



Indira Gandhi National Open University
School of Social Sciences

BECE-016

ECONOMIC DEVELOPMENT: COMPARATIVE ANALYSIS AND CONTEMPORARY ISSUES



Economic Growth and Development

1

“शिक्षा मानव को बन्धनों से मुक्त करती है और आज के युग में तो यह लोकतंत्र की भावना का आधार भी है। जन्म तथा अन्य कारणों से उत्पन्न जाति एवं वर्गगत विषमताओं को दूर करते हुए मनुष्य को इन सबसे ऊपर उठाती है।”

— इन्दिरा गांधी

“Education is a liberating force, and in our age it is also a democratising force, cutting across the barriers of caste and class, smoothing out inequalities imposed by birth and other circumstances.”

— Indira Gandhi



BECE-016
**Economic Development:
Comparative Analysis and
Contemporary Issues**

Block

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**BECE 016 ECONOMIC
DEVELOPMENT:
COMPARATIVE ANALYSIS
AND CONTEMPORARY
ISSUES**

This course purports to acquaint you, the students, with the theme of Economic Development with country experiences in different settings in the twentieth century as well as contemporary and emerging global economic order, which will impact various countries in their course of development and progress.

Divided in five blocks the course is designed to cover the various approaches followed by countries and experiences of major countries with each of the major approaches followed by them. Within capitalistic approach experiences of the United States, Japan and Western Europe, within socialistic approach experiences of the Soviet Union, China and Eastern Europe and within mixed economy approach, besides India, experiences of East Asian, Latin American and African countries are covered. Experiences of Scandinavian and Nordic countries are covered under approach of market socialism. But the narration of experiences is usually preceded by delineation of the approach in terms of its chief characteristics and institutions. This material is covered in Block-II and Block-III.

However, the course also tries to cover the global economic order in which various countries are supposed to operate in the scenario of growing interdependence between countries through trading and financial systems and information and technology orders. Various sector reforms are analysed in this backdrop. There are no unmixed blessings in the economic arena and therefore, with a view to completing the theme, units on various challenges-national and international, global and local, technology and sustainability, have also been designed. Block-IV and Block-V cover these topics.

Among the social sciences, Economics is highly analytical in its approach and therefore a fair idea of theoretical underpinnings, conceptual understanding and their contemporary relevance is needed right in the beginning. Block-I attempts to do it.

BLOCK 1 ECONOMIC GROWTH AND DEVELOPMENT

Two concepts that dominate in the assessment of progress of an economy and are intractably involved in the policy design for taking care of various aspects are Economic Growth and Economic Development, which run quite parallel to each other but are not coextensive and special care has to be taken of to promote one or the other in a given phase of progress. We shall cover these ideas in **Unit 1**. Scholars have developed certain theories and models for each of these inter-related phenomena. While we shall cover theories of economic growth in **Unit 2**, and those of development, often going under the title of theories of dual economy, in **Unit 3**.

Concentrating too much on economic aspects of life has resulted in some kind of dichotomy with non-economic aspects, which we have of late discovered, are no less important as life is an integrated whole and real world is too interactive and interdependent. Social and Environmental aspects of development are to be covered in **Unit 4**.

UNIT 1 CONCEPTS OF ECONOMIC GROWTH AND DEVELOPMENT

Structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Growth and Development
- 1.3 Economic Growth
 - 1.3.1 Characteristics
 - 1.3.2 Modern Economic Growth
 - 1.3.3 Measurement
- 1.4 Economic Development
 - 1.4.1 Structural Approach
 - 1.4.2 Institutional Approach
 - 1.4.3 Distributional Approach
 - 1.4.4 Basic Needs Approach
 - 1.4.5 Capability Approach
 - 1.4.6 Economic Development and Development
- 1.5 Concept of Development Still Evolving
 - 1.5.1 Sustainable Development
 - 1.5.2 Quality of Life
- 1.6 Let Us Sum Up
- 1.7 Key Words
- 1.8 Some Useful Books
- 1.9 Answers or Hints to Check Your Progress

1.0 OBJECTIVES

After going through the Unit you should be able to:

- articulate the conceptual difference between ideas of economic growth and economic development;
- describe the evolution of various ideas about development and economic development;
- explain the characteristics of processes of growth and development;
- discuss the measurement aspects of economic growth and development; and
- critically examine the issues that surround the ideas of economic growth and development.

1.1 INTRODUCTION

Progress, expansion, advance, improvement, growth and development have all been used in literature to describe betterment in the conditions of human societies but

growth and development have come to dominate the scene as two important technical terms. These positive terms have been used to describe changes as well as to prescribe changes. Because we shall primarily be looking at nations and countries as economies, we shall be using terms economic growth and economic development. We often try to distinguish 'economic' from 'non-economic' though there are cases where it really becomes difficult to do so.

Although this course is about economic development that took place under different dispensations we feel it is important that a few concepts that are used in such descriptions even in the newspapers are explained in as simple language as possible to impress upon you to develop a broad understanding of those concepts. We shall also discuss in this Unit certain basic terms that are currently used in popular and scholarly debate and will expect you develop a feel and broad understanding so that you can follow the discussions, debates and dialogues about our economy and its interaction with the rest of the world. There is no unanimity about the usage of various concepts and terms but there is broad convergence, if not consensus.

1.2 GROWTH AND DEVELOPMENT

You might have noticed that word growth is used to describe increase in stature or size. It is used to describe a uni-dimensional change, as in the case of stature of a child or a uniform expansion in all directions, as in case of size of a balloon. When we do not refer to dimensional aspects we use word growth. Even schools and institutes, colleges and universities, hotels and hospitals grow, as do businesses and economies. But we are often quick to point out certain features that are not captured by the word growth. For example, we often say about a child that his growth is good but his development is not up to the mark. We are thus referring to different aspects when we use words growth and development.

It is rare, if ever, growth takes place without engendering development or development takes place without being accompanied by growth. In most cases they would accompany each other. There may be cases when one dimension is dominant and the other is dormant. In such cases, people talk of growth without development or development without growth. Yet development with negative growth would hardly be acceptable to any scholar, even if such a case may be made. It is therefore good to make an analytical distinction between the two concepts.

You may find that sometimes in scientific treatises and very often in colloquy, words growth and development are used in interchangeable fashion. But normally a distinction is made between the two. It is maintained along the following lines.

1.3 ECONOMIC GROWTH

Economies grow and develop; they expand and advance; and they progress and prosper. There are phases when they decline too; and there are economies that may experience continuous decay. If one considers long stretch of human history, we know economies (civilizations) disappeared altogether. We will not take into account so long stretches of time. We shall not consider too distant a past either. We will leave them to historians, may be, economic historians. We can take here a normal long-term view.

Growth is an increase in some quantity over time, physical or abstract. But increase may be episodic while growth has to be conceived in terms of a process. It means we have to consider an extended time. Economic growth can be defined as growth of the economy, which can best be captured by a comprehensive measure of performance such as gross domestic product, over a number of years. Some

economists like Phyllis Deane have therefore preferred to define it as a sustained secular increase in total national income or in national income per head of population. It may be noted that gross domestic product is an annual measure of value of goods and services produced in the economy though there is a growing tendency world over to compute gross domestic product at quarterly basis. In India also we have started computing quarterly estimates with 1993-94 national accounts series.

We accept decline as an occasional, temporary phenomenon. We therefore use positive terms only. In order to accommodate decline in level in a phase of short duration, we prefer to use expression 'negative growth'. Recession is identified with negative growth.

1.3.1 Characteristics

One could talk of growth of an economy as also of a sector of an economy. One could also talk growth of a particular group of activities called consumption or investment. We have however taken here a **comprehensive** view, taking all activities together, and call it economic growth. In a way it is about growth of an economy as a whole. It is about the **process** of change itself rather than the end product of the process though the process is being measured in terms of change in the level of its end product. Further, economic growth has to be understood in terms of **long-term tendency** of the economy to grow or in terms of growth of potential, which may not at times, for a year or a few years, be realised for extraneous factors. It is true that growth of the economy is measured in terms of 'per annum' but often 'during the period of...' is added in order to emphasise that the concern is about long-term tendency or trend. In short, we ignore fluctuations around the trend.

If generally there is a general tendency of growth but there are occurrences of decline and the rates of growth fall in certain years, shall we say: while the potential of the economy to produce is continuously increasing but sometimes the potential is not realised. There could be various reasons. In economies too dependent on external trade, conditions in other countries may affect the realisation. Monsoon may widely fail in certain years and economy may get derailed for a while. Internal demand may for a variety of reasons, say for sudden fall in stock prices, fail to make full use of the potential. Some economists put too much emphasis on supply potential and define economic growth as long term increase in production potential of the economy.

1.3.2 Modern Economic Growth

Human societies have been increasing production by using human resources in more productive manner, improving production techniques, producing more (and more variety) of goods and services and their members living lives better. There might have been periods when some societies failed to progress. There might have been some periods when population grew at higher rate than the quantum of material production. Per capita product might not have had sustained increase. Population too might not have had sustained increase.

However, history of last two hundred years in the West has been found to be a welcome break from the past. During this period most of the countries in the West had sustained increase in population and sustained increase in production and increase in production to exceed the increase in population. As a result, when looked from a long-term perspective, there was sustained increase in per capita production (as well as per worker output). Economists like Simon Kuznets have described this phenomenon as modern economic growth as it was found to be unprecedented.

The same could be said to be true about the last fifty-sixty years in the case of many so-called developing countries. Here population increased, generally speaking, more rapidly than in the West but production increased, again generally speaking, still more rapidly. Many developing countries did much better than their counterparts in the West in their respective first stretch of fifty-sixty years since their march on the path of modernisation. It does not mean that there were no phases of disappointments. For the West, for example, there were phases of wars and of great depressions. Likewise, developing countries occasionally also face their troughs in terms of per capita income.

1.3.3 Measurement

Economic growth is measured in terms of growth rate of gross domestic product per annum, which means growth is being considered for a stretch of time rather than for a year over the past year. In order to gauge acceleration or deceleration in growth rate, one simple way is to divide period under consideration in convenient intervals, preferably of equal length if history does not warrant otherwise, and compare growth rates for sub-periods.

Scholars are found to choose decades or quinquennia to find acceleration or deceleration in the growth rate in subsequent period. They sometime choose political phases. More careful ones go for careful periodisation and choose a technique of computation and do so with a degree of circumspection. Generally people use compound interest formula to calculate growth rate per annum for chosen period as if growth rate was constant from year to year.

Some consider it important that instead of just gross domestic product, gross domestic product per capita is used to gauge the growth of the economy so as to neutralise component of population growth.

Check Your Progress 1

- 1) What is the difference between increase and growth?

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- 2) What are chief characteristics of growth process?

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- 3) How modern phase of economic growth is different from earlier phases of economic growth?

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- 4) What are considerations one needs to take into account in order to measure growth rate for a period?

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1.4 ECONOMIC DEVELOPMENT

For some people, economic development is not much different from economic growth. Both are processes of long-term increase in per capita income. For others, development is but the level of per capita income, which implies development is the level of achievement or attainment. There are scholars to view development as a process and a product both or as means and ends. However it is better here to take the process view.

Whole human history may be thought of as a variety of developments or changes, largely in positive direction. Looking from a distance we find that production structure of the economy has changed: from hunting-gathering to settled agriculture, from agriculture to manufacturing, from manufacturing to automatic production, from production of goods to production of services. It does not mean services were not produced say thousand years ago; it only means that relative dominance has changed and that might have occurred with increase in all activities in a broad sense. Likewise, there might have phases when everybody was poor but equal to every one else and there might have come phases when there were a few super rich and vast humanity was just pauper, creating a vast chasm between people. Then some societies improved in levels of inequality and others did not.

Most societies might have had high fertility and high mortality in general and among infants and children, which all reduced in due course of time, and low life expectancy, which improved over time.

We have to look at these changes in terms of general tendency rather than at the aberrations in the tendency. Different scholars have picked up different traits.

In the case of economic growth we had ignored the composition of gross domestic product or its distribution among factors of production or among people. We had bothered only about 'how much' is being produced, that is, the quantitative dimension of production of the economy; and ignored what is being produced or its use as income among different classes and other changes that brought it about.

Further, usage of phrase 'economic development' was not very frequent until after the World War II though Schumpeter was the first to use it in 1911. The usage came into vogue when scholars started taking a prescriptive view of development and it was in the late forties when colonial countries started breathing freedom.

1.4.1 Structural Approach

Development Economics takes most of its cues from the economic history of the West during the last two centuries or so. In this period a variety of sweeping changes took place in Europe, which may broadly be categorised as technological and institutional. However, early economists working in the field of development economics took notice of change in the composition of output and deployment of labour in activities. They called it structural change. Structural change in the sphere of production meant relative increase in terms of proportion of non-agriculture/

non-primary output and concomitant change in proportion of employment of labour in non-agricultural activities (and also in that of allocation of capital and land). However, this structural change has to take place along with increase in output of all (or majority of) goods not with decrease in output of agriculture sector. They defined economic development as economic growth with structural change. And structural change was understood in terms of composition of GDP and industrial distribution of labour. This was a reflection of changing demand for goods and services on the one hand and changing demand for labour by production technology in different sectors.

Economists to suggest this line were AGB Fisher, Colin Clark, Simon Kuznets and WG Hoffman. (Incidentally, it was also anticipated by B R Ambedkar almost by a quarter of century before.) It was necessarily a descriptive view of what happens in general, with progress.

1.4.2 Institutional Approach

Most of the mainstream economists believed that all economies in the West traversed the same path and believed that other economies would also follow the same path. When they did not find it happening they pointed out that institutional changes are equally important. Institutional changes could mean emergence of new institutions in governance as in capital market and money market. Some pointed out necessity of attitudinal changes in people — a leap from traditional value system to modern value system. In order to accommodate this thought, economic development was defined as economic growth plus, that is, something more than economic growth. Those who emphasise technological dimension of development, they point out that economic growth should be accompanied by rise in productivity.

1.4.3 Distributional Approach

Most of the developing countries had come under the yoke of one or the other European country. They got freedom after Second World War, which was concluded in 1945; most were freed in the fifties of the past century. Developed countries, including the USA and the USSR, and multilateral agencies started giving aid and advice to developing countries in those fifties. The United Nations declared the sixties and seventies of the past centuries as the 'decades of development'. The results were much below the expectation and whatever transformation in many economies had taken place did not result either in reduction of inequality or in that of poverty and unemployment. In 1969, one such western economist who had been dealing with problems of development asserted in a World Conference in Delhi, "The questions to ask about a country's development are (therefore): What has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have declined from high levels, then beyond doubt this has been a period of development for the country concerned. If one or two of these central problems have been growing worse, especially if all the three have, it would be strange to call the result 'development' even if per capita income doubled."

Indeed here is reference to consciously trying to develop an economy by adopting some strategy, not positivistic description of what had happened. If the result of process brings in growth in capacity to produce more and in actual output, transformation in structure of economy in terms of composition of output of goods and services or even in deployment of labour force, emergence of institutions in terms of variety of banks, and technology making use of machines and power instead of men and cattle, but not significant dent on basic problems of underdeveloped countries, what use are the efforts made for? It means development has to be related to welfare of the people. It was suggested much earlier, say by Pigou, that welfare of people depends on the size of the cake as well as on its

distribution. One will be entitled to one's wherewithal when is one employed on adequate wages or gets remunerative prices for what one produces as self-employed. Mass poverty was one particular problem we attributed to the colonial rule and wanted to secure self-governance. If still that scourge persists at large scale, we have cause to worry about. In short, the suggestion is that income should get redistributed in favour of relatively worse-off. It is a prescriptive view of economic development. Some call it normative approach to economic development.

Keeping this in view, some economists defined economic development as economic growth with redistribution.

1.4.4 Basic Needs Approach

There came a time in mid-seventies when fed-up with slow speed of catching up with the developed countries' standard of living, some economists and international aid agencies suggested that we need to concentrate on the basic needs of the people in developing countries. Basic needs are generally understood in terms of food, clothing, shelter, education and health services, which must be met at their minimum levels to everybody. In today's time we can add, sanitation and safe drinking water. It was kind of an impatience for the fact that attempts to increase output of iron and steel, electricity, roads, hospitals and universities were not trickling down into better lives of a majority of people.

1.4.5 Capability Approach

So far we have been considering on what and how much, and who is having what and how much. That is, growth of total output, composition of total output and distribution of total output. We have been talking in the context of commodity space. Amartya Sen questioned this approach for good. He asked what are the human outcomes? Whether the choices of human beings are widening?

In fact WW Schultz had defined economic development in terms of widening of choices but over the bundle of commodities to choose from. More of everything and more of variety! But Sen articulates development in terms of enhancement in capabilities or expansion of capability set. Capabilities are in turn to be defined in positive terms of long and healthy life, attainment in education, participation in community life etc. They are often reduced in terms of increasing life expectancy, decreasing infant and child mortality rates, improving people's participation in economic, social, cultural and political processes of the community they live in.

1.4.6 Economic Development and Development

What we notice above that there is a drift from economic development to broader concept of development. The concerns are getting wider. No more we are happy with recording, describing and analysing with what was taking place. We want certain things to happen, economy to move in certain desirable direction, society to march towards certain goals. We want our policies to accomplish certain tasks. We are moving from descriptive world to prescriptive world, from positive theories to normative policies, from narrowly conceived economic development (of the economy) to broadly conceived total development of the society.

Scholars always made a distinction between economic development and total development but concentrated on the former while policy makers were always concerned with economic and social development. The distinction is now getting slimmer and dimmer. However, in the context of a human society, development can generally be understood as expansion of those attributes in a society which it values and by same token, also diminution of those attributes, which the society does not like.

Check Your Progress 2

1) What do you understand structural change in the economy.

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2) What are development problems, underlined by modern development economists like Dudley Seers?

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3) What is capability approach to development?

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4) Differentiate between descriptive and prescriptive approaches to development.

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1.5 CONCEPT OF DEVELOPMENT STILL EVOLVING

With a lot of plurality, which we have discussed above, we find that scholars are showing other concerns in literature on development economics as well as elsewhere. One is about the sustainability of the development process or even level in material terms. Another is about the differentiation in the society, which is against the universalism of certain rights, which are now considered inalienable. We provide below two main concerns and arguments of the proponents.

1.5.1 Sustainable Development

Much before we could resolve the issues of development concerning developing but poor countries, an important issue has arisen. It is whether the level of development, even in a developing country where it is fairly low is sustainable. In developed countries the major cause is supposed to be consumption style and in many developing countries the cause is said be large and increasing population.

There are two facts, which are brought to our notice. One that present production technology makes use of non-renewable (exhaustible) natural resources such as fossil fuels-coal, gas and petroleum or even of renewable natural resources such

as forest to such an extent and its regeneration becomes difficult. Two, present production technology pollutes atmosphere and water bodies with garbage and litters, and smoke and other poisonous gases. 'The more you choose to produce goods the more you produce bads (pollution) too and the more you exhaust non-renewable natural resources as well'. If pollution level is too high, the nature may not be able to assimilate it and clean air and clean water may not be available to us. If non-renewable natural resources deplete fast, future generations may not have enough stock for their use. There may not be enough trees around us to clean our atmosphere.

It means that if we continue growing our economies the way we do, there may come a point when it may become impossible to continue with the level reached. The message is that the pattern of growth may have to be changed in certain economies and in others the level reached may be continued but not raised much.

Many analysts point out that environment cannot be segregated; they suggest that pollution, for example, does not respect national boundaries and climatic changes would perhaps be world-wide. Concerned with environmental degradation, a commission was set up, which produced a report in 1987 under the title 'Our Common Future'. This report defines sustainable development as that level which takes care of the needs of the present generation without compromising the needs of the future generations.

Before we proceed, it is important to warn that there exists no consensus on these issues. They are dominant views. Contrary views also exist. Since our purpose is not to overwhelm you with every shade of thinking on every issue but only to make you better informed, we are only indicating the major currents of present thinking.

1.5.2 Quality of Life

One shred of quality of life is already indicated in the earlier section on sustainable development. If quality of air, quality of water and quality of sanitation are not good, the quality of life is also not good. If your surroundings are littered, if your air is polluted or if you do not get safe drinking water, then you are not living a good life. One can add availability of food, clothing, shelter, education facilities, health care, legal aid, and national security to the list of clean water, clean air and clean surrounding.

However, there is another shred of thinking which is not altogether unrelated to it. Those who suggest the other line, point out that the items listed above are determinants of well-being. We can think of it in terms its constituents too. The items listed above lead to better health, welfare, freedom of choice, and basic liberties. These can be captured through life expectancy at birth, child survival rate, and adult literacy rate, which are all indices of well-being. One should also be interested in distribution of well-being along gender, caste, class or regional lines.

Some people think that certain rights, which people enjoy in certain societies, are denied in others. These rights should also be included in this set of well-being indicators even though they do not fall in the economic category. This argument is generally acceptable, as life cannot be truncated as economic and non-economic. Most of us would not prefer to be put in prison for any considerable time even if food, clothing, shelter and healthcare provided therein, is far superior to what we normally get in the societal living. Therefore, people add political rights and civil rights or some indicators reflecting these rights. With increasing concern for human rights, it would be a good idea to incorporate these indicators of well-being and welfare after all the whole purpose of consciously developing a society is to raise the level of well-being and welfare of its people.

Check Your Progress 3

- 1) What are the concerns behind sustainable development?

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- 2) Define sustainable development as inter-generational issue.

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- 3) What do understand by quality of life?

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- 4) State some of the rights which you think are important for living as a human being.

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1.6 LET US SUM UP

In this Unit we have tried to learn about the basic ideas behind and the concepts of economic growth. Economic growth is much simpler idea of expansion in all dimensions/directions. The expansion is often seen in terms of gross domestic product or some similar variant of macro economic aggregate. We ignore or overlook the change in its composition in sectoral terms and its distribution in personal terms or factoral terms as if all the proportions and ratios are constant. However, it is the general long-term tendency which we look for when we talk of economic growth rather than irregular fluctuations or occasional booms and burst. Some scholars therefore prefer to define it in terms of the production potential of the economy. It has but to be remembered that growth (rate) has to be measured in terms of change in the level of aggregate activity in per annum terms only as the only index that is available to us, which is natural and normal, is gross domestic product of course at constant prices.

Economic development on the other hand considers changes in the economy. The first set of economists who took notice of, rather made empirical attempts to unravel, changes in the structure of the economy saw changes in the sectoral composition of output of the economy or that in the industrial deployment of labour force. This was pure case of description. But when economic development was pursued, in

post-war period, as a deliberate attempt with a view to ameliorating the economic conditions in so-called underdeveloped countries by their governments as also international agencies, it was natural for economists to conceive economic development in distributional terms. Growth with redistribution and growth with justice were the alternative expressions used for defining economic development. It is however to be noted that while economic growth ignores the issue of structural and distributional changes, economic development does not ignore economic growth. Economic growth is an essential condition for economic development whereas structural and distributional changes are incidental to economic growth.

However, there were economists and other scholars who became interested in outcomes, which were actually sought by development practitioners, particularly through planning. Some economists, like Amartya Sen, tried to articulate development in terms of enhancement in capabilities. W.W. Lewis had tried to define development in terms of widening of choices through expansion of commodities. The later economists tried to define development as widening of choices through enhancement of capabilities. These capabilities were understood as leading a long and healthy life, avoiding dying young as infant, being able to read and write, etc. Since it should be a sweet choice of an individual to read or not but he should be capable of reading, emphasis was placed on capability. One can notice that the idea of economic development is commodity-centric while capability-centric notion goes better with development.

The idea of development is still evolving. Any attempt to seal it seems to be failing. But people are raising the issues whether current paradigm of development is sustainable. It is pointed out that commodity production, which we are so much after, leads to a variety of pollutions which compromise the quality of life, which was why development was pursued. Depletion of natural resources is another issue raised in this connection.

People are also raising the issue of rights and liberties and existing differentials in their accessibility between genders, classes, castes and regions as well as nations.

1.7 KEY WORDS

- Capability** : An attribute of an individual (or a society) to do a positive activity provided he (or it) chooses to do.
- Commodity** : An economic good or service. Strictly speaking, a commodity is any thing, which is produced primarily with a view to sell.
- Development** : Expansion of those attributes in a society, which it values positively; and by implication, also diminution of those attributes, which the society does not like.
- Development Economics** : A branch of Economics, which studies the processes which can be taken up within the policy framework to be pursued by so-called developing countries.
- Economic Growth** : An increase in total output of a nation over time, usually measured as the annual rate of increase in a nation's real GDP or real potential GDP over a period of time.
- Economic Development** : Generally understood as structural/institutional/distributional changes along with growth of an economy.

- Gross Domestic Product** : Value of the total final output produced within the territory of a country over a year.
- Quality of Life** : Quality of life terms describes a life with better surrounding but often life with accessibility of certain unalienable human rights including civic rights and political liberties.
- Sustainable Development** : A development strategy that impresses upon the idea that the present generation meets its needs without compromising the potential that can meet the needs of the future generation.

1.8 SOME USEFUL BOOKS

- 1) Thirwall, A. P. (2006), *Growth and Development: With Special Reference to Developing Economies*, Macmillan, Eighth Edition.
- 2) Todaro, Michael P. and Smith, Stephen C. (2008) *Economic Development*, Addison-Wesley, Tenth Edition.
- 3) Meier, Gerald M. (2005) *Biography of a Subject: An Evolution of Development Economics*, Oxford University Press.

1.9 ANSWERS OR HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) Growth is sustained increase over a longer period of time whereas increase may be over a short period of time, even episodic.
- 2) Growth process has to be seen over a long period of time, like a secular trend, reflective of the potential of the economy and gauged through a comprehensive measure of economic activity like gross domestic product.
- 3) Phase of modern growth in the western countries is characterised by continual increase in output of the economy along with continual increase in population but in a manner that the former exceeded the latter. Thus, it was reflected in a continuous rise in level of living as well as in the productivity of labour force.
- 4) Scholars should consider a long period of time, say 5 to 10 years or more, and measure growth rate in per annum terms for a comprehensive index of economic activity like gross domestic product.

Check Your Progress 2

- 1) Structural change in the economy means change in structure in sphere of production. It means relative increase in terms of proportion of non-agriculture/non-primary output and concomitant change in proportion of employment of labour in non-agricultural activities (and also in that of allocation of capital and land). However, this structural change has to take place along with increase in output of all (or majority of) goods not with decrease in output of agriculture sector.
- 2) Poverty, inequality and unemployment.
- 3) In contrast to commodities, which are located outside the man, capabilities are located within him. They are defined in positive terms of ability to do and

to be. Long and healthy life, attainment in education, and participation in community life etc. are said to be basic capabilities. They are often reduced in terms of increasing life expectancy, decreasing infant and child mortality rates, improving people's participation in economic, social, cultural and political processes of the community they live in.

- 4) Study of what happened/happens is descriptive while what ought to happen is prescriptive.

Check Your Progress 3

- 1) Depletion of non-renewable resources and increase in pollution are the two major concerns.
- 2) If we have less of resources left for future, future generation will not have the level of living which present generation has enjoyed.
- 3) Besides material wherewithal and good ambience, there are freedoms and rights which people might like to enjoy.
- 4) Education, health, welfare, freedom of choice, etc. constitute one set. Basic social, political and civic liberties are another set. These can be captured through life expectancy at birth, child survival rate, and adult literacy rate, which are all indices of well-being.

UNIT 2 THEORIES OF ECONOMIC GROWTH

Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Modern Economic Growth
- 2.3 Growth Theories
- 2.4 Classical Growth Theory
- 2.5 Modern Economic Growth Theories
 - 2.5.1 Keynesian Growth Model
 - 2.5.2 Neoclassical Growth Model
- 2.6 Technological Progress
- 2.7 Endogenous Growth Theory
- 2.8 Let Us Sum Up
- 2.9 Keywords
- 2.10 Some Useful Books
- 2.11 Answers or Hints to Check Your Progress

2.0 OBJECTIVES

After going through the Unit you should be able to:

- list out the basic characteristics of modern growth;
- define the meaning of a growth theory;
- describe various growth theories and models exposed here in the lesson;
- differentiate between various growth theories; and
- analyse the role of Government in promoting growth of an economy.

2.1 INTRODUCTION

In Unit 1 you have already learnt about economic growth and its characteristics as differentiated from those of economic development. In this Unit our focus would be to know in the simplest possible terms what are the factors that promote economic growth but also on the characteristics of the long-term path of economic growth.

Economic growth is to be equated here with the growth of an economy as measured through its aggregate output adjusted for input-use, which is to say value added over a year. The simplest aggregate measure of value added through economic activities in the economy is its gross domestic product (GDP) at constant prices. What makes this flow to grow over time is the theme in this Unit. Various economists have articulated as to how GDP grows and can be made to grow on a regular basis. Economists have known that economies do not grow in a linear fashion but they have noticed that they grow along a trend with fluctuations around it. There are theories for both the phenomena — long-term economic growth and short-term fluctuations, but we shall concentrate here on theories dealing with

the former. Theories for the latter are often known as business cycle theories, where business means level of economic activity in an economy. We also do not consider a view that changes cannot be separated into growth trends and fluctuations and constitute one single movement. We are also not considering the factors like trade and finance across economies, which do impact growth in one way or another.

Despite the fact that economic growth is a long-term phenomenon, we have to measure growth in terms of two consecutive periods, normally years. Growth simply means more output in period t than that in period $t-1$. Period is usually reckoned with a year, that too an accounting year. However, growth in this context has to be in terms of growth rate, to be precise, in terms of proportional growth rate. So even though economic growth is a long term phenomena its measurement in is terms of 'so much percent per annum during the period from such and such year to such and such year'.

The way discussion of growth theory has been conducted, it proceeds as if the economy produces only one good, say corn, which is consumed, saved, invested, inventoried or hoarded. Often, the writings have used only two factors of production viz., capital and labour, which may grow over time, apart from technology. It is partly for the ease of analysis and partly legacy of classical rigorous economic writings that much of macroeconomics has been conducted this way except for money. However, there is no simpler way to do macroeconomics than use aggregates. Most of the modern analyses are carried out in terms of per capita income/product rather than in terms of total product and changes in population-size are considered exogenous.

However before we introduce you to theories, it would be worth a while to have a look on modern economic growth, which means economic growth history of the present-day developed economies.

Check Your Progress 1

- 1) Name the two broad economic tendencies along the time, which are concerned with the level of activity.

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- 2) How growth of an economy is conventionally measured?

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- 3) The aggregate output of the economy is treated as a single or multiple good?

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- 4) What do you think whether growth rate should be measured in terms of absolute terms or in proportional terms?

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- 5) Is it better to conduct economic analysis of growth in terms of total product or per capita terms? Why?

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2.2 MODERN ECONOMIC GROWTH

Developed countries of the day like the United states, the United Kingdom, France, Germany, the Netherlands, Canada, Australia and Japan, which are now growing at modest rate and did not grow at such high rates at which some of the South East Asian economies and, of late, India and China have been growing. Yet they were the countries, which broke away from the past where there were long spells of decline not only of economic activity but also of population.

It is not beyond two hundred years ago that population grew continually decade after decade. With positive growth of population, in these two hundred years, there grew the level of economic activity in each of the economies at such a rate that growth of per capita income or of per capita labour product was always positive. Before that it was actually not happening.

During this period we know feudal order was on decline and capitalism on ascendancy. Thanks to technology, the character of capital was slowly changing from a sack of grain (which used to be advanced to labour) to machinery and equipment. Per worker capital deployment was also rising. So was rising productivity per worker. The same could be articulated in terms of rising capital output ratio. Some of the basic trends of the advanced economies for most of the twentieth century, according to Samuelson and Nordhaus, are:

- 1) Capital stock has grown more rapidly than population and employment, resulting in capital deepening;
- 2) There has been a strong upward trend in real wage rate;
- 3) The share of wages and salaries in national income has edged up very slightly;
- 4) Instead of rising, which would be predicted by the law of diminishing returns with unchanging technology, the capital output ratio has actually declined; and
- 5) Output growth has been much higher than a weighted average of the growth of capital, labour and resource inputs, suggesting that technological innovation must have played a key role in economic growth.

In the beginning of this period, say the second half of the eighteenth century, classical writings were under way. Not exactly to be called growth theorists in the modern sense, classical economists devoted their writings to the cause(s) and

consequence(s) of growth. They felt concerned with the political economy of the day-the way different classes, which had emerged quite clearly in this period, were behaving and the State of the day was conducting economic affairs of their polity.

We shall therefore devote some space to their contribution before we take up what we have called modern growth theories, which also used the techniques of mathematical modelling. There would be a modest use of mathematics in our approach as well.

Check Your Progress 2

- 1) How modern economic growth is essentially different than pre-modern economic growth?

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- 2) List out various tendencies of modern economic growth.

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- 3) Point out the role of technological innovations.

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2.3 GROWTH THEORIES

Theories are about to explain or to predict phenomena or behaviour, both understood broadly. They are simplified, idealised constructs for reality. Often a good number of them abound at the same time though there is some kind of progression in articulation level over time. Many of them seem to be explaining past or predicting future to some extent and failing in some respects.

Economic growth theories have been developed to account for sustained growth during the phase of what has come to be known as phase of modern economic growth. What is economic growth, what are the factors behind economic growth, what is equilibrium path of economic growth and, whether the path is stable and steady, what are the conditions that make it stable, and is there a limit to growth are some of the questions asked and answered by growth theorists. Whether it is augmentation of factors or it is technical progress that promotes growth. Whether innovations and research and development play an important role and how. Whether some of these factors are endogenously determined or are all of them exogenously determined. Some scholars distinguish between proximate determinants, which are easily discernible and measurable, and ultimate determinants, which cannot be so easily located but are the real sources.

Some may like to explore the relationship of population with economic growth while others may take population just as denominator, given from outside rather than a determinant or a determined quantity. So may be the case with saving: is it a residual or determined endogenously. Of late growth economists have tried to model technological progress as an endogenously determined phenomenon.

Check Your Progress 3

- 1) Write out some of the factors that determine economic growth.

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- 2) What do growth theories try to explain?

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2.4 CLASSICAL GROWTH THEORY

Classical economists though witnessing a great transformation in the economies of Europe were not quite optimist about economic growth to continue forever and they came in for heavy criticism by later economists and still later generation of economists ignored them altogether for the fact that they had not weaved perhaps a cogent model. While classical economists did not present any neat growth model, is true yet there were practically all elements in their writings, which promote or hinder growth. In fact, the technical core of modern growth theory rests upon technical change, specialisation, factor substitution, and factor accumulation, with various recent theorists emphasising the effects on these basic elements, of factors like trade, institutions, inequality, political economy, geography, as well as population size and its growth. All of these issues were concerns of the classical economists, even if they used a different vocabulary. Using modern vocabulary, they can be found to have noticed accumulation of capital and introduction of new techniques. It is true that in those days corn advanced to labour was the chief form of capital.

Adam Smith actually named his work as *An Inquiry into Nature and Causes of Wealth of Nations*, suggesting that he is addressing to the questions of growth, and he indeed pointed out that wealth consists in the annual flow of goods and services rather than in the stock of the specie (gold and silver). Adam Smith was actually reacting to mercantilist position which was policy frame of the day and governments were protecting their domestic industries and promoting exports while discouraging imports unless they were sought for exports. That Adam Smith argued for non-interference of the government in economic activities in general and for free trade in particular, is another matter. But he tried to understand and explicate the conditions of growth on which considerable space was devoted by Ricardo, Malthus, Marx and Mill.

Division of labour into tasks and specialisation into those tasks, according to Smith, is the key to productivity in any economic activity, which he exemplified for industry

through example of a pin factory — something which was also discussed by William Petty much before through the examples of textile production and watch making. But Adam Smith added that the extent of division of labour is however limited by the size of market, which can be taken as substitute for the size of economy. This is here that he makes an advance by providing a feedback loop. Most growth theories are overly supply-oriented and only footnote Smithian proposition. There is also a hint in his work for division of produce into consumption and investment. However, capital in his work was more of the nature of change in stock of produce, which is advanced by the capitalists to the labour, as was the dominant practice of his times. However, in his times manufacturing with the use of machinery, instead of tools, had started and he had taken notice of the fact also. Thus, ideas of saving, physical capital and technology had emerged on the so-called supply side. Specialisation gives a little hint of human capital as well as of learning by doing (experience). There is a hint of feedback loop in terms of 'division of labour depending upon the size of market', which can be translated in today's terms as consumption expenditure. Further, Smith suggested that investment itself is a function of profitability, which may be limited due to competition and therefore growth may stop at some point. However, the fact remains that the elements were not neatly woven into a model. There is a conflicting interpretation whether he was optimist about growth or he shared the pessimism of the other classical economists like Ricardo and Malthus, who followed him. These three major economists conducted their analysis in terms of profits of the capitalists who are the active players in the systems as against that of the Physiocrats.

In Britain exportation of corn was encouraged with provision of bounty (export subsidy) from 14th century and importation thereof was discouraged or even prohibited. Corn Laws were passed in 1663, which prohibited (or discouraged) importation of corn (wheat, barley, rye and oat), and in 1689, which encouraged exportation through provision of bounties (export subsidy). The purpose of the laws was to protect and promote the interest of producers, the lords, so that they get good prices even when corn is plenty. However, when population rose particularly of the towns and scarcity prevailed in closing years of the eighteenth century and Malthus' essay on population came out, the laws became controversial. Next 50 years were tumultuous until the laws were repealed and import of grain from the New World began in the last quarter of the 19th century.

Ricardo who considered the distribution of the produce as the sole problem of economics, did reach the same conclusion but from a different route than Smith's. He laid emphasis on the law of diminishing returns, which he thought was a universal law. So even at the hand of use of more and more resources marginal returns would be diminishing. Diminishing marginal product with a given wage rate and increasing rent means falling profits. These falling profits for capitalist-entrepreneur will ultimately mean stagnation of the economy. Ricardian conceptualisation of the growth process of a capitalist, yet agrarian, economy is the most cogent representation of the classical growth theory. Here the most important role is played by the law of diminishing returns to the labour employed. Capital is conceived as the wage fund, which is equal to the product of wage rate and the size of labour employed. Landlords may be assumed to consume away their share of value added (surplus). Wage fund, which is the capital stock, can increase only when the capitalists do not consume away their share of surplus. They thus turn up to increase the wage fund but their motivation to do so would be limited by an acceptable rate of profit. As marginal product would go on decreasing and wage rate would continue to be the same, profit margin would reduce at increasing level of employment. This reasoning is allowed to suggest convergence of growth process to a stationary state where growth rate is zero or in other words the flow of goods period after period would continue to be the same. Many modern scholars have shown some reservations on this interpretation in

view of the complexity of population and wage dynamics. Moreover zero growth with increase in population will mean decreasing per capita income. For a quite long it was not witnessed in the countries like Britain but Ricardo might not have been confident in continuance of growth. American experience was not relevant as land was aplenty and there was still scope for immigration.

Population grows in response to excess of wages over subsistence, argued Malthus, not just because of human fecundity and socio-demographic factors, which is possible only when per capita income decisively rises. For Malthus, population was an endogenous factor in the system and therefore in the process of growth. [There exists an upper biological limit. So even if capital accumulation keeps taking place, output would be hit by availability of labour.] However, Malthus has argued that increase in population will bring back wages to subsistence level and thus iron law of wages will operate in the long-run. Since population may rise beyond its limit set by subsistence wages because of momentum, it will be brought back to its subsistence level by operation of positive checks through raised mortality levels. Malthus did not consider technological progress or improvement in techniques of production, including those in agriculture, in any manner exogenous or endogenous. Thus, he was sort of suggesting long-term stagnation in growth process.

Despite the fact that many innovations took place in the times of these classical writings, full import of technological progress was not appreciated by classical economists, except by Marx. Adam Smith wrote his major work on economics 22 years before Malthus' magnum opus and Ricardo 17 years after. They took notice of machinery, division of labour and specialisation yet they mentally lived, it seems, in the classical mould of corn model, where corn is consumed, corn is saved and corn is invested, not as seed but as an advance to the labour.

The classical economists' search for a 'theory of value' and a 'theory of distribution' was an attempt to understand the significant economic, political, and social changes of their times, as well as an attempt to understand what would happen in the long run in those economies. There is much to be learnt from their analyses, both as an indicator of the conditions of the times (viz. the importance of land as a factor of production) and also as a precursor to the future development of the theory of economic growth.

Bereft of the analytical apparatus that arose during the 'marginalist revolution' (such as production functions and utility functions), their analyses were hampered, but a number of the features that form part of the modern models of growth made their first appearance in the writings of the classical economists. For example, the importance of the division of labour, technical progress and the role of population growth, as well as the idea of diminishing returns, all feature prominently in modern models.

One could still see that Smith was more optimist and Ricardo and Malthus were pessimist while saw seeds of crisis.

What is lacking from the classical accounts is the notion of a balanced/equilibrium growth path. The classical economists largely concluded that in the long run, economies would tend towards a stationary, stagnant state. They emphasised the ability of population growth to keep wages at subsistence level, the notion that capital could only be accumulated out of profits, and the central role of land as a factor of production. In this sense, their analytical scheme is flawed. Economic progress has shown that the possibility of investment in human capital can lead to a demographic shift whereby households choose 'quality' over 'quantity' in their reproductive choices; that saving by workers can be an important source of capital accumulation; and that factor substitution tends to prevent the inexorable rise in the price of any factor, even if it is in fixed supply.

1) Do you agree with the statement that classical economists did not develop a growth theory? Elaborate your answer.

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2) How does Adam Smith show the relationship between productivity and division of labour?

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3) What limits the division of labour and specialisation?

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4) What do you mean by law of diminishing returns?

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5) Explain Ricardian process leading to stagnation.

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6) Discuss the relationships between labour, population, economic growth and wage rate.

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2.5 MODERN ECONOMIC GROWTH THEORIES

Modern story of growth theory began with the publication of Roy Harrod's work in 1939, which was followed by many contributions in quick succession particularly in 1950s and 1960s, with respectable exceptions by Evsey Domar who published his papers in the late 1940s without knowing the contributions of Harrod. Roy Harrod's concern seems to be whether growth would be a permanent feature or short-lived and could we again witness something like the Great Depression. In the year (1936) when Keynes published his *General Theory* (a short term concern) Harrod had also published his *Trade Cycles* (a long-term concern).

Modern growth theories can be classified as exogenous and endogenous on the basis of whether factors determining growth are endogenous to the system/model or they come from outside the system, particularly insofar as technological progress is concerned. Endogenous growth theories are also called as new growth theory though there is nothing like old growth theory. Within the class of exogenous growth theories we can make two broad classifications: (1) Keynesian growth models promoted by Harrod and Domar in particular and (2) neoclassical growth models promoted primarily by Solow and Swan. Later models more or less follow the techniques and format of Robert M Solow, who was awarded the Nobel Prize in Economic Sciences in 1987 for his contributions to growth theory.

2.5.1 Keynesian Growth Model

There are two major contributions — one by Roy F. Harrod (1939) and the other by Evsey D. Domar (1946). Harrod was closely associated with Keynes during the years of the Great Depression when Keynes was formulating his ideas of effective (aggregate) demand and multiplier effect of autonomous demand (basically due to Kahn). It has been accepted by the economist community that Domar had not read Harrod's contribution before publication of his own work and that Domar's motivation and style differed from Harrod's even though mathematical results were almost indistinguishable.

It is a little surprising that the neoclassical economists from the time of marginal revolution of 1870s to Pigou and Robertson in 1920s, for almost fifty-sixty years, paid no attention to the question of growth. The interest in growth theory was indeed revived by Harrod and thereafter even the language of discourse changed and 'growth rate' became a permanent feature in most macroeconomic discussions.

Harrod, in a way, dynamised the Keynesian framework provided in his *General Theory of Employment, Interest, and Money*, which in turn had reasoned how full employment could be achieved. Harrod's contribution itself was named as '*An Essay in Dynamic Theory*'. At that time neoclassical thought held that because of adjustment mechanism through wage rate and interest rate there could not exist any persistent unemployment. Keynes writing during the years of the Great Depression argued that there is no reason to believe that unemployment could not be persistent and actually full employment is a particular case of employment. However, Keynes limited himself to the question how full employment could be achieved and it was by ensuring realisation of full-employment output but he made no attempts to articulate the conditions under which full-employment output will continue to be produced. While Keynes could visualize demand effect of investment in raising output level from a given capacity, a short run constraint, he did not fully realise capacity creation effect of investment, a long-run phenomenon. Investment expenditure demands more of steel, bricks, mortar, power, etc. to construct a factory or equipping it. This is demand effect. But once factory is built up and equipped, it adds to the capacity of the economy to produce more. So it creates extra capacity of production.

We shall start with the definition of growth rate, or more formally a relative/geometric rate of growth, in terms of aggregate output of an economy—without distinguishing between domestic and national concepts. Growth rate g per unit of time, which is normally taken as a year, could be defined as:

$$g = \frac{\Delta Y}{Y}$$

where Y is aggregate output of the economy in a year and ΔY is the increase in the output. We can write the same by dividing and multiplying the right hand side by ΔK , which is the addition to physical capital stock by way of investment:

$$g = \frac{\Delta Y}{\Delta K} * \frac{\Delta K}{Y}$$

If we define $(\Delta K / \Delta Y)$ as the incremental/marginal capital output ratio determined by technology (and composition of aggregate output) as v , and recognise ΔK as I , the symbol for investment we can write relationship as

$$g = \frac{1}{v} \cdot \frac{I}{Y}$$

which is to say that rate of growth output is defined by investment-output ratio divided by capital output ratio.

Now, Harrod argues that there is one particular capital output ratio which profit-maximising entrepreneurs think is ideal v^* , which they would be employing. He also thinks that all savings of the economy should be invested, which means $S=I$ in case of full employment. If S/Y is written as s , then the particular rate of growth could be defined as:

$$g^* = \frac{s}{v^*}$$

which Harrod has called warranted rate of growth. Harrod defines it as 'that rate of growth, which, if it occurs, will leave all parties satisfied that they have produced neither more nor less than the right amount.' If we start from a full employment Y , invest all saving S (and employ ideal technology capital output ratio), year after year, we shall be achieving an equilibrium rate of growth g^* , not necessarily the same each year. Harrod has used a concept called steady rate of growth, which is defined as one where all variables grow at the same rate. Steady growth does not require it to be constant over time, which is generally understood by many researchers. Steady growth path may be consistent with accelerating, decelerating or cyclical path!

So the first condition is that actual growth rate has to match with the warranted growth rate, which in today's parlance may be called rationally expected growth rate.

$$g = g^*$$

If it does not happen then the economy is likely to face what is known as *knife-edge problem*. To understand, let us take a simple case of $Y=100$, $S=I=10$, $v^*=4$, $g^*=2.5\%$. Supposing that for some reason g fails to be equal to g^* , it is only 2.0%, which required only investment (saving) to be equal to 8, so there is a feeling of excess of investment and therefore next round actual investment will be still less and therefore actual rate of growth further away from the warranted rate,

which is full employment growth rate. Thus, the economy continuously keeps slipping from the path of steady growth. Likewise, if g exceeds g^* , entrepreneurs will feel that they have under-invested and they would like to further invest.

However, Harrod points out that g has not only to align with g^* but has to do more. With given v^* , extra investment means employment of extra labour. So, labour has also to grow at g^* . Since we cannot dictate labour (or population) to grow at a particular rate, we have to accept its rate of growth. Let us suppose this is n . If we wish to employ everybody, that is the case of full employment, g has only to align with n . However, with time, we usually expect the labour to be more productive because of labour-saving nature of technological advance. Even leisure-work preference, raising or reducing labour availability, can be accommodated here in terms of n^* , where $n^* = n + m$ and m is labour saving technical progress. We may call it social optimum rate of growth. g cannot exceed this maximum limit but it can surely fall below but falling below means there exists unemployment. So, the second condition for full-employment is that

$$g^* = n^*$$

If g^* is different than n^* , which means expectation of the entrepreneurs are not aligned with potential labour force. If the economy is growing steadily at g^* which exceeds n^* , it cannot do so indefinitely once full employment is achieved absorbing any unemployment which existed. If, on the other hand, g^* which falls below n^* , unemployment will keep increasing. To quote Amartya Sen, equilibrium growth at full employment has to go along a narrow path in-between the twin dangers of Scylla and Charybdis. This knife-edge problem has been overplayed by commentators though Harrod later pointed that there exist a kind of penumbra around the mathematical condition.

We can note that actual rate of growth would be the minimum of the two rates: rate of growth of capital warranted by expectations of the entrepreneurs and rate of growth of labour adjusted for technical progress and work-leisure preference of the people. If capital grows by 1% and labour by 3%, output will grow only by 1% and, by the same reasoning, if capital grows by 3% and labour by 1%, output will still grow only by 1%. From Harrod-Domar model, what can one infer about per capita income, to be precise, output per worker? It is that capital has to grow *pari passu* with labour, else output per worker and therefore income per capita would decline but for the factor of m .

This result is because of assumption of rigidity in the labour-capital ratio. This assumption cannot be held true in any long-run modeling because technical progress cannot remain neutral between use of capital vis-à-vis that of labour. Actually output is likely to grow between 1% and 3%, even if at times capital or labour remains unemployed (and at times both can remain employed) and even if no account of technological progress is taken of.

If different economies are supposed to have been growing at equilibrium rate of growth, it is difficult to believe that they have been maintaining $g=g^*=n^*$, full employment of both capital and labour both. There must have worked some other mechanism than entrepreneurs' expectations matching with rate of growth of labour force, even when adjusted for technical progress, entering the picture in an exogenous manner. What Solow pointed out that the saving rate was a fact about preferences; the growth rate of labour supply was a demographic-sociological fact; the capital-output ratio was a technological fact. How the three could be reconciled not only once but all time to come?

Many economists tried to adjust g^* through adjustment in s or v^* . We concentrate on one which brings the adjustment through v^* . This is known as Neoclassical Model, chiefly contributed by Solow (1956) and Swan (1960).

1) What do you mean by warranted rate of growth?

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2) What do you mean by natural rate of growth?

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3) Define steady state of growth rate.

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4) What is knife-edge problem?

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5) Assess Harrod-Domar model.

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2.5.2 Neoclassical Growth Model

Should rate of growth of investment diverge from the rate of growth of labour force, asserted Solow and Swan, entrepreneurs should think of adjusting v^* . They point out that Harrod and Domar had a very rigid view of capital-labour ratio. Solow pointed out that there remains possibility of making the capital-output ratio a variable and the further possibility of combining a variable capital-output ratio with an endogenously determined saving rate. In fact, what Harrod and Domar had in mind, though not written formally by them, was a production function of Leontief variety, which does not permit any substitution between capital and labour. Solow thought there existed a continuum of technological possibilities. He proposed the use of a well-behaved production function with constant returns to scale:

$$Y = F(K, L)$$

where K and L are capital and labour respectively. But he prefers to conduct his analysis in terms per unit of labour—whether output or capital. Dividing both sides by L , we get

$$y = F(K/L, 1) = f(k)$$

where y is output per worker and k is capital per worker. The expression above shows output per worker as a function of capital per worker. It could be seen as expression of output variation with varying capital with one unit of labour. If a curve is drawn with k on x -axis and y on y -axis, the shape would be a rising curve with decreasing slope as k increases. In other words, it assumes diminishing returns to capital. Another underlying assumption is also constant returns to scale, which later economists preferred to replace by increasing returns to scale.

With given savings rate s and believing that all savings get invested somehow, we can write ΔK

$$\Delta K = I = sY = sF(K, L) = sLF(K/L, 1) = sLf(k)$$

However, from the definition of k , we can write

$$\Delta K = L\Delta k + k\Delta L$$

and using the other relationship for ΔK , we can further write

$$\Delta k = \Delta K / L - k\Delta L / L = sf(k) - nk$$

This is an equation in k only, n and s being given from outside. It shows change in capital labour ratio is the difference between two terms, one representing the increment of capital and the other representing the increment of labour. $\Delta K=0$ when k is k^* , and at this level of k , K and L must grow at the same rate and so should do Y . It is the case of steady growth, when all factors and output grow at the same rate. However, k^* need not be unique; it would depend on the shape of $f(k)$, whether it is fixed-proportion, Cobb-Douglas, or some other type of production function, and whether it passes through the origin or not.

However, there is no reason to believe that s would continue to be the same over time. For a shift in s from s_1 to s_2 , k^* may also change from k^*_1 to k^*_2 .

More importantly, because of substitution between factors, there is scope for some improvement in output per worker, which in most circumstances means improvement in per capita income. There is a possibility of capital deepening per worker and change in capital output ratio. However at steady states all factors and output will grow at the same rate and therefore output per worker will remain constant. In simple neoclassical models, technical progress like factor m has not been built in.

Even when capital deepens, with diminishing returns setting in, the rate of return on capital and the rate of interest would fall and real wage rate would rise as a consequence of rise in marginal productivity of labour. But, other things remaining the same, real wage rate would eventually stop rising as capital deepening will cease — all due to diminishing returns.

However, when these models were being presented, certain facts were also being brought in to the notice such as one that said output growth surpasses weighted growth of labour, capital and other inputs. Then what are other sources of growth? For a rate of growth output of 3.4% per annum, for example for the USA during 1948-1994, capital accounts for 1.1% and labour accounts for 1.0% only, then

wherefrom comes the rest of 1.3%, which is almost 40% of the total? Researchers like Edward F. Denison, using growth accounting approach, have suggested that it comes from education, research and development, and advances in knowledge and other sources.

Check Your Progress 6

- 1) What was the basic problem with Harrod-Domar model according to Solow?

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- 2) How does Solow try to solve the knife-edge problem?

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- 3) What are facts that do not get addressed by the basic neoclassical model?

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- 4) Assess the neoclassical model.

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2.6 TECHNOLOGICAL PROGRESS

Actually till early 1960s when elegant models were being written, even when technology was being captured through a mathematical function, the change in technology was getting ignored. Growth accounting was failing to explain the residual. And the contribution of the residual was increasing from 20% during 1909-29 to 32% during 1929-57 to 34% during 1960-80. We have already noted non-factor contribution to growth being around 38% during 1948-94. There were several claimants — education being one, which increases output without increase in employment of any of the factors.

Economists like James Meade tried to write out the output Y as a function of K , L , and t (we are ignoring land N as it is inconsequential from the viewpoint of growth and Solow actually did not write it), where t stands for time but, says Meade, the mere passage of time brings technological progress and allows Y to grow even without any increase in K or L :

$$Y = F(K, L, t)$$

However, it is possible to write out technology in a variety of forms. One simple way of writing is in disembodied form of technology as a multiplicand in the production function:

$$Y = A(t)F(K, L)$$

where $A(t)$ is an index of technology. This method of introduction of technology suggests that it is disembodied — the simplest way — implying that it comes as factor completely independent of the capital stock growth rate or the labour stock growth rate. It is called Hicks-neutral technological progress which leaves the ratio of marginal products unchanged.

This articulation implies that technological progress is falling like manna from heaven. Viewing technological progress in this manner amounts to saying it applies equally and impartially to each and every unit of capital stock and labour force of the economy. It has been called disembodied because it yields its benefits without necessity of being embodied in new machines of capital stocks or newly trained or educated workers. Its introduction in the theoretical models is easy as we can easily assume homogenous labour force — ignoring age, training and education, and homogenous capital stock — ignoring age and design.

However, in real life we know younger workers, like younger computer operators, and newer age machines, like successive generations of computers, are more productive. So there is a feeling that at least a part of the technology is always embodied. It gets incorporated through newly produced capital goods and/or through newly trained workers. Modeling would require capital stock and labour both being non-homogenous. Both capital stocks and labour force need to be looked as aggregates of their respective vintage components. Scholars will take both factors as capital and differentiate between the two as 'physical capital' and 'human capital'.

If technological progress is conceived as augmenting the effectiveness of new capital equipments, then technology index could be associated with argument K . If, on the other hand, technological progress is conceived as augmenting the effectiveness of labour — younger, better trained, then technology index could be associated with argument L . These two forms are written below:

$$Y = F(A(t)K, L)$$

$$Y = F(K, A(t)L)$$

The former is known as Solow-neutral technological progress which, for a given labour-output ratio, leaves relative shares unchanged between two states of technology. The latter one is known as Harrod-neutral technological progress which, for a given capital-output ratio, leaves relative shares unchanged between two states of technology.

Embodied technology itself may be capital-augmenting (or capital saving) or labour-augmenting (labour-saving). For example, thrashers and tractors reduce the need for labour and thus help raise share of profit. On the other hand, introduction of multiple shift workdays may require fewer machines and more workers.

We can think of both kinds of technological progress. We can further think of neutral inventions without reducing demand of any yet being more productive.

However, for us here, more important than modeling is to know more about technological change. While technological change is traditionally defined as a shift in the production function—say in agriculture from traditional technology to green

revolution technology to possibly biotechnology-led revolution, it is about advances in the processes of production and introduction of new (and improved) goods and services. But there is improved seed, power-operated tiller, new fertilizer and trained farmer in addition to more of water. Still more importantly, we have been having newer products — goods and services. This fact requires still more complicated ways to capture in modelling.

Check Your Progress 7

- 1) Define technological progress.

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- 2) What do you mean by embodied technology?

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- 3) Do we ever have disembodied technology? Give an example.

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- 4) Try out new examples of (i) labour saving inventions and (ii) capital-saving inventions.

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2.7 ENDOGENOUS GROWTH THEORY

For about two decades, some economists have broken new ground in the field of growth theory. Called as new growth theory or endogenous growth theory, they have tried to see that technological change is an output of the economic system.

Scientists and inventors do not produce, they reasoned, new processes, new molecules, new combinations, and new electronic devices just out of love or out of curiosity as Newton or James Watt might have done. They are trying to solve some felt need. As Samuelson and Nordhaus point out, Edison spent several years of research into different designs of lightbulb before giving us the one we have been using for years. Transistor resulted from the efforts of scientists in Bell Labs to find a process that would improve the switching device in telephone. New drugs are invented, experimented, tested and launched by pharmaceutical companies not

just because of love for human and animal life. There may of course be cases like discovery of Archimedes' principle but Archimedes was trying to solve a practical problem

Did not Adam Smith say economic activities are actuated by self-interest? Did not he also say that division of labour and specialisation is limited by the size of the market? So, economic consideration or economic forces propel technological progress and innovations!

Technological progress could be conceived in a broader perspective. Researchers working in this area often break the development in three components: (i) invention of new products and processes; (ii) innovation, that is transfer of invention in commercial application; and (iii) diffusion, the general spread of innovation into the economic environment through imitation. In short, there is a whole economics of knowledge production and its dissemination.

Technological progress (not regress) has been considered by economists, right from Adam Smith, and modeled by several economists at least since 1962 but they were all introducing it in an exogenous manner. Growth economists from 1986, with lead by Paul Romer, proposed to model human capital, research and development efforts, and production of knowledge as induced by the outputs of the economic activities. There is sort of derived demand for process innovations, product innovations and diffusion thereof. All knowledge is not for the sake of direct enjoyment; some of it is the requirement of production activities too.

Practically any factors such as savings/investment, capital, technology, institutions could be endogenised in a growth theory. It is the factor of technological progress which has been endogenised in new growth theory/models. Various contributions of this genre have also studied the market structure, intellectual property rights, etc.

Check Your Progress 8

- 1) What do you mean by endogenous growth theory?

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- 2) What is the difference between neoclassical growth theory and new growth theory when both incorporate the fact of technological progress?

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2.8 LET US SUM UP

In this Unit our focus was to know in the simplest possible terms what are the factors that promote economic growth but also on the characteristics of the long-term path of economic growth.

In the wake of economic turmoil during the years of Great Depression after a long secular improvement in people's life in several countries in the West, it was natural

for some people to try to understand the processes and factors that promote or hinder economic growth in the long run. There was a much longer tradition of studying trade cycles or business cycles. When Keynes and others argued out how full-employment output could be achieved, Harrod got interested in finding out how full-employment output could be continued year after year. Since conditions of continued full-employment were found quite stringent, Solow and following him many other economists tried to incorporate such factors as they thought were more realistic. They tried to read the implications of various assumptions. Since most of the results still showed constant output per worker, which were not matching with the facts, they tried to explore further.

Technological progress, though discussed earlier, for example by Hicks, even before Keynes's *General Theory*, could be introduced a little later in the framework of growth theory. Though Harrod had introduced it terms of effective units of labour, a variety of ways were developed to incorporate the basic essence of technological progress in 1960s and 1970s. Their implications in terms of productivities and shares of factors were brought forth and studied.

However, by the middle of the eighties—say in the year of Nobel Prize to Solow, economists like Paul Romer tried to endogenise the technological progress in terms of research and development efforts, innovations, production of knowledge. Intellectual property rights and market structures have also been studied.

2.9 KEY WORDS

- Classical Economics** : Economics written in the late eighteenth century to late nineteenth century, chiefly in Britain. Prominent economists of the period are Adam Smith, David Ricardo, Thomas Malthus, John Stuart Mill, and Karl Marx.
- Growth Rate** : Relative rate of growth obtained by dividing the increase in value between two successive periods by the value of the preceding period. Value may pertain to national income, consumption expenditure, investment, capital stock, population, labour force or any other value. Period is usually an accounting year.
- Harrod-Neutrality** : Technological progress over time, which leaves relative shares of factors unchanged for a given capital-output ratio.
- Hicks-Neutrality** : Technological progress over time, which leaves the ratio of marginal products unchanged.
- Neoclassical Economics** : Economics developed post-1870s using marginal tools and analysis of commodity markets in supply-demand framework. Believed that markets clear by price-mechanism. Production function was one of the important tools which was extensively used in growth economics.
- Natural Growth Rate** : Growth of labour adjusted for productivity increase (and preference for leisure).
- Solow-Neutrality** : Technological progress over time, which leaves relative shares unchanged for a given capital-labour ratio.

Steady State Growth Rate : Steady rate of growth is defined as one where all variables (Y, K, and L) grow at the same rate.

Technical Progress : Technical progress or technological progress through innovations-process and product, market and resources-raises the productivity of the economy. Often considered as composed of invention, innovation and diffusion.

Warranted Growth Rate : A growth rate in GDP or total output of an economy, which satisfies the expectations of the capitalist-entrepreneurs.

2.10 SOME USEFUL BOOKS

- 1) Harrod, Roy. F. (1973), *Economic Dynamics*, Macmillan.
- 2) Romer, Paul (2007), *Economic Growth in The Concise Encyclopedia of Economics*, edited by David R. Henderson, Liberty Fund.
- 3) Samuelson, Paul A. and Nordhus, William D. (1998) *Economics*, Tata McGraw-Hill Publishing Co., New Delhi.
- 4) Sen, Amartya (edited, 1970), *Growth Economics*, Penguin.
- 5) Shapiro, Edward (1970), *Macroeconomic Analysis*, Harcourt, Brace & World, New York.
- 6) Solow, Robert M. (1987), *Growth Theory and After, Nobel Prize Lecture*, Internet.

2.11 ANSWERS OR HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) They are known as (1) growth and (2) fluctuations. Growth is a secular tendency of increase whereas fluctuations are short term phenomena. Fluctuations are often supposed to be following a pattern and are called business cycles or trade cycles.
- 2) Even though economic growth is a long term phenomena its measurement is in terms of 'so much % per annum during the period from such and such year to such and such year'.
- 3) In theory, aggregate output of an economy is treated as a single good. It produces only one good, say corn, which is consumed, saved, invested, inventoried or hoarded.
- 4) Growth rate needs to be measured in proportional terms. You can argue otherwise!
- 5) Proper measure of any growth is in terms of its original entity. However, scholars often wish to relate it with what is available to people whose number is not static they prefer to conduct analysis in terms of per capita terms. It is possible that per capita product declines while the total increases. At times, they want to know how many people are contributing to production and then they conduct the analysis in terms of product per worker. Growth theory takes the latter view while development practitioners often go for the former.

Check Your Progress 2

- 1) In pre-modern period, population and production were not growing secularly and simultaneously. There could be years together of rise in population and production and then there could be years of decline in population and rise in production or vice versa. For stretches of decades, it could be of cyclical kind. In modern period, population grew continually decade after decade and so did production. But the rate of growth of production generally exceeded that of population, resulting in increasing per capita income. The same could be said about per worker product. In history beyond two hundred and fifty years, it was actually not happening.
- 2) You can look at five tendencies given in Section 2.2 (summarised by Samuelson and Nordhaus).
- 3) Man keeps devising new tools and new skills. The character of capital, thanks to technology, was slowly changing from a sack of grain (which used to be advanced to labour) to machinery and equipment.

Check Your Progress 3

- 1) Deepening of capital, changed character of capital, better skilled labour, innovation, research and development.
- 2) Economic growth theories try to find out factors behind economic growth and characteristics of growth path and whether there is a limit to growth.

Check Your Progress 4

- 1) Classical economists could delineate practically all the factors behind growth but could not explore the characteristics of growth path as most of them were obsessed with the idea of ultimate stagnation. Thus, it could be said that they could not develop a cogent theory of growth.
- 2) Productivity increases with division of labour.
- 3) According to Adam Smith, limits are imposed by the size of the market, that is, the size of the economy-not say by size of the population.
- 4) As more and more units of labour are applied, each successive addition to total product, called marginal product, goes on declining.
- 5) For Ricardo, diminishing marginal product with a given wage rate and increasing rent means falling profits. These falling profits for capitalist-entrepreneur will ultimately mean stagnation of the economy.
- 6) Read Section 2.4 and try out relationship between different pairs of four phrases.

Check Your Progress 5

- 1) Warranted rate of growth is 'that rate of growth, which, if it occurs, will leave all parties satisfied that they have produced neither more nor less than the right amount.'
- 2) Growth of labour augmented for productivity increase (and adjusted for preference for leisure).
- 3) Steady rate of growth is defined as one where all variables (Y, K, and L) grow at the same rate. Steady growth does not require it to be constant over time, which is generally understood by many researchers. Steady growth path may be consistent with accelerating, decelerating or cyclical path!

- 4) If actual growth rate deviates from the warranted rate of growth or natural rate of growth, it will not sustain and will leave different parties, entrepreneurs and labour, dissatisfied. Keeping the three independent rate at the same level is as difficult as walking on the knife edge.
- 5) Try to assess the model in terms of rigidity of capital-output ratio in this model.

Check Your Progress 6

- 1) Rigidity of capital output ratio or assumption of a production function in which technology does not permit substitution of a factor (say, capital) by another (say, labour).
- 2) Solow pointed out that there remains possibility of making the capital-output ratio a variable and the further possibility of combining a variable capital-output ratio with an endogenously determined saving rate.
- 3) Technical progress is not addressed.
- 4) Neoclassical model puts a basic framework, an advance over Harrod-Domar model, though does not incorporate factors which change the shape of the production function in an adequate manner.

Check Your Progress 7

- 1) Increase in output without increase in the amounts of factors of production.
- 2) If improvement in technology comes through newly produced capital goods and/or through newly trained workers, it is considered embodied.
- 3) If technological change comes through general application of science without really getting embedded in capital machines or human labour, it is called disembodied technology. Green revolution is a case. But you should develop several such cases.
- 4) See Section 2.6. Give your own examples from whatever you see around you.

Check Your Progress 8

- 1) A growth theory which considers technological progress as endogenously determined by the demand of the economy could be called endogenous growth theory.
- 2) In the former technological progress is coming from outside the system whereas in the latter it is product of the system itself. In the former it is supplied from outside, in the latter it is derived (demand) from within.

UNIT 3 DUAL ECONOMY THEORIES

Structure

- 3.0 Objectives
- 3.1 Introduction
- 3.2 Concept of Underdevelopment
- 3.3 Characteristics of Underdeveloped Countries
- 3.4 Concept of Dualism
- 3.5 Some Policy Perspective
- 3.6 Basic Assumptions of Dual Economy Models
- 3.7 Lewis' Labour Surplus Model
- 3.8 Fei-Ranis' Labour Surplus Model
- 3.9 Harris-Todaro Migration Model
- 3.10 Jorgenson Agriculture Surplus Model
- 3.11 Let Us Sum Up
- 3.12 Keywords
- 3.13 Some Useful Books
- 3.14 Answers or Hints to Check Your Progress

3.0 OBJECTIVES

After going through the Unit you should be able to:

- define underdevelopment;
- describe different shades of dualism;
- discuss various dual economy theories; and
- analyse how the Government can promote development.

3.1 INTRODUCTION

In Unit 1 you have already learnt about economic growth and its characteristics as differentiated from those of economic development. In Unit 2 you have learnt some of the basic theories that tried to explain growth experience of the western economies. You have noted that discussion was more descriptive though analytical than prescriptive. They could at best try to say why stability of equilibrium path may be in danger or why stability was not an issue and what kinds of adjustment could explain sustained growth.

It is true that some of the developing countries inverted Harrod-Domar model and calculated requirement of capital formation and savings, from domestic economy and foreign flow. Technological progress was an important element in growth, besides savings and investment. Endogenous models tried to incorporate the factors of human capital and research & development as determined in the system. Most of the discussion was geared to the growth and expansion that took place in the advanced countries. In this Unit our focus is on development and countries of interest are the ones popularly known as underdeveloped or developing countries, terms which are at times differentiated and at others used interchangeably.

Further, while in the earlier unit we were more interested in discovering factors behind the fact of growth, in this unit our interest is in discovering the impediments that put brakes in the development of the underdeveloped countries with a view to devising an active strategy to transform them ultimately into developed countries. While the first approach was more descriptive and analytical, the second one is more analytical and prescriptive. In other words the first one was more of curiosum the second one is one of problem solving or, if we wish, we can call loosely the first one as theoretical and the second one as practical.

However, what is more interesting is that most of the analysts have noticed existence of dualism of sorts, sociological, economic, technological, institutional and the like, which characterise(d) most of the countries that came to be known as underdeveloped or developing. Development economists perused these characteristics and pursued a line of development that can take these countries out of the morass of poverty and other ills. We shall discuss and peruse some of the more prominent dual economy theories.

Before we discuss the theories and models of duality in the economies, for which development is the theme, it will pay us to pay some attention to what is called underdevelopment as well as what are the essential characteristics of countries known as underdeveloped.

Check Your Progress 1

- 1) What are concerns of development?

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- 2) Differentiate between growth approach and development approach.

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3.2 CONCEPT OF UNDERDEVELOPMENT

Most text and reference books have preferred to avoid defining as to what is underdevelopment, though they have tried to identify underdeveloped countries. They preferred to write out some of the common characteristics. However, there is scope to understand what underdevelopment is.

Underdevelopment usually refers to the state of an organism that has not reached its maturity. The same can be said about an organisation or even an economy. It means that there exists potential for further development. It is therefore a comparison between what is there at the moment and what is ultimately achievable. The gap between the two is a measure of underdevelopment. The original meaning of the term thus indicated that existing resources had not been fully exploited. However, we are not just studying the aspect and level of underdevelopment but

trying to figure out an expedient strategy to quickly reach potential level of food, nutrition, literacy, education, health, shelter and employment, and also good life expectancy level. The domestic potential may increase through trade just as exchange permits a community to be better off.

Our First Five Year Plan indeed felt that the basic factor behind our underdevelopment was lack of adequate capital formation causing underutilisation of natural resources on the one hand and underemployed hands on the other. It was in a way, to quote Ragnar Nurkse, under-equipment of a country in relation to its population and natural resources, which makes it underdeveloped.

Sometimes we also relate underdevelopment with the state of inadequate development but then we are making comparison with what is desirable. But desirability for long had been understood in terms what has been achieved in some of the western countries which were accepted as advanced or developed countries. That focus emerged from aid agenda of the international organisations and advanced countries. But the underlying assumption is that every country can develop to more or less the same level irrespective of its geography and history, cultural ethos and desires, industriousness and entrepreneurship. In other words, it was understood that most countries, if not all, can achieve the level of production and consumption enjoyed by the citizens of developed countries. What was perhaps needed to do, many economists thought, was to have some capital formation, some education and some technological sophistication though a few analysts did pay attention to the sociological, institutional and motivational factors.

In 1950s when the United Nation was putting its attention on devising measures for development of underdeveloped countries, groups of experts formed by it were baffled by difficulty of interpreting the term which had come in use. They accepted that its adequate synonym would be 'poor' countries—the countries with low per capita real income. They fixed a benchmark of \$500 per annum, which was less than one-fourth of the per capita income in the US, Canada, Australia and most countries in the Western Europe. In those days, India's per capita income was \$60 only and it has not yet reached \$500. Today we can raise a good number of questions about international comparability and whether these figures are in market exchange rate or purchasing power parity. However, it has to be borne in mind that such benchmark lines, though analytically weak, are only to serve policy purpose of say giving financial aid or technological support.

Somehow, it has so happened that single-resource countries like those in the Middle East are found developed in both the senses that they do not have any scope for further development and they belong to the category of the richest. In fact, in many circumstances we find that geography has been beaten by technology. But the factors behind technology tell that they depend too much on that single resource. And the difference between temperate and tropical is almost vanishing, which was such a great debate once upon a time.

We may also note that underdeveloped countries were called earlier as backward or less developed and later developing. The terms were invented from the angle of international diplomacy rather than to portray the economic conditions.

Not happy with one single measure of low per capita GDP, many indicators of underdevelopment were devised, which included high birth rates, high death rates, high infant mortality and low life expectancy on demographic side, low consumption level, undernourishment and low calorie-intake, on human side, high levels of illiteracy and poor health and health services on social side, low productivity in agriculture, small existence of industrial sector and low growth rate on economic side. Some do add vulnerability to and dependence on foreign economies and limited freedom to choose between variables that satisfy human wants.

Check Your Progress 2

1) What do you mean by underdevelopment?

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2) Differentiate between two approaches to explain underdevelopment.

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3) Can you think of a situation where a country may be rich and yet underdeveloped?

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3.3 CHARACTERISTICS OF UNDERDEVELOPED COUNTRIES

Poor countries have been variously described in development literature as: backward, underdeveloped, developing, low income, and Third World. Various terms have their origin in objection to some other term. If our economy is called backward we feel bad as 'economy' is often substituted by 'society', 'country' or 'nation'; and we feel we are an ancient but living civilization and how can someone call us backward. As Higgins wrote, being underdeveloped in some technical sense has nothing to do with civilization, culture or spiritual values of a society. If 'developing' word is used, one can well ask: which is the country which is not developing or has stopped developing? Some even assert either you develop or decline, you never remain stay put. Anyway, as Jagdish Bhagwati said, the choice of the word largely depends on sensitivity of the audience and sensibility of the analyst.

We know all countries are different in their complexion, in history, geography, society, races, castes, religions, communities, etc. but also in what they produce in agriculture, industry and services and what technology they adopt. As people also differ from one to another and we categorise and differentiate them. So, we categorise countries and try to list out common characteristics. Yet neither the list is ever complete nor do the characteristics enumerated completely describe each and every country in the list, howsoever complete the set of criteria. It should however be borne in mind that while most countries in Asia and Latin America may be labour-surplus those in Africa may be land-surplus. We ourselves thought at one point that we are not scarce in labour and natural resources (not land as such), but also thought all were, were capital scarce where we had in mind physical capital in terms of machines, equipments and apparatuses needed for industrial production.

An attempt was made by Harvey Leibenstein, who grouped the characteristics themselves in four broad categories: economic, demographic, cultural and political, and technological. Leibenstein's characterisation fits better with Asian countries of the 1950s/1960s and of course, as pointed out by certain scholars, of England during 1780-1840 and Japan during 1870-1920. It would still be profitable to go through them in condensed form given below.

1) Economic

- 1) A very high proportion of the population, usually 70 to 90%, subsists in agriculture, indicating 'absolute over-population' in agriculture. There is evidence of considerable 'disguised unemployment' in agriculture and a lack of employment opportunities outside agriculture. It would therefore be possible to move a good number of workers from agriculture and still obtain the same total output.
- 2) There is usually small industrial sector. The primary industries, that is, agriculture, forestry, and mining, are usually the residual employment categories as there is no employment available outside.
- 3) Income per head is very low and as a consequence, existence is near the 'subsistence' level. Practically zero savings exist for the large mass of the people and therefore there is very little capital per head. Whatever savings do exist are usually achieved by a landholding class whose values are not conducive to investment in industry or commerce.
- 4) The output in agriculture is made up mostly of cereals and primary raw materials, with relatively low output of protein foods. The reason for this is the conversion ratio between cereals and meat products; that is, if one acre of cereals produces a certain number of calories, it would take five to seven acres to produce the same number of calories if meat products were produced. Major proportion of expenditures is on food and necessities.
- 5) With low capitalisation on the land, there is uneconomic use of whatever capital exists due to the small size of holdings and the existence of exceedingly small plots. The level of agrarian techniques is also exceedingly low, and tools and equipment are limited and primitive in nature. Even where there are big landowners as, for instance, in certain parts of India, the openings for sale of modernised agriculture produce are limited by difficulties of transport and the absence of an efficient demand in the local market. It is significant that in many backward countries a modernised type of agriculture is confined to production for sale in foreign markets. The most pervasive aspect is a feeling of land hunger due to the exceedingly small size of holdings and tiny dispersed plots. The reason for this is that holdings are continually subdivided as the population on the land increases and people could not move out of agriculture.
- 6) There is an inability of the small landholders and peasants to weather even a short-term crisis, and as a consequence, attempts are made to get the highest possible yields from the soil, which leads to soil depletion.
- 7) Volume of trade per capita is very low and export consists of foodstuffs and raw materials. Credit facilities and marketing facilities are poor. And so is the housing. There is a widespread prevalence of high indebtedness in masses relative to assets and income.

2) Demographic

Fertility rates are pretty high, usually above 40 per thousand. High mortality rates are equally high. Expectation of life at birth is pretty low, between 30 and 40 years. Nutrition is inadequate and most people suffer from dietary deficiencies.

Hygiene, public health, and sanitation are all at rudimentary stage. There is rural overcrowding, which means there is low level of urbanisation.

3) Cultural and Political

There exists usually a high degree of illiteracy among most of the people. Child labour is extensively prevalent. The middle class is absent or quite weak. Status and position of women is considered inferior. Behaviour for the bulk of the populace is determined traditionally.

4) Technological

Yields per acre are low. No facilities exist for the training of technicians, engineers, etc or they are very inadequate. Communication and transportation facilities are inadequate and crude, especially in the rural area. Technology is generally crude.

Note on Section

Some of these characteristics you will notice have disappeared from countries like India in last more than 50 years when Leibenstein had written these characteristics but some still exist. For example, excessive employment in agriculture is still a fact but percentage of workers in agriculture has come down from 3/4ths to 3/5ths. Neither our savings are very low nor are we exporting primary raw materials only. Birth rate is approaching 25 per thousand and technology in many sectors is not so crude. So will be the case, say, with China. A lot of progress has taken place in the second half of the twentieth century. Yet, some of the characteristics do stay with us but with less force.

An underdeveloped country may be densely populated or it may be sparsely populated. Some countries possess dense and sparse areas. All underdeveloped countries do not possess all the characteristics. Least developed countries, as they are known today, would perhaps still possess most of these characteristics.

However, there is still a widely shared view, which prevailed among the development economists in the 1950s through 1970s, that, essentially said, an underdeveloped country is underdeveloped because it is underdeveloped. Characterising underdevelopment with poverty (of the country, not within the country), it was argued that because of poverty savings are low, because of low savings investment is low, because of low investment growth is low and because of low growth poverty continues. Somewhere population growth as an independent desideratum is introduced in the loop of arguments. One can start with low productivity which is due to lack of capital and lack of capital is due to small capacity to save, and so on. Vicious circle theory could be introduced in several ways and in a variety of sectors.

The issue of development was posed as to how to turn the vicious circle into virtuous circle. Word circle is often substituted by cycle. However for phrase virtuous circle it is better to use virtuous spiral.

Check Your Progress 3

- 1) List out some of the characteristics which you think describe India as an underdeveloped country.

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- 2) Point out factors, given by Leibenstein, which are no longer true of India.

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3.4 CONCEPT OF DUALISM

Simultaneous existence of two contrasting systems/sectors/markets/technologies in an economy defines the duality in so-called underdeveloped countries. Some define it terms of situations or phenomena, one desirable and other undesirable, which are mutually exclusive to different groups of a society. Michael Todaro gives illustrations of simultaneous existence of: (a) extreme poverty and affluence, (b) modern and traditional sectors, (c) growth and stagnation, and (d) university education among a few and mass illiteracy. He gives out four key elements:

- 1) Two superior and inferior, sets of conditions coexist.
- 2) Coexistence is chronic, not historic or transitory.
- 3) There is no diminution in the gap between the two; the tendency is one of accentuation rather than attenuation.
- 4) The inter-relation between the two is such that superior elements push down the inferior ones.

Todaro distinguishes between international dualism and domestic dualism. Rich countries and poor countries are the examples of international dualism. Rich and poor in a country define domestic dualism. And the very process by which rich countries grow throws back underdevelopment at underdeveloped countries. Development of technology, capital-intensive as it is, in rich countries does not augur well for labour-intensive technology in densely populated underdeveloped countries and the consequence is unemployment and underemployment. Rich countries also develop mortality reducing health improvements, which will reduce death rates in poor countries helping their population to explode. But all the blame for ills of underdevelopment cannot be put at the door of rich countries. Indeed in some cases, trade relations help the underdeveloped countries maintain growth rates, which are pretty high by historical standards. In present day condition many better placed developing countries are benefiting from export of some services from developed countries in the shape of ITES.

In this Unit, we shall give due attention to domestic dualism. It has been argued that the two entities can homogenise in due course in one or the other dimensions and may not homogenise at all. It has well been argued that actually various people can live side by side but separately within the same political unit, retaining their religion, culture and language while meeting in market place and this has been called the characteristic of a plural society. Plural is a kind of generalisation of dual. However, we shall concern ourselves more on economic dualism touching upon social elements as they appear very crucial.

Sociological Dualism

Systems may be capitalist and pre-capitalist. If a society were to be characterised by, in an economic sense-as a Dutch economist J.H. Boeke conceives, by interdependent elements of the social spirit, the organisational forms and the technique dominating it, then there exist(ed) a capitalist industrial order alongside

pre-capitalist agrarian system. We should remember that this capitalist order came with colonialism; it is imported from abroad. But while western capitalism could penetrate in some way, it has been found, the original social system has been able to hold on to its own to a considerable extent. Higgins likened this position with Kipling's famous phrase 'East is East and West is West; and never the twain shall meet'. Termed as 'social dualism', this came into existence with the appearance of capitalism-in industry, plantation, and infrastructure, Boeke asserted, not because of colonialism! Boeke thought this is an eastern phenomenon as the eastern economies are more guided by social needs rather than economic motivation. He says if a farmer values a bull ten times more than a cow he does so not because bull is ten times economically valuable but because it increases his prestige at the bull race. These economies are therefore characterised by backward sloping supply curves of efforts (labour) and risk-taking.

However, later economists found some of these characteristics quite ubiquitous yet Boeke could make a point that eastern society (till the first half of the twentieth century if not in twenty-first century) was moulded by fatalism and resignation or limited wants not by 'profit-motive' or insatiate unlimited wants. But most economists did not agree with his conclusion that dualism has to be accepted as an irretrievable fact as they found, for example, that farmers are adopting new crops, new techniques, and new inputs and are guided so much by profit-motive that they have little concern for environment.

Except for primitive societies it is observed, and this was true of the fifties of the past century, that the countries that did not enter into a phase of self-sustaining process of growth also had presence of some elements of modernisation in one sector or in parts of their economies. The foreign connection has been an important element in this kind of development. John Stuart Mill had noted, in the context of West Indies, that England finds it convenient to carry on the production of sugar and coffee; similarly John Williams finds that England found it convenient to produce wheat and meat in Argentina, gold and wool in Australia, minerals and food products in Africa and at one stage raw materials and food in what came to be known as the US and Canada. Important though to note is that these foreign countries export their capital through direct investment and in a sense it is a virtual extension of home economies. Some economists have considered it as a centre-periphery model of dualism.

Technological Dualism

There may exist a modern money economy (like plantation) alongside a traditional subsistence economy (agriculture). The advanced sector may be using factors of production, say capital and labour, in a more rigidly fixed ratio while traditional sector may be employing them in quite flexible proportions. Examples of modern sector are plantation, mines, oil fields and large-scale industry whereas examples of traditional (rural) sector are peasant agriculture, handicrafts, and cottage industries where technical coefficients are 'variable' and are labour-intensive because labour is abundant factor. Since modern sector, initially developed by foreign capital, is operated under modern management practices with modern production techniques, output does expand in this sector. Given its technical rigidity it is not able to throw job opportunities enough to absorb growing labour force, surplus of which therefore has to fall back on the traditional rural sector. However with low capital-labour ratio, development is generally resulting into underemployment of labour force in the traditional sector. This is known as technological dualism.

Organisation-base dualism

However, there are economists to view the phenomenon from the angle of particular market, like labour market and capital market or even commodity market. There

may be sectors which are exclusively engaged in exports and the other is geared to satisfying local needs. Even within the same sector a dual economy may exist: a modern plantation or commercial agriculture entity may be operating in the midst of traditional cropping systems. Some point out about a subsistence economy and exchange economy even within domestic sphere: subsistence economy where no or little surplus is generated and little exchange, may be at barter, make take place and exchange or cash economy where production takes place with a view to sell, the motive being profit. Great scholars call the former community production and the later, commodity production.

Factor Market Dualism

Some sectors are entirely self-employment ones while others are wage-employment ones. But in labour market, economists points out towards existence of subsistence wages in one segment and remunerative wages in the other. They are often known organised and unorganised sectors. Which simply mean that is no single homogenous or unified labour market (even when skills are controlled). Many economists have seen dualism in capital market, which they have preferred to call financial dualism. Modern sector often enjoys low rate of interest and get institutional finance whereas traditional sector may have to depend on money-lenders who may charge exorbitantly high rate of interest.

And it is the persistence that is a problem. And the discussion so far simply shows that neoclassical economics fails to propose any practical solutions to the problems posed by dualistic nature of underdeveloped economies though couple of authors would differ.

Dualism: Cause or Consequence

There are two schools on whether dualism is cause of underdevelopment or consequence of development. Some assert that, whether Great Britain or Japan, all have passed through existence of dualistic economy or it very much exists practically everywhere. So, they think it is a consequence of development rather than the cause of underdevelopment. The issue is how to create a virtuous spiral.

We shall next deal with some policy perspective before we discuss the dual economy theories and models for development of underdeveloped countries. They seem to suggest some broad strategies of development.

Check Your Progress 4

1) What do you mean by dualism?

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2) Discuss the types of dualisms. How do they reinforce each other?

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3) Should development mean abdication of social customs and values?

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3.5 SOME POLICY PERSPECTIVE

International Causes

It was echoed once upon a time, and again today, that trade is the engine of growth. In new resource-rich countries like those in the Americas, foreign capital (from Europe), supplemented by foreign labour (from Africa), was producing much of the raw materials and other primary products for expanding markets of Europe. While the world GDP rose five folds during 1850 and 1913, the international trade rose ten folds. And, it had, many economists suggested, little to do with imperialism. It was pointed out that the regions of recent settlement were high-income countries right from the beginning, with effective market and efficient producers. Some economists suggested that the same could perhaps be pursued in bulk of Asian and African countries. Others, like Ragnar Nurkse, thought external stimuli to growth and industrialisation was inherent in the pattern of the nineteenth century, but are no longer relevant to the twentieth century, exception being oil countries. (What could one say about twenty-first century?) They suggested domestic industrialisation has therefore to be pursued by Asian and African countries as the other escape route was not available any more.

Raul Prebisch and Han Singer were two prominent economists who found empirically in 1950 that the terms of trade between primary products and manufactured products deteriorate over time. And the mechanism is simple via income elasticity of demand for products. As a result, in the present world system, primary produce exporting countries, called periphery, are found to lose on balance to the secondary produce exporting countries, called centre or core. As technology improves, it is argued, the centre is able to retain the savings made, since it can retain higher wages and profits through developed unions and commercial institutions. At the periphery, companies and workers are weaker, and have to pass on technical savings to their customers in the form of lower prices. So, the core becomes even the lender and the periphery, the borrower.

Given the deterioration in the terms of trade between industrialised and non-industrialised countries, peripheral nations had to export more to get the same value of industrial exports. Through this system, all of the benefits of technology and international trade would accrue to the centre. There are several contributors to this kind of international dualism. Gunder Frank, Samir Amin, Immanuel Wallerstein and Gunnar Myrdal are some of those who developed mechanisms which suggested development of the core/centre/metropolis causes underdevelopment in the periphery. In the debate on globalisation some of these theories are again surfacing. However, it would be instructive to go through a passage of Gunder Frank (1969):

Economic development and underdevelopment are the opposite faces of the same coin. Both are necessary result and contemporary manifestation of internal contradictions in the world capitalist system. Economic development and underdevelopment are not just relative and quantitative, in that one represents more economic development than the other; economic development and underdevelopment are relational and qualitative, in that each is structurally different

from, yet caused by its relation, with the other. Yet development and underdevelopment are on the same note in that they are the product of a single but dialectically contradictory economic structure and process of capitalism... One and the same historical process of expansion and development of capitalism throughout the world has simultaneously generated — both economic development and structural underdevelopment.

Domestic Solution

The message by and large was that underdeveloped countries ought to pursue henceforth the line of domestic development through the route of internal industrialisation rather than choose a course of development through export of primary products which was they could best do if they chose that course.

However, many development economists thought in 1950s that there existed a lot of disguised unemployment of labour in agriculture sector in many underdeveloped countries. If this labour is withdrawn from the agriculture sector there would be no diminution of agriculture production while they could be put to better use elsewhere, say in the production of industrial goods or to form capital goods like roads, drainage, check dams, and irrigation channels. Nurkse thought this disguised unemployment is in fact disguised saving potential and therefore this adversity could be looked at as a blessing in disguise.

Near home, in 1956, Indian economists Vakil and Brahmananda also argued in favour of wage-goods strategy for employment of disguised unemployed at the project sites by supplying them with wage-goods defined as 'consumption necessities required for subsistence and performance' and thus ensure an effective of the 'saving potential' by employing the idle. Planning could do it. Capital goods required for the production of these wage-goods should be accorded priority in production and the supply of wage-goods plus capital goods needed for their production must grow at a considerably higher rate than the growth rate of population to absorb the disguised unemployed.

Any production, whether of consumption goods or capital goods and more so of capital goods, require capital goods — machines, equipments and tools. They can be simple ones or more sophisticated. Some of the simple tools could be locally fabricated like axe or club. Dams could be masonry or earthen ones. Both are capital goods. Bunding of agricultural fields could be earthen or brick wall. Fencing could be dry shrubs with thorns or could be barbed wire. So long development is low one can opt for simple tools consistent with local factor endowments.

The issue remains when workers move from their farms, do they pack their food with them? People back home have to be made to forgo that amount of foodgrain which they were otherwise offering to their unproductive brothers at home. How? Through gift, levy or tax. Else use saving in other sectors to buy food for those who moved away from agriculture; this is what economies are doing presently.

However, story is not that simple. For example, those who are left back at home would consume a little more as they were likely to have remained underfed. In economics terms, as their per capita income or per worker output would rise, they would tend to consume more, given their marginal propensity to consume.

One thing that is clear is that development economists so far are suggesting either for (1) capital formation and/or (2) industrialisation.

Note on Section

Nobody at this stage was suggesting for other parameters, whether education or health, freedom or liberty, though in characterising a country as underdeveloped, mass illiteracy and ignorance, mass poverty and squalor, poor health and low

hygiene are all counted. Second, agriculture is being equated with production of foodgrains alone, as if it is to be eaten raw, and no input-linkages are seen with industry.

Check Your Progress 5

- 1) What do you mean by core and periphery?

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- 2) Discuss the idea of development of underdevelopment.

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- 3) How can one see disguised unemployment as savings potential in country?

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3.6 BASIC ASSUMPTIONS OF DUAL ECONOMY MODELS

Models are abstraction of reality for use of analytical purposes. Some assumptions are made but they are supposed to be close to basic features, which an economy does possess. The former discussion can be put in the following framework. Some of the models will not accept all of them. Nevertheless the following presentation is of great help as a point of departure.

- 1) An economy consists of two sectors such as capitalist and subsistence sectors.
- 2) At the capitalist sector, wage rate is equal to marginal productivity of labour.
- 3) At the subsistence sector, wage rate is equal to subsistence level while marginal productivity of labour is nearly zero.
- 4) There is high labour-land ratio in the economy, particularly in the agriculture sector, which is the dominant sector in the economy.
- 5) All of capital stock exists only at the capitalist sector while none utilised at the subsistence sector.
- 6) The capital accumulation or investment originates from benefit of capital while wages at both sectors are consumed totally.
- 7) The capitalist sector goods are utilised for both consumption and investment while the subsistence goods are only for consumption.

- 8) Huge disguised unemployment exists at the subsistence sector, which could be a nearly infinite resource for unskilled labour supply for the capitalist sector.
- 9) Prices of the subsistence sector goods are utilized as a measuring standard for the wage rate while quantities of the capitalist goods play the same role for subsistence sector goods.
- 10) A model itself is not dynamic but based on a comparative-static basis.
- 11) A closed economy is assumed for simplification of the model.

The classical model developed upon these reasonable assumptions that most of the less developed economies, or strictly speaking, pre-structural change economies, are likely to be characterised by high man-resources ratios which gives rise to diminishing returns to labour, to the extent that marginal productivity of labour is zero. The pressure of population on scarce resource forces a situation where work and income sharing arrangements dominate the traditional sector of an economy. Workers in such a sharing nexus are paid a shared wage which is close to subsistence levels. These low wages, along with the presence of a supposedly unproductive labour (i.e., surplus labour and the disguisedly unemployed), permit the modern sector to pay a wage marginally above subsistence levels and expand without limit (to a certain extent at least).

Included in this scenario are not only differences in production conditions between the two sectors (traditional, unproductive activities contrasted with modern, productive activities) but also organisational asymmetries, (uncommercialised family enterprises contrasted with highly commercialised, rationalised production units). This is a very powerful scenario which provides a pretty accurate picture of most labour surplus economies. Also included in the classical model were structural sequences such as higher savings rate (capitalists' surplus which is reinvested) and the entry of women into the labour force. So, the classical approach paints a pretty grand and comprehensive picture.

3.7 LEWIS' LABOUR SURPLUS MODEL

We may recall that Nurkse was talking about use of surplus labour to create capital in terms of overhead and infrastructure. Lewis is talking of movement of labour from agriculture to industrial sector. So, this one is in true sense a dualistic theory. These models are talking of closed-economy development, which has to be seen in the impossibility of the experience of the nineteenth century development through trade.

Arthur Lewis, later a Nobel Laureate in Economics, wrote a paper entitled *Economic Development with Unlimited Supplies of Labour* in 1954 in *The Manchester School* when development economics was in infancy. The article itself has been held by many economists as the most influential contribution to the establishment of the discipline. In essence, the model explains how transference of surplus labour from traditional agricultural sector to the modern industrial sector, whose growth over time absorbs the surplus labour, promotes industrialisation and stimulates sustained development.

Agriculture and Industrial Sectors

There exist two sectors: a vast agriculture sector and a small industrial/manufacturing sector (service sector being ignored or services subsumed in either of them, depending upon their resemblance). The traditional agricultural sector is typically characterised by low wages, an abundance of labour, and low labour marginal productivity and labour intensive production process. The modern

manufacturing sector is a complete contrast, characterised by higher wage rates, higher labour marginal productivity, and capital-intensive production process.

Since the manufacturing sector is assumed to be capital intensive, there is scope for investment and capital formation and capitalists' profits can be reinvested in the capital stock. Improvement in the marginal productivity of labour in the agricultural sector is assumed to be a low priority as the hypothetical developing nation's investment is going towards the physical capital stock in the manufacturing sector.

However, the agricultural sector has a limited amount of land to cultivate. The marginal product of an additional farmer is assumed to be zero as the law of diminishing marginal returns has run its course due to the fixed input, land. As a consequence, the agricultural sector has a quantity of farm workers that are not actually contributing to agricultural output since their marginal productivity is zero. They are seen to be engaged but are not actually employed. That could happen as they are, generally speaking, self-employed on family farms. That could also happen because of societal sharing in produce under prevalent social institutions. (One can refine the statement by differentiating between labour and labourer).

Capitalist and Pre-capitalist Classes

Capitalists are guided by profit motive and they invest all that they save and they save a large part of profit they earn. On the other hand, pre-capitalist class does not save. Peasants have no capacity to save. Feudal elements have no interest in investment, and therefore in saving, and will prefer to indulge in leisure/religious activities with little stimulating supply side effect on the economy. Therefore, it has been assumed that all savings are out of profit only, none from wages or rents.

Further, while neoclassical marginal productivity theory works in the capitalist industrial sector it is classical subsistence wage theory that operates in agriculture sector in underdeveloped countries.

One important point that should be noted is that Lewis believes that capitalist class produces everything it needs, even necessary agriculture. What capitalist class has to turn to agriculture sector is only labour in which it is deficient.

Movement of Surplus Labour

The group of farmers that is not adding to production is termed surplus labour by Lewis. This cohort could be moved to another sector with no impairment on agricultural output. Due to existence of wage differential between the agricultural and manufacturing sectors, workers may tend to move from the agricultural sector to the manufacturing sector over time to reap the reward of higher wages.

If a quantity of workers moving from the agricultural to the manufacturing sector is equal to the quantity of surplus labour in the agricultural sector, regardless of who is actually transferred, general welfare and productivity will improve. Total agricultural produce will remain unchanged while total industrial produce increases due to the addition of employment of labour. Total gross domestic product will thus improve.

However, additional labour will drive down marginal labour productivity and therefore wages in the manufacturing sector. But because of additional capital formation, marginal productivity of labour will also improve. So, with two opposite tendencies in operation it is believed that the marginal productivity of workers in the manufacturing on balance will still rise. With relative shortage of workers in agriculture sector wage rate in agriculture will effectively increase even if average product rather than marginal product is the rule.

Eventually, the wage rates of the agricultural and manufacturing sectors will equalise. Workers' movement from agriculture for manufacturing sector will improve marginal productivity and wages in agriculture whilst driving down productivity and wages in manufacturing. The end result of this transition process is that the agricultural wage equals the manufacturing wage, the agricultural marginal product of labour equals the manufacturing marginal product of labour, and no further manufacturing sector enlargement takes place as workers no longer have a monetary incentive to transition.

Criticism

The theory is complicated in reality by the fact that surplus labour is both generated by the introduction of new productivity enhancing technologies in the agricultural sector and the intensification of work. The relative bargaining power of workers and bosses varies and with it the cost of labour. The wage differential between industry and agriculture needs to be sufficient to incentivise movement between the sectors and, whereas the model assumes any differential will result in a transfer. (Also, the migration of workers from the countryside to the cities is an incentive towards those two phenomena called pull and push.)

The model assumes rationality, perfect information and possibility of unlimited capital formation in industry. These do not exist in practical situations and so the full extent of the model is rarely realised. It has also been pointed out that people left back at home in agriculture would be consuming a little better than what they had been doing earlier as they had been short in per capita availability. One could well surmise that improvement in consumption will take place because of improved per capita income.

However, the model does provide a good general theory on labour transitioning in developing economies.

It has been pointed out that this model has been employed quite successfully in small countries like Singapore. Ironically however it has not been employed in Sir Arthur Lewis' home country of St. Lucia. After all the idea came to his mind while he was having a walk in Bangkok, on the eastern side of the globe.

Check Your Progress 6

1) How is surplus labour defined in this model?

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2) How do you contrast the characteristics of agriculture and industry?

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3) What are the main features of Lewis model?

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3.8 FEI-RANIS' LABOUR SURPLUS ECONOMY MODEL

Accepting usefulness of fundamental asymmetries between sectors, John (C.H.) Fei and Gustav Ranis, in their joint contributions, distinguish between disguised unemployment and redundant labour. They think when marginal physical product is zero, labour is redundant but when it is less than average physical product, it is a case of disguised unemployment. Under institutional structure prevailing in agriculture, like familial understanding, communal settings or diktat of village elders, workers get paid wages equal to their average product rather than marginal product which is below the subsistence level. Later on, some scholars have discovered the application of efficiency wage principle, which means employers have incentive in paying higher wages than market clearing ones in order to extract better work from the labour by making them physically more efficient.

In the Fei-Ranis framework, an economy passes through dualism phase in its transition from an agrarian phase to maturity. Their dualism extends beyond inter-sectoral labour movement and inter-sectoral commodity and financial markets are also considered. Agriculture food-produce (rather than raw material) becomes a necessary condition for industry but the vice-versa need not hold. So the agriculture sector should not lag behind the industrial sector. Else the wages will start rising and terms of trade will be in favour of agriculture and labour movement may be halted or retarded much before Lewis' turning point of elimination of surplus labour. So there has to be a balanced growth of both the sectors even if wages are still determined by institutional factors.

As in Lewis' model, in Fei-Ranis model too, industrial sector is a modern sector of production with wages determined in neo-classical fashion and has savings/surplus, which is invested in the same sector. Agriculture sector is a traditional sector, with wages determined in classical fashion by institutional factors, whatever surplus (food) is there it is traded with industrial goods or is extracted as levy/tax.

It is to be noted that horizontal labour supply curve to the industrial (capitalist) sector gets rising when redundant labour supply is exhausted and disguisedly unemployed start getting absorbed. Relative shortage of labour in agriculture would turn the terms of trade against capitalist sector trading with agriculture sector (and in favour of agriculture sector). Eventually, it would raise wages in agriculture sector as disguised unemployment would be removed and commercialisation of agriculture begins. Capital accumulation and technological progress pervades in agriculture sector as well. Once the process of commercialisation matures in agriculture, it leaves the classical world behind and enters the neo-classical world where wages are determined by marginal product. When labour gets so allocated that marginal product is the same in both the sectors, the analysis is the same as in the case of one-sector neoclassical model.

In a broad sense Ranis-Fei model is an enrichment of Lewis' model with a little modification in the idea of disguised unemployment and completing to its logical

end by use of terms of trade and emphasising the role of balanced growth so that there is no shortage of agriculture produce and suggesting simultaneous development of both the sectors.

Check Your Progress 7

1) What are the new features in Fei-Ranis Model?

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2) How do Fei and Ranis distinguish between redundant labour and surplus labour?

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3) What are model's implications in terms of balanced growth?

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3.9 HARRIS-TODARO MIGRATION MODEL

Instead of industry-agriculture duality, in the late nineteen sixties and early seventies, J. Harris and M. Todaro come with the idea of rural-urban duality and assert that migration is basically an economic phenomenon. Suggesting that migration depends on the differential between the wage rates, they add an element of 'expectation'. It is primarily the movement of labour rather than capital, which is at the core of the model. In this model extraction of surplus from agriculture is not a necessary condition.

Why should labour think of moving from his rural abode to urban habitation? Economists have been suggesting that labour would do so because of higher wages. The rural-urban migration has been articulated as a positive function of wage differential between urban and rural wages. And this was true of near full employment industrial economy. In the case of an underdeveloped economy where the fact of disguised unemployment was in rural areas well accepted but that of open urban unemployment was not. Harris and Todaro added a new element of urban unemployment, which was becoming conspicuous when they were articulating their views.

They multiply urban wage rate with the ratio of employed labour force to total labour force in urban area as a proxy for probability of finding work in the urban area. Subtracting rural wage rate from adjusted/expected urban wage rate is called expected urban-rural wage rate differential and migration is a positive function of this differential. Higher the differential, higher is the migration. But higher the

migration means lower the probability of finding the job and/or lower the wage rate in urban area and higher the wage rate in rural area than they were before. It is easy to see that migration would lead to a reduction in wage differentials through the interaction of the forces of supply and demand, both in the areas of emigration and of immigration. Logically speaking, migration will come to a stop when adjusted urban wage rate becomes equal to real rural wage rate. Does it actually stop? We shall see a little later.

This model can be made a little more realistic by considering a longer time horizon for calculating risk of absorption/non-absorption in urban employment, say 5 to 10 years rather than immediately on migration. One can also take note of migration cost, including psychological ones like social adjustment as well as of other migration returns like better amenities, in addition to wages and earnings. Till the time one does not get absorbed in the formal system, there is good likelihood that one gets engaged in self-employment activities.

Todaro sums the model as follows:

- 1) Migration is stimulated by rational economic considerations of relative benefits and costs, mostly financial but also psychological.
- 2) The decision to migrate depends on 'expected' urban-rural wage differential rather than actual one, where urban wage has to be multiplied by the ratio of new jobs to the available unemployed job seekers before rural income (wage) is subtracted.
- 3) The probability of obtaining an urban job for a person is inversely related to urban unemployment rate.
- 4) Migration rates in excess of urban job opportunity growth rates are not only possible but rational outcomes in view of wide urban-rural expected income differentials.

Some Policy Implications

The obvious implication of the positive theory of migration is that there continues to be migration from rural area to urban area since urban-rural wage differential is so high that even after adjustment for probability the differential remains pretty high. So, migration may contribute to urban unemployment, which may keep rising. Unemployment which is disguised in rural area becomes open in urban areas. Allocation of labour between two segments is decided by workers themselves. Labour which does not do much good to rural area adds to the problems of urban area at least in terms of unemployment as opportunities created in the urban area are usually less than the number of aspirants in queue.

However, if through government intervention urban wages do not disproportionately grow in comparison to rural area, the tendency to migrate would be dampened. After all, during harvest season we still find that employees in urban informal sector migrate back to rural areas. One can think of creation of jobs in urban areas, perhaps in modern sector, but the same logic will now work through better probability which we saw working through higher urban-rural wage differential otherwise. For every new job, there may be two or three migrants. One may still think of wage subsidies to be given to employers or direct hiring by the government. However, if these wages are higher than market clearing wages, as they tend to be for various institutional reasons, they are likely to lead to unemployment in urban area. Migration from rural to urban areas does not stop even while unemployment in urban areas keeps rising.

1) What do you mean by expected urban-rural wage differential?

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2) Why do people migrate even when there exists unemployment in urban areas?

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3) What are the implications of Harris-Todaro model?

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3.10 JORGENSEN AGRICULTURAL SURPLUS MODEL

Jorgenson does not see reason to start a dual economy model with institutional wage determination in agriculture sector and existence of disguised unemployment in terms of zero marginal productivity. However, he accepts or rather makes a point that a dual economy may grow only if there exists an agricultural surplus. The existence of an agricultural sector permits the emergence and, subsequently, the growth of the manufacturing sector by releasing labour from the agriculture to the manufacturing sector. His dual economy is really of neoclassical (Slow) variety where there exists regular production function, may be with constant returns to scale, and factor prices are determined by the marginal principle.

Models whether classical or neoclassical seek to describe and explain a ubiquitous aspect of economic development, which is 'structural change'. But the classical model, which is one-good model, is curiously silent on one point: what happens when the food production is inadequate to permit development? Suppose, food production is so low that workers who move out of the traditional or agricultural sector cannot be fed. Clearly, development must cease.

It is at this point that the neoclassical approach comes in picture. Let us understand, Jorgenson argues, the reasons why the neoclassical approach is so concerned with the viability conditions for growth, especially with regards to adequate food production. The neoclassical approach, it can be stressed, looks at the dual sectors of an economy in a very different manner when compared with the classical approach. The neoclassical approach is not founded on assumptions of large and growing populations, nor is it interested in pessimistic scenarios of zero marginal

products. Most of all, it does not regard leisure as either a free good or an inferior good. Neoclassical economics treats leisure as a superior good, which implies that no matter what the circumstances, marginal productivity of labour will always be positive. The same was articulated by Amartya Sen by differentiating between labour and labourer who may be doing bird watching rather than ploughing hard if additional labour is bringing forth no addition to produce.

Classical and neoclassical approaches differ in this fundamental aspect. The neoclassical approach therefore requires a very different path to proceed along. It must rely on changes in the parameters of the dual economy, such as population, technical progress and capital accumulation, to spur growth. It recognises the fact that there is no such thing as a given assumption that modern sector can grow on its own volition or through exogenous investment, without regard to adequacy of food supplies. Jorgenson in his model explores the conditions for the emergence of a food surplus. And he does it by postulating that population growth rates increase, but only until a physiological limit is reached. A population which grows at less than its physiological limit, is a population which is not meeting its food requirements. Hence, the viability condition is very simply that food production be sufficient to permit the population to grow at its physiological limit. Once this physiological limit is reached, the neoclassical approach assumes that the population maintains a constant consumption of food per capita, which is sufficient to maintain the population growth rates at its physiological maximum. Thus, any food production per capita in excess of per capita consumption of food sufficient to maintain population growth rates at the physiological maximum, results in a food surplus which permits the release of labour for work in the manufacturing sector.

An economy in which capital accumulation is not possible, he argues, there is reason for stationary situation. This is equivalent to say that there is no stationary situation in an economy with an agricultural surplus. Indeed, once the economy has begun to grow it must continue to grow. But then, he further explores what will be the pattern of the growth of the dual economy?

Through mathematical reasoning he discovers that growth depends on two initial conditions: (1) the size of the population $P(0)$ when growth/development process begins and (2) the initial capital stock $K(0)$. Of these two, he shows that only (1) has an effect on the long-run growth of the economy. The influence of (2), the initial capital stock, dies out very quickly but it has to be positive only. This is in contrast to the classical model of dual economy where has to exist a critical level of initial capital stock for sustained growth. Jorgenson's neoclassical dual economy experiences sustained growth, given any level of initial capital stock. The combination of a positive and growing agricultural surplus combined with a small positive capital endowment will give rise to a rapid rate of growth.

However, growth in the manufacturing output is more rapid when the rate of growth of the labour force or the rate of technical progress is more rapid; the rate of growth of manufacturing will be less rapid when the share of labour in output is higher and/or when the saving ratio is smaller. It can be shown by decomposing the rate of growth of manufacturing output in terms of technical progress, the rate of growth of the industrial labour force and the rate of capital accumulation. So that the rate of growth of output in the industrial sector is equal to the rate of technological progress plus a weighted average of the rates of growth of the manufacturing labour force (A) and the rate of growth of the capital stock (B).

It is considered a development model as it takes care of structural transformation besides growth. It is a dual economy model for it incorporates two sectors with different characteristics besides product they produce.

- 1) According to Jorgenson model, what is the essential requirement for growth of a dual economy?

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- 2) Point out the relationship between pace of growth of manufacturing sector.

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3.11 LET US SUM UP

We started this unit by pointing out the difference between the concerns of the models of economic development and those of the models of economic growth. While in the former the interest lay in finding out the road to development through pro-active policies, in the latter it was more for explanation of the history of growth and prediction of growth in future. Since most of the economies are characterised by some kind of duality, it was considered worthwhile to discuss some of dual economy models.

However, we first dealt with the concept of underdevelopment and its two strands- as (1) the gap between the potential and real and (2) the gap between the poor and the rich countries. Then we tried to know some of the characteristics common to developing countries, in terms of economic, demographic and technological, as delineated by some development economists of the yore and noted that all of them did not obtain anytime in all the developing countries we know of and some of them do not obtain any more in some of the countries.

What could be found expedient was the pervading idea of dualism and variety thereof in terms of sociological, technological, organisational etc, which made better sense. They also come handy for analytical handling of dualistic models of development. So, their general assumptions/characteristics are also described.

Before we took up four specific models, we chose to provide some policy perspective in a section. Whether an underdeveloped economy can develop through trade with developed economies, is an important issue. If trade route is open, what are the dangers? Why trade can cause underdevelopment rather than development. If that route is not open or not taken as the primary mode of development, how does an underdeveloped economy develop? If it is through industrialisation, what are the conditions? Wherefrom labour moves and whereto and wherefrom savings flow and wherein? Does labour always move from a sector where wages are lower to another where wages are higher or is probability of finding a job is also an important consideration?

The Unit picks up four models: Lewis, Fei-Ranis, Harris-Todaro Model and Jorgenson Model. While both Lewis and Fei-Ranis models consider existence of

surplus labour in agriculture sector an important condition and movement of labour from agriculture to industrial sector is the lever of development, they differ on account of definition and extent of surplus labour. While for Lewis model surplus labour is characterised by zero marginal productivity, for Fei-Ranis model redundant labour is distinguished from disguised unemployment. There are many common elements between the two models but Fei-Ranis model dualism extends beyond inter-sector labour movement.

Harris-Todaro model shifts the focus from agriculture-industry dualism to rural-urban dualism and introduces the expected wage differential between urban and rural wages. There exists some unemployment in urban area. Should people move from a low wage area to a high wage area? Not always. If finding a job in urban areas is $\frac{1}{2}$ and wage in urban area is 1 and $\frac{1}{2}$ times that in rural area, the 'expected' urban wage is only $\frac{3}{4}$ of the rural wage and migration will not take place. The model explains how unemployment can swell in urban areas through rural-urban migration and discusses various policy options.

Jorgenson's model is important in the sense that it does not consider it necessary that there operate two different ways of wage determination in two sectors. It finds that existence of agriculture surplus is enough to prove that manufacturing sector will develop. It also provides conditions for speed of development.

These models did not talk of services as they were subsumed in one of the two and material sector was considered important. Moreover, in those days, real savings were supposed to be in the form of material production only.

3.12 KEY WORDS

Underdevelopment

: The gap between the potential and the actual could really be defined as underdevelopment. However, under the assumption that every economy could reach the same level of living, a number of parameters are counted for characterising underdevelopment: absolute poverty, low per capita incomes, low rate of economic growth, low consumption levels, poor health services, high death rates, high birth rates, vulnerability to dependence on foreign economies, and limited freedom to choose between variables that satisfy human wants.

Dualism

: The simultaneous coexistence of two mutually exclusive situations or modes or phenomena pertaining to different groups of a society like extreme poverty and affluence, or different sectors of economy like modern and traditional sectors, or different modes of wage determination or existence of different weltanschauung in people like sense of achievement and sense of resignation.

Disguised Unemployment

: A situation in which available work tasks are split among resources, typically labour, such that they are seem to be fully employed but in reality much of their time is spent in unproductive activities.

- Capitalism** : An economic system in which all resources are privately owned and allocation of resources is effected through price mechanism.
- Exports (of goods and services)** : The value of all goods and non-factor services sold to the rest of the world (across the border). They include merchandise, freight, insurance, travel, etc. The value of factor services such as returns on investment in foreign countries or workers' earnings or remittances is not included.
- Imports** : The value of all goods and non-factor services purchased from the rest of the world. Usually valued at CIF-cost, insurance and freight.
- Neoclassical Economics** : Economics of capitalist market economies characterised by consumer sovereignty, profit-maximization, private enterprise and supply-demand rules.
- Vicious Circle** : A self-reinforcing cause-effect relationship leading to situation in which factors that tend to perpetuate a certain undesirable phenomena like low incomes leading to low consumption leading to poor health leading to low productivity leading to low incomes.

3.13 SOME USEFUL BOOKS

- 1) Lewis, W.A. (1954). *Economic Development with Unlimited Supplies of Labour*. The Manchester School, XXII(2).
- 2) Meier, G.M. and Seers, D. (Eds) (1984). *Pioneers in Development*, New York: Oxford University Press for the World Bank.
- 3) Meier, G.M. and Stiglitz, J. (Eds) (2001). *Frontiers of Development Economics*, New York: Oxford University Press for the World Bank.
- 4) Nurkse, Ragnar (1953) *Problems of Capital Formation in Underdeveloped Countries*, Oxford: Basil Blackwell.
- 5) Todaro, Michael and Stephen Smith (2006), *Economic Development*. 9th ed. Addison-Wesley Series in Economics.

3.14 ANSWERS OR HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) Discovering the impediments that put brakes in the development of the underdeveloped countries and devising strategy to transform them ultimately into developed countries.
- 2) In growth approach we were more interested in discovering factors behind the fact of growth, in development approach our interest lies in discovering the

impediments that put brakes in the development of the underdeveloped countries with a view to devising an active strategy to transform them ultimately into developed countries. While the first approach was more descriptive and analytical, the second one is more analytical and prescriptive. In other words, the first one was more of a curiosum the second one is one of problem solving.

Check Your Progress 2

- 1) The gap between the potential achievement and the actual achievement could be defined as underdevelopment. However, scholars often compare the poor countries with rich countries in per capita terms as an indicator of underdevelopment of the former. Sometimes they enlist indicators of low achievements.
- 2) Read Section 3.2 and develop the answer on your own.
- 3) If a country with high per capita income has an under-exploited potential, it can in a sense be called underdeveloped. No country has actually reached the final peak, which itself keeps shifting due to technological innovations.

Check Your Progress 3

- 1) Absolute over-population in agriculture, disguised unemployment in agriculture, small and dispersed holdings, lack of employment opportunities outside agriculture, extant poverty, low urbanisation, undernutrition of a large section of society etc are some of the characteristic features which make India underdeveloped.
- 2) Savings are not near zero. Volume of trade per capita is not very low. Life expectancy is not duly low. Middle class is not absent. Technology is not just crude. These are some the features noted by Leibenstein which are not present in India any more.

Check Your Progress 4

- 1) Simultaneous existence of two contrasting systems/sectors/markets/technologies in an economy defines the duality in so-called underdeveloped countries. It also denotes persistence of divergences between rich and poor countries.
- 2) Sociological, technological, financial, factor-market and geographical dualism are the major types. Economic and social divisions in an economy, whatever difference in technology between sectors or regions, or differences in social customs or attitudes between an indigenous and an imported system. It is found to be a concomitant of the growth of a money economy, which may arise as naturally necessitated by specialisation or may be imposed by an imported alien system.
- 3) Think aloud as some of the values dear to people in so-called underdeveloped countries, which come as impediments to so-called development. Give your own view.

Check Your Progress 5

- 1) Core-periphery relationship denotes an international relationship of exploitation of the poor countries of the periphery by the rich countries of the core or centre. It suggests that capitalist development of an underdevelopment country is impossible today because the relationship between the rich and the poor countries is one of domination of the former and dependence of the latter. This neo-Marxist view stipulates that existence of monopoly capitalism promotes surplus drain from poor countries of the periphery and absorption

- 2) Read quotation of Gunder Frank in Section 3.5 and argue in that vein.
- 3) Many development economists thought in 1950s that there existed a lot of disguised unemployment of labour in agriculture sector in many underdeveloped countries. If this labour could be withdrawn from the agriculture sector there would be no diminution of agriculture production while they could be put to better use elsewhere, say in the production of industrial goods or to form capital goods like roads, drainage, check dams, and irrigation channels. Nurkse thought this disguised unemployment is in fact disguised saving potential and therefore this adversity could be looked at as a blessing in disguise.

Check Your Progress 6

- 1) The marginal product of an additional farmer in many underdeveloped countries is assumed to be zero as the law of diminishing marginal returns is supposed to have run its course due to the fixed input, land. As a consequence, the agricultural sector has a quantity of farm workers that are not actually contributing to agricultural output since their marginal productivity is zero. They are seen to be engaged but are not actually employed as they are not contributing. The group of farmers that is not adding to production is termed surplus labour by Lewis.
- 2) See heading Agriculture and Industrial Sectors in Section 3.7 and write the gist.
- 3) There are two sectors agriculture and industry. While the former is traditional the latter is modern. They have two different, contrasting of wage determination. While the former has surplus labour, the latter needs it for expansion of production. There is movement of labour from agriculture sector to industrial sector till the equilibrium of wages is not achieved.

Check Your Progress 7

- 1) In Fei-Ranis model, the horizontal labour supply curve to the industrial (capitalist) sector gets rising when redundant labour supply is exhausted and disguisedly unemployed start getting absorbed. Their dualism also extends beyond inter-sectoral labour movement and inter-sectoral commodity and financial markets are also considered.
- 2) Fei and Ranis distinguish between redundant (surplus) labour and disguised unemployment. They think when marginal physical product is zero, labour is redundant but when it is less than average physical product, it is a case of disguised unemployment.
- 3) Agriculture food-produce (rather than raw material) becomes a necessary condition for industry but the vice-versa need not hold. So the agriculture sector should not lag behind the industrial sector.

Check Your Progress 8

- 1) Urban rural wage differential is simple difference between urban wage and rural wage. However, for a migrant it is expected urban wage rather than actual urban wage, which matters. The migrant worker would multiply urban wage with his probability of finding job in urban locale, which would depend on existing urban unemployment rate. Difference of rural wage from expected urban wage is the expected urban rural wage differential. It is understood that in rural area unemployment (open) is nil.

- 2) Since they find that expected wage rate in the urban area is sufficiently high, they move despite unemployment in urban areas.
- 3) Migration from rural to urban areas continues despite unemployment keeps rising in urban areas. If government intervention does not lead to disproportionate rise in urban wage rate, rural to migration would be dampened and thus lead to little less open unemployment in urban areas. Wage subsidies and direct hiring by government may reduce unemployment rate to some extent.

Check Your Progress 9

- 1) The essential requirement for growth of a dual economy is the existence of agriculture surplus-neither food nor labour.
- 2) Read the last para of the Section 3.10 and write the gist.

UNIT 4 SOCIAL AND ENVIRONMENTAL ASPECTS OF DEVELOPMENT

Structure

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Social Aspects of Development
- 4.3 Environmental Aspects of Development
- 4.4 Sustainable Society
- 4.5 Let Us Sum Up
- 4.6 Key Words
- 4.7 Some Useful Books
- 4.8 Answers or Hints to Check Your Progress

4.0 OBJECTIVES

After going through the unit you should be able to:

- articulate that the purpose of development is more than mere production; productivity and consumption of sophisticated gadgets;
- discuss extra-economic social and community aspects of development;
- identify social issues and problems which development can give rise to;
- describe environmental and ecological problems which development processes can generate; and
- explain how we should approach a holistic development.

4.1 INTRODUCTION

We have seen in earlier units that emphasis of development economics was laid more on how economies have progressed or how developing countries can make progress. We have noted that the processes that led to mobilisation of resources, migration of people across sectors and across regions and problem of unemployment can remain unabated unless some deliberate countervailing measures are undertaken. We have gone through a variety of articulation, based on empirical reality, of dualism. But we generally ended with an optimistic note and were almost about to accept that development of the type expected as an outcome of the economic processes and policy measures to influence them is good for people.

However, we had noted a dominant view in Unit 2 that unless poverty is reduced, disparities decline and unemployment vanishes there is hardly any meaning of development. Development is more than economic development though the former includes the latter. In many countries it was found that per capita income had risen and structural transformation of production activity had taken place but poverty did not reduce or unemployment rate increased. Some of us consider them as social aspects. Now, many of us are realising and are worried that development is itself causing some social and environmental problems.

In the beginning of the phase of modern growth it was seen that population is rising and so is per capita income. It was thought that the loop is positive though it was more mediated through technological development and institutional evolution but both could be partly autonomous and partly due to population pressure. Even if not the discovery of the new world (Americas) in itself but the fact of Americas getting populated is a part of population pressure in Europe.

We had tried to define *Economic Development* as a process of change that is focused on the betterment of the community/society but we found that 'development' part of the term creates a problem as people's perception of development is not one. It varies from people to people within a nation and across nations, to say more accurately from persuasion to persuasion. Nevertheless, the idea of economic development has drawn the attention of the government sector—political and bureaucratic, the business sector, and the citizenry. It also captures the attention of the news media.

We had noted various problems with the overall growth of measures like gross domestic product. We wanted to know how various sectors are doing, more in positive sense. But we saw our concern got changed from positive understanding to normative/deliberate design. First we wanted to know the change in per capita income for if population grows at a higher rate than the gross domestic product, conditions of the people will deteriorate. Since on long term basis most countries are showing positive growth in per capita income, we became more interested in knowing how income is distributed across persons/sections, more in a normative sense. Later, our focus shifted somewhat to changes in poverty level. Unemployment and employment became major concerns because we understand employment is the best source of entitlement. Still later, the focus got changed from commodity-centric approach of development to capability-centric approach of development, thanks to Mahbub-ul-Haq and Amartya Sen, with the nomenclature of human development.

Quite a few economists had pursued the course of international comparison and suggested the ways for international community to improve conditions in so-called developing countries. However, in the last quite a few decades, people in both the developed countries and the developing countries have worried about local development, what was earlier more of a regional balance character. In fact, the role of local governments is being brought in focus in addition to what national governments do. In fact, urbanisation, which was seen as solution to development along with industrialisation, has come into question because the proliferation of slums in towns, cities and metropolises. This is about who should do what.

We have been mostly focusing for development on the factors that presumably brought in growth, which did not include social capital. Many thinkers including those from Economics have started looking seriously at social relationships and networks which also give rise to productivity. Having been too much obsessed with competition we have been ignoring the facts of cooperation and collaboration: We shall briefly touch upon this factor.

Since early seventies and particularly after mid-eighties of the past century, people have also worried to see whether the level and pattern howsoever pursued would be sustainable. The debate of sustainable development, which started as an issue of inter-generational equity, has pointed out towards depletion of non-renewable resources and local environment in terms of pollution of sorts has now unfolded into global climate change and preservation of biodiversity. While there looms large danger to existence for some of the communities and countries due to climate change, germ-plasm from the extant biodiversity may be lost forever for the humanity

We shall be discussing in subsequent sections social development, local development, sustainable development and human development but also progress in undoing negatives like inequity, disparity, poverty, unemployment and environmental degradations. Urbanisation will have both the features. However, 'social' would be broad enough to encompass social, political and cultural dimensions. Environmental aspects would cover both depletion of non-renewable resources and sorts of pollution that pervade and permeate our lives and activities.

4.2 SOCIAL ASPECTS OF DEVELOPMENT

Social Development

All human aspirations are not necessarily economic in nature. Beyond a point human beings love to be a part and parcel of the larger society without an eye for economic benefits. Scholars like Maslow have been talking for long about hierarchy of human needs. Once our basic material wants are adequately met, we aspire to evolve within ourselves and interact with collectivities around us. Society itself has to so transform in its institutional structure and social processes and thereby improve its capacity to better fulfill its aspirations, both at individual level and at communitarian level. Many scholars call it social development.

Society develops by social consciousness and social consciousness develops by organisation. The process that is subconscious in the society emerges as a conscious knowledge in pioneering individuals. It has been well said that development is a process, not a programme. Its power issues more from its subtle aspects than from material objects.

However, all social developments are not development but only changes. It is rather well known. According to some scholars there are four well-marked stages in progression — survival, growth, development and evolution, each of which contains the other three within it. The quantitative expansion of existing activities generates growth, which some scholars call horizontal expansion. Development implies a qualitative change in the way the society carries out its activities, (such as through more progressive attitudes and behaviour by the people), the adoption of more effective social organisations or more advanced technology — which may have been developed elsewhere. The term evolution refers to the original formulation and adoption of qualitative and structural advances in the form of new social attitudes, values, behaviours, or organisations.

You can well notice that these expressions are extensions of definitions of economic development in terms of structural transformation in production activities.

Social Capital

As a scholar wrote, 'just as a screwdriver (physical capital) or a college education (human capital) can increase productivity (both individual and collective), so do social contacts affect the productivity of individuals and groups'. Should we necessarily call it capital? Original authors of the idea did not like to give it 'economic' meaning and much less instrumental. Yet, now social capital is very much likened with other forms of capitals and distinguished from physical capital, financial capital and human capital, to name a few. Some would like to include cultural capital within this idea and others would like it to be treated differently.

Goodwill, fellowship, mutual sympathy and social intercourse among a group of individuals and families who make up a social unit, can be referred to social capital. Not necessarily everything has to be looked from the angle of productivity, individual or collective. Living conditions of a whole community improves if I have good relationship with my neighbours and they have likewise good

relationships with their neighbours. Such an accumulation of social capital may satisfy our social needs as well as our personal needs through better gains in productivity. The community as a whole will benefit by the cooperation of all its parts, it is articulated, while the individual will find in his associations the advantages of the help, the sympathy, and the fellowship of his neighbours.

An economist did suggest that families, friends and firms, referred to as F-connection, affect economic exchange and most of us realise that most of the transactions are not cold rational calculations and even if that is true, there is an element of trust in most transactions.

A scholar with the name Coleman makes a pertinent observation on the approaches of two broad intellectual fields that contribute to the description and explanation of social action: (i) sociology, which sees the actor as socialised and action as governed by social norms, rules, and obligations, and (ii) economics, which sees the actor as having goals independently arrived at, as acting independently, and as wholly self-interested. The contribution of the former is to analyse action in social context and to explain the way action is shaped, constrained, and redirected by the social context; the principal approach of the latter lies in having as a principle of action the maximising utility.

However, if every social relationship and network were to work in everybody's favour then no society would have ever suffered. Some relationships work for the good of some groups and to the detriment of others—whether we refer to gangs, groups, castes and countries. Scholars have distinguished between bonding, bridging and building social capital. We have just referred to this idea in passing. Some of you may like to pursue it further for better understanding, better articulation and better contextual use.

Social Disparity

While the term development, as noted above, is usually applied to changes that are beneficial to society, it may result in negative side-effects or consequences that undermine or eliminate existing ways of life that are otherwise considered good. Social disparities are of deep concern — particularly in a plural and diverse society like ours. With economic progress, at times, we find that disparities between social groups (like castes and religions) and genders and across regions do increase. An attempt is often made by the government through public policies to narrow these differences.

Social Development Report, prepared in India has however focused on how various groups and communities are sharing in the material base of the society. They have developed a social development index encompassing certain demographic parameters, health indicators, educational attainments, basic amenities, economic deprivation and social deprivation for the society as a whole and for selected social groups like scheduled castes and scheduled tribes.

Community Development

These days, scholars have revived interest in community development which involves development practitioners and their practices – civic leaders, activists, involved citizens and professionals – to improve various aspects of local communities. Community development seeks to empower individuals and groups of people by providing these groups with the skills they need to effect change in their own communities. These skills are often concentrated around building political powers through the formation of large social groups working for a common agenda. Communities develop their positions within the context of larger social institutions. Some practitioners have tried to define community development as a set of values and practices which play a special role in overcoming poverty and disadvantage, is knitting society together at the grass roots and deepening democracy. Others

have suggested it to be a process of developing active and sustainable communities based on social justice and mutual respect. It may require influencing power structures to remove the barriers that prevent people from participating in the activities that affect their lives.

In short, community development expresses values of fairness, equality, accountability, opportunity, choice, participation, mutuality, reciprocity and continuous learning while educating, enabling and empowering are the processes at the core of Community Development. Who will play the role of activists and catalysts and will they be the same? Will community processes will be promoted by the State or will they trigger on their own? These are the issues often debated.

Local Economic Development

The purpose of local economic development (LED) has been said to build up the economic capacity of a local area to improve its economic future and the quality of life for all its citizens. The latter part is clearly a social aspect. It is a process by which public, business and non-governmental sector act as partners to work collectively in order to create better conditions for economic growth and employment generation.

In recent years, regional and local economies have had to face increasing challenges. The process of globalisation is rapidly altering the economic status quo and presenting new economic opportunities and risks for cities, regions and nations all over the world. In this changing context, national and local governments, as well as enterprises and other organisations have to rethink about development strategies in order to cope with the problems that may arise and to take advantage of existing transformations.

As opposed to traditional development policies, Local Economic Development strategies try to empower local societies and generate local dialogue, to help make local institutions more transparent and accountable, to contribute to the development of the local civil society, to make economic activity dependent on the specific economic conditions and comparative advantages of a defined territory, to generate sustainable employment in firms more capable to withstand changes in the global economic environment and finally to contribute to a general improvement in the quality of jobs as a result of the involvement of local stakeholders and of the rooting of economic activity in a territory. People living in many areas of the world that have until recently had little say or control over the economic activity taking place in their territory, have begun to adopt a more proactive stance with regard to their own future. In India, it is expected that after 73rd and 74th amendments to the Constitution, control of local people at least on public affairs and a little on business affairs has changed for better.

Equity, Poverty and Unemployment

Economists have focused more on the issues of equity and poverty. These are basically ethical issues which have primarily social dimensions but also touch upon economic and environmental dimensions. Equity focuses on the fairness of both the processes and outcomes of decision making. The equity of an action may be assessed in terms of several approaches. Some of these approaches go with the names like parity, proportionality, priority, utilitarianism, and minimalism (Rawlsian distributive justice). Rawls stated that 'Justice is the first virtue of social institutions, as truth is of systems of thought'. Societies seek to achieve equity by balancing and combining several of these criteria. Societies are likely to differ in their approach as is the case with times.

Economic policies aiming at increase in overall human welfare have been used for poverty alleviation, improved income distribution and intra-generational (or spatial) equity. By modern standards, utilitarian approach to equity does little justice as it

focuses more on the maximum good of the maximum number. Economic rules, under this approach, provide guidance on producing and consuming goods and services more efficiently, but are unable to choose the most equitable outcome among alternative patterns of efficient consumption. Equity principles provide better tools for making judgments about such choices.

Social equity is also linked to sustainability, because highly skewed or unfair distributions of income and social benefits are less likely to be acceptable or lasting in the long run. Equity will have to be strengthened by enhancing pluralism and grass-roots participation in decision making, as well as by empowering disadvantaged groups (defined by income, gender, ethnicity, religion, caste, etc.). In the long term, considerations involving inter-generational equity and safeguarding the rights of future generations are key factors. There could be several ways to understand and assess these aspects. Economists often rely on the economic discount rate to make comparison of the present with future with respect to both equity and efficiency aspects.

We often encounter a scene in some societies that there exists a lot of unemployment. Phenomena of poverty and unemployment are not co-terminus. In poor societies, open unemployment is likely to be very low. The reason is simple that in order to make both ends meet, the poor cannot afford to remain without work. They engage themselves in footloose employment. Very few choose to be beggars. Many countries like India are basically self-employment economies. But the people are poor because either their wages are very low if they are wage-employed or their products sell cheap if they are self-employed. There may be a few unemployed non-poor as there are many employed poor. Those who are both poor and unemployed are the real problem and some of them choose to create social tensions and strife. There is an element of anger in such people against the system. People, poor and unemployed both, are a lethal force of destabilisation; and many scholars offer this fact as the cause of much of social trouble in terms of militancy and insurgency, if not terrorism.

Leisure

Consumption and leisure in view of most analysts is the ultimate purpose of economic activities. Leisure (apart from luxury) is an activity people love doing or undertaking for its own sake as against work which people undertake for reward. However, in view of many scholars, some of the leisure activities of a section of people may also be causing problems for others. This is not considered good symptom of development from communitarian angle. This is often seen as cultural invasion into people's life. Nevertheless, this is a social aspect and probably a social issue related with development.

Indigenous Knowledge

With the exposure of the western technology, mores and styles, in view of many of us, many national/social communities have lost faith in indigenous knowledge, whether of medical variety or technical variety. Many of modern scholars believe that there was much in store in traditional knowledge of every community. That knowledge was accumulated over hundreds of generations and cannot be completely useless. Some have suggested for a judicious mix of indigenous knowledge and modern knowledge. For example, in medical realm, modern diagnostics is accepted but allopathic prescription is seen with circumspection. Now medical practitioners are offering blend of allopathic medicines, yoga and pranayam.

Population Growth

In development literature population growth has often been pointed out as a negative feature. It has been asserted that less growth would have meant more per capita income. Population in development literature has been seen as a universal

denominator rather than as a determinant or a determined. Yet practitioners and policy makers went on devising methods for reducing mortality while pursuing the goal of birth control. Much of the population rise came from the factor of reduction in mortality rather than that of increase in fertility, even though reduction in mortality increased the base for births to take place. However, many analysts were not impressed with success and they went on coining phrases, for (unprecedented) population growth, like population explosion and population bomb. They could practically associate all social ills and evils to population growth.

There are people to argue on the other side. They point out that in a little more than two hundred years since Malthus wrote his *Essay on Population*, population has increased six-fold yet people are living longer, eating more and enjoying better shelter than what they were doing in his times. People do have a population aspect but people aspect of population cannot be ignored after all development is for people.

Now many analysts are discovering something positive in population growth which took place because success in containing its rise was only partial. They say population is not a burden but a boon. We can harness population dividend from young population structure which most developing countries are having. We should think of converting this stock into an asset by quality improvement through education and health.

Check Your Progress 1

- 1) List the social concerns of development which you can think of.

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- 2) Define social development and social disparity.

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- 3) How are inequity, poverty and unemployment interrelated?

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- 4) What do you think of population rise in the context of development?

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5) Explain local economic development and its importance.

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4.3 ENVIRONMENTAL ASPECTS OF DEVELOPMENT

Environment Aspects

Development was, for long, associated with under-exploitation of natural resources. In 1950s it was little realised that obsession with under-exploitation of natural resources may some day result into their over-exploitation. We have perhaps been having a notion that natural resources are indefinitely large, if not infinitely abundant. At the same time, we are finding that our present technology produces harmful effects (like smoke) along with useful products (such as electricity or transportation). [Even our old chulhas gave us blinding smoke along with fire to cook food.] We are said to be using nature beyond its carrying capacity, both productive and assimilative. Blame has often been apportioned to

- i) rising human population (in underdeveloped countries),
- ii) affluent consumption style (in developed countries), and
- iii) misuse of technology (everywhere).

Some put the blame on the poor people, not on their poverty, for some of the environmental problems such as deforestation but, good in any case, they see the solution to environmental problems in removal of poverty.

Since the Stockholm Conference on Development and Environment held in 1972, growth agenda pursued by various countries have been questioned and the development frameworks proposed by the governments of underdeveloped countries have been under attack. At that point of time there had come an important report with the title 'Limits to Growth' authored by Meadows and Meadows under the aegis of the Club of Rome. It tried to relate population, technology, natural resources and living style in an analytical framework and prophesied that all is not well with the course of development being pursued. Now, concern is being raised about green gases, global warming, loss of biodiversity and finally climate change, which are all interrelated. However, for this lesson we have limited agenda of introducing you to basic issues of worsening environment around us and directly affecting the present generation and of depletion of natural resources which may affect the future generations.

Pollution issues, which largely concern urban and industrial areas, are connected with air, water and solid waste. Degradation of natural resources lead to issues largely concerned with agriculture, forestry, livestock and bio-diversity. We shall consider them below:

Pollution Issues

Pollutants are substances foreign to the medium in which they are present. They do not get sufficiently dissolved and cause problems to the animal world. These are classified as air pollution, water pollution, noise pollution, etc.

Air Pollution

Excessive presence of certain gases and suspended material particulates (SPM) pollute air. As air is the carrier of oxygen for human beings and other animals, they suffer from various ailments causing disability which affects work and leisure both. Gases like CO, CO₂, NO₂, SO₂, and ozone, and suspended particulates, including lead particulates are major pollutants causing diseases which often results in early death. These diseases include respiratory, cardiovascular and neurological problems, and also hyper-tensions, asthma, eye irritation, etc.

Diseases cause morbidity leading to loss of work to the individuals and loss of output to the society and cost of treatment to the individuals/society. Instead of baking bread, some people are engaged in developing and manufacturing 'chemprox'! (Chemprox is not a real drug. It is a word coined to give a flavour of unnecessary activities we have to indulge in because of our misdoings or inadequate precaution.) One would not be manufacturing many odd drugs but for the fact that pollution is causing many a disease. Death, occurring untimely, itself is a heavy cost to the family where it occurs.

These problems get accentuated in a country like India where general nutrition level is fairly low. Cost of prevention would be found to be too low in comparison to cost of consequences.

According to Census 2001, India has 35 urban agglomerations with 27 cities which have population in excess of one million. It is likely to have more than 50 such metropolises by 2011. Ambient air pollution levels exceed WHO health standards in many of these. Increasing power consumption, increasing industrialisation, increasing vehicular traffic, along with burning of refuse, are worsening air quality of these cities. Ahmedabad, Delhi, Kanpur, Kolkata, Mumbai and Nagpur are worst affected by pollution.

Water Pollution

Water quality gets damaged due to three major factors, viz. (i) domestic and human waste water, (ii) industrial waste water and (iii) agricultural runoff. Domestic and human waste water is the most problematic and the principal cause of many severe water-borne diseases. Disposal of untreated sewage water (as is done in many cities) as irrigation water for crops, particularly vegetables, is not good. Some vegetables are washed in these dirty nallahs and some of which are sometimes eaten raw. Sewage and wastewater and also industrial wastewater find their way into rivers and streams beyond the latter's assimilative capacities. Major water polluting industries are chemicals, pharmaceuticals, textiles, cement, electrical and electronic equipments, glass and ceramics, pulp and paperboard, leather tanning, food processing and petroleum refining. Indiscriminate use of chemicals-fertilizers and pesticides-in agriculture does finally result into contamination of surface and ground water. It is now being recognised by the business, governments and courts alike. Even industries are putting in plans and plants to control them while governments are encouraging them to do so and enforcing agencies like pollution control boards and courts are getting assertive on violation of environmental laws.

Demand for water is rising and will further rise, particularly in urban areas, due to rise in population but more than that, due to rise in income leading to higher per capita demand for water. Its demand, to some extent, can be curtailed by better pricing of water supply. Proper collection of user charges is equally important. Water supply is getting more and more expensive as raw water needs to be treated for pollutants. It is now being pointed out that direct human consumption of water is not proportionately very high but it is the consumption of water by economic activities, including irrigation, which has to be changed in the long term through better technology.

Degradation of Resources

Degradation of resources saps their productive capacity. Long-term implications of degradations are that the yield level goes down permanently. Thus, the base of development gets eroded. Here, we shall discuss two most important degradations. One is related to the forests and the other is related to the land in general and agricultural land in particular. We shall also briefly refer to depletion of mineral resources.

Deforestation

Our developmental activities and lavish life-style exploited forest wealth beyond its regenerative capacity. European countries realised this aspect very late in the day while they had reduced the forest significantly. It is significant to note that India is one of the few countries, which had a Forest Policy as far back as 1854. But, between 1854 when the first Forest Policy was formulated and 1952 when we had our first Forest Policy declaration after Independence, our forest cover is estimated to have reduced from 40% to 22%, obviously because of reckless exploitation for raw materials for industries, timber for building and firewood.

Productivity of Forests

If we have forests with good yield we can do both: have better cover and have more forest products for human use. Just like agriculture. But in several countries like India, the yield is pretty low. Our growing stock per hectare is just 28 cubic metres and annual increment, just 0.5 cubic metres as against the world average of 110 cubic metres total stock with 2.0 cubic metres increment. With fast growing valuable species, proper care, tending and protection, our forest produce could be raised it is suggested, to 5.0 cubic metres per hectare per year.

The Forest Policy of 1952 recommended that we should have a forest cover of 10 lakh square kilometers or 1000 lakh hectares (that is 33% of total land surface), with the stipulation that hill areas could be covered to the extent of 66%. In order to meet growing demand, afforestation measures were adopted with three important schemes: (a) plantation of quickly growing species, (b) plantation of economic species (teak, shisham, sal, etc.), and (c) rehabilitation of degraded forests. But all these measures could bring no more than 70 lakh hectares over these fifty years. Total forest cover is now said to be 750 lakh hectares. But using new techniques of survey, the National Remote Sensing Agency has indicated that we have good green cover of only 360 lakh hectares, which means the rest of the area is just designated as forest and just does not have many trees on it. Information available shows that we have lost dense forest even between 1972-75 and 1980-82 (surveys are carried for a triennium). Since then, our dense forest cover is more or less stable at less than 400 lakh hectares. We gave example of India but the story is more or less similar in trends elsewhere though different countries have different landscape and easy comparison is difficult.

We cannot completely deny users of forest produce without facing its impact on the economy and we cannot allow present practices of forest exploitation which endanger the prospects of future generations. In fact, it is now being suggested that forests should be allowed to perform their environmental functions rather than be exploited for industry and urban users. In addition, forests satisfy the subsistence needs of the forest dwellers.

We may briefly note some of the steps that have been undertaken to improve the scene. The Government of India has accepted the recommendations on social forestry made by the National Commission on Agriculture (1976). Social forestry has three components, viz. farm forestry, public woodlots and community woodlots. Under farm forestry schemes, farmers are encouraged to plant trees on their farms

with free or subsidised seedlings supplied by the state forest departments. Under public woodlots, the state forest departments have undertaken to plant fast growing trees along roads and canals and in other public lands. Under community woodlots, local communities are supposed to plant trees on village commons. The purpose is obviously to

- 1) increase green cover ;
- 2) produce raw materials for paper, rayon and match industries;
- 3) meet the requirements of the poor for fuelwood/firewood and fodder;
- 4) grow small timber and minor forest produce; and
- 5) create more employment in rural areas through afforestation.

In some areas of the country, you would notice some success in this field; though admittedly much more needs to be done. Many of these trees do little to conserve water and, therefore, should be grown in areas of water-logging. It was found that, besides industrialists, State Governments were also unmindful of these odd developments as forest exploitation gave them revenue. So much so, that many industries were given timber at nominal prices.

A New Forest Policy was announced by the Government of India (Ministry of Environment and Forests) in December 1988. There is little new in this policy in terms of targets but its focus and orientation in strategy is important. It lays down that forest-based industries would not be allowed to plunder forests and would no longer be permitted to get forest produce at concessional rate and they must get their raw materials from woods raised through farm forestry. According to this policy, the industries are advised to motivate farmers, through incentive measures, for farm forestry. Private contractors are not to be permitted to collect forest produce and various government agencies and tribal cooperatives have actually been set up to replace them. Forestland is not to be diverted for non-forest use including cultivation of tea, coffee, spices, rubber, palm, oil-bearing plants, horticultural plants and medicinal plants. Yet it is understood that there is a lot of under-hand dealing between the timber merchants and forest officials.

Multiple purpose big dams also swallow a lot of forest-land. The poor are said to be stealing wood and other minor forest produce. However, our view is that the poor may be collecting only fallen dead wood pieces and may not be cutting green trees. Fallen dead pieces of woods, in any case, have to be collected.

Land Degradation

Our land is suffering from a variety of degradations. Degradations make it unfit for cultivation. Erosion of topsoil due to water and wind, and salinity and alkalinity due to water logging or flooding with marine water are our great problems. Our lands are either flood prone or drought prone. Flood causes greater erosion if soil is without trees and grass. This soil goes to silt dams, reservoirs, tanks, rivers and streams. The reduction in depth further spreads the area affected by flood. Thus, there exists a small vicious circle.

Grass may be overgrazed and trees may be cut without replacement. In some areas we still practice shifting cultivation by slash and burn method. Such soil is drought-prone too. Areas which for long have been denuded lose humus and do not have vegetative cover, do not retain water and therefore, loose topsoil which erodes with wind too. In this process, the topsoil loses major nutrients such as nitrogen, phosphorous and potassium.

In some cases, on the other hand, we find that there is excessive water near the topsoil, which sucks such minerals up turning soil either alkaline or saline. This

type of soil is not suitable for cultivation. Then there is some area, which remains perennially submerged under water. Every year, it is estimated, 80 lakh hectares, with 40 lakh hectares cropped area, gets affected by flood while 40 lakh hectares gets denuded due to shifting cultivation. Ravines encroach as much 8,000 hectares every year. An old authoritative estimate of the problem is: One-third of our land under forest, two thirds land under agriculture and nearly all cultivable wastelands, permanent pastures and grazing lands are in urgent need of soil conservation measures. Many conservation measures have been undertaken but in two decades it seems, on balance, that we could not succeed much in containing further degradations.

Depletion of Mineral Resources

Many of the resources lie underneath the earth. They can be broadly categorised as fuel such as oil, gas and coal, and non-fuel-metal and non-metal. Though through systematic exploration, the humanity has been able to discover more deposits yet they are understood to be finite. It is often pointed out that the cost of extracting of many minerals has reduced over time despite use of lower grade ores. This is obviously due to improved technology: better exploration techniques, bigger mechanical shovels, bigger trucks to haul the ores away and bigger ships to transport them to processing plants. However, others are quick to point out that true cost was not getting reflected as we were blind to degradation of environment.

However, it has been apparent for quite some time that this cannot go on indefinitely as resources are limited. Many countries are about to exhaust some of their mineral resources and other have already depleted. As present technology suggests every society to use the same technology, some of the rich and powerful countries are trying to dominate more resourceful countries on one or the other pretext. People are worried depletion and exhaustion of such resources millions of years to form. Recycling of scrap and waste, which costs much less energy, substitution of one material by another, and substitution of old ways of doing things by new ways are suggested as the ways out. However, reduction of wants particularly of the affluent societies is said to be final answer.

There is a powerful dissent, represented here by Julian Simon who wrote a book with the title *The Ultimate Resource* in 1981. It is argued in the book that natural resources are finite in physical sense but not in economic sense. With temporary scarcity of a mineral, prices will rise but it will give stimulus to new efforts to find more deposits and more efficient methods as well as to find new substitutes. Resources are under the sea and over the moon! The same is true of energy resources. One can see energy has become less rather than more scarce, if we take a long term view.

Technology and Resources

There has been an emphasis on economical use of non-renewable resources for the reason that they are not aplenty. Their regeneration may take millions of years while they may be exhausted in a few centuries at the rate we are using them at present.

Resources may be defined as objects, materials and commodities, which are useful in human activities. Their importance changes over time because of changes in technology and taste. Wood may be replaced by coal and coal by oil or electricity as resource for energy. Waste products of some processes may become resource for other processes like animal dung may be used for generating gas and/or as manure in agricultural fields.

We can categorise resources in three non-exclusive categories. (1) Perpetual resources are ones which are available in almost constant supply, no matter how and how much they are used. Solar energy is one such example. Geothermal energy

can perhaps be another example. (2) Resources that can get easily renewed through natural processes, once they are used up, are called renewable resources. Forests, animals and fishes get easily renewed if they are not overexploited. (3) Resources that cannot be easily renewed are non-renewable resources. They have finite, even if large in few cases, stocks. Fossil fuels and mineral resources are in the same quantity today as they were millions of years ago. To convert CO₂ and NO₂ back into fossil fuel will take as much energy as we got from them.

Therefore, the advice is that we should use non-renewable resources economically and develop such technologies as use perpetual or renewable resources. But we are also told by a group of scientists that there are potential resources which may not be currently being used for economic, cultural or technological barriers. In future they will replace present one as technology to use them would be developed and cultural barriers may also be overcome. After all, it was development of internal combustion engine that permitted use of petroleum products for mechanical use.

Extinction of Species

Estimates of the species living on earth vary between 5 million to 10 million. It is true that new species evolve while some old ones die out, leaving on balance an increase in number of the species. However, it is being asserted that human actions could reverse this trend. Earlier it was hunting that was causing extinction of species. Now the principal cause is being said to be destruction of natural habitat by humans as they grow in number and acquire land for human activities including agriculture. Heavy rainfall, bright sunlight and round-the-year warm temperature make excellent conditions for evolution of new species in Amazon area. But large scale agricultural and commercial activities destroy this habitat. The same would be condition for example in Assam in India and many places in Africa.

It is understood that half of the drugs now prescribed in the US have a natural component. The similar may be the case in most developed countries. It is further suggested that exotic species are vital to the health of modern agriculture. Seed producers are often harnessing this potential. In fact monoculture, which has been on increase for long now, is vulnerable to diseases and pests which also develop resistance to pesticides. In 1970s, solutions to such problems in the US were sought in terms of developing new strains using genetic materials available in Mexico. The message is: we ought to realise that the diversity of life forms on earth is a priceless treasure that everybody benefits from and everybody has responsibility to preserve it.

Biologists Paul Ehrlich and Anne Ehrlich have outlined three ways by which extinction of species can be controlled. One is by controlling human population pressure in many parts of the world. Second is by preserving species through creation of large reserves of natural habitats in carefully selected areas. Finally, it is the creation of sustainable society which they defined as one dedicated to living 'with environmental constraints' instead of 'hopeless goal of conquering nature'.

Climate Change

These days everybody is talking of climate change. Earlier we were talking of global warming, green house effect, and depletion of ozone layer. Our focus was on rise in the level of sea and thereby submergence of many low lying areas of human population. Now we are also worried about receding of glaciers, reduction in flow of water in perennial rivers and declining forest cover. Erratic pattern of rains and shortening/lengthening of seasons is being recognised as climate change.

There are many natural factors-geological to celestial. We can think of controlling of anthropogenic factors which are human activities changing the environment. Various hypotheses for human-induced climate change have been advanced and argued for many years. In some cases the chain of causality of human influence on

the climate is direct and unambiguous (for example, the effects of irrigation on local humidity), whilst in other instances it is less clear. Presently there is scientific consensus is that human activity is very likely to be the cause for the rapid increase in global average temperatures over the past several decades. Consequently, the debate has largely shifted onto ways to reduce further human impact and to find ways to adapt to changes that have already occurred.

We had earlier talked of air pollution causing problems to human beings directly and to their activities as a result. But the concern is shifting. Anthropogenic factors causing increase in CO₂ levels due to emissions from fossil fuel combustion, followed by aerosols (particulate matter in the atmosphere) and cement manufacture lead to climate change. Attention is also drawn to other factors like change in land use pattern, ozone depletion, and deforestation, which are also playing their roles, both separately and in conjunction with other factors, in affecting climate.

You can recall that Nobel Prize for Peace in 2007 was awarded to Al Gore, who lost election to Bush for Presidency of the US, and Intergovernmental Panel on Climate Change, a UN panel headed by an Indian R.K. Pachauri.

Many a scientist now thinks that civilisations disappeared in the past no less for human caused problems than for extra human (natural) factors.

Sustainable Development

In 1983 the General Assembly of the United Nations passed a resolution on 'Process of Preparation for Environmental Perspective to the Year 2000 and Beyond' and constituted a World Commission for Environment and Development to work for it. The Commission was headed by Gro Harlem Brundtland, a Norwegian female physician and politician, who had been a Prime Minister of Norway more than once. The Commission is often known as Brundtland Commission, which authored the Report with the title "Our Common Future". The term sustainable development coined by the Commission has become the most often-quoted definition. It defines sustainable development as development that "meets the needs of the present generation without compromising the ability of future generations to meet their own needs."

It looks development from the perspective of future generations who, underlines the concept, deserve at least the same level of enjoyment as the current generation is having. It is not talking from the perspective of other species but is looking beyond the concern of present generation. All species do care for their future generations and man may not be an exception. They especially care for their children for much longer time. Man was always building the material base for future generations through development. In planning exercises we were building up capital stock for the terminal year so that future plans at a higher base. But, now it is said, the man did not realise that seeds of destruction lie in the very paradigm of development chosen by him.

However, the idea has been further advanced and it is being suggested that there has to be articulated a fine balance between physical capital, human capital and natural capital, while the total may perhaps grow. There may be a need to grow inward too.

Check Your Progress 2

- 1) What are the various pollutions that are caused by human economic activities?
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2) Discuss the issue of depletion of natural resources.

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3) Explain what are non-renewable resources and what kind of technological developments we should encourage.

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4) Explain why we should preserve diversity of the species.

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5) Elaborate the issues and concerns of global warming and climate change.

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6) What are the nuances in the concept sustainable development as defined in "Our Common Future" authored by the World Commission on Environment and Development?

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4.4 SUSTAINABLE SOCIETY

Some scholars are mooted the idea of sustainable society, not just environmentally sustainable development. They define a sustainable society as one that persists and thrives. Thriving means development. But this thriving should mean a quality of life to all of its members but without harm to integrity and productivity of the natural systems and resources upon which all life depends. Needs and desires of human beings are to be met but within the limits set by nature. People should be a part of nature and should respect its capacity to provide food, water, energy, fiber, and life-support services such as the pollination of crops and creation of soils. We also depend on nature's capacity to detoxify our waste. Sustainability means

achieving satisfying lives for all within the means of nature-- now and in the future. In other words, humans and other beings have symbiotic relationship in a dynamic sense so that intergenerational equity is respected and protected.

Sustainability is not just about the environment. A sustainable society must be just and equitable, and provide opportunities for each member of the community to reach his/her potential. In other words, it should be inclusive. A sustainable society provides access to work, play, health care, education and so on, for each of its members. Conflict among the world's communities cannot be avoided without providing access to the basic needs of life to every one.

A sustainable society values diversity and plurality because it provides strength and resilience to the human community, just as it does in nature. A sustainable society is likely to resolve the inherent conflicts among its members through peaceful, respectful and non-violent means. Sustainability is about respect-for our neighbours, for nature, and for those yet to be born. Sustainability is thus about inclusiveness. Yet it is far away from homogenisation.

The idea also suggests that communities should be the primary locus of responsibility for creating a sustainable society. This is because most of the individual behaviours and governmental policies that support sustainability are best nurtured at the local level. The human species has an innate inclination to care about community, and the beauty of the natural environment lies in the place which we happen to call home.

Check Your Progress 3

1) Define sustainable society.

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2) What should be the strategy for creating sustainable society?

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4.5 LET US SUM UP

In this Unit, our aim was to broaden the idea of development by looking into other social and cultural aspects which often get neglected. We devoted space to discussion of various social dimensions, positive and negative. While social development, local development, community development have to be care of, it has to be seen that poverty, inequality and unemployment do not keep rising and are indeed reduced. We have also referred to, though in passing, to the idea of social capital, which has captured the attention of many scholars in the recent past.

We also intended to look at the problems which economic development can cause to the environment and resources. We described various kinds of pollutions and degradations, which economic activities cause and which are beyond nature's

regenerative and assimilative capacity. Then we touched upon major current issues of global warming and climate change. We however dwelt quite a bit on relationship between resources and technology.

Finally it was sustainable development which attracted our attention. However, we added the idea of sustainable society, which some scholars are now talking of.

We have not discussed human development, which is very important from a particular angle that it focuses on development of capabilities in individuals instead of production of commodities. Since this idea has already been explored in another Unit, we have not repeated it here. Further, in my view, human development more individualistic than social.

4.6 KEY WORDS

- Climate Change** : Erratic pattern of rains and shortening/lengthening of seasons is being recognised as climate change.
- Development** : Development implies a qualitative change in the way the society carries out its activities, (such as through more progressive attitudes and behaviour by the people), the adoption of more effective social organisations or more advanced technology – which may have been developed elsewhere.
- Leisure and Work** : Leisure (apart from luxury) is an activity people love doing or undertaking for its own sake as against work which people undertake for reward.
- Pollutants** : Pollutants are substances foreign to the medium in which they are present. They do not get sufficiently dissolved and cause problems to the animal world. These are classified as air pollution, water pollution, noise pollution, etc.
- Resources** : Resources may be defined as objects, materials and commodities, which are useful in human activities.
- Social Disparities** : Disparities between social groups (like castes and religions) and genders are often referred to social disparities.
- Sustainable Development** : It is defined as that development which "meets the needs of the present generation without compromising the ability of future generations to meet their own needs."

4.7 SOME USEFUL BOOKS

- 1) Dieckheuer, G. and Fiedor B. (2000). *Aspects of Sustainable Economic Development*, Internationale Marktwirtschaft.
- 2) Munasinghe, Mohan (2007). *Sustainable Development Triangle*, in Encyclopedia of Earth. Internet.
- 3) Seitz, John (1988). *The Politics of Development*, Oxford: Basil Blackwell and Bombay: Popular Prakashan.
- 4) World Commission on Environment and Development (1987). *Our Common Future*, Oxford: Oxford University Press.

4.8 ANSWERS OR HINTS TO CHECK YOUR PROGRESS

Check Your Progress 1

- 1) Read Section 4.2. Subsections show the social concerns of development. You can add to this list own your own also.
- 2) Development of people, beyond material wants, in terms of their communitarian orientation and social cohesion could be defined as social development. Social disparity on the other refers to the differences in shares and achievements of different sections of a society. The sections are often defined in terms of races, communities, castes, gender and regions.
- 3) Inequity shows lack of fairness and justice in sharing income and wealth and if too much of it makes a society fragile. More often than not inequity or inequality, beyond a level, gives rise to poverty-particularly size of the cake is small. Poor are often supposed to be unemployed but the fact may be otherwise as in poor in many societies may not afford to be unemployed.
- 4) Population rise has been associated with growth. Yet, for a given level of total produce population increase results in low per capita produce. That will also happen if the growth of GDP is lower than that of the population. However, development should mean reduction of death rate. Then birth rates need to be contained in order to contain growth rate of population. Population for long, after Malthus, has been considered a denominator rather a determinant or determined. Now many people are discovering that thanks to partial success in containing population growth, many developing countries are having young population structure. This can result in population dividend rather than a burden if we can properly harness this potential.
- 5) Local economic development is related with building up capacity of a local area like a city or town or relatively smaller area. National and local governments are called upon to act as partners with business and non-government sectors to create better conditions for economic growth and employment generation. See the last para under heading Local Economic Development and argue how local institutions and civil societies can be made to contribute.

Check Your Progress 2

- 1) Air, water, noise, solid waste, etc.
- 2) Natural resources, particularly minerals, are finite and man cannot continue extracting it unmindfully. Future generation will have less of them for their use. There is another powerful view which dissents the above view. Read the last para of heading Depletion of Mineral resources in Section 4.3 and develop argument proposed by Julian simon.
- 3) Resources that cannot be easily renewed are called non-renewable resources. They have finite, even if large in few cases, stocks. Fossil fuels and mineral resources are in the same quantity today as they were millions of years ago. To convert CO_2 and NO_2 back into fossil fuel will take as much energy as we got from them. Therefore, the advice is that we should use non-renewable resources economically and develop such technologies as use perpetual or renewable resources. Non-renewable resources and what kind of technological developments we should encourage.

- 4) Half of the drugs now prescribed in the US have a natural component. The similar may be the case in most developed countries. It is further suggested that exotic species are vital to the health of modern agriculture. Seed producers are often harnessing this potential. In fact, practice of monoculture is vulnerable to diseases and pests which also develop resistance to pesticides. In 1970s, solutions to such problems in the US were sought in terms of developing new strains using genetic materials available in Mexico. The message is: we ought to realise that the diversity of life forms on earth is a priceless treasure that everybody benefits from and everybody has responsibility to preserve it.
- 5) For quite some time it was thought that globe is warming due green houses gases, largely due to anthropogenic factors. It was feared that rise in the level of sea will submerge many low lying areas of human population lying Maldives and Bangladesh. Later on scientists reported about receding of glaciers, reduction in flow of water in perennial rivers and declining forest cover. Erratic pattern of rains and shortening/lengthening of seasons is being recognised as climate change.
- 6) Our Common Future authored by the World Commission on Environment and Development defines sustainable development as development that "meets the needs of the present generation without compromising the ability of future generations to meet their own needs." It means the present generation should be able to meet its needs only to the extent that future generations are not constrained to meet their needs. We do not know their needs; so, we have to extend our idea of needs for them. To read between the lines, elaborate on needs, technology, resources, etc.

Check Your Progress 3

- 1) Sustainable society can be defined as one that persists and thrives. Thriving means development. But this thriving should mean a quality of life to all of its members but without harm to integrity and productivity of the natural systems and resources upon which all life depends. Needs and desires of human beings are to be met but within the limits set by nature.
- 2) Local communities should be trusted to work towards creating sustainable society.

NOTES

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