for the purpose of housing and cultivating, firewood. Overgrazing by the cattle stock also brings pressure on forests. Construction of dams, roads and railway tracks kill forest to huge extent. Forest fires, shifting cultivation ('Podu' cultivation) etc are some other reasons for it.

Chipko Movement

The Chipko movement or Chipko Andolan is a movement that practiced the Gandhian methods of satyagraha and non-violent resistance, through the act of hugging trees to protect them from being felled. In legend, this practice began with Amrita Devi while protesting against a King's man who wanted to cut a tree. The landmark event in the modern days struggle took place on March 26, 1974, when a group of peasant women in Reni village, Uttarakhand, India, acted to prevent the cutting of trees and reclaim their traditional forest rights, which were threatened by the contractors assigned by the state Forest Department. Their actions inspired hundreds of such actions at the grassroots level throughout the region. By the 1980s the movement had spread throughout India and led to the formulation of people-sensitive forest policies, which put a stop to the open felling of trees in regions as far as the Vindhyas and the Western Ghats.



Conservation Measures

Forests are the carbon sinks and treasures of scenic beauty. The following are some protective measures such important forests.

1. Forest land should not be allotted to poor for house sites.
2. Specific areas must be developed under social forestry programmes.
3. Waste land must be brought under plantations.
4. Forest must be protected from fires particularly in summer.
5. Measures must be taken to refill the depleted forest area.
6. Establishment of Joint Forest Management Communities is necessary.
7. Cattle grazing and illegal cutting of trees should not be allowed.
8. Local communities must be involved in the conservation of forests.

Swachh Bharat Abhiyaan: Ek Kadam Swachhata Ki Ore

Mahatma Gandhi communicated a quintessential message to the nation through his efforts to educate people around him about cleanliness. He wished to see a "Clean India" where people work hand in hand to make the country clean. To work seriously towards this vision of Gandhiji, Prime Minister Shri Narendra Modi - External website that opens in a new window launched the Swachh Bharat on October 2, 2014 and asked people from all walks of life to help in successful implementation of this mission.

The mission seeks to achieve the goal of Clean India in next five years so that the 150th birth anniversary of Bapu can be celebrated as an accomplishment of this duty. Swachh Bharat exhorts people to devote 100 hours every year towards the cause of cleanliness. Government of India is also expecting this programme if implemented successfully, will solve major environmental issues.

8.4.3 Environmental Costs of Economic Growth

It is known fact that economic growth is at the cost of environment. Till recent years, Economics concentrated on only economic growth rate of the economy, by ignoring environmental aspects. Now economists realized that environmental degradation is retarding the economic growth by degrading the quality of resources, now the focus has been shifted to economic-environmental friendly development. Following instances explain how environmental issues impact economic growth.

- a. According to World Bank's Report of 2013, it is estimated that the total cost of environmental degradation in India at about Rs. 3.75 trillion annually, equivalent to 5.7 percent of GDP in 2009. It means, the value of economic growth is equivalent to the value of environmental deterioration.
- b. The mean estimated annual cost of urban air pollution is Rs. 1,103 billion in 2009, which is 29 percent of the Rs. 3.75 trillion total cost of environmental damage in India, accounts for 1.7 percent of GDP.
- c. The three categories of soil degradation in India (soil erosion, salinisation, and water logging), World Bank study estimates losses arising from such degradation at Rs. 715 billion or 1.1 percent in 2010.
- d. World Bank Study estimates the total degraded forest area by 2009 is 28 million hectares.

The above discussion emphasizes the consideration of environmental costs, while measuring economic growth rate. For this, a new concept has been introduced by the environmental economists, popularly known as “**Green GDP**”.

The green gross domestic product (green GDP) is an index of economic growth with the environmental consequences of that growth factored into a country's conventional GDP. Green GDP monetizes the loss of biodiversity, and accounts for costs caused by climate change. Calculating green GDP requires that net natural capital consumption, including resource depletion, environmental degradation, and protective and restorative environmental initiatives, be subtracted from traditional GDP.

8.4.4 Environmental Externalities

An externality is a consequence of an economic activity that is experienced by unrelated third parties (environment in this case). An externality can be either positive or negative. Pollution emitted by a factory that spoils the surrounding environment and affects the health of nearby residents is an example of a negative externality. An example of a positive externality is the effect of a well-educated labor force on the productivity of a company. So, whenever economic activity is held, environmental externalities should be considered.

8.4.5 Cost – Benefit analysis

Evaluation and comparison of capital and environmental costs of a project to estimate its relative merits and demerits. Every economic activity consist of both benefits as well as costs.

While evaluating a project, apart from economic benefits, we should consider environmental costs also. For example, when a dam is constructed on a river, we should consider not only the number of farmers benefiting or the number of hectares of land irrigated, generation of hydal power etc. but also consider environmental issues like deforestation, loss of biodiversity, loss of habilitaion of human and other living organisms.

8.4.6 Sustainability

The world has now recognized that mere growth is not sufficient for enhancing the human well-being. “Grow first; clean up later approach” of the rich countries is criticized. Now environment is considered as major non-economic factor of human well-being. The human beings have realized that a balance between the use of resources and their regeneration sustains the process of development. Being recognized this fact; the concept of sustainability came into existence.

Origin of the Concept of Sustainability

The concept of Sustainability dates back to 18th and 19th centuries given by European Foresters. The forest was the driving force behind the then European economy. They have resorted to sustainable forest development and began to replace the trees cut down by planting trees. The idea behind this replacement of trees is that the wood would be available for future requirements.

Sustainability can also be defined as achievement of constant real consumption through time, keeping the capital intact. A flow of consumption without reducing the capital is also called Sustainability.

Sustainable Economic Development

The Brundtland Commission of 1987 defined sustainability in its Report “Our Common Future” as “sustainable development seeks to meet the needs and aspirations of the present without compromising the ability of future generations to meet their own needs”.

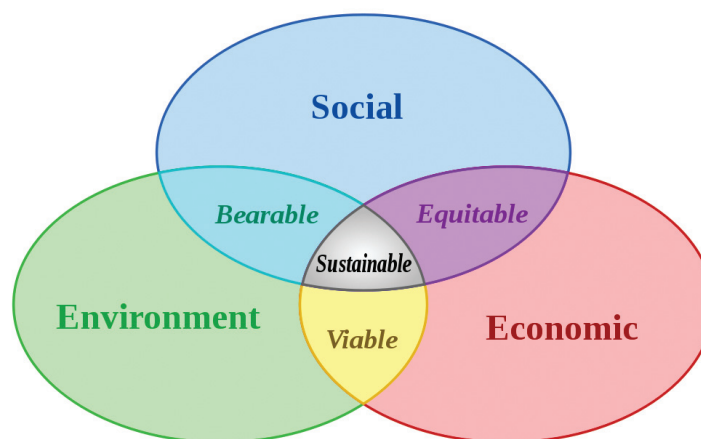
The Brundtland Commission definition contains three concepts. 1. Needs 2. Development and 3. Future Generations. ‘Needs’ in this definition is linked with distribution of resources. ‘Development’ means improvement and progress including cultural, social and economic dimensions and ‘future gerneration’ means moral obligation to hand over the planet in good order to future generations. The concept of “sustainable development” aims at maximizing the net benefits of economic activities, subject to maintaining the stock of productive assets (Physical, human and environmental) over time and providing safety net to meet the basic needs of the poor.

A development path is sustainable if and only if the stock of overall capital assets remains constant or rises over time. Therefore, government must incorporate some form of environmental accounting into its policy decisions. To achieve sustainable development, policy makers have to alter their strategy and may set a goal of no net loss of environmental assets in the way towards economic growth. In other words, if an environmental resource is damaged or depleted in one area, a resource of equal or greater value should be regenerated elsewhere.

The industrialists while establishing the industrial units should shoulder the social responsibility i.e. popularly known as Corporate Social Responsibility (CSR). Government policies with regard to trade and economic activity should encourage investors of such responsibility.

Components of Sustainability

There are three basic components of sustainable development. They are economic, social and environmental components. These three components are interdependent. A balance is to be achieved among these three components for achieving the sustainable development. This balance is shown in the following figure.



There are three basic components of sustainable development namely economic, social and environmental components. These three components are interdependent.

Economic Component

Economic components of sustainability require that societies pursue growth path that generate optimum flow of income while maintaining the basic stock of man-made capital, human capital and natural capital.

Social Components

Social components of sustainability are built on the twin principles of justice and equity. For development path to be sustained, wealth, resources and opportunities should be equally shared.

All citizens should have access to minimum standards of security, human rights and social benefits such as food, health, education and opportunities of self-development.

Environmental Components

Environment components of sustainability require sustainable resource use, efficient sink function and maintenance of natural capital. The environment should be able to perform its three functions efficiently and uninterrupted so that ecological stability and resilience are not affected.

Rules of Sustainable Development

The basic implication of the concept of sustainable development that one may comprehend from definitions involving inter generational equity is that, we should leave to the next generation a stock of 'quality of life' assets no less than those we have inherited. This can be interpreted to mean

- (a) that the next generation should inherit such a stock of wealth, comprising man-made assets and environmental assets.
- (b) that the next generation should inherit a stock of environmental assets not less than that inherited by the previous generation,
- (c) that the components of the inherited stock should be man-made assets, natural assets and human assets.

The first interpretation stresses all capital assets: man-made and natural. The second emphasizes on natural capital only and the third includes human capital besides natural and man-made capital. An essential condition for sustainability is that nation's stock of capital should not decline over time.

To ensure sustainable development, economic activities must consider their environmental impacts. Environmental education must be given due importance. The UN has declared the decade 2005-2015 as a decade of education for sustainable development. Thus, the students must become the protectors of environment in which they are living and have to live.

MODEL QUESTIONS**I. Write an essay on the following questions**

1. Define environment and explain the components of the environment.
2. Describe the relationship between environment and the economy.
3. What is air pollution? Explain the causes and consequences for air pollution.
4. Briefly discuss the sources, effects of water pollution.
5. Define noise pollution and explain how it affects the quality of environment?
6. What are the economic implications of environmental degradation?
7. What are the various factors resulting in environmental pollution.

II Write the answers briefly for the following questions.

8. Explain various concepts of Environment.
9. Causes for soil or land pollution.
10. Types of natural resources with suitable examples
11. What is pollution? Explain the types of pollution.
12. What do you mean by “Sustainability”? Explain the Components of “Sustainability”.
13. Explain the effects of pollution on human health.
14. Measures for the conservation of forests.
15. Need for environmental preservation

III Write the answers in one or two sentences.

16. Environment
17. Ecosystem
18. Greenhouse effect
19. Air pollution
20. Water pollution
21. Ozone layer
22. Global warming
23. Sustainable Development

24. Cost-benefit analysis of environment
25. Reasons for Deforestation
26. Biodiversity
27. What is “Noise”?
28. What is Land Degradation?
29. Environmental Externalities.
30. Swachh Bharat Abhiyan.

Glossary

Environment : Everything which surrounds us is collectively called as environment.

Eco-system : The combination of natural and physical environment in a given geographical area.

Natural Eco-system : The eco-systems which operate under natural conditions, without any interference of man.

Artificial Eco-systems : Natural eco-systems modified and manipulated by human intervention.

Biodiversity : The totality of genes, species and ecosystems in a region.

Natural Resources : Resources available with nature in raw form.

Renewable Resources : The natural resources which can be used permanently without depletion.

Non-renewable Resources : The natural resources which will exhaust by use and cannot be regenerated.

Pollution : The undesirable changes in the basic features of the environment.

Pollutant : A physical agent which alters the physical, chemical or biological characteristics of the resources.

Noise : A deep, loud and unpleasant sound which is undesirable and unwanted.

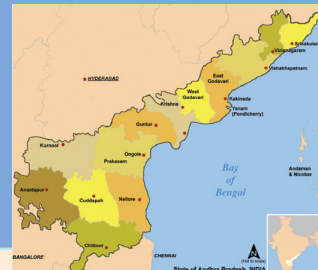
Soil : The skin of the land, made up of clay, sand, gravel, mineral particles, silt and loams.

Sustainability : An endless journey towards the achievement of constant real consumption through time, keeping the capital intact.

Sustainable Development : The process of development which sustains the human wellbeing in future also.

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CHAPTER

9

ECONOMY OF ANDHRA PRADESH

- 9.1 History of Andhra Pradesh
- 9.2 Characteristic features of A.P. Economy
- 9.3 Demographic features
- 9.4 Occupational distribution of labour
- 9.5 Health Sector
- 9.6 Education
- 9.7 Environment
- 9.8 Agricultural sector

- 9.9 Industrial sector
- 9.10 Service and Infrastructure sector
- 9.11 Information and Technology
- 9.12 Tourism
- 9.13 Andhra Pradesh and Welfare Programmes/
Schemes
- Model Questions
- References

9.1 History of Andhra Pradesh

The Andhra's History takes place in the Vedic Period. The word 'Andhra' was mentioned in the Sanskrit Epics such as 'Aitareya Brahmana' (800 BCE). The area of 'Andhra' located between the rivers Krishna and Godavari, was a part of Samrat Asoka's Kingdom 'Maha-janapadha'. The existence of the word 'Andhra' is littered in Ramayana, Mahabharata and in other Puranas.

Pre-independence

Andhra Pradesh was ruled historically by so many Dynasties, like Satavahanas, Ikshvakus, Pallavas, Vishnukundinas, Vijayanagar Emperors, Chalukyas and Kakatiyas etc. Later, it became a part of Mughal Empire and subsequently went into the hands of the British. In pre-independent India, the Northern Circars became part of the British Madras Presidency. Eventually, that region became the Coastal Andhra region. Later, the Nizam ceded five territories (Datta Mandalalu) to the British, which eventually became the Rayalaseema region. The Nizam retained control of the interior provinces as the Princely State of Hyderabad. At the time of independence, the Telugu-speaking people were distributed in about 22 districts, 9 of them in the Hyderabad State Region of the Nizam's Dominions (Hyderabad State), 12 in the Madras Presidency and One in French-controlled Yanam.

Post-independence

After independence, in an effort to protect the interests of the Telugu people of Madras State, Amarajeevi Potti Sriramulu went for “fast unto death”, to bring pressure on Indian Government to separate telugu speaking areas from Madras and form a new State. Sri Sriramulu died for his Statehood after 58 days of fasting on midnight of 15th December, 1952. On 19th December 1952, Prime Minister Jawaharlal Nehru announced the formation of a separate State for Telugu-speaking people of Madras Presidency. On 1 October 1953, 11 districts in the Telugu-speaking portion of Madras State (Coastal Andhra and Rayala Seema) voted to become the new State of Andhra State, with Kurnool as the capital. Andhra Kesari Tanguturi Prakasam Pantulu became the first Chief Minister of the Telugu State thus formed.

Formation of Vishalandra

In December 1953, the States Reorganization Commission was appointed to prepare for the creation of States on linguistic lines. On its recommendations, the telugu speaking areas of Hyderabad Province only merged with Andhra Pradesh, which was strongly supported by the then Chief Minister of Hyderabad State, Burgula Ramakrishna Rao. Votes in both the assemblies of Hyderabad State and Andhra Pradesh yielded a 2/3 majority in favour of the merger. Andhra and Hyderabad States were merged to form Andhra Pradesh State on 1 November 1956. The Kurnool people sacrificed their capital to Hyderabad in favour of the formation of Vishalandra.

Evolution of multiple Telugu States

Indian Government along with the opposition parties strongly believed that smaller States have more accountable Governance. As a part of this bifurcation agenda and in step with to local demands from a separate Telangana, the Indian Parliament approved the creation of two States from Andhra Pradesh. Officially, 2nd June declared as Andhra Pradesh formation day altering from 1st November.

Geographical Structure

Andhra Pradesh lies between 12°41' and 22°N latitude and 77° and 84°40'E longitude and is bordered by Maharastra, Chhattisgarh, Telangana and Orissa in the North, the Bay of Bengal in the East, Tamil Nadu to the South and Karnataka to the West. Godavari, Krishna and Tungabhadra are the major rivers run across the State.

The State is richly endowed with natural and human resources with competitive socio-economic advantages. Its geographical area of 160,20,400 hectors, makes it the 8th largest State in the Country. It has the 2nd longest coastline, after Gujarat with 974 km. The State has a forest area of 34,93,475 hectors, which is 21.81 percent of the total area. The State has a variety of physiographic features ranging from high hills, undulating plains to coastal and deltaic environment. With its 13 districts (9 from coastal Andhra and 4 from Rayalaseema), it has 4.96 crore of population accounts for 4.08 percent of the Country's total population.

9.2 Characteristic Features of Andhra Pradesh Economy

Andhra Pradesh is one among the largest States of India in terms of area and population. It is the eighth largest State in terms of geographical area, accounting for 4.96 percent of the area of the Country. State has a total geographical area of 160.21 lakh hectares. In terms of population, it is the tenth largest State with 4.96 crore i.e. 4.10 percent of the Country's population. It has 40.95 percent of cultivable land (net area sown) and 21.81 percent of forests in its total geographic area. Following are the features of Andhra Pradesh Economy.

1. Gross State Domestic Product

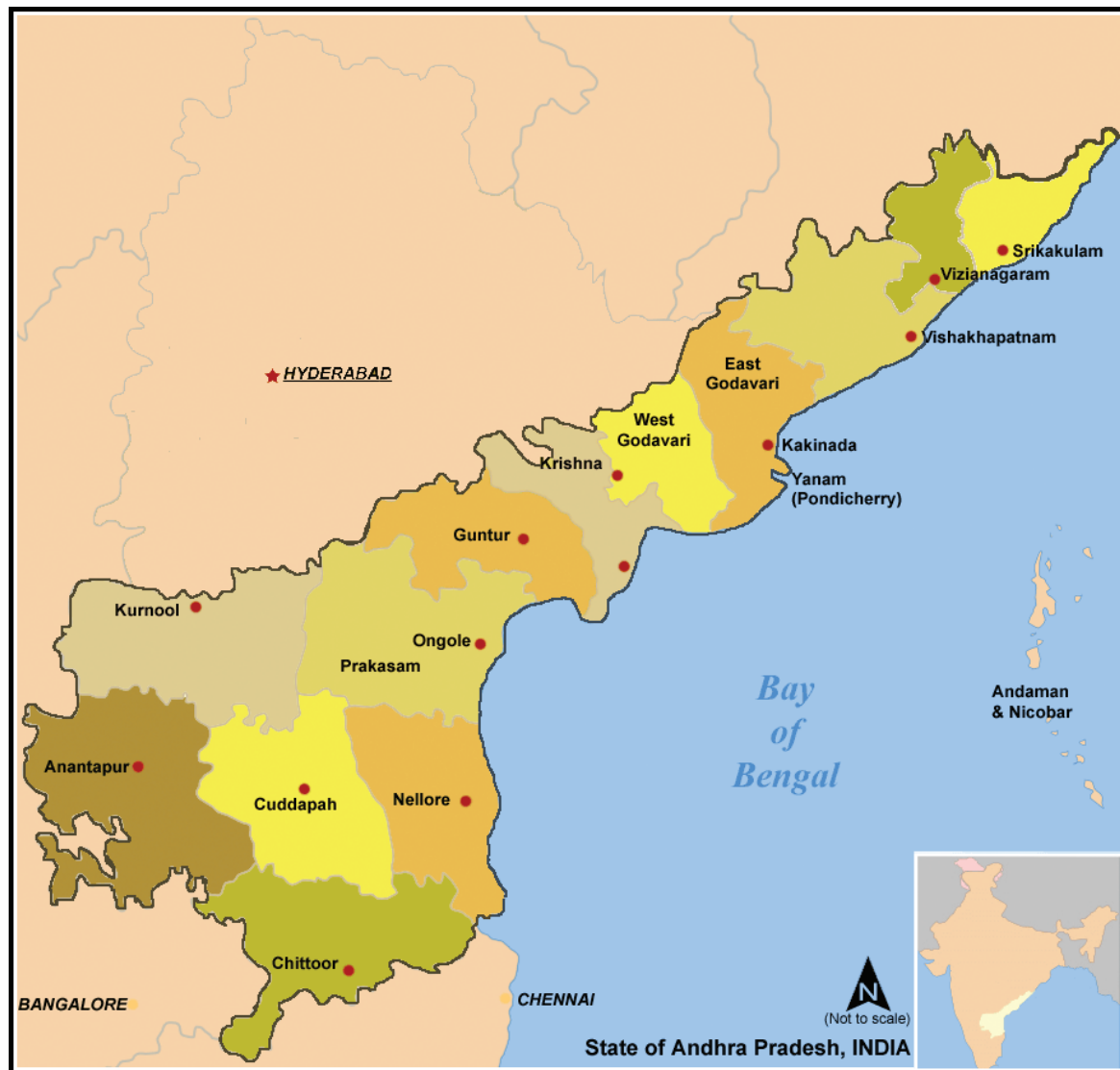
Data pertaining to the Gross State Domestic Product (GSDP) of Andhra Pradesh and GDP of India along with the growth rates in respective years are presented in the following table 9.1.

Table 9.1: GSDP of AP and GDP of All India at constant (2004-05) prices

Year	Andhra Pradesh		All India	
	GSDP (Rs. Crs.)	Growth (%)	GDP (Rs. Crs.)	Growth (%)
2004-05	1,34,767	—	29,71,646	—
2005-06	1,41,977	5.351	32,53,073	9.48
2006-07	1,57,386	0.851	35,64,364	9.57
2007-08	1,78,028	3.12	38,96,636	9.32
2008-09	1,81,829	2.14	41,58,676	6.72
2009-10	1,94,994	7.24	45,16,071	8.59
2010-11	2,08,273	6.81	49,18,533	8.91
2011-12	2,23,465	7.29	52,47,530	6.69
2012-13	2,35,930	5.58	54,82,111	4.47
2013-14 ^{PE}	2,50,282	6.08	57,41,791	4.74

Source: Socio Economic Survey 2013-14, Govt. of AP. PE = provisional estimates.

From the above table, it can be observed that the GSDP of Andhra Pradesh and India is almost doubled between 2004-05 and 2013-14. There is an increasing trend in the GSDP of Andhra Pradesh Economy. The GSDP in 2004-05 was Rs. 1,34,767 crores and it has increased to Rs. 2,50,282 crores in 2013-14. The growth rates of GSDP of AP are continuously more than the national average from 2011-12 onwards. But there were ups and downs in the GSDP, as the annual growth rate in 2005-06 was 5.35 percent and it decreased to 2.14 percent in 2008-09 and picked up again and reached 7.29 percent in 2011-12. GSDP of the Andhra Pradesh is about 4.36 percent



of Indian GDP. It is noticed that the growth rates of both AP and India are not showing a steady trend, but are fluctuating.

2. Per capita Income

The per capita income growth rate of Andhra Pradesh was higher than the Nation's per capita income growth rate for most of the years except two or three. This can be taken as an indicator of improving living standards in the Andhra Pradesh Economy. The per capita income of Andhra Pradesh between 2004-05 and 2013-14 along with the comparison with India is presented in the following table 9.2.

Table 9.2: Per Capita Income of A.P. and All India at Current Prices

(In Rupees)

Year	Andhra Pradesh		All India	
	Per Capita GSDP	Growth (%)	Per Capita GDP	Growth (%)
2004-05	25,959	—	24,143	-
2005-06	28,223	8.7	27,131	12.4
2006-07	32,961	16.8	31,206	15.0
2007-08	39,780	20.7	35,825	14.8
2008-09	44,376	11.6	40,775	13.8
2009-10	50,515	13.8	46,249	13.4
2010-11	58,733	16.3	54,021	16.8
2011-12	66,754	13.7	61,855	14.5
2012-13	76,041	13.9	67,839	9.7
2013-14 ^{PE}	85,797	12.8	74,380	9.6

As per the per capita income of the State in comparison with the per capita income of the Nation, show a mixed trend. In absolute terms, State PCI is always higher than the national average. For 2013-14 the gap between State and national per capita incomes is Rs.11,417. As per the growth rates are concerned, there is no continuous trend from the beginning. Among the districts, Visakhapatnam with a Per capita income of Rs. 1,13,860 stands tall, while, Srikakulam remains at the bottom with almost half of the PCI of Visakhapatnam.

3. Trends in Population Growth Rates

With 13 districts, A.P. occupies tenth place among all States of India with 4.96 crore of population according to 2011 census. Following table explains the decadal compound growth rates of A.P. and India for different census years.

Table 9.3: Decadal growth rate of population in A.P. and India (percentage)

Sl.No.	Year	Andhra Pradesh	India
1	1961-71	18.96	24.80
2	1971-81	20.53	24.66
3	1981-91	21.13	23.85
4	1991-01	11.89	21.54
5	2001-11	9.21	17.69

Source: Socio-Economic Survey, A.P., 2013

The population of A.P. is 4.96 crores and that of India is 121.06 crores, so the percentage of A.P. population is 4 in the total Indian population. The decadal growth rate of population of A.P. is always lower than the Indian growth rate, right from the beginning. By 2011, the population growth rate of A.P. (9.21) is almost half of the national average (17.69). The growth rate of A.P. for a decade recorded below 1 percent for the first time (0.921). 1991-01 decade was a turning point in the population history of Andhra Pradesh in which, for the first time ever, the growth rate of population decreased to 11.89 from 21.13 percent during 1981-91. The trend continued in 2001-2011 decade also in which, the growth rate recorded another lowest mark i.e. 9.21 percent.

4. Sectoral Composition of GSDP

The sectoral composition of GSDP both at current and constant (2004-05) prices has undergone considerable changes during the past few years with the shift happening essentially from agricultural sector to service sector. Following table shows the relative percentages of each sector in State's GSDP for 2004-05 and 2013-14 years for a comparison.

During 2004-05, the State total GSDP was 1,34,767 crores in which, agriculture's total contribution was 40,232 crores, industrial sector comprising mining and quarrying, manufacturing, electricity, gas, water supply and construction contributed 29,124 crores of rupees whereas, service sector's income was 65,411 crores. As per 2013-14 provisional estimates, in the total GSDP of the State, agriculture is contributing 58,390 crores of rupees, industrial sector 51,838 crores and service sector is sharing 1,40,054 crores at 2004-05 constant prices.

Table 9.4: Sectoral Composition of GSDP for 2004-05 and 2013-14

Sector	(At constant prices 2004-05)	(In percent)
	2004-05	2013-14
Agriculture Sector	29.85 (40,232)	23.33 (58,390)
Industrial sector	21.61 (29,124)	20.71 (51,838)
Service Sector	48.54 (64,411)	55.96 (1,40,054)
Total	100 (1,34,767)	100 (2,50,282)

Source: Socio-Economic Survey, A.P., 2013. Note: figures in brackets are total amount in crores)

Table 9.4 reveals the fact that gradually agriculture sector is losing its share in the GSDP. Industrial sector maintains a constant contribution. Whereas, service sector's share is increasing by the rate at which agricultural sector's contribution is declining. The share of service sector cross 50 percent mark by 2013-14, while agriculture sector's contribution fell below 25 percent of GSDP. Economics says whenever the economy develops, the priority transfers from agriculture to industry and from industry to service sector over the period. But this seems not the case in Andhra Pradesh. In the process of development, the priority is gradually switching from agricultural sector to service sector directly, bypassing the industrial sector.

5. Unemployment Rate

National Sample Survey Organisation (NSSO) conducts survey on employment and unemployment in India once in five years. According to latest survey (2011-12), the labour force participation rates (the number of persons in the labour force per thousand persons) both in rural and urban areas of A.P. were higher when compared with All India. The labour force participation rate in A.P. increased upto 2004-05 but declined after that, both in cases of rural and urban areas just as it is the case of India.

The number of people unemployed for every thousand labour-force is known as unemployment rate. As per 68th Round of NSSO estimates for 2011-12, unemployment rate of A.P. is less than the national average in case of rural unemployment (12 in case of A.P. Rural and 17 in case of Indian Rural Unemployment). But, as per urban unemployment rates are concerned, A.P. exceeds the national average. It is 43 for A.P. Urban areas and only 34 for the total Indian Urban Area.

6. Poverty

Andhra Pradesh is known for introducing innovative poverty alleviation programmes like subsidization of rice, Indira Kranthi Patham (IKP) for women empowerment, Rajeev Swagruha

Pathakam for housing of poor, pensions to old age people, health insurance schemes like Arogyasri etc. These programmes are helping poor in various dimensions. Due to these efforts the number of people living below poverty line is decreasing continuously. The percentage of people living BPL was almost 50 percent in 1973-74 but declined to 15.8 percent in 2004-05 and further decline is noticed to 9.2 percent by 2011-12 as per Tendulkar Committee Report. The figures are for combined Andhra Pradesh. Indian poverty rate is 21.92 for the year 2011-12, i.e. more than the double of Andhra Pradesh poverty rate.

To summarise from the above analysis, we can say that the performance of the Andhra Pradesh Economy is satisfactory. But when compared to other developed States in India, Andhra Pradesh still strive to achieve much more growth and development.

9.3 Demographic Features of A.P

The demographic characteristics of newly formed State of Andhra Pradesh with 13 districts (Coastal Andhra and Rayalaseema Districts), can be discussed as under.

9.3.1 Population

The population of 4.96 Crore which accounts for 4.1 percent of the Country's population makes it the 10th most populous State in the Country. The population of Andhra Pradesh and India since 1901, its percent of variation with previous census is shown in the following table.

Table 9.5: Population and variation of Population in A.P. and India

Sl No	Year	Population in a.p(crs.)	Percent of variation	Population in India	Percent of variation	Percent in Indian Population
1.	1901	1.31	-	23.84	-	5.50
2.	1911	1.41	+7.94	25.21	+5.75	5.59
3.	1921	1.44	+2.38	25.13	-0.31	5.73
4.	1931	1.61	+11.37	27.90	+11.00	5.77
5.	1941	1.79	+11.53	31.87	+14.22	5.62
6.	1951	2.02	+12.67	36.11	+13.31	5.59
7.	1961	2.33	+15.20	43.92	+21.51	5.31
8.	1971	2.77	+18.88	54.82	+24.80	5.05
9.	1981	3.34	+20.53	68.33	+24.66	4.89
10.	1991	4.04	+21.13	84.64	+23.87	4.77
11.	2001	4.52	+11.89	102.87	+21.54	4.39
12.	2011	4.96	+9.21	121.09	+17.70	4.10

Source: *Statistical Abstract of Andhra Pradesh, 2014, Directorate of Economics and Statistics.*

The rate of growth of population, as per 2011 Census, has come down to 9.21 percent as against 11.89 percent in 2001. The highest percentage of addition was recorded for 1991 census in which a record of 21.13 percent of population added additionally to the population of 1981 census. Since from the beginning of the last century, the population of the State never recorded a negative percentage of variation. Population of A.P. rose by almost three and half times in a century i.e. between 1901 and 2001 ($4.52/1.31 = 3.4$ times).

Whereas, Indian population increased by 4.3 times for the same period. It seems that the population growth is decreasing at a faster rate in the State than in the Country. The share of State's population as a percent of Indian population is also gradually coming down. It was as high as 5.77 in 1931 and decreased to 4.10 percent in recent census (2011).

Among 13 districts of A.P., East Godavari is highly populous district with 52.86 lakhs of population and Vizianagaram having lowest population of 23.45 lakhs. A highest decadal growth rate of 14.85 is recorded in Kurnool district for 2011.

9.3.2 Density of Population

The density of population calculated as a ratio of the number of persons per square kilometer of land area. It is the number of people living in one square kilometer area on an average. Population density can be calculated with the help of the following formula.

Density of population = total population in the area / total area in square kilometers.

The density of population determines the magnitude of the burden that the State is being called upon to carry and to determine the future potential of growth. The availability of natural resources and the use of technology determine the density of population with higher standard of living. So the density of population is an index of either prosperity or poverty of the State.

Table 9.6: Density of population A.P. and India compared

Sl.No.	Year	Density of Population In A.P. (sq.km)	Density of Population in India (sq.km)
1	1901	82	77
2	1911	88	82
3	1921	90	81
4	1931	100	90
5	1941	112	103
6	1951	126	117
7	1961	145	142
8	1971	171	177
9	1981	208	216
10	1991	252	267
11	2001	282	325
12	2011	304	382

Source: Statistical Abstract of Andhra Pradesh, 2014, Page 8 & 9. Directorate of Economics and Statistics.

Note: Density of A.P. is approximate figures after some exclusions and inclusions for 13 districts.

From the table, it is observed that the density of population in the State is increasing continuously over the period. This is because, the total available geographical land is fixed forever and as population increases, the density also increase. We can observe that the rate at which the population increases, the density also increase on the same lines. Between 1901 and 2011 density of population for both State and the Country increased nearly by 3.5 times.

Up to 1961 the density of population of the State overtook the population density of the Country. But from 1971, A.P. recorded a low density than the National average. During 2011, the density of population per sq km is 304 persons for the State, as against 382 persons for the Country.

Among the districts, the Krishna district having high density with 518 persons followed by West Godavari district with 470 persons per sq km. The lowest density can be observed in Y.S.R Kadapa district with 188 persons followed by Prakasam with 193 persons.

9.3.3 Sex Composition

In Andhra Pradesh, just like in India, there is trend in favor of masculine population. The sex distribution of population of A.P. show two things

- (a) A higher ratio males in the population and
- (b) A rising tendency towards masculinity.

The sex composition or sex ratio of male and female population in the State and the Country is presented in the following table.

Table 9.7: Sex ratio of population in A.P. and India

Sl.No.	Year	Sex Ratio in A.P. (per every 1000 male)	Sex Ratio in India (sq.km) (per every 1000 male)
1	1901	1004	972
2	1911	1010	964
3	1921	1008	955
4	1931	1002	950
5	1941	991	945
6	1951	988	946
7	1961	984	941
8	1971	981	930
9	1981	978	934
10	1991	976	927
11	2001	983	933
12	2011	997	943

Source: Statistical Abstract of Andhra Pradesh, 2014, Annexure Page 18 & 19.

Figures in the table reveal that the sex ratio was in favour of female for most of the years i.e. up to 1931. Thereafter, it became pro towards masculinity. Due to various steps taken by the State Government in the protection of the female child, sex ratio again showing a tendency towards equality in sex ratio. As per 2011 census, there are 997 females per every 1000 males in the State. There are 2,48,30,513 of males and 2,47,46,590 of females exist in the total population in 2011. It means the gap between male and female population is only 83,923. It reflects the sustained efforts of the State Government related to gender discrimination and female child protecting steps. But it is an alarming situation that the child sex ratio is only 944, per every 1000 male children in 2011 in the State. It indicates further fall in the sex ratio in near future if the same trend continues.

Sex ratio has been against for female in the Country right from the beginning. It reaches a record low during 1991, where 927 females available for every 1000 male population. The situation started improving thereafter and reached to 943 by 2011. There are 62 crores of male and 59 crores of females in total 121 crores of Indian population.

Districts like Srikakulam, Vizianagaram, Vishakapatnam, both Godavari Districts and Krishna having more female population than male. In these districts, more than 1000 females are there per every 1000 males. Vizianagaram having 1019 female population per every 1000 males. Among 13 districts of the State, Anantapuram having only 977 females per 1000 male population which is the lowest sex ratio in the State.

9.3.4 Age Composition

The analysis of age composition of population can determine the proportion of labour force in the total population of the Country. The population in Andhra Pradesh is divided into three groups on the basis of age structure such as 0-14, 15-59 and 60 and above. The higher child population in the State has resulted from higher birth rate and fall in the infant mortality rate. Population of 0-14 and above 60 years groups are dependents. Below table gives the details of age composition of the population for 2001 and 2011 years.

Table 9.8: Population by age composition in A.P.

	2001	2011	Percent Variation
0-14	1,40,32,979 (31%)	1,24,05,365 (25%)	-5
15-59	2,76,36,799 (61%)	3,16,83,371 (64%)	+ 3
60 & above	35,52,958 (8%)	52,98,063 (10.7%)	+ 2.7

Source: Statistical Abstract of Andhra Pradesh, 2014, Page 24. Directorate of Economics and Statistics, Govt. of A.P.

In the table we can observe that the dependent population in 2001 year was 39% of the total population (from 0-14 and 60 & above age groups). This has decreased to 35.7% by 2011. Particularly, the children population of 0-14 age group recorded minus five percent variation in the decade. Whereas, the old age population increased by 2.7 percent for the same period. A marginal increment of 3 percent is observed in the productive age group of 15-59.

9.3.5 Rural and Urban Composition

The Rural Urban Composition of the State population reflects on the pattern of living of the population. In Andhra Pradesh majority of the population live in rural areas as is the case of India. However, there is growing trend for gradual shift of population from rural to urban areas. The table shows how the pattern of urbanization is changing in the State and in the Country.

Table 9.9: Urban-Rural Distribution of Population

Years	Andhra pradesh				India			
	Rural	Urban	Total	% of Urban	Rural	Urban	Total	% of Urban
1971	226.04	50.81	276.85	18.35	4890.46	1091.14	5981.60	18.24
1981	259.80	73.89	333.69	22.14	5238.67	1594.63	6833.29	23.34
1991	304.00	100.13	404.19	24.77	6271.47	2171.78	8443.24	25.72
2001	342.67	109.56	452.23	24.23	7416.60	2853.55	10270.15	27.78
2011	349.67	146.10	495.77	29.47	8330.88	3771.06	12107.27	31.15

Source: *Statistical Abstract of Andhra Pradesh, 2014. Page 9.*

It is clear from the table that the percentage of urban population is continuously increasing both in the State and the Country over the period. But the urbanization is very sluggish. The State and the Nation's trend of urbanization are almost moving in the same pace. In fact, State urbanization rate is slightly backward than the National average.

Among the districts, Vishakhapatnam having the highest percentage of urban population which is 47.45 per cent in 2011, followed by Krishna district with 40.81 per cent. Srikakuram having the lowest urban population to the tune of 16.16 only followed by Prakasam district with 19.56 percent.

9.3.6 Literacy

Literacy is the reading and writing skill of the people. It is the basic requirement for a good educational system. A literate person can be considered as a social asset of the Country. A positive association is witnessed between literacy rate of the economy and its pace of economic development. For example, in spite of the fact that Kerala having less per capita income than some of the other

States, it is able to maintain a good HDI value due to its successful attainment at literacy levels. Following table shows how literacy rate varied in the State and in the Country over the period of time.

Table 9.10: Literacy in A.P. and India

	1981(lakhs)			2001(lakhs)			2011(lakhs)		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
A.P	41.87	17.97	30.17	71.36	52.78	62.14	74.83	60.01	67.41
India	46.89	24.82	36.23	75.26	53.67	64.84	80.89	64.54	72.99

Source: *Statistical Abstract of Andhra Pradesh, 2014, Page 9.*

Table shows that A.P. is lagging behind the India in case of literacy rate, whether it may be of males or females or of total literacy rate. Though, it came nearer to the National average in 2001 for both male and female literacy, the gap again widened in 2011. The literacy rate is 67.35 in 2011 for A.P. in which, male literacy is 74.77 and that of female is 59.96. State has 5.64 percent less literates, when compare to the Nation.

Among the districts, West Godavari, Krishna and East Godavari districts stood in first 3 places with 74.63, 73.74 and 70.99 percent respectively. Vizianagaram and Kurnool having lowest literacy rates with 58.89 and 59.97 percents respectively in 2011.

9.4 Occupational Distribution of Labour in A.P

Occupational distribution pattern in any economy decides the level of Economic Growth. Colin Clark, an Economist defined the term 'Economic development' in this sense only. Any economy can be divided into agriculture, industry and service sector. Dividing the total population according to their occupation or work is known as occupational distribution of population or labour.

According to the Statistical Abstract of A.P., 2014, prepared on the basis of the 2011 census, the total number of workers in A.P. is 2,30,80,964. Among them, the number of cultivators which include large, medium, small and marginal farmers is 33,40,133, which is 14.47 percent of the total workforce. The number of agricultural labourers who do not possess any land, but are associated with agriculture, is 1,10,52,603. This is almost 47.89 percent of the total workers. Hence, the total number of workers related to primary sector is 1,43,92,736 i.e., 62.36 percent (both cultivators and agricultural labourers).

At the same time, the number of labourers engaged in household industries are 6,62,608, which is merely 2.87 percent of the total workers. As most of the economic activities of industrial and service sectors overlap, the remaining workers are engaged in these sectors together are to the tune of 80,25,620. It is 34.77 percent of the total workforce.

The number of people depending on agricultural sector is still very high. Tertiary sector is in the second place and providing livelihood to the larger percent of population after the agricultural sector in A.P. Secondary or industrial sector's contribution is steady and constant over the years in the state.

9.5 Health Sector

Health play very important role in economic development. It reduces production losses, caused by worker illness. It raises the labour productivity. Government of Andhra Pradesh is giving high importance to the health care of the people.

Health Indicators

The health indicators such as life expectancy, infant mortality, maternal mortality and total fertility rate have significant roles to play in the development of human resources. Let us now consider the position of health indicators in the State.

1. **Life Expectancy:** Life expectancy at birth is 64.4 years in A.P. while the Indian average life expectancy is one year less than the State i.e. 63.5 according to 2011 census.
2. **Total Fertility Rate:** Total fertility rate refers to the number of live births by a woman during the entire reproductive period. It was more than 5 in early 1950s. But it is reduced to around 1.7 by 2011.
3. **Maternal Mortality Rate (MMR):** It is the rate that mothers are passing away at the time of delivery. It is measured per 100000 live births. In Andhra Pradesh IMR is 110 as against 178 of the national average. MMR is slowly decreasing over the years.
4. **Infant Mortality Rate (IMR):** It is the rate at which the infants are passing away at the time of their birth. It is generally measured per every 1000 live births. In A.P., IMR is calculated as 39, almost equal to the Indian national average of 40. But it is noticed that IMR is gradually decreasing.
5. **CBR and CDR:** Crude Birth Rate is defined as the number of population added per year on an average to every 1000 population of present year. It is 17.4 in case of A.P. against 21.4 of Indian average. Likewise, Crude Death Rate is the number of population died per year on an average in every 1000 population of present year. It is estimated at 7.3 in A.P., slightly higher than the national average of 7.

Health Programmes of A.P.

1. **National Rural Health Mission:** The Prime Minister launched the NRHM on 12th June 2005, with the objectives of reducing IMR, MMR and increase the number of institutional delivery rate to 100 percent. On par with the Central Government, the State of A.P. is also taking steps and implementing various health schemes to achieve the targets.
2. **Jawahar Bala Arogya Raksha (JBAR):** The Government orders the launch of School Health Programme across the State on 14 November 2010, under the name of Jawahar Bala Arogya Raksha. The operational name for Jawahar Bala Arogya Raksha (JBAR) will be the Child Health Improvement Programme (CHIP). The school health program JBAR is aimed at prevention of illness as well as promotion of health and well-being of school children. The Jawahar Bala Arogya Raksha covers children studying in Government and Government aided schools in the State. The screening of all students and referral of those with pre-existing diseases is done by a school health team.
3. **Arogyasri Pathakam:** Aarogyasri or NTR Aarogyaseva is a program of the Government of Andhra Pradesh. It covers those below the poverty line. It was started in 2007. The Government issues an Aarogyasri card and the beneficiary can use it at government and private hospitals to obtain services at free of cost. The main objective of the programme is to achieve “Health for All”, and to provide corporate treatment to the poor people.

The scheme provides financial protection to families living below the poverty line up to Rs. 2 lakh in a year for the treatment of serious ailments requiring hospitalization and surgery. 938 treatments are covered under the scheme involving hospitalization, surgeries and therapies.
4. **Janani Shishu Suraksha Karyakram:** This scheme is being implemented at the hospital level. It aims to provide cashless deliveries and care to sick new born for 30 days after birth, make local purchase of drugs and consumables, diagnostics and free blood and free diet.
5. **Janani Suraksha Yojana:** It was launched by the Indian Government in 2005 and Government of A.P. started implementing it from 1st November, 2005. A cash incentive of Rs. 700 is given to pregnant women to promote deliveries in public institutions. Additionally, Government of A.P. started ‘Sukhibhava’ Scheme to provide Rs. 300 in addition to Rs. 700 of the Central government.

Apart from the cited, Government of A.P. is preparing and implementing various schemes to protect the health of the people and also to achieve the health goals laid in Twelfth Five Year Plan.

9.6 Education

Investment in education promotes economic growth. Human resource development in any Country will be decided by the investment on education. But unfortunately, in India education is considered only as a normal social service. Under various plans education facilities have expanded in India and at the State level, resulting in high literacy and education levels.

9.6.1 Literacy

Following table reveals Literacy Rates in Andhra Pradesh.

Table 9.11: Literacy Rate in Andhra Pradesh (Percent)

Year	Male	Female	Total Literacy
1971	33.18	15.75	24.57
1981	39.26	20.39	29.94
1991	56.53	34.92	45.86
2001	71.36	52.78	62.14
2011	74.77	59.96	67.35

Source: *Statistical Abstract of Andhra Pradesh, 2014. Page – 9.*

State total literacy rate according to 2011 census is 67.35 percent against 72.99 percent of National average. Though, the male and female literacy levels are increasing, the gender discrimination in literacy continuing right from the beginning. State male and female literacy rates are 74.77 and 59.96. It means, female literacy rate is lagging behind the male literacy rate by 14.81 percent.

9.6.2 School Education

Education is a fundamental right, which leads to achieve the goal of “**Education to All**”. Inspired by the Directive Principle of the State Policy that underlines the need to provide free and compulsory education for all children up to the age of 14, Government of A.P. is taking steps to improve education at primary and secondary school levels.

- ❑ Steps are being taken up for ensuring 100 percent access in education, **enrolment rate** is targeted to increase in all types of schools in the State.
- ❑ Necessary measures have been taken to retain children into schools without **dropping out**.

- ❑ Government is trying to strengthen education through decreasing the **teacher-pupil ratio** at all stages of primary, upper primary and high school levels.
- ❑ To maintain Nutritional Status of Children and to induce them to come regularly to the schools, **Mid-Day Meal Scheme** has been implemented with 75 percent Central and 25 percent State funding.
- ❑ Special drive for **screening eyes** of school age children and distribution of Dewarming tablets, Iron and Folic Acid tablets were distributed and health checkups taken up twice a year.
- ❑ “**Rastriya Madhyamik Shiksha Abhiyan**” is being implemented from 2009-10, to provide access to Quality Secondary Education for children in the 14 to 18 years age group.
- ❑ In 2014-15, **In-service Teacher Training** was given to the in service teachers on newly introduced text books for the class X and XI.
- ❑ **Girls Hostels** are sanctioned in the premises of Model Schools.
- ❑ “**Sarva Shiksha Abhiyan**” is introduced in 2001-02, with the aim to provide quality elementary education and to bridge social, regional and gender gaps with active community participation. Its aim to achieve “Universalisation of Education”.

9.6.3 Intermediate Education

The Directorate of Intermediate Education was established in 1989 to look after administration of Intermediate Education, and three Regional Joint Directors offices at regional level. (Rajahmundry, Guntur and Kadapa). Following steps were taken to improve education at this level.

- ❑ **Awareness Programme** is conducted to identify SSC dropouts and improvement of enrollment at Government Junior Colleges from 2014-15.
- ❑ To diversify knowledge from the regular education, **Vocational Courses** are introduced.
- ❑ To come out of the faculty scarcity problem, **Contract Lectures** are selected and accorded permission for renewal year after year subject to certain conditions.
- ❑ **Staff training programmes** were conducted from time to time. Ex: The establishment of Gurukulam, the Intermediate Staff Training Academy.
- ❑ **Open School system** is introduced for the dropouts to remain in the mainstream and continue for higher studies.
- ❑ **Surplus Staff** in Aided Junior Colleges are being redeployed to the needy Government Junior Colleges.

9.6.4 Collegiate Education

The Department of Collegiate Education monitors the administrative functions and academic quality of 146 Government and 141 private aided colleges in the State. Following steps were taken to improve education at U.G. level.

- ❑ Started **new courses** which are need based and job oriented like Bio-technology, Microbiology, Computer Science, Tourism etc.
- ❑ To provide dynamic and student friendly platform for job aspirations of degree students, **Jawahar Knowledge Centers (JKC)** have been evolved.
- ❑ Indian Government launched a new Scheme **RUSA** (Rastriya Uchchitar Siksha Abhyan) for funding State universities and colleges to fill infrastructural deficiency.
- ❑ **Model Degree Colleges** are introduced under the Scheme of RUSA.
- ❑ **Autonomous college** concept is introduced and more academic and operative freedom is provided, like framing own syllabus, question papers, following Semester system etc.
- ❑ Department of Collegiate Education telecasts educational programmes through **MANA TV**. The objective is to enhance the knowledge base of the students.
- ❑ **Academic Audit** was launched in 2011-12 to improve the functional efficiency of colleges.
- ❑ **“Human Values and Professional Ethics”** is the new subject introduced at U.G. level to inculcate human values in student community.

9.6.5 Technical Education

Technical Education Department promotes Technical Education to bring out good Engineers and Technicians. It implements policies of State Government and coordinates with All India Council for Technical Education (AICTE) in processing applications for the establishment of M.B.A., M.C.A., Pharmacy and Polytechnic Colleges. State contains various technical colleges at Degree level and Diploma level. To encourage technical education, the State government is encouraging through Pratibha Scholarships, Apprenticeship Training, etc.

9.7 Environment

Andhra Pradesh having good environmental conditions. Its coastline is second in India and first among all South Indian States. It has thick forest (9th place in India) and eastern ghat range vertical across it, covering most of the districts. Its bio-diversity is special in the Country with wide variety of species. To protect this rich environment, steps have been taken by the State Government which can be summarised as:

1. **Environmental Protection Programmes:** State is implementing programmes like Community Forest Management (CFM), National Afforestation Programme (NAP), and National River Conservation Plan etc.
2. **Chettu-Neeru Programme:** The State Government launched ‘neeru-chettu’, a programme aimed at conserving water and saving trees, in all districts in 2015. The programme was launched at all municipalities and corporations, including Visakhapatnam, Vijayawada, Guntur, Rajahmundry and Tirupati. The Government will number each sapling, and steps will be taken to ensure 90 per cent survival of saplings. More than 10 lakh saplings will be planted in the State as part of the programme.
3. **Non-Conventional Energy:** Andhra Pradesh Department of Energy decided to make the State as a largest “**Green Energy Corridor**”, by increasing the production of renewable energy through solar and wind sources. In a meeting on 2nd February, 2015, it decided to provide “Must Run” status to the solar, wind power, to get energy from those sources throughout the year. Solar and wind power will be given industrial status. All approvals will be sanctioned in “Single Window Clearance”. Wind power policy of 2015 aims at generation of 4000 MW of wind energy.
4. **Vanamahotsava:** Forest Department celebrated 64th **Vanamahotsava** in 2013 with a view of “two million tree plantation”. Celebrations took place simultaneously in all District Head Quarters. This is a part of the Social Forestry Programme.
5. **Wildlife Conservation:** To protect the rich bio-diversity of Flora, Fauna and eco system, Govt. declared 16 protected areas which include 13 Wildlife Sanctuaries and 3 National Parks. Apart from wetlands like Kolleru, Nelapattu and Pulicat Wildlife Sanctuaries, two more sanctuaries Coringa in East Godavari and Krishna in Krishna districts were identified. Two important Zoological Parks i.e, Indira Gandhi Zoological Park, Vishakhapatnam and Sri Venkateshwara Zoological Park, Tirupati were recognized by Central Zoo Authority. 3 Deer Parks in the State also recognized.

An Integrated Management Action Plan for Kolleru Sanctuary for a period of 5 years has been prepared for restoration of Kolleru Lake, through an expert consultant. Illegal fish tanks were demolished in 2006 and in recent years the migratory bird population has gone up. Large number of Pelicans are now nesting in Kolleru Lake. Biodiversity Conservation Society of Andhra Pradesh (BIOSAP) has been constituted to take care of the conservation measures of Wildlife Sanctuaries. The Seshachalam Biosphere Reserve has been notified and made functional. Local level and Government level committees have been formed to finalize Bio-sphere management plan.

6. **Project Tiger:** Project Tiger programme is being implemented with the objective of increase the number of our national animal tiger. The Nagarjunasagar Srisailem Tiger Reserve (NSTR) spreads over the districts of Kurnool, Prakasam and Guntur, which is the home to over 50 tigers and able to support even more. Gundla Bramheswaram Wildlife Sanctuary will be now merged with NSTR. The NSTR is Country's one of the rich biodiversity hot spot having a contiguous landscape of a good forest eco-system of un-fragmented Nallamalai of the Eastern Ghats.
7. **Environmental Education:** In order to create nature care awareness among the people most of the Sanctuaries and National Parks in the State have environment education centers with exhibitions, write-ups, mini auditoriums and a library. On the other hand Government decided to bring environment protection awareness among students, environmental education is now a compulsory part of their curriculum at all levels.

9.8 Agricultural Sector

Agriculture plays a crucial role in the Economy of Andhra Pradesh. The State is identified as the “**bejeweled rice bowl of India**”. Still a major percentage (around 60) of population found agriculture as their main occupation. A considerable share in State's GSDP is contributed by agricultural sector. Following are the important features of Andhra Agriculture.

1. Share in the State GSDP

Though the share of Agriculture is gradually decreasing in the State's GSDP, just like the case of India's Agriculture, still its contribution is not insignificant. Following table shows the share of agriculture and allied activities in the State GSDP for the years 2004-05 to 2013-14 for a comparison sake.

Table 9.12: *Contribution of Agriculture to GSDP*

(Percentage)

Years	Agricultural Sector	Industrial Sector	Tertiary Sector
2004-05	29.85	21.61	48.64
2006-07	25.98	23.34	50.68
2007-08	27.08	23.72	49.20
2008-09	26.05	23.13	50.82
2009-10	25.95	22.39	51.66
2010-11	24.02	21.65	54.33
2011-12	22.69	22.70	54.61
2012-13	23.14	21.51	55.35
2013-14(PE)	23.33	20.71	55.96

Source: *Statistical Abstract of Andhra Pradesh, 2014. Page – 233 & 234.*

Note: *Figures are at 2004-05 constant prices.*

Chart 9.1: Sectorial Composition of GSDP

From the table and the chart it is observed that the contribution of agricultural sector of the State's GSDP is gradually decreasing and its share is gaining by the service sector. The share of industrial sector is more or less constant over the period. By 2007, service sector's contribution crossed 50 percent mark and the share of agricultural sector dropped below 25 percent by 2011. It is worth remembering that still the contribution of agriculture to the State GSDP is higher than that of Nation's average contribution of agriculture to GDP. Even now nearly 1/5th of the GSDP is contributing by agriculture sector only.

2. Source of Livelihood

Agriculture is a major source of livelihood to the majority of population in the State. More than half percent of people work in agriculture sector. In spite of industrial and service sector's development, agriculture sector able to maintain its domination in providing work and as a major source of income to the large number of population.

According to 2011 census, agricultural sector is providing livelihood to the total 62.36 percent of the labour, which includes cultivators, and agricultural labourers. Still now, both in State and the Nation, agriculture is the source of work for more than 50 percent of population.

3. Land Utilisation

Andhra Pradesh is eighth largest State in India with 160.20 lakh hectares of geographical area. It consists of 4.87 percent of land in the total Country. The land utilization pattern in the State is steady, with negligible changes over the period. Table 9.9 shows how the land is put among several uses in the State.

Table 9.13: Land Utilisation Particulars in A.P. in 2013-14 (percent)

Sl. No.	Purpose	Purpose
1.	Forest	22
2.	Barren & uncultivable	08
3.	Land put to non-agri.	12
4.	Use Pastures and Grazing lands	01
5.	Misc. tree crops	02
6.	Cultivable waste	02
7.	Other fallow lands	05
8.	Current fallow	07
9.	Net Area Sown	41
	Geographical Area	100
10.	Area sown more than once	26% of net sown
11.	Total Cropped area	51

Source: Statistical Abstract of A.P., 2014. Page.106, Directorate of Economic and Statistics, Govt. of A.P.

From the table it is evident that the land available for agricultural purpose is only 41 percent of the geographical area. There is a lot of scope to increase this percentage by bringing pasture land, cultivable waste, barren lands into use. Forests constitute 22 percent of the geographical area. The area under forest is increasing slightly in recent years. 26 percent of the net sown area is cultivated more than once. So the gross area sown in the total geographical area becomes 51 percent. Land utilization pattern almost remains same over the period in the State.

Anantapuram having the highest geographical area (around 19 lakh hectares), and Kurnool stood second with 17.66 lakh hectares. Srikakulam with 5.84 lakh hectares and Vizianagaram with 6.54 lakh hectares having least area. Kadapa district having highest area under forest which is nearly 33 percent of district geographical area. Net area sown is highest in Anantapuram followed by Kurnool (10.40 and 9.09 lakh hectares respectively).

4. Area under Food and Non-Food Crops

Crops in the State are divided broadly into food and non-food crops. All cereals, pulses and edible oils etc. come under food crops. Whereas, turmeric, cotton, sugarcane etc. come under non-food crop category. The pattern of allocation of total area between food and non-food crops reflects the extent of commercialization of agriculture in that particular area. Following table reveals the area put for the purpose of food and non-food cultivation along with its percentages in different time periods.

Table 9.14: Area Under Food and Non-food crops in the State

SL.No.	Year	Food Crops (lakh hect.)	Percent to Total	Non-Food Crops (lakh hect.)	Percent to Total	Total Area
1	2001-02	52.44	65.92	27.11	34.08	79.55
2	2005-06	52.02	63.10	30.42	36.90	82.44
3	2010-11	58.13	67.25	28.31	32.75	86.44
4	2013-14	54.92	67.57	26.36	32.43	81.28

Source: *Statistical Abstract of Andhra Pradesh, 2014, page.108, Directorate of Economics and Statistics, Govt. of A.P.*

From the above table we can come to the conclusion that food crops are dominating with around 65 percent of area put for their production and the trend is continuing over the years. During 2013-14, food crops are grown in 54.92 lakh hectares, which is 67.57 percent of total area in that year (81.28 lakh hect.).

Area put for the cultivation of non-food crops registered around 32 percent. During 2013-14, only 32.43 lakh hectares are specified for the production of non-food crop cultivation. This is around 32.43 percent in the total land cultivated in that year.

According to 2013-14 provisional estimates, 11,698 thousand tonnes of food grains are produced in which 10,618 thousand tonnes are cereals and millets, and 1,080 thousand tonnes are pulses. 2,242 thousand tonnes of oil seeds also produced from various parts of the State.

5. Productivity of major crops

Productivity or yield is defined as the production per hectare of land. It indicates the efficiency of agricultural sector. Following table gives the details of productivity of major crops in 2013-14.

Table 9.15: Productivity of major crops in A.P. (kgs/Hector)

Sl.No.	Commodity	2010-11	2013-14
1	Rice	2,843	3,094
2	Wheat	1,402	716
3	Jower	1,773	2,247
4	bajra	1,832	1,663
5	Maize	8,073	6,286
6	Red gram	385	565
7	Sugarcane (gur)	7,899	7,872
8	Groundnut	775	749
9	Cotton (Lint)	381	550
10	Tobacco	1,752	1,930

Source: *Directorate of Economics and Statistics, 2013-14, page.127. Govt. of A.P.*

The table reveals that the productivity of crops shows a mixed trend between 2010-11 and 2013-14. A rise in productivity can be observed in case of rice, jowar, red gram, and tobacco. Whereas, the yield decreased in the case of wheat, bajra, maize etc. Productivity of any crop mainly depends upon the climate and other deciding conditions.

Yield per hectare of rice is higher in Nellore (4,051), followed by Kurnool (3,670). Wheat production is insignificant in the State and is limited to Rayalaseema Region districts. Jowar (5,987), red gram (1,259), black gram (1,087), groundnut (3,413), sesumum (688) and castor (1,407) productivity is very high than the other districts in Guntur. Tobacco and cotton yield is higher in Krishna district than the remaining districts.

6. Irrigation

Andhra Pradesh is blessed with many major rivers, the most important being Godavari, Krishna, Thungabhadra, Pennar and Vamsadhara. The State, share of dependable flows from all the rivers and streams is estimated at 2,746 TMC. And only 1,753 TMC has been utilized so far. Apart from rivers the State consists of many artificial lakes and reservoirs for irrigation and drinking water.

After Independence, Government has given highest priority for irrigation sector which is the key force behind the agricultural revolution. Many gigantic projects have been taken up in addition to many medium and minor schemes, thus, creating a total irrigation potential of 134 lakh acres. The goal is to reach the ultimate of 217 lakh acres. Following table shows source-wise irrigation of gross area irrigated, for various years.

Table 9.16: Source of Irrigation in A.P.

(in hectares)

Sl.No.	Source of Irrigation	2009-10	% to Total	2011-12	% to Total	2013-14	% to Total
1	Tanks	3,03,378	8.35	3,93,737	10.04	3,77,035	9.21
2	Canals	16,95,542	46.67	17,83,779	45.50	19,55,558	47.75
3	Wells						
	(tube & dug)	15,00,544	41.31	15,98,943	40.78	16,22,666	39.62
4	Other sources	1,33,211	3.67	1,44,011	3.68	1,40,197	3.42
	Total	36,32,675	100.00	39,20,470	100.00	40,95,456	100.00

Source: Statistical Abstract of Andhra Pradesh, 2014, page.138. Directorate of Economics and Statistics, Govt. of A.P.

Chart 9.2: *Area Irrigated by different sources*

As per the estimations for 2013-14, the net area irrigated in the total cultivable land is 46 percent. 30.14 lakh hectares of land is irrigated in the total 65.61 lakh hectares of total land put for cultivation. Gross area irrigated is 40.96 lakh hectares. It means 10.82 lakh hectares of land used the irrigational facilities twice in a year. In the total net area irrigated, nearly 48 percent of land is irrigated through canals, 9 percent by tanks, and 40 percent by wells.

Among the districts, Guntur having highest land irrigated to the tune of 4.38 lakh hectares which is nearly 14.5 percent of the total irrigated land of the State. West Godavari is in second place with 3.83 lakh hectares of irrigated land. Visakhapatnam followed by Anantapuram having least irrigated area in the State for 2013-14 year.

7. Other features

- ❑ The **average size of land holding** is 1.6 hectares. Total number of marginal farmers are very high and the average size land holding is high in case of large farmers.
- ❑ By 2010, the institutional credit sources account for 61 percent of **agricultural credit**, whereas, non-institutional sources met 38 percent of credit needs.
- ❑ In the total **institutional credit**, the commercial banks contribute up to 70 percent, followed by Cooperative societies (20 percent), and Regional Rural Banks (11 percent).

- ❑ By 2011, total 8,685 **Kisan Credit Cards** were distributed which is 12 percent of the national distribution.
- ❑ Steps are initiated to remove defects in agricultural marketing like introduction of “**Rythu Bhandu Pathakam**”, District Agricultural Advisory and Transfer of Technology (DAATT) centers, computerisation, cooperative marketing etc.
- ❑ Under **horticulture** A.P. ranks 1st in the production of citrus, Spices, Oil Palm, Tomato, Chillies and Turmeric, 2nd in Mango, Cashew, 3rd in loose flowers and 4th in Banana production.
- ❑ State contributed nearly Rs. 3000 crore by way of **marine exports** like fish, prawn etc. which is nearly 50 percent of Country’s marine exports.
- ❑ State stood second in **sericulture**, and in the production of silk.

9.9 Industrial Sector

The role of industrial sector in any economy decides its pace of development. The State of Andhra Pradesh is endowed with wide varieties of natural resources, longest coastline in South India, infrastructure, communication system, experts in technical field and wide market opportunities. Following important points can be notified from the State industrial sector.

- a. **Share of Industrial sector in GSDP:** The **share of Industrial Sector** in State’s GSDP was at constant prices of 2004-05 for various years are presented in the table.

Table 9.17: Share of Industrial sector in GSDP

Sl.No	Year	Gsdp (Cr.)	Industrial Secor’s contribution	Percent in Gsdp
1.	2004-05	1,34,767	29,124	21.6
2.	2006-07	1,57,386	36,737	23.3
3.	2007-08	1,78,028	42,233	23.7
4.	2008-09	1,81,829	42,066	23.1
5.	2009-10	1,94,994	43,666	22.4
6.	2010-11	2,08,273	45,080	21.6
7.	2011-12	2,23,465	50,733	22.7
8.	2012-13	2,35,930	50,745	21.5
9.	2013-14(PE)	2,50,282	51,838	20.7

Source: *Statistical Abstract of Andhra Pradesh, 2014, page.235&236. Directorate of Economics and Statistics, Govt. of A.P.*

From the table it is noticed that the contribution of industrial sector is increasing continuously in absolute terms. The contribution of this sector was only 29,124 cr in the base year i.e. 2004-05 increased to 51,838 crores in 2013-14 continuously except for 2008-09. It means in absolute terms its contribution has increased by 178 percent between 2004-05 and 2013-14. But the industrial sector's contribution as a percentage in GSDP undergoes slight changes and it seems almost constant for the total period. In fact, it share decreased from 23.7 during 2007-08 to 20.7 percent by 2013-14.

- b. Employment Opportunities:** Any sector's role in any economy is also identified with another indicator that how much labour force is considering the sector as their source of livelihood.

The share of industrial sector in providing employment opportunities to the labour force remained same in both State and the Nation over the years. The share of this sector is increasing very sluggishly. Though the share of agriculture, as a source of livelihood is decreasing but its share is bypassing industrial sector and moving directly towards service sector. In 2011, the share of industrial sector in providing employment opportunities is around 21 percent both at Nation and State levels.

- c. Plan Allocation for Industries:** A considerable plan outlay was allocated for the development of industrial sector in the State. The sector will get momentum if the Central Government announces "Special Status" to the State as a part of its promise prior to State's bifurcation.

Plan outlay allocated for the State for the purpose of industrial sector shows mixed trend for various plans. Under Twelfth Five Year Plan, during the first annual plan of 2012-13, Rs 48,935 crore of plan outlay was approved in which 784 crores were allocated for industry and minerals. Likewise, during second annual plan of 2013-14, an amount of Rs. 53,000 crore were allotted as plan outlay, of which, 934 crore were meant for industrial and mineral sector's development.

- d. Index of Industrial Production:** The Index of Industrial Production (IIP) is a yardstick for measuring industrial growth. It includes the relative change of physical production in the field of industry during specific period as compared to the previous period. IIP in the State is being compiled with base year 2004-05. Following table shows the value of IIP in the State for various years.

Table 9.18: *Value of Industrial Production in A.P.*

Sl.No.	Year	Value of Index of Industrial Production
1.	2002-03	155.1
2.	2003-04	164.2
3.	2004-05	173.8
4.	2005-06	188.7
5.	2006-07	223.6
6.	2007-08	242.0
7.	2008-09	234.4
8.	2009-10	250.6
9.	2010-11	273.8
10	2011-12	294.7

Source: *Socio-Economic Survey of Andhra Pradesh, 2013-14, Planning Department. Page.85.*

A continuous growth in the State industrial index of production can be observed from the table except for the year 2008-09. In that year IIP recorded a slight fall to 234.4 over previous year's IIP of 242. For remaining years industrial production is increasing in a quite smooth and progressive way.

- e. **Number of Factories Registered:** The number of working factories registered under the various sections can be observed from the following table.

Table 9.19: *Number of working factories in A.P.*

Sl.No.	Year	No. of working factories
1.	2008-09	9,972
2.	2009-10	9,742
3.	2010-11	10,358
4.	2011-12	11,195

Source: *Statistical Abstract of Andhra Pradesh, 2014, Directorate of Economics and Statistics, Govt. of A.P. Page.176.*

Table reveals the fact that total number of factories registered under 2m(i), 2m(ii), has been increasing. Number of factories raised to 11,195 in 2011-12 which were only 9,972 in 2008-09. A total of 837 factories are newly established between 2010-11 and 2011-12.

Among the districts, Guntur having highest number of registered factories, which accounts for 2,293, followed by Krishna with 1,066. Lowest number of factories registered in Vizianagaram with 198 factories followed by Srikakulam with 459 factories.

f. Other Important points: Some other important points related to industrial sector can be drawn as under.

- ❑ The **value of industrial exports** from the State is continuously increasing. It is Rs.1,29,001 crore in 2012-13.
- ❑ In the total **sick units** of the Country, A.P's sick units are 10.2 percent and State stood in fourth place.
- ❑ There are 44 State Level Public Enterprises (SLPEs) functioning in the combined State with the capital of Rs. 69,125 crore. Among them, APCPDCL, A.P. GENCO, APSPDCL, Housing Board etc. are top level SLPEs.
- ❑ Andhra Pradesh Industrial Infrastructure Corporation (APIIC) is the nodal agency for Special Economic Zones in the State, A.P. is the first State in the Country to announce an exclusive SEZ policy.
- ❑ As on March 2014, there were 32 number of SEZs in the State in which 10 were IT related, 6 multi product, 4 pharmaceuticals, 2 biotech and 10 sector specific SEZs. Recently, State finalized Visakhapatnam SEZ in an area of 3,500 acres.

9.10 Service and Infrastructure Sector

Service sector is the fastest growing sector in Andhra Pradesh as it is in Total India. It is expanding as agriculture is losing, the industrial sector being constant. Some important points regarding service sector in the State can be summerised as under.

- a. Contribution to the GSDP:** Service sector is the **major contributor** to the State GSDP with 48.54 percent in 2004-05 and increase further to 55.96 by 2013-14, Rs. 64,411 crore were contributed by the service sector during 2004-05 which increases enormously to 1,40,054 crore in 2013-14. This means only service sector alone is contributing more than half of the State's GSDP. Same trend is also noticed in India where service sector is the single largest contributor to the GDP with more than 50 percent contribution. IT sector is the fastest growing sector.

- b. **Employment Generation:** Service sector is the second largest among the three sectors which provides nearly 1/4th of the employment opportunities in the State. It is providing livelihood to nearly 25 percent of labour force, which is, on par with the national average (25.4 percent).
- c. **Irrigation:** Irrigation development as well as management is of utmost importance in the State. Andhra Pradesh is rightly called “A River State” as it is blessed with major river systems like the Godavari, Krishna, Thungabhadra, Vamsadhara and other rivulets. Presently, 54 major, medium and other projects are being considered under Jalayagnam, with a hope to irrigate 52 lakh acres.

Polavaram Project is a multi-purpose irrigation project which has been accorded ‘National Project Status’ by the Central Government. This dam across the Godavari River is under construction located in West and East Godavari Districts in Andhra Pradesh and its reservoir spreads in parts of Chhattisgarh and Orissa States also. The project is expected to enabling irrigation of 23,20,000 in Krishna, West Godavari, East Godavari, Visakhapatnam, Vizianagaram and Srikakulam districts of Andhra Pradesh.

The Pattiseema project is crucial as it will lift 80 tmcft of surplus Godavari water from Pattiseema to Krishna Basin and divert it through Srisailem to the parched Rayalaseema till Polavaram project is completed. Government also announced that Pattiseema project would not go against the interest of farmers of twin Godavari districts, but would meet drinking and irrigation water needs of Rayalaseema.

Government of Andhra Pradesh is also encouraging Drip Irrigation System in the State. It is supplying drip irrigation equipment on subsidized rates to the farmers. A.P. ranks 1st in Micro irrigation system in the Country and so far covers 5.63 lakh hectares.

- d. **Power:** The State Government announced uninterrupted power supply for the entire financial year 2015-16. The AP Electricity Regulatory Commission (APERC), in its report mentions a surplus of 11,087 million units for the upcoming financial year. This is now for the first time in India where, a State Government has declared surplus power availability after ensuring 24x7 supply to consumers in domestic, commercial and industrial segments.

Currently, Andhra Pradesh has total installed power generation capacity of 16,717 MW. Of this, nearly 70 percent is based on thermal, while 21 percent is based on hydal sources.

The total number of consumers served by the State Government rises from 2.7 lakhs in 1959 to 261.46 lakhs during 2014. The per capita electricity consumption also increased from merely 11.5 KWh in 1959 to 1,084 KWh by 2014.

Simhadri STPS, Damodaram Sanjeevaiah TPS, Rayalaseema TPS etc. are some of the thermal power stations in the State. Lanco Kondapalli, Spectrum, Konaseema Combined Cycle Power Plant etc. are gas fuel based power plants. Srisailem, TB dam, Polavaram, Penna Ahobilam, Sileru etc. are the hydroelectric projects.

Apart from the above, Amruth Solar Power Plant is operating at Kadiri of Anantapur District. Ramagiri, Narmada Wind Farm and Puthlur Wind Farms are generating wind energy in Anantapur district.

e. Transportation

- i) **Railways:** They have played a significant role in boosting the economy of the State alongside developing the industrial and the tourism sectors. Andhra Pradesh mainly served by three major railway zones viz., South Central Railway, Southern Railway and East Coast Railway. State has total 444 railway stations and having 3,355 km of rail network. State Government proposals are with Ministry of Railways to set a new Railway Zone in newly formed Andhra Pradesh.

One of the highest broad gauge tracks in the world is in Eastern Ghats route that runs from Visakhapatnam to Anantagiri. Most of Andhra Pradesh falls under South Central Railway zone (2,660 kms) with Vijayawada, Guntur and Guntakal divisions. Waltair Railway Division under East Coast Railway Zone, is the fourth largest revenue earning division in India. Vijayawada railway station is the highest grosser in the SCR zone and one of busiest railway junctions in India. The revenue generated from the railways divisions in the State is mainly due to tourist places of religious importance like Tirupati, Srisailem etc., also minerals exports of iron ore, barytes, lime stone etc.

- ii) **Roadways:** Roads are one of the basic modes of transportation system and also an important priority sector of infrastructure. Systematic development of road is one of the important pre-requisites for development and acceleration of growth in the economy. Among the different modes of domestic transportation systems, road transport carries more than 80 percent of the goods and passenger traffic.

Andhra Pradesh has an extensive road network of 1,46,954 km with 42,511 km of State Highways, 3,144 km of National Highways and 101,484 km of District

Roads. Andhra Pradesh Road Development Corporation (APRDC), established 1998 is responsible for Maintenance and Management of roads.

National Highways and State highways connect to every village and town within the State, as well as to major cities of neighboring States. National Highway 5, with a highway network of around 1,000 km runs from Srikakulam district to Nellore district. It is also a part of Golden Quadrilateral Project undertaken by National Highways Development Project.

The Andhra Pradesh State Road Transport Corporation (APSRTC) operates public bus services in the State owned by the State Government. The Corporation has 4 Zones, 12 Regions and 122 Depots with a total fleet strength of 12,126 buses and 60,310 employees on rolls as on May, 2014. With its fuel efficiency of 5.23 per litre, operates on about 46.22 lakh kms and transports about 64.22 passengers daily. Pandit Nehru Bus Station in Vijayawada is the largest bus terminus in the State. Besides APSRTC, there are thousands of private buses that connect major cities and towns of Andhra Pradesh.

- iii) **Civil Aviation:** Government has entered into Memorandum of Understanding with Airports Authority of India (AAI) for up-gradation/modernization of non-metro airports at Vijayawada, Tirupati, Kadapa and Rajahmundry airports. The Airport Authority of India (AAI) has proposed to upgrade the Tirupati airport to International standards. AAI proposed Master Plan for development of Rajahmundry airport.

The State Government has proposed to set up Regional Greenfield Airports for better linkage and for triggering economic growth in the State. There are plans to develop International airports and also to set up few more domestic airports at other important towns.

- iv) **Sea Ports:** Andhra Pradesh has the second longest coastline of 972 km after Gujarat in India. Ports provide development and growth of maritime activities such as international trade of exports and imports, ship repairs, tourism, fishing and water sports.

Ports are a gateway to trade and commerce. Visakhapatnam, the largest port in the State is also one of the largest ports in terms of handling cargo in the Country. There is a passenger service of cruise from Visakhapatnam to Port Blair (Andaman and Nicobar Islands).

Other important ports are Krishnapatnam Port (Nellore district), Gangavaram Port is another largest port in Visakhapatnam and Kakinada Port. Gangavaram Port is a deep seaport which can accommodate ocean liners. Andhra Pradesh ports authority is developing other minor ports in the PPP (Public and Private Partnership) mode.

- f. **Other features:** Other features of service sector in the State can be discussed in the points given below.
- ❑ By 2013-14, State has total 10,318 **post offices**. Anantapuram having highest number post offices (944) and Srikakulam having lowest number of post offices (486).
 - ❑ By the end of March, 2014 State consists of 5,980 **bank branches** spread over 13 districts. Krishna District having highest (689) and Srikakulam the lowest (250) branches of banks.
 - ❑ **IT sector** accounts for only 2 percent of Export Turnover (Rs. 1629 crores) and 1.8 percent of employment.
 - ❑ By May, 2014, the number of houses completed under **Housing Programmes**, by the Government of A.P. is 65.35 lakh, in which, 58.93 lakh in rural and 6.43 in urban areas. This is in order to achieve the objective of “**Housing for All**”.

9.11 IT / Software Industry

The software industry is the main component of the information technology in the State. Software industry includes business involved in the development, maintenance and publication of computer software using any business mode. It started in early 1960's and expanded in 1970's. There are five important software sectors in this industry.

1. Infrastructure Software
2. Enterprise Software
3. Security Software
4. Industry Specific Software
5. Particular client company Software.

The combined State of A.P. had taken a leadership position in e-Governance and IT. However, the new State of Andhra Pradesh formed on 2nd June 2014, accounts for only 2 percent of the IT export Turnover of the combined State and about 1.8 percent of employment. Significant, consistent

and planned efforts have to be made if these figures have to attain respectability over the next 5 years.

Andhra Pradesh is called as Hi-tech Capital and Silicon Valley of India. But after bifurcation, Government announced that Vizag city having all potential to be developed as IT center. IT parks would be developed in all district headquarters across the State in a phased manner said minister for IT, P. Raghunatha Reddy. Following important points can be drawn from A.P.'s IT sector.

- ❑ Vizag may be the **IT capital** of the State.
- ❑ Every district headquarter will have **IT park**.
- ❑ IT sector contributes 38.22 percent of **total exports** from AP. (United Andhra)
- ❑ IT sector provides employment opportunities to around 3 lakh employees by 2013.
- ❑ This sector export value was nearly 36 thousand crore by 2013.
- ❑ Out of 3 IT Professionals working in USA, one is from India and out of 3 Indians, one is **represented from AP**.
- ❑ State having highest number of **IT Special Economic Zones (SEZs)** in India – 10 out of 56.
- ❑ IT export expected to go up from current level of Rs. 36000 crore to about **Rs 150,000 crore** by 2017.
- ❑ **Direct employment** from existing 3 lakh to 7 lakh.
- ❑ State Government is looking forward to **integrate IT and BT**. It says information Technology and Biotechnology need to come together to streamline manufacturing processes.

Latest IT policy of A.P. – 2014

To face the challenges in IT sector development after bifurcation of the State, the Government of Andhra Pradesh has developed a blueprint “Re-Imagining Andhra Pradesh – role of e-Governance, Electronics and IT” for development of ICT Industry in the State. The blueprint envisages a large number of conducive policies and simple but effective frameworks being put in place. It has laid out a vision to “develop AP as an Innovation Society of global repute, with a focus on enhancing the Quality of Life of its citizens, through high-quality Education and Healthcare, increased productivity in Agriculture and allied activities, creation of Employment by promoting Electronics and IT, and above all, by providing Good Governance.”

The objectives and targets laid out for the next five years are

- To be **FIRST** in India in Quality & Quantity of e-Services

- To be known as the Silicon Corridor of India
- To attract Investments of US \$ 2 bn in IT and US \$ 5 bn in Electronics manufacturing
- To get a 5% share in national exports of Software
- To create an additional direct employment of 0.5 millions
- To take Gigabit to all Villages
- To make at least one person e-literate in every household.

Government shall endeavor to establish State-of-the-art infrastructure of international standards suiting to the requirements of the IT/ITESc Industry. Visakhapatnam will be developed as a Mega IT Hub, through an initial effort of developing an IT township with a built-up space of 5 million square feet. A signature tower of 1 million square feet shall form the nucleus of the Mega IT Hub. IT Hubs shall also be developed at Vijayawada, Kakinada, Tirupati and Anantapur. Fiscal and non-fiscal incentives are announced in the policy to attract investment in this field.

9.12 Tourism

Andhra Pradesh is considered to be the **Kohinoor of India** and the **Destination State of India**. The State is recognized for its legendary dynasties, its most revered temples, lacquer toys and beautiful weaves, rich literature and vibrant arts of Kuchipudi dance. The State with more than 300 tourist locations and attracts large number of domestic and foreign tourists in India.

Andhra Pradesh Tourism Development Corporation (APTDC) is a State Government agency which promotes tourism in Andhra Pradesh. It looks after the creation of infrastructure and products. It is running tourist hotels and buses. The department offers tour packages of Heritage, Nature, Adventure, Health and Rural tourism representing rich historical and natural background of Andhra Pradesh State.

Andhra Pradesh Vision-2020 envisaged tourism as a growth engine. The State Government is making efforts to **Bring the World to Andhra Pradesh** and **Take Andhra Pradesh to the World**. A new tourism policy was announced in 2010 and steps are initializing to make Andhra Pradesh as a tourist-friendly destination. The important types of tourism in Andhra Pradesh are as follows:

1. Pilgrim Tourism
2. Health Tourism
3. Buddhist Tourism
4. Beach Tourism
5. Farm Tourism

6. Eco-Tourism
7. Leisure Tourism.

The tourist spots in Andhra Pradesh are attracting both domestic and foreign tourists. Following table shows the number of tourists visited various tourist places in the State from 2001 to 2013.

Table 9.20: Tourist Arrivals to Andhra Pradesh

Sl.No.	Year	Tourist Arrivals in Andhra Pradesh		
		Domestic	Foreign	Total
1.	2001	5,28,71,853	57,992	5,29,29,845
2.	2002	6,33,00,579	2,10,310	6,35,10,889
3.	2003	7,41,38,731	4,79,321	7,46,18,052
4.	2004	8,94,40,272	5,01,019	8,99,41,291
5.	2005	6,14,16,745	80,483	6,14,97,228
6.	2006	6,86,96,042	95,796	6,87,91,838
7.	2007	7,72,89,000	61,536	7,73,50,536
8.	2008	8,20,92,260	60,616	8,21,52,876
9.	2009	10,42,45,301	40,736	10,42,86,037
10.	2010	10,70,57,772	27,106	10,70,84,878
11.	2011	10,36,45,032	35,816	10,36,80,848
12.	2012	11,57,45,988	66,843	11,58,12,831
13.	2013	9,80,17,783	69,552	9,80,87,335

Source: *Statistical Abstract of Andhra Pradesh, 2014, page.440. Directorate of Economics and Statistics, Govt. of A.P.*

From the table, we can understand that the number of tourists arrived to the State is very significant. The thing to be noticed here is a drastic decline in the foreign tourist arrivals from 2005. During the year the total number of foreign tourist dropped from more than 5 lakhs to only 80,483 in 2005. On the other side the arrival of domestic tourists is increasing steadily year by year. The total number of tourists becomes double within a decade i.e. between 2001 and 2010.

Obviously, the highest number of tourists, both domestic and foreign is attracted by Chittoor district, particularly because of Tirumala, the popular Vaishnava Temple on Seven Hills. This is followed by Kurnool District, particularly due to the existence of one of the 'Jyothirlingas' and also

one of the 'Shakti Peetam' at Srisailem. In 2012, as per the data of Directorate of Tourism, A.P., these two districts only attracted more than half (56 percent) of the total tourists to the State.

In Andhra Pradesh, Visakhapatnam, Tirupati are primary and Kurnool and Vijayawada are the secondary destinations of tourism. A.P. is the main destination for Eco-tourism. Maredumilli (East Godavari), Nelapattu (Nellore), Mamandur, Talakona (Chittoor), Balapalli (Kadapa), Ethipothala (Guntur), Kambala Konda (Visakhapatnam) are the famous eco-tourism centres in Andhra Pradesh. Amaravathi, a renowned Buddhist centre is known for Buddhist tourism.

Besides, River cruise tourist centres also developing by the State. Ex: Haritha, a river cruise from Godavari to Papikondalu. The State is also famous for pilgrim tourism. Tirupati, Vijayawada, Kurnool, Kadapa are the famous pilgrim centres. All these attractions are increasing the inflow of foreign and domestic tourists in Andhra Pradesh. Tourism is now becoming a revenue source for the State's treasury, along with IT sector. These are the fast growing fields in recent times.

9.13 Andhra Pradesh and welfare Programmes/ Schemes

The foremost objective of any welfare state is to sustain and improve the living standards of people. Although since a long time, agriculture and industry have been recognized as prime drivers of economic growth; social sector development is gaining ground especially in the context of human development. The concept of Human Development invariably highlights the importance of bringing improvement in the social infrastructure like education, health care, nutrition, water supply, housing, social security etc. Further, public investment on these social overheads ensures social justice and equality in the society. Government of Andhra Pradesh has been implementing various welfare Programmes/ Schemes. The following Table 9.24 gives a sketch of some of the important welfare programmes implemented by the Government of Andhra Pradesh.

Table 9.21: Section-wise Welfare Programmes Implemented by Government of Andhra Pradesh

Women and Child	Backward Classes	Minorities	Tribal	Disabled	Youth
1. Janani Surksha Yojana 2. Child Health care 3. Aids Control (Asha) 4. ICDS 5. Swadhar Shelter Homes for Women 6. Girl Child protection Scheme 7. Kishore Sakti Yojana 8. Widow Pension Scheme 9. Pavala Vaddi Scheme 10. Abhaya Hastham Ready to eat 11. Bangaru Thalli Pathakam	1. BC Welfare Hostels (Students) 2. Cooperatives for Washermen 3. Nayee Brahmin's Cooperatives	1. Urdu Academy 2. Development of Minority Women and children in Urban Areas 3. Micro Credit to SHGS 4. Training and Employment Placement 5. Post Metric Scholarships 6. Reimbursement of Tuition fee 7. Maintenance of Post metric Hostels, Centers for Educational Development of Minorities 8. Grant for construction and improvement of Hostels and Residential Schools 9. Construction of Urdu Gihar and Shaddi Khanas 10. Printing of Urdu Books	1. ITDA 2. Modified Area Development Authority (MADA) 3. Dispersed Tribal Groups Welfare 4. Girijan Cooperative Corporations 5. ST Cooperative Finance 6. Cooperative Tribal Welfare 7. Gurukulams 8. Village Tribal Development Association 9. Village Energy Security Programme	1. Disabilities Act (1995) 2. National Trust Act (1999) 3. Marriage Incentive Award 4. Economic Rehabilitation Scheme 5. Petrol Subsidy 6. Sound Library 7. Braille Press 8. Sanction of Direct Loans	1. TRYSEM 2. NREP 3. DWACRA 4. IRDP 5. JRY 6. RLEGP 7. EAS 8. SGSY 9. APRLEGP 10. PMRY 11. Rajeev Udyoga Sree 12. CMRY

MODEL QUESTIONS

I. Write an essay on the following questions

1. Write an essay on the economy of Andhra Pradesh.
2. What is SGDP? Explain the trends in SGDP of Andhra Pradesh.
3. Explain the trends in population and percapita income growth in Andhra Pradesh.
4. Importance of Agriculture in Andhra Pradesh Economy.
5. Importance of Industry in Andhra Pradesh Economy.
6. Importance of Tertiary sector in Andhra Pradesh economy.
7. Explain the Irrigation facilities in Andhra Pradesh.
8. Explain about the transport facilities in Andhra Pradesh.
9. Role of Information Technology in the economic development of Andhra Pradesh.
10. Briefly give an account of the Welfare schemes of Andhra Pradesh.

II Write the answers briefly for the following questions.

1. State Gross Domestic Product (SGDP).
2. State Percapita income.
3. Occupational distribution of labour in A.P
4. Environmental Protection activities in the state
5. Importance of Tourism in A.P.
6. Population Characteristics of Andhra Pradesh.
7. Welfare Schemes related to different sections in Andhra Pradesh.

III Write the answers in one or two sentences.

1. SGDP
2. Density of population in A.P.
3. Literacy rate in A.P.
4. Project Tiger
5. Sarva Siksha Abhiyan

6. Any Welfare Programme
7. Eco-Tourism
8. Civil aviation in A.P.
9. Roadways in A.P.
10. Seaports in A.P.

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CHAPTER

10

ECONOMIC STATISTICS

- 10.1 *Measures of Dispersion*
- 10.2 *Definitions of Dispersion*
- 10.3 *Importance of Measuring Variation*
- 10.4 *Properties of a good measure of variation*
- 10.5 *Methods of Studying Variation*
- 10.6 *Measures of Dispersion for average*
- 10.7 *Lorenz Curve*

- 10.8 *Correlation*
- 10.9 *Index Numbers*
- 10.10 *Weighted Aggregation Method*
- Model Questions*
- References*

10.1 Measures of Dispersion

The various measures of central value give us one single figure that represents the entire data. But the average alone cannot adequately describe a set of observations, unless all the observations are the same. It is necessary to describe the dispersion of the observations. In two or more distributions the central value may be the same but still there can be wide disparities in the formation of distribution. Measures of dispersion help us in studying this important characteristic of a distribution.

10.2 Definitions of Dispersion

According to A.L. Bowley “Dispersion is the measure of the variation of the items”.

According to Brooks and Dick “Dispersion or Spread is the degree of the scatter or variation of the variable about a central value”.

10.3 Importance of Measuring Variation

Measures of variation are needed for four basic purposes.

1. To determine the reliability of an average.
2. To serve as a Basis for the control of the variability.
3. To compare two or more series with regard to their variability.
4. To facilitate the use of other statistical measures.

10.4 Properties of a good measure of variation

A good measure of dispersion should possess, as far as possible, the following properties.

- i) It should be simple to understand.
- ii) It should be easy to compute
- iii) It should be rigidly defined
- iv) It should be based on each and every item of the distribution
- v) It should be amenable to further algebraic treatment
- vi) It should have sampling stability
- vii) It should not be unduly affected by extreme items.

10.5 Methods of Studying Variation

The following are the important methods of studying variation.

1. The range.
2. The Interquartile range and the Quartile Deviation
3. The Mean Deviation or Average Deviation.
4. The standard Deviation, and
5. The Lorenz Curve.

The Range and Quartile Deviations, are positional measures because they depend on the values at a particular position in the distribution.

The average deviation and the standard deviation, are called calculation measures of deviation because all of the values are employed in their calculation while the last method is a graphic method.

10.5.1 Range

Range is the simplest method of studying dispersion. It is defined as the difference between the value of the smallest item and the value of the largest item included in the distribution. Symbolically,

$$\text{Range} = L - S$$

Where L = Largest item, and

S = Smallest item

Illustration

- (1). Calculation of Range for ungrouped data 20, 25, 29, 30, 35, 39, 41, 48, 51, 60 and 70

Solution: $\text{Range} = L - S$

$$L = 70 \text{ and } S = 20$$

$$\text{Range} = 70 - 20 = 50$$

- (2) Calculation of Range for a frequency distribution. For the following distribution of marks scored by a class of 40 students, calculate the Range.

Table 10.1

Class intervals (CI)	No. of Students (f)
0 – 10	5
10 – 20	8
20 – 40	16
40 – 60	7
60 – 90	4
	40

Range is just the difference between the upper limit of the highest class and the lower limit of the lowest class. So the Range is $90 - 0 = 90$.

Uses

- Range is useful in studying the variations in the prices of stocks and shares and other commodities that are sensitive to price changes from one period to another.
- The meteorological department does make use of range in determining, say, the difference between the minimum temperature and the maximum temperature.

- (iii) The range is a most commonly used measure of dispersion in everyday life. Questions of the form “what is the minimum and maximum temperature on a particular day?” “What is the difference between the wages earned by workers of a particular factory?” “How much one spends on petrol in his car/ scooter in a month” – are all usually answered in the form of range. Answers to questions such as these are usually given in the form of ‘Between such and such’.

10.5.2 Quartile Deviation

The presence of even one extremely high or low value in distribution can reduce the utility of range as a measure of dispersion. Thus, you may need a measure which is not unduly affected by the outliers.

In such a situation, if the entire data is divided into four equal parts, each containing 25% of the values, we get the values of Quartiles and Median.

The upper and lower Quartiles (Q_3 and Q_1 respectively) are used to calculate Inter Quartile Range which is $Q_3 - Q_1$.

Inter – Quartile Range is based upon middle 50% of the values in a distribution and is, therefore, not affected by extreme values. Half of the Inter-Quartile Range is called Quartile Deviation (Q.D). Thus:

$$Q.D = \frac{Q_3 - Q_1}{2}$$

Quartile Deviation is therefore also called Semi – Inter Quartile Range.

Example 1: Calculation of Q.D for ungrouped data.

20, 25, 29, 30, 35, 39, 41, 48, 51, 60 and 70.

For Q.D.... We need to calculate values of Q_3 and Q_1 .

Q_1 is the size of $\frac{n+1}{4}$ th value n being 11, Q_1 is the size of 3rd Value.

As the values are already arranged in ascending order, it can be seen that Q_1 the 3rd value is 29.

Similarly Q_3 is size of $\frac{3(n+1)}{4}$ th value, i.e., 9th value which is 51. Hence $Q_3 = 51$.

$$Q.D = \frac{Q_3 - Q_1}{2} = \frac{51 - 29}{2} = 11$$

Do you notice that Q.D. is the average difference of the Quartiles from the median.

Example 2: Calculation of Q.D. for a frequency distribution. 40 students, calculate the Q.D.

Table 10.2

Class intervals(C.I)	No. of Students (<i>f</i>)
0 – 10	5
10 – 20	8
20 – 40	16
40 – 60	7
60 – 90	4
	40

For Q.D. first calculate cumulative frequencies as follows:

Table – 10.3

Class intervals (C.I.)	Frequencies (<i>f</i>)	Cumulative Frequencies (c.f.)
0 – 10	5	05
10 – 20	8	13
20 – 40	16	29
40 – 60	7	36
60 – 90	4	40
	<i>n</i> = 40	

Q_1 is the size of $\frac{n}{4}$ th value in a continuous series. Thus it is the size of the 10th value. The class containing the 10th value is 10 – 20. Hence Q_1 lies in class 10 – 20. Now, to calculate the exact value of Q_1 , the following formula is used:

$$Q_1 = Q_1 = L + \frac{\frac{n}{4} - cf}{f} xi$$

Where L = 10 (lower limit of the relevant Quartile class)

c.f. = 5 (value of c.f. for the class preceding the Quartile class)

i = 10 (frequency of the Quartile class) Thus,

$$Q_1 = 10 + \frac{10-5}{8} \times 10 = 16.25$$

Similarly, Q_3 is the size of $\frac{3n}{4}$ th value, i.e., 30th value, which lies in class 40-60. Now using the formula for Q_3 , its value can be calculated as follows:

$$Q_3 = L + \frac{\frac{3n}{4} - c.f}{f} \times i$$

$$Q_3 = 40 + \frac{30-29}{7} \times 20$$

$$Q_3 = 42.87$$

$$Q.D = \frac{42.87 - 16.25}{2} = 13.31$$

In individual and discrete series Q_1 is the size of $\frac{n+1}{4}$ the value, but in continuous distribution, it is size of $\frac{n}{4}$ th value. Similarly, for Q_3 and median also.

Merits of Quartile Deviation

In certain respects it is superior to range as a measure of dispersion.

It has a special utility in measuring variation in case of open end distributions or one in which the data may be ranked but measured quantitatively.

It is also useful in erratic or badly skewed distributions, where the other measures of dispersion would be warped by extreme values. The quartile deviation is not affected by the presence of extreme values.

It does not involve much mathematical difficulties.

10.6 Measures of Dispersion for average

Recall the dispersion was defined as the extent to which values differ from their average. Range and Quartile deviation are not useful in measuring, how far the values are, from their average. Yet, by calculating the spread of values, they do give good idea about the dispersion. Two measures which are based upon deviation of the values from their average are Mean Deviation and Standard Deviation.

Mean Deviation tries to overcome this problem by ignoring the signs of deviation, i.e., it considers all deviations positive. For standard deviation, the deviations are first squared and average and then square root of the average is found. We shall now discuss them separately.

10.6.1 Calculation of Mean Deviation

$M.D. = \frac{\sum f |D|}{N}$ Where M.D. = Mean Deviation or average deviation, f is frequency of corresponding interval, N is total no. of frequencies ($\sum f$) $|D|$ read as Mod $D = (x - A)$ is the modulus value or absolute value i.e., deviations from median or mean or mode ignoring \pm signs.

Suppose a college is proposed for students of five towns A, B, C, D, and E which lie in that order along a road. Distances of town is Kilometers from town A and number of students in these towns are given below:

Table 10.4

Town	Distance from Town A	No. of Students
A	0	90
B	2	150
C	6	100
D	14	200
E	18	80
		620

Now, if the college is situated in town A, 150 students from town B will have to travel 2 Kilometers each to reach the college. The objective is to find a location so that the average distance traveled by students is minimum.

You may observe that the students will have to travel more, on an average, if the college is situated at A or E. If on the other hand, it is somewhere in the middle, they are likely to travel less. Mean deviation is the appropriate statistical tool to estimate the average distance traveled by students. Mean deviation is the arithmetic mean of the differences of the values from their average. The average used is either the arithmetic mean or median. Since the mode is not a stable average, it is not used to calculate Mean Deviation.

Use fullness

It is specially effective in reports presented to the general public or to groups not familiar with statistical methods. This measure is useful for small samples with no elaborate analysis required. Incidentally, it may be mentioned that the National Bureau of Economic Research has found, in its work on forecasting business cycle, that the average deviation is the most practical measure of dispersion to use for this purpose.

10.6.2 Calculation of Standard Deviation

The standard deviation concept was introduced by Karl Pearson in 1823. It is by far the most important and widely used measure of studying dispersion. Standard deviation is also known as root mean square deviation for the reason that it is the square root of the mean of squared deviation from the arithmetic mean. Standard deviation is denoted by the small greek letter σ (read as sigma).

Standard deviation is the positive square root of the mean of squared deviation from the mean. So if there are five values X_1, X_2, X_3, X_4 , and X_5 first their mean is calculated. These deviation are then squared. The mean of these squared deviations is the variance. Positive square root of the variance is the standard deviation. Standard deviation is calculated on the basis of the mean only.

Example: Suppose you have to calculate the standard deviation of the following values.

5, 10, 25, 30, 50.

Table 10.5

X	d(X- \bar{X})	d ²
5	-19	361
10	-14	196
25	+1	1
30	+6	36
50	-26	676
	0	1270

Following formula is used

$$\sigma = \sqrt{\frac{\sum d^2}{n}} \quad \sigma = \sqrt{\frac{1270}{5}} = \sqrt{254} = 15.937$$

10.7 Lorenz Curve

The measures of dispersion discussed so far give a numerical value of dispersion. A graphical measure called Lorenz Curve is available for estimating dispersion. You may have heard of statements like top 10% of the people of a country earn 50% of the national income while top 20% account for 80%. An idea about income disparities is given by such figures. Lorenz Curve uses the information expressed in a cumulative manner to indicate the degree of Variability. It is specially used in comparing the variability of two or more distributions.

Given below are the monthly incomes of employees of a company.

Table – 10.6

Incomes	Number of employees
0 – 5,000	5
5,000 – 10,000	10
10,000 – 20,000	18
20,000 – 40,000	10
40,000 – 50,000	7

Example

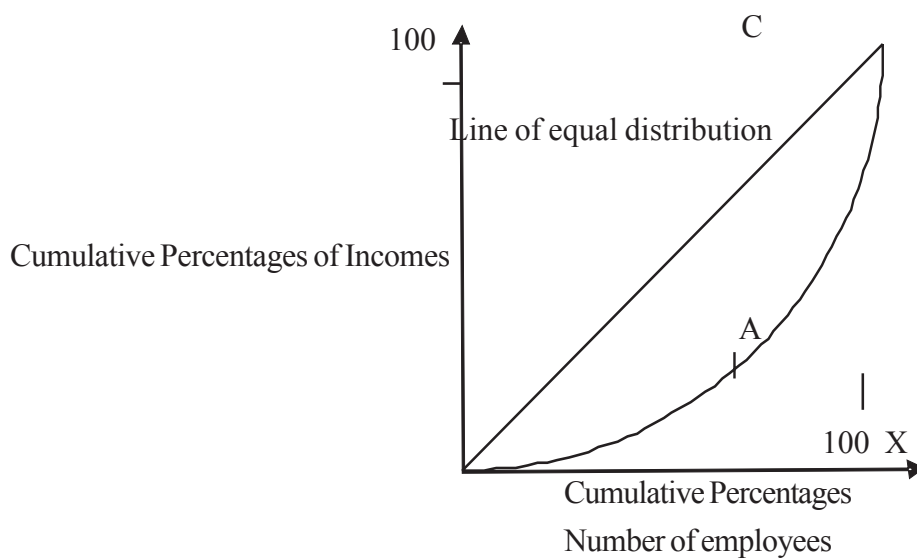
Income Units	Mid Points	Cumulative Mid points	Cumulative mid-points as percentages	No. of Employees frequencies	Cumulative frequencies	Cumulative frequencies of percentages
1	2	3	4	5	6	7
0–5000	2500	2500	2.5	5	5	10
5000–10000	7500	10000	10.0	10	15	30
10000–20000	15000	25000	25.0	18	33	66
20000–40000	30000	55000	55.00	10	43	86
40000–50000	45000	100000	100.0	7	50	100

Steps of the Lorenz Curve

1. Calculate class mid-points and find cumulative totals as in Col.3 in the example given above.
2. Calculate cumulative frequencies as in Col. 6.
3. Express the grand totals of Col.3 and 6 as 100, and convert the cumulative totals in these columns into percentages, as in Col.4 and 7.

4. Now, on the graph paper, take the cumulative percentages of incomes on Y-axis and cumulative percentages of number of employees on X-axis, as in figure 10.1
5. Draw a line joining co-ordinate 0, 0 with 100, 100. This is called the line of equal distribution shown as line 'OC' in figure 10.1
6. Plot the cumulative percentages of the variable with corresponding cumulative percentages of frequency. Join these points to get the curve OAC.

Figure : 10.1



10.8 Correlation

In previous you have learnt how to construct summary measures out of a mass of data and changes among similar variables. Now you will learn how to examine the relationship between two variables. It is true that there is correlation between price and quantity demanded, age of husband and wife, income and consumption etc.

10.8.1 Definitions

According to A.M. Tuttle, “Correlation is an analysis of the covariation between two or more variables”.

According to Simpson and Kabka “Correlation analysis is an analysis deals with the association between two or more variables”.

10.8.2 Uses of the Study of Correlation

- i) Thus correlation is a statistical device which helps us in analyzing the covariation of two or more variables.
- ii) It is through correlation that we can predict about the future.
- iii) If the value of a variable is given, we can know the value of another variable.
- iv) Correlation contributes to economic behaviour. It helps us in knowing the important variables on which others depend.
- v) In the field of commerce and industry, the technique of correlation coefficient helps to make estimates like sales, price or costs.

10.8.3 Types of Correlation

Correlation is commonly classified into positive or negative correlation. If the two variables move in the same direction i.e., with an increase in one variable, the other variable also increases or with a fall in one variable, the other variable also falls, the correlation is said to be positive. For example, price and supply are positively related. It means if price goes up, the supply goes up and vice versa. If two variables move in opposite direction i.e., with the increase in one variable, the other variable falls or with the fall in one variable, the other variable rises, the correlation is said to be negative or inverse. For example, the law of demand shows inverse relation between price and demand.

10.8.4 Techniques for Measuring Correlation

Three important statistical tools used to measure correlation are scatter diagrams, Karl Pearson's Coefficient of correlation and Spearman's rank correlation.

10.8.4.1 Scatter Diagram

This method is also known as dot diagram. Scatter diagram is one of the simplest method of diagrammatic representation of two variables distribution. It provides the simplest tool of determining the correlation between two variables. The term scatter refers to the dispersion or spread of the dots on the graph.

10.8.4.2 Karl Pearson's Coefficient of Correlation

Karl Pearson, a reputed statistician, in 1890, has constructed a well set formula used on mathematical treatment for determining the coefficient of correlation. The formula is popularly known as Kari Pearson's Coefficient of Correlation.

Characteristics of Karl Pearson's Coefficient of Correlation:

- (i) The formula is based on Arithmetic mean and the standard Deviation.
- (ii) This method establishes the direction of relationship of variables viz., positive or negative.
- (iii) This method also shows the size of relationship between variables of the two series. It ranges between +1 and -1, +1 means perfect positive correlation and -1 means perfect negative relationship. If the value is '0', then it means no relationship between the variables.
- (iv) Karl Pearson's method is considered to be an ideal method of calculation of correlation coefficient. It is because of the covariance which is most reliable as a standard statistical tool.

Calculation of Karl Pearson's Coefficient of Correlation

The Pearson Coefficient of correlation is denoted by the symbol r . The formula for computing Pearsonian r is:

$$r = \frac{\sum xy}{\sqrt{\sum x^2 \cdot \sum y^2}} = \frac{\sum_{xy}}{N\sigma_x\sigma_y}$$

Where N = Number of observations

$$\bar{X} = \frac{\sum X}{N}$$

$$\bar{Y} = \frac{\sum Y}{N}$$

x = $(X - \bar{X})$ means deviation in X series from its actual mean.

y = $(Y - \bar{Y})$ means deviation in Y series from its actual mean.

\sum_{xy} = Co-variance of x and y

σ_x = Standard deviation of X-series. $\left(\sigma_x = \sqrt{\frac{\sum x^2}{N}} \right)$

σ_y = Standard deviation of Y-series. $\left(\sigma_y = \sqrt{\frac{\sum y^2}{N}} \right)$

r = the correlation coefficient.

Example:

Calculate the Co-efficient of correlation from the following data through direct and alternative method.

X	9	8	7	6	5	4	3	2	1
Y	15	16	14	13	11	12	10	8	9

Solution:

Calculation of Co-efficient of correlation:

X	$x = (X - \bar{X})$	X^2	Y	$y = (Y - \bar{Y})$	y^2	xy
9	4	16	15	3	9	12
8	3	9	16	4	16	12
7	2	4	14	2	4	4
6	1	1	13	1	1	1
5	0	0	11	-1	1	0
4	-1	1	12	0	0	0
3	-2	4	10	-2	4	4
2	-3	9	8	-4	16	12
1	-4	16	9	-3	9	12
$\Sigma X = 45$	$\Sigma x = 0$	$\Sigma x^2 = 60$	$\Sigma y = 108$	$\Sigma y = 0$	$\Sigma y^2 = 60$	$\Sigma xy = 57$

$$N = 9$$

$$\bar{X} = \frac{\Sigma X}{N} = \frac{45}{9} = 5$$

$$\bar{Y} = \frac{\Sigma Y}{N} = \frac{108}{9} = 12$$

$$\Sigma x^2 = 60, \Sigma y^2 = 60, \Sigma xy = 57$$

$$r = \frac{\Sigma xy}{\sqrt{\Sigma x^2 \Sigma y^2}} = \frac{57}{\sqrt{60 \times 60}} = \frac{57}{60} = +0.95$$

Alternative method

$$\sigma_x = \sqrt{\frac{\Sigma x^2}{N}} = \sqrt{\frac{60}{9}} = \sqrt{6.67} = 2.58$$

$$\sigma_y = \sqrt{\frac{\Sigma y^2}{N}} = \sqrt{\frac{60}{9}} = \sqrt{6.67} = 2.58$$

$$r = \frac{\Sigma xy}{N\sigma_x\sigma_y} = \frac{57}{9(2.58)(2.58)}$$

$$r = \frac{57}{59.91} = +0.951$$

10.8.5 Spearman's Rank Correlation

In 1904, Prof. Charles Edward Spearman had devised a method of computing coefficient of correlation. It is based on the ranking of different items in the variable. This method is useful where actual item values are not given, simply their ranks in the series are known. Thus it is a good measure in cases where abstract quantity of one group is corrected with that of the other group. In Spearman's Coefficient of Correlation, we take the difference in ranks, square them and find out the aggregate of the squared differences. Symbolically

$$R = 1 - \frac{6\Sigma D^2}{N(N^2 - 1)} \text{ (or) } 1 - \frac{6\Sigma D^2}{N^3 - N}$$

Where R denotes rank coefficient of correlation and D refers to the difference of rank between paired items in two series. N refers Number of Pairs.

Illustration

Find rank correlation coefficient from the following data.

X	10	12	15	22	28	30	45	60	72
Y	32	35	42	48	52	30	65	68	70

Solution:

X	Y	R _x	R _y	R _x -R _y =D	D ²
10	32	9	8	1	1
12	35	8	7	1	1
15	42	7	6	1	1
22	48	6	5	1	1
28	52	5	4	1	1
30	30	4	9	-5	25
45	65	3	3	0	0
60	68	2	2	0	0
72	70	1	1	0	0

$$N = 9$$

$$\epsilon D^2 = 30$$

$$R = 1 - \frac{6\epsilon D^2}{N(N^2 - 1)}$$

$$= 1 - \frac{6 \times 30}{9 \times 80} = 1 - \frac{1}{4} = 0.75 \text{ ans}$$

10.9 Index Numbers

Historically, the first index was constructed in 1764 to compose the Italian Price index in 1750 with the price level in 1500. Though originally developed for measuring the effect of change in prices, index members have today become one of the most widely used statistical devices and there is hardly any field where they are not used. Newspapers headline the fact that prices are going up or down, the industrial production is rising or falling, that imports are increasing or decreasing, that crimes are rising in a particular period compared to the previous period as disclosed by index numbers. In fact, they are described as barometers of economic activity.

10.9.1 Definitions

According to Croxton and Carden, "Index numbers are devices for measuring difference in the magnitude of groups of related variabilities".

10.9.2 Uses of Index Numbers

- (i) Economic Policies of a country are guided.
- (ii) It helps in measuring the price level over a period of time.
- (iii) They reveal trends and tendencies.
- (iv) Index numbers are very useful in deflating.

10.9.3 Type of Index Numbers

The index numbers are, nowadays, used in almost every sphere. However, some of the popular index numbers used in the field of economics and business are classified as under.

1. Price Index Number
 - (a) Wholesale Price Index Number
 - (b) Retail Price Index Number
2. Quantity Index Number
3. Cost Living Index Number
4. Special Purpose Index Number

10.10 Weighted Aggregation Method

It is not possible that consumption or the quantity consumed by any consumer will remain the same at any price. Thus we have to give considerable importance to it while calculating Index numbers.

P_0 Q_0 denote the price and quality for base year, while P_1 Q_1 are used to denote price and quantity in current period.

10.10.1 Important formulas are given below

- (i) Laspeyre's Formula:

$$\text{Price Index Number: } P_{01} = \frac{\sum P_1 Q_0}{\sum P_0 Q_0} \times 100$$

$$\text{Quantity Index Number: } Q_{01} = \frac{\sum P_0 Q_1}{\sum P_0 Q_0} \times 100$$

- (ii) **Paasche's Formula:** In this formula Paasche has given special importance to quantity in the current period using prices of both the periods.

$$\text{Price Index Number: } P_{01} = \frac{\sum P_1 Q_1}{\sum P_0 Q_1} \times 100$$

$$\text{Quantity Index Number: } Q_{01} = \frac{\sum P_1 Q_1}{\sum P_1 Q_0} \times 100$$

- (iii) **Bowley's Formula:** It is also known as 'Dorbish and Bowley's Formula'. There is nothing new in this formula, as it is just the average of the first two formulas i.e., Laspeyre's and Paasche's.

$$\text{Price Index Number: } P_{01} = \frac{L + P}{2}$$

$$\text{Quantity Index Number: } Q_{01} = \frac{L + P}{2}$$

Where 'L' stands for Laspeyre's Index and 'p' for Paasche's Index.

- (iv) **Fisher's Formula:** Like above Bowley's formula, this formula is also not original one, as it is the square root of the product of first two formulas given in (1) and (2) i.e., Laspeyre's and Paasche's.

Price Index Number: $P_{01} = \sqrt{LXP}$

$$= \sqrt{\frac{\varepsilon P_1 Q_0}{\varepsilon P_0 Q_0} \times \frac{\varepsilon P_1 Q_1}{\varepsilon P_0 Q_1}} \times 100$$

Quantity Index Number: $Q_{01} = \sqrt{L \times P}$

$$= \sqrt{\frac{\varepsilon P_0 Q_1}{\varepsilon P_0 Q_0} \times \frac{\varepsilon P_1 Q_1}{\varepsilon P_1 Q_0}} \times 100$$

Where 'L' stands for Laspeyre's Index.

and 'P' for 'Paasche's Index'

This formula is known as the Fisher's Ideal Index formula. Fisher, a great statistician observed more than one hundred formula and discovered it.

It is most popular because it satisfies the main tests i.e.,

- (i) Time Reversal Test
- (ii) Factor Reversal Test.

Conclusion

Estimation index number enables you to calculate a single measure of change of a large number of items. Index numbers can be calculated for price, quantity, volume etc.

It is also clear from the formulas that the index numbers need to be interpreted carefully. The items to be included and the choice of the base period are important. Index numbers are extremely important in policy making as is evident by their various uses.

MODEL QUESTIONS

I. Write an essay on the following questions

1. What are the uses of dispersion.
2. What is meant by dispersion? Explain the various measures of dispersion.
3. Calculate the quartile deviation for a frequency distribution.

Class intervals	0-10	10-20	20-40	40-60	60-90
No. of students	5	8	16	7	4

4. Calculate the Karl Pearson's coefficient of correlation.

X	9	8	7	6	5	4	3	2	1
Y	15	16	14	13	11	12	10	8	9

II. Write the answers briefly for the following questions.

1. Define relation between M.D., S.D. and Q.D.
2. Calculate the standard deviation of the following values 5, 10, 25, 30, 50
3. Define Lorenz Curve? When is it used
4. What is correlation? State its importance
5. How many types of index numbers.

III. Write the answers in one or two sentences.

1. Range
2. Mean deviation
3. Correlation
4. Rank correlation
5. Index number
6. Las Peyre's price Index formula
7. Paacha's Price index formula
8. Fisher's price index formula.

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Unit - 1

Economic Growth and Development

Model Questions

I. Write an essay on the following questions

1. Explain the characteristic features of developed countries.
2. India is a developing country – discuss.
3. Explain the features of developing countries with special reference to India.

II. Write the answers briefly for the following questions.

1. Differentiate between economic growth and development.
2. Explain the determinants of economic development.

III. Write the answers in one or two sentences.

1. Economic growth
2. Economic development
3. Per capita income
4. Planning commission's definition of a developing country.
5. Human capital
6. World bank's classification of world countries
7. Dual Economy

Unit - 2

Population and Human Resource Development

Model Questions

I. Write an essay on the following questions

1. Explain the theory of Demographic Transition.
2. What are the causes for the rapid growth of population in India?
3. What are the measures to control population explosion?
4. Bring out the main elements of population policy, 2000.
5. Explain the occupational distribution of population in India.
6. Define Human Resource Development. How do you improve it?
7. Explain the role of education in economic development.
8. Explain the role of health in economic development.
9. What are the different indexes to measure Human Development?
10. What are the advantages and disadvantages of population.

II. Write the answers briefly for the following questions

1. Illustrate the trends of world population.
2. List out the top ten populous countries in the world.
3. What are the causes for high birth rate in India?
4. What are the family planning programmes implemented in India?
5. Explain the importance of human resource development.
6. What is the role of education in rural development?
7. Explain the education system in India.
8. What are the health programmes implemented in India?
9. Explain the concept of Physical Quality of Life Index (PQLI).

III. Write the answers in one or two sentences

1. Population Explosion.
2. Great dividing year of population.
3. Infant Mortality Rate (IMR).
4. Maternal Mortality Rate (MMR).

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5. Birth Rate.
 6. Death Rate.
 7. Urbanization.
 8. Joint Family System.
 9. Occupational Distribution of population.
 10. Primary Sector.
 11. Tertiary Sector.
 12. Human Resource Development.
 13. Literacy Rate.
 14. Sarva Siksha Abhiyan.
 15. Janani Suraksha Yojana.
 16. Human Development Index (HDI).
 17. Gender Related Index.
 18. Gender Empowerment Measure.
 19. Human Poverty Index.
 20. Total Fertility Rate

Glossary

$$\text{Literacy Rate} = \frac{\text{Literates in seven year and above aged population}}{\text{Total population}} \times 100$$

Percentage of increase in population growth

$$= \frac{\text{Present population} - \text{previous population}}{\text{Previous population}} \times 100$$

Unit - 3

National Income

Model Questions

I. Write an essay on the following questions

1. Analyse the trends of national income in India
2. Explain the sectoral contribution to the National Income.
3. What are the causes for inequalities in the distribution of income and Wealth?
4. Describe the measures to reduce income inequalities in India.
5. Define poverty. What are the causes for poverty in India?
6. Elucidate the remedial measures to reduce poverty in India.
7. Explain the causes for unemployment and remedial measures to reduce unemployment.
8. What is the role of Micro Finance in reducing poverty in India?

II. Answer briefly for the following questions

1. Explain the incidence of unemployment.
2. Analyse the different concepts of poverty.
3. Explain the different types of unemployment.
4. Explain briefly about Deen Dayal Upadhyaya Grameena Kaushlya Yojana .
5. What is meant by micro finance? What are the advantages of micro finance?
6. Write about Mahatma Gandhi National Rural Employment Guarantee Scheme.

III. Write the answers in one or two sentences

1. National Rural Employment Guarantee Scheme.
2. Relative Poverty.
3. Absolute Poverty.
4. TRYSEM.
5. Disguised unemployment.
6. Poverty Gap Index.
7. Usual status concept of unemployment.

8. Micro – finance.
9. Percapita income.
10. Poverty line.
11. Frictional unemployment.
12. Under – employment.
13. Cyclical unemployment.

Unit - 4

Agriculture Sector

Model Questions

I. Write an essay on the following questions

1. Explain the importance of agricultural sector in the Indian Economy.
2. Explain the present conditions of agricultural labourers and suggest the measures to improve the conditions of agricultural labourers.
3. What are the factors affecting cropping pattern in India? Suggest the measures to correct the cropping pattern.
4. What are the causes for low productivity in agriculture in India? Suggest some measures to improve it.
5. Analyse the various sources of irrigation and its importance.
6. What are the causes for small size of land holdings in India? Mention the problems of small holdings.
7. Explain the advantages and disadvantages of Co- operative farming.
8. Explain the tenancy reforms in India.
9. Briefly explain the various land reforms in India.
10. Explain the factors responsible for “Green Revolution” in India and its impact on Indian economy.
11. Describe the various sources of rural credit in India.
12. What are the causes for rural indebtedness? Suggest some remedial measures to reduce it.
13. Explain the role and progress of NABARD in the field of agriculture and rural credit.
14. Explain the defects in agricultural marketing and suggest some remedial measures.

II. Write the answers briefly for the following questions.

1. Explain the features of Indian agriculture.
2. Explain the present conditions of agricultural labourers.
3. Explain the factors affecting cropping pattern.
4. Describe the importance of irrigation.

5. What are the causes for low productivity in agriculture in India?
6. Examine the present pattern of land utilization.
7. What is meant by consolidation of land holdings? Point out the reasons for its slow process.
8. Define "Creation of Economic land holding". Suggest conditions for the successful implementation of the programme.
9. Explain the need for land reforms.
10. What is abolition of intermediaries? List out its advantages?
11. What is ceiling on land holding? Explain briefly its objectives and main features.
12. What are the reasons for poor performance of land reforms?
13. Describe the impact of Green Revolution on Indian Economy.
14. Explain the role of Regional Rural Banks in rural credit.
15. Describe the role of Primary Agricultural Co-operative Credit Societies in rural credit.
16. Write briefly about the role of commercial banks in rural credit.
17. Elucidate the role of Reserve Bank of India in rural credit.
18. Examine the defects in the agricultural marketing in India.
19. What are the various stages of agricultural marketing?
20. Write about regulated markets.
21. What is co- operative marketing? What are its advantages?
22. Define contract farming and explain its advantages.

III. Write the answers in one or two sentences.

- | | |
|--------------------------------|---------------------------|
| 1. Agriculture sector | 2. Agro based industries |
| 3. Food security | 4. Land reclamation |
| 5. Cropping pattern | 6. Perennial canals |
| 7. Drip irrigation | 8. Sprinkler irrigation |
| 9. Land reforms | 10. Organic farming |
| 11. Economic holding | 12. Farm mechanization |
| 13. Consolidation of holdings | 14. Co- operative farming |
| 15. Objectives of land reforms | 16. Zamindari System |
| 17. Ryotwari System. | 18. Occupancy Tenant. |
| 19. Green Revolution | 20. IADP |

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|-----------------|------------------------|
| 21. IAAP | 22. HYVP |
| 23. RIDF | 24. Kisan Credit Card |
| 25. SGSY | 26. Micro Finance |
| 27. Assembling | 28. Processing |
| 29. AGMARK | 30. Marketable Surplus |
| 31. Rythu Bazar | |

Unit - 5

Industrial Sector

Model Questions

I. Write an essay on the following questions

1. Explain the importance of industrial sector in India.
2. Briefly review the 1948 industrial policy resolution of India.
3. Discuss the 1956 industrial policy resolution of India.
4. Critically evaluate the 1991 new industrial policy resolution of India.
5. Write about the National Manufacturing Policy of India.
6. Explain the disinvestment policy of India.
7. Explain the role of Foreign Direct Investment in economic development of India.
8. Examine the role of Special Economic Zones in Indian economic development.
9. Mention the various causes for industrial backwardness in India.
10. Define small scale enterprises. Explain the importance and problems of small scale industries in Indian economy.
11. Briefly explain the Indian industrial growth rate during the Five Year Plans.
12. Discuss the major sources of industrial finance in India.

II. Answer briefly the following

1. Write a note on Industrial Finance Corporation of India.
2. Write about the functions of Industrial credit and Investment Corporation of India.
3. What is meant by industrial estate? What are its advantages and defects?
4. What are the advantages of special economic zones?
5. Explain the need of Foreign Direct Investment in India.
6. Define national investment fund. What are its salient features?

7. What are the objectives of National Manufacturing Policy?
8. Explain the features of national investment and manufacturing zones.
9. Suggest remedial measures for the development of micro, small scale and medium enterprises.
10. Explain the functions of Industrial Development Bank of India.

III. Answer in two or three sentences

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|-------------------------------|---------------------------|
| 1. SIDBI | 2. IIBI |
| 3. State Finance Corporations | 4. Disinvestment |
| 5. MRTP Act | 6. Special Economic Zones |
| 7. Foreign Direct Investment | 8. Industrial estates |
| 9. MSMEs | 10. ICICI |
| 11. IFCI | 12. Globalization |

5.12.2 Advantages of industrial estates

1. Infrastructure facilities are being provided by the government in industrial estates. As a result there is a chance for saving capital and time.
2. Industrial estates make possible for easy availability of technological assistance and skilled labourers.
3. Industrial estates enable the small units to get the benefits of economies of scale because of centralization of many small units at a particular place.
4. The units in industrial estates can become the best ancillary units when they are situated nearby the large scale industries.
5. Decentralization of industries which attains balanced regional development is possible through industrial estates.

5.12.3 Defects of industrial estates

1. Being the construction costs are very high many of them are not able to bear the rental charges.
2. As a result of heavy rental charges number of industrial units are not functioning. Hence, investment by the government in these estates is in vain.
3. Expected level of employment was also not generated.

5.4.3 Critical review on 1991 industrial policy

The 1991 industrial policy succeeded in abolishing obstacles to the private industrial sector. All most all the industrialists welcomed the new economic policy. Though the policy ensured advantages but not escaped from criticisms.

1. **Foreign direct investment :** Important industries were allowed foreign direct investment upto 51 percent. Hence, the criticism is the multinational companies will transfer profits earned here to their home countries.
2. **Privatisation :** According to this policy only public sector units which are gaining low profits are to be transferred to the private sector. Public sector containing such sick units are only 3 percent.
3. **Absence of security :** The 1991 industrial policy states that the sick industries should be closed. Here, the criticism is it failed to consider the security of the work force in case of closure.
4. **Employment generation :** The aim of the policy is to encourage indigenous investment by inviting the foreign investment. But the new industrial policy failed to explain the magnitude of increase in employment by the flow of foreign direct investment.
5. **Threat to economic sovereignty :** The new industrial policy paved the way for foreign direct investment by providing various concessions to multinational companies to penetrate into the Indian economy. The critics opined that much interference of multinational companies may become a threat to economic sovereignty.

Unit - 6

Tertiary Sector

Model Questions

I. Write an essay on the following questions

1. Define tertiary sector. Explain the importance of tertiary sector in Indian Economy.
2. Analyse the contribution of infrastructure to the economic development of a country.

II. Write the answers briefly for the following questions.

1. What are the activities considered under the India's services sector?
2. What are the advantages of Road ways?
3. Explain the importance of Railways.
4. What is Tourism? Explain its importance in Indian Economy.
5. Explain the Banking system in India.
6. What are the major constituents of insurance industry in India?
7. Write a note on software industry in India.

III. Write the answers in one or two sentences.

- | | |
|----------------------------|--------------------------------------|
| 1. Service sector | 2. Infrastructure facilities |
| 3. Transport | 4. Water transport |
| 5. Civil aviation | 6. Tourism |
| 7. LIC | 8. GIC |
| 9. Micro Insurance | 10. Communication |
| 11. Science and technology | 12. Performance of software industry |

Unit - 7

Planning and Economic Reforms

Model Questions

I. Write an essay on the following questions

1. Define Planning and what are the objectives of planning?
2. Explain the objectives of Twelfth Five Year Plan.
3. Briefly review the achievements and failures of Eleven Five Year Plans.
4. Explain the causes for regional imbalances in India.
5. Explain the measures taken for balanced regional development.
6. Explain the role of International Trade in Economic Development.
7. Define Globalization? Explain the essential conditions, the cases favourable and against for globalization.
8. Explain the impact of Globalization on Indian Economy.

II. Write the answers briefly for the following question.

1. Explain the various types of planning.
2. Write a note on planning commission.
3. Explain the objectives of planning commission.
4. Explain the failures of plans.
5. Elucidate the reasons for regional imbalances in India.
6. Define privatization. What are its advantages?
7. Describe the role of international trade in economic development.
8. What are the Objectives of GATT?
9. Explain the objectives of WTO.
10. Examine the differences between GATT and WTO.
11. What are the functions of World Trade Organisation?

III. Write the answers in one or two sentences.

- | | |
|--------------------------------------------|------------------------------------------|
| 1. Define plan | 2. What is Rolling plan? |
| 3. Concept of Plan holiday | 4. Define Perspective plan |
| 5. What is an Annual plan? Give an example | 6. Backward States in India |
| 7. Define Regional Imbalances | 8. Balanced regional Development |
| 9. What is Liberalization ? | 10. Explain the concept of Privatization |
| 11. What do you mean by TRIMS? | 12. Concept of TRIPS |
| 13. Define Disinvestment | 14. The clause of MFN |
| 15. WTO | 16. GATT |
| 17. FDI | 18. Uruguay Round |

Glossary :

Balanced regional development : Utilization of the potentialities of all regions for economic development is in the same ratio then it is called balanced regional development.

Unit - 8

Environment and Sustainable Economic Development

Model Questions

I. Write an essay on the following questions

1. Define environment and explain the concepts of environment.
2. Describe the relationship between environment and the economy.
3. What is air pollution? Explain the causes and consequences of air pollution.
4. Briefly discuss the sources, effects of water pollution.
5. Define noise pollution and explain how it affects the quality of environment.
6. What are the economic implications of environmental degradation?
7. What are the various factors resulting in environmental pollution?

II. Write the answers briefly for the following questions.

1. Explain the various components of Environment.
2. What are the causes for soil or land pollution?
3. Define natural resources and illustrate the types of natural resources.
4. What is pollution? Explain the various types of pollution.
5. What do you mean by "Sustainability"? Explain the Components of "Sustainability".
6. Explain the effects of pollution on human health.
7. Suggest measures for the conservation of forests.
8. Explain the need for environmental preservation.

III. Write the answers in one or two sentences.

1. Environment
2. Ecosystem
3. Greenhouse effect
4. Air pollution
5. Water pollution
6. Ozone layer
7. Global warming

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8. Sustainable Development
9. Cost – benefit analysis of environment
10. Reasons for Deforestation
11. Biodiversity
12. What is “Noise”?
13. What is Land Degradation?
14. Environmental Externalities.
15. Swachh Bharat Abhiyan.

Unit - 9

Economy of Andhra Pradesh

Model Questions

I. Write an essay on the following questions

1. Write an essay on the economy of Andhra Pradesh.
2. What is SGDP? Explain the trends in SGDP of Andhra Pradesh.
3. Explain the trends in population and per capita income growth in Andhra Pradesh.
4. Describe the importance of agriculture in Andhra Pradesh Economy.
5. Elucidate the importance of industry in Andhra Pradesh Economy.
6. Analyse the importance of tertiary sector in Andhra Pradesh economy.
7. Explain the Irrigation facilities in Andhra Pradesh.
8. Explain the transport facilities in Andhra Pradesh.
9. Discuss the role of information technology in the economic development of Andhra Pradesh.
10. Give an account of the welfare schemes of Andhra Pradesh.

II. Write the answers briefly for the following questions.

1. Explain briefly the trends in State Gross Domestic Product (SGDP) of Andhra Pradesh.
2. Write about the per capita income of Andhra Pradesh.
3. Describe the occupational distribution of labour in A.P.
4. What are the environmental protection activities in Andhra Pradesh?
5. Explain the importance of tourism in A.P.
6. What are the population characteristics of Andhra Pradesh?
7. Briefly give an account of the welfare schemes related to different sections in Andhra Pradesh.

III. Write the answers in one or two sentences.

1. SGDP
2. Density of population in A.P
3. Literacy rate in A.P.
4. Project Tiger
5. Sarva Siksha Abhiyan
6. Any Welfare Programme
7. Eco – Tourism
8. Civil aviation in A.P
9. Roadways in A.P
10. Seaports in A.P.

Unit - 10

Economic Statistics

Model Questions

I. Answer the following essay type questions.

1. What are the uses of dispersion?
2. What is meant by dispersion? Explain the various measures of dispersion.
3. Calculate the quartile deviation for the following frequency distribution.

Class intervals	0-10	10-20	20-40	40-60	60-90
No. of students	5	8	16	7	4

4. Calculate the Karl Pearson's coefficient of correlation.

X	9	8	7	6	5	4	3	2	1
Y	15	16	14	13	11	12	10	8	9

II. Write the answers briefly for the following questions.

1. Explain the relation between M.D., S.D. and Q.D.
2. Calculate the standard deviation for the following values 5, 10, 25, 30, 50
3. Define Lorenz Curve? When is it used?
4. What is correlation? State its importance.
5. What are the various types of index numbers ?

III. Write the answers in one or two sentences.

- | | |
|---------------------------------|------------------------------------|
| 1. Range | 2. Mean deviation |
| 3. Correlation | 4. Rank correlation |
| 5. Index numbers | 6. Las Peyre's price Index formula |
| 7. Paacha's Price index formula | 8. Fisher's price index formula. |

