

**Block**

**3**

**AGRICULTURAL DEVELOPMENT THROUGH THE  
PLANS**

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March, 2012

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ISBN : 978-81-266-5929-6

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Printed and published on behalf of the Indira Gandhi National Open University, New Delhi by Director, SOSS.

Laser type set at Graphic Printers, 204, Pankaj Tower, Mayur Vihar, Phase-I, Delhi-110091.

Printed at :

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## **BLOCK INTRODUCTION**

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Since attaining independence, various efforts have been made by the Indian government to develop its agricultural sector. These efforts have been articulated in the different Five Year Plan documents as also specific policy documents issued from time to time. The present block brings together the various efforts made in this direction.

The Block comprises of four units.

**Unit 7** deals with the theme of the 'role and importance of agriculture in Indian economy'. Under this, following a brief theoretical description (as a supplement to what was already provided in unit 1 of the course) on the importance of agriculture to the developing economies like India, various issues like: contribution of agriculture to GDP/employment/exports, role of agriculture in alleviating poverty and providing food and nutritional security, changing role of agriculture in Indian economy, etc. are discussed.

**Unit 8** deals with the theme of 'diversification trends in Indian agriculture'. Beginning with the concepts of process, determinants and approaches to diversification, the unit discusses the progress of diversification attained in Indian agriculture. It also outlines the 'constraints and prospects' in crop diversification and in its light proposes a 'strategy' for promoting agricultural diversification in India.

**Unit 9** deals with the subject of 'Forestry in India: Linkage with Agricultural Sector'. Outlining the development of 'forestry in India' from the pre-independence years to the post-independence decades of 1980s and beyond, the unit discusses the 'changing nature of forestry' in India. Further, besides discussing the issues of forest-agriculture inter-linkages and the role and types of 'social forestry', the unit also discusses the alternative institutional mechanism of 'Joint Forest Management'.

**Unit 10** deals with the theme of 'Rural Industrialisation Programme'. Outlining the importance of promoting non-farm and off-farm employment avenues in promoting the rural employment prospects, the unit discusses the various policy initiatives taken in this direction over the past six decades of planning process in India. With an empirical assessment of the impact of these policy measures, the unit outlines a 'strategy' for future policy in this regard.

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# UNIT 7    **ROLE AND IMPORTANCE OF AGRICULTURE IN INDIAN ECONOMY**

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## **Structure**

- 7.0 Objectives
- 7.1 Introduction
- 7.2 Role of Agriculture: Theoretical Perspective
- 7.3 Linkages Between Agricultural and Non-Agricultural Sectors
- 7.4 Importance of Agriculture in Indian Economy
  - 7.4.1 Contribution to GDP
  - 7.4.2 Contribution to Employment
  - 7.4.3 Contribution to Exports
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  - 7.4.5 Role in Food and Nutritional Security
  - 7.4.6 Contribution to Achieving Inclusive Growth
  - 7.4.7 Role in Economic Stability and Safety-Net
  - 7.4.8 Role in Energy Security
  - 7.4.9 Contribution to Ecosystem Services
- 7.5 Changing Role of Agriculture in Indian Economy
- 7.6 Employment/GDP Shift and Employment Elasticity
- 7.7 Let us Sum up
- 7.8 Key Words
- 7.9 Some Useful Readings
- 7.10 Answers/Hints to Check Your Progress Exercises

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## **7.0 OBJECTIVES**

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After going through this unit, you will be able to:

- distinguish between the changing (i.e. traditional and modern or sustaining and commercial) role of agriculture and indicate in its light its renewed importance to the contemporary times;
- describe the theoretical perspective on agriculture's role in economic development;
- explain the inter-linkages between agriculture and non-agricultural sectors;
- discuss the importance of agriculture to the Indian economy in its multi-faceted perspective;
- indicate the changing role of agriculture in the Indian economy under the current economic dispensation; and
- highlight the trends in employment shift/elasticity between the agricultural and the non-agricultural sectors.

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## 7.1 INTRODUCTION

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Indian agriculture has undergone a significant change during the last two decades of neo-liberal policy regime. In terms of rural livelihood, agriculture still occupies a primary role in the economy providing direct employment to more than half of total workforce of the country. However, in terms of its contribution to the total GDP it has reduced itself to a residual sector contributing at present less than 15 percent (compared to a high level of 52.2 percent in 1951). Evidently, although the growth trajectory has shifted to a great extent towards the non-agricultural sectors, there has not been enough occupational mobility of farm workforce. This is mainly due to: (i) inadequate availability of livelihood diversification options; and (ii) lack of required level of education and skills among a large section of agricultural workforce. In this scenario, the role of agriculture in the economy cannot be perceived only as a process of releasing factor resources for industrial development as hypothesized by the dualistic growth models of 1950s and 1960s. Rather, it should be viewed in terms of its larger role of socio-economic importance like: (i) protecting rural livelihoods; (ii) reducing rural poverty; (iii) alerting the policy makers on the need to evolve policies for inclusive growth; (iv) maintaining economic stability; (v) providing food and nutritional securities; (vi) significance for maintaining ecological and environmental balance; etc. Keeping these aspects in view, the present unit focuses on giving an account of the 'role and importance of agriculture' to the Indian economy in the present context. In the process, you will also study about the structural changes in the economy and the linkages that have come to be evolved over time between the farm and the non-farm sectors. The contemporary role of agriculture in the context of recent changes in the sector will be especially focused.

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## 7.2 ROLE OF AGRICULTURE: THEORETICAL PERSPECTIVE

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The importance of agriculture in the context of economic development has been recognised since long. The Physiocrats extolled agriculture as the only sector of the economy that produced surplus over and above the requirements of labour and capital employed. Even among both the classical and the neo-classical economists, the role of agriculture remained one of the key subjects attracting much attention of development economists contributing in the process to the generation of significant theoretical and empirical literature. Most of this literature focuses on the process of structural transformation of economies from traditional agriculture to modern industrialization. The dualistic economy models (some of which we have already studied in Unit 1 but we shall revisit them here as recapitulation besides studying about them from an alternative perspective in addition to the contribution of some other theorists), mainly those of Singer, Nurkse, Lewis and Ranis and Fie, offer a good theoretical perspective for analyzing the role of agriculture in economic development. These models and the subsequent studies based on them argue that agriculture is a relatively labour intensive activity economizing on scarce capital resources. It contributes to economic development by providing food grains, raw materials for agro-based and other industries, labour, savings, and more importantly by generating demand for non-agricultural goods. These contributions, therefore, amply make it clear that the development of agriculture is important for overall economic development by contributing to the

development of both the off-farm and the non-farm sectors. Estimates (provided by Nurkse and Ranis & Fie) on the potential of surplus labour range between 25-40 percent for over-populated countries. This aspect was particularly highlighted by Thirlwall when he said that the industrialisation in Western Europe and particularly of England was financed, to a greater extent, by the surplus generated in agriculture.

The Lewis model regarded the surplus labour in agriculture (traditional sector) as of great potential for the development of modern industrial sector in developing countries. As the marginal productivity (MP) of agricultural labour in these countries was either very low or negligible, withdrawal of sizeable proportion of workforce would not reduce agricultural output, but could be gainfully employed in the modern sector. His contention was that agriculture utilises land and labour under conditions of fixed technology and therefore the wages paid to the labour is below its MP. On the other hand, labour in industries is employed up to the point where MP of labour is equal to the wage rate. Consequently, surplus labour from agriculture moves out to the industries. Once surplus labour from agriculture is removed and the MP of agricultural labour approaches a level equal to that in the industrial sector, the traditional sector loses its 'surplus labour' character and in time even turns to become commercialized. Thus, Lewis model perceives economic development as a process requiring transfer of surplus labour from traditional 'low-returns agricultural sector' to a 'high-returns modern industrial sector'. This dualistic model generally views agriculture in the early stages of development as a backward and less productive subsistence sector from which labour and other resources could be drawn to promote development of the dynamic/productive industrial sector.

Apart from the role of agriculture in releasing surplus labour to the industries, the classical economists also considered the role of food supplies in raising economic growth. They argued that if food production remains stagnant, then workers in industries would face food shortages, leading to increase in food prices and a consequent rise in the wage rates in industries. The rising wage rates would impede the industrial growth, especially during the early stages of development when technologies are usually labour-intensive. In a nutshell, therefore, the dual economy models considered the role of agriculture as primary in setting the pace of industrialization in the developing economies.

Johnston and Mellor (1961) opine that in the initial stages of development in an agriculture dominated economy, agriculture generates: (i) capital by export earnings; (ii) domestic demand for the consumption of goods produced in the non-agricultural sectors; and (iii) additional demand for its own production needed to sustain the growing needs of rising population and income. They, therefore, considered five contributions of agriculture to the economy as: (i) providing food for domestic consumption; (ii) releasing labour for industries; (iii) enlarging the market for domestic industrial output; (iv) increasing the rate of domestic savings; and (v) generate foreign exchange earnings by agricultural exports. Kuznets stated the same in alternative terms by identifying the three contributions of agriculture to economic development as: product, market and factor contributions. In his own words, "*if agriculture grows, it makes a product contribution; if it trades with others, it renders a market contribution; if it transfers resources to other sectors it makes a factor contribution*".

Schultz in his book ‘*Transforming Traditional Agriculture*’ argued that agriculture is not only capable of enhancing productivity through adoption of new technology, but it also has potential to spread growth to other sectors through multiplier effects. He contested the widely accepted argument that farmers in developing countries were guided by tradition or culture and did not respond to economic incentives. His famous ‘*efficient but poor*’ hypothesis implied that low income levels in developing countries’ agriculture are a result of the low productivity of the available factors of production (and not due to their inefficient allocation). Modernising agriculture will, therefore, remove this weakness for which the case of green revolution in India is a telling example.

Thus, in the earlier literature, focus was mainly on traditional role of agriculture. However, there is a growing recognition of the ‘multifunctionality’ of agriculture. The current issues related to ecology and environment, water resources, biodiversity, rural poverty, food/fuel/livelihood securities, etc. have once again put agriculture in the overall development agenda of governments of many developing countries and international institutions. The World Development Report (WDR) 2008 recognises the importance of agriculture as an effective engine for growth and removal of rural poverty in developing countries. The report says “*slower growth in the agriculture sector, a rapidly growing non-agricultural sector, and labour markets strongly segmented by labour skills have widened rural-urban income gaps, adding political pressure to invest in agriculture and rural development*”. The report focuses on the four policy objectives: (i) diversification of small farming towards high-value products; (ii) extension of the green revolution in food staples to areas bypassed by technological progress; (iii) development of infrastructure to support the diversification of agriculture and rural economy; and (iv) promotion of the rural non-farm economy.

**Check Your Progress 1** [answer in about 50 words in the space given]

- 1) What are the reasons advanced for the continued importance of agriculture (even at the current juncture) keeping the socio-economic interest in view ?

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- 2) State the three contributions of agriculture to the economy suggested by Kuznets.

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- 3) What are the four policy objectives prescribed by the WDR 2008 as a prescription to reducing the widening rural-urban gap following the rapid pace of non-agricultural sector's growth as compared to that of agriculture?

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### 7.3 LINKAGES BETWEEN AGRICULTURAL AND NON-AGRICULTURAL SECTORS

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Agriculture plays a key role in establishing linkages with the non-farm sectors. In India, traditional agriculture was the base of overall village economy. Livelihoods of rural artisans, blacksmiths, carpenters, weavers, washer-men, tailors, potters, sweepers, barbers, etc. were directly dependent on agriculture (known as *jazmani* system). However, as the agriculture develops and becomes more market-oriented, the traditional system gradually gives way to a new system called 'input-output market system'. Agriculture starts depending more on external inputs, including technology, seeds, fertilizers, and machines and in the process generates more marketable surplus for agro-processing industries and to meet the growing urban needs. With the development of socio-economic infrastructure in rural areas (such as road, communication, power, banks, schools, markets, cooperative institutions, etc.) and the resultant establishment of rural-urban linkages, trade and commerce in farm inputs, outputs and industrial consumer goods is greatly facilitated. In this process of farm-non-farm and rural-urban linkages, agriculture acts as a driver and public investment in rural infrastructure as an enabler. This is how the linkages of agricultural growth following the green revolution have led to the creation of agro-industry in India. Farm and non-farm linkages can also be, therefore, classified as production and consumption linkages. Production linkages can further be classified as forward linkages (agro processing activities) and backward linkages (input-supply to agriculture).

Forward production linkages of agriculture supplies raw materials such as sugarcane, oilseeds, cotton and jute fibres, tea and rubber, food grains, horticulture and livestock to agro processing industries. More recently, agro-forestry has also become one of the important agricultural activities on which Indian paper and plywood industries depend. Agricultural growth also gives impetus to the agro-input supplying industries through backward linkages. As discussed above, share of external inputs (purchased inputs) in agriculture increases with the increase in agricultural development. Subsistence agriculture largely depends on internal inputs, such as, own farm grown seeds, farm yard manures, family labour and animal power, while modern agriculture depends more on external inputs, such as certified seeds, chemical fertilizers, pesticides, farm machines, bank credit, insurance, etc. The external inputs are supplied by the industries through input dealers. The input dealers also sometimes provide extension services to the farmers. The backward linkages of agriculture with industries help to generate more income and employment in the economy. Thus, growth of agriculture contributes significantly to the economic development through establishing forward and backward linkages with the non-farm sectors.



Agriculture also has consumption linkages with rest of the economy. It supplies food grains, fruits & vegetables, dairy products, and other agricultural products to meet the consumption needs of growing workforce in the non-farm sector. Growth in agricultural productivity makes possible the supply of cheap food to the population engaged in non-farm activities, keeping the real wages in non-farm sectors low. It thereby raises profitability and investment in the non-farm sectors.

Consumption linkages (or final demand effects) also arise from an increased demand for non-farm goods and services by the farm households. With the increase in agricultural income, demand for manufactured products, including consumer durables (e.g. TV, fridge, washing machines, motor cycles, cars, mobile phones) increases. Consumption of various services by farm households also increases as agriculture develops. Further, industry-to-agricultural linkages on demand side also act as a catalytic factor in raising the farm income. The availability of various manufactured goods in the local markets acts as a motivating factor for rural people to augment their farm as well as non-farm incomes for purchasing these goods. In other words, market penetration for manufactured goods in rural areas increases with the increase in rural incomes and better transport and communication facilities.

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## **7.4 IMPORTANCE OF AGRICULTURE IN INDIAN ECONOMY**

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In the preceding sections, we studied the theoretical perspectives of the role of agriculture in economic development and the agricultural growth linkages with non-agricultural sectors. In this section, we shall study about the importance of agriculture in the Indian economy. The role of agriculture can be classified as direct and indirect. Direct role of agriculture in economic development can be assessed in terms of its contribution to Gross Domestic Product (GDP), employment, export, supply of raw materials to agro-food industries, and savings for capital formation. Indirect role can be assessed in terms of its contribution to poverty reduction, food & nutritional security, economic stability, balancing the ecological & environmental concerns, increasing rural non-farm income and employment, etc. As already discussed, under the dualistic economic framework, agriculture was viewed as a source of releasing factor resources for industrial development. Since agriculture was perceived as a low productive traditional sector, it was not considered as an equal partner in economic development. However, due to the technological breakthrough and policy support to agriculture during 1960s and 1970s, its dynamic role by way of forward and backward linkages has become prominent in the Indian Economy. Thus, although the contribution of agriculture to GDP has gradually declined with the increase in overall development of economy, its extended contribution to the economy is substantial. In a broader sense, therefore, agricultural economy consists of primary agricultural production system (crop production, livestock, agro-forestry, etc.) and the agri-food system (i.e. processing, marketing, distribution of agro-products, etc.). Considering together the contribution of both the systems, the role of agriculture becomes much greater than what is projected as the share of agricultural gross domestic product (GDP) in the national accounts statistics (NAS) of the country.

### **7.4.1 Contribution to GDP**

Historical evidence and empirical studies show that in the initial stages of

development, agriculture contributes significantly to the GDP. As the economy grows and becomes more industrialized, the share of farm sector in the GDP gradually shrinks and that of non-farm sectors tend to increase. However, declining share of agriculture in the overall GDP does not mean that the agriculture is not growing. Although, agricultural output also grows over the period, non-farm sectors' output grows much faster. As a result, growth trajectory shifts from farm to non-farm sectors. Why does share of agriculture decline with the increase in economic development? To understand this, we must look at both the demand-side and supply-side factors that determine agricultural output/growth. From the demand side, as per the Engle's law, due to high income elasticity of demand, per capita demand for food grain declines, and demand for goods/services of non-agricultural sectors increase. However, trade liberalization and diversification of agriculture toward high income elastic horticulture and dairy products would have a subduing impact on the adverse effect of the Engel's law on demand for agricultural commodities. Therefore, policy support to horticulture and livestock sectors help diversify agriculture thereby rising farm income. From the supply side, agriculture is subject to application of law of diminishing returns due to natural, technological, human and other factors. In India, in case of most of the commodities, agricultural productivities have either declined in recent years or remained stagnant. Degradation of soil fertility, low investment in research & extension, depletion of groundwater resources, over chemicalization of agriculture, low human capital base, lack of policy support to emerging areas like horticulture and dairy sectors, and decline in net sown area (NSA) mainly due to conversion of agricultural land into non-agricultural activities are the main reasons for low agricultural growth in India.

#### **7.4.2 Contribution to Employment**

Agriculture not only provides direct employment to majority of rural workforce but also helps in generating indirect employment in rural non-farm sectors. It creates these employment opportunities through crop and livestock production and agro processing. The latter i.e. agro-processing includes: (i) expanding agribusiness activities; (ii) agricultural education, research and extension; (iii) agricultural information and communication; (iv) animal care & treatment; (v) plant protection; etc. In 1951, agriculture absorbed 69.5 percent of the total workforce. This percentage was still as much as 66.9 percent in 1991. But by 2004-05 this percentage had slid down to 50 percent. What does this trend imply? It implies that the reduction in the overall employment share of agriculture was just by 2.6 percent over the four decade period of 1951-91, but it declined by a steep 16.9 percent over the post-liberalization years of 1991-2005. Going by the theoretical postulations, market reforms would give rise to greater employment opportunities enabling a shift of workforce from the low-productive agricultural sector to the high-productive non-agriculture sector. This is how over a period of few decades a 'structural change' which reduces the excessive dependence on agricultural sector in the economy can be achieved. However, there could also be distressed mobility to the extent that the growth process was not 'inclusive' or pro-poor. As National Sample Survey Organisation (NSSO) survey of 2003 reports, more than 50 percent of households in the country are debt-ridden having taken loans for meeting capital/current expenditure for farming. You will study more about this in unit 26 of this course. These are issues which must attract policy attention to ease both the shift in agricultural workforce to non-agricultural sector as also to improve the conditions of working in agriculture itself.

**Check Your Progress 2** [answer in about 50 words in the space provided]

- 1) What are the external inputs on which agriculture depends as it develops into a more matured state?

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- 2) How does the industry-agricultural linkage influence demand serving to promote farm/rural income?

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- 3) Why does the share of agriculture in GDP decline with increase in development? Answer from both the demand/supply side of its influence?

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- 4) In which period during the last few decades there is a greater reduction in the proportion of agricultural workforce in the total employment in India? What has caused this steep decline?

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**7.4.3 Contribution to Exports**

Agricultural sector has been a major contributor to India’s export earnings. For a long time the agro-based products, namely, tea, coffee, cotton & jute textiles, spices, tobacco, cashew, sugar, etc. accounted for more than 50 percent of the export earnings of the country. This share has, however, declined over time with economic growth and diversification of the economy. The share of agricultural export declined from 17.8 percent in 1991-92 to 10.3 percent in 2008-09. The share of agricultural imports also has declined from 8.2 percent in 1998-99 to 2.7 percent in 2008-09. However, declining share of volume of agricultural trade in the total trade does not mean that the volume of trade has declined. In fact, agricultural imports registered an annual growth rate of 20 percent while agricultural export has registered 10 percent growth during the above period. This reveals that

during the post reform period, agricultural imports grew faster than the agricultural export which calls for measures to strengthen the exports by appropriate policy initiatives.

#### **7.4.4 Role in Poverty Reduction**

As we by now know well, a large number of poor people directly or indirectly depend on agriculture. Growth in the agricultural sector creates increased demand for basic rural non-agriculture wage goods and services. Many of these goods are mostly produced and consumed locally. A high growth in agriculture has great potential for generating employment and income in the rural non-farm sector. The World Development Report (WDR 2008) argues that agricultural growth is four times as effective in reducing poverty and inequality as growth in non-agricultural sectors. Another UN report entitled 'Sustaining Growth and Sharing Prosperity' (ESCAP, 2008) also says that persistent poverty in the Asia-Pacific region are the result of decades of neglect of agriculture. The survey says that close to a third of the region's poor (i.e. an estimated 218 million), could be lifted out of poverty if average agricultural labour productivity is raised. Growth in agricultural income is therefore regarded as more effective in reducing poverty. You may note that the rate of decline in poverty in India was greater during the relatively higher agricultural growth period of 1980s than during the low agricultural growth period of 1990s. For instance, rural poverty in India declined by 9 percentage point between 1993-94 and 2004-05 while between 1977-78 and 1987-88, it had declined by 14 percentage points.

Inadequate accessibility of food is one of the main causes of poverty, hunger and malnutrition which is widely spread in rural India. Due to malnutrition and hunger, a worker would be physically too incapable to earn enough to feed himself and his family. An increase in agricultural production and productivity would play a key role in reducing poverty by raising agricultural wages and making food and other agricultural commodities affordable to the poor households. However, agricultural growth would be more effective in reducing poverty when supported by adequate investment in human development components such as health and education. The provision of basic education, as well as formal or informal training for developing and upgrading skills, is crucial for farm workers, as they with sufficient knowledge and skills are better able to respond to new technology, market opportunities, and risks.

#### **7.4.5 Role in Food and Nutritional Security**

Improvement in agricultural production and productivity (see 'key words') helps to ease the problem of food security in two ways: (i) by making the food products affordable to the consumers; and (ii) by generating additional employment opportunities to rural workforce in farm and non-farm activities. Food security is not less than the national security. India cannot depend on import of food grains for maintaining food security. If India enters the global market as a bulk importer/purchaser of food, international prices of food items would increase to a greater extent, thus jeopardizing the food security of not only India but of other poorer countries as well. The message, therefore, is that the issue of food and nutritional security of the people in the country cannot be effectively addressed without raising the production/productivity in domestic agriculture.

#### **7.4.6 Contribution to Achieving Inclusive Growth**

Agricultural development is quintessential for achieving inclusive growth. Being labour intensive, agricultural growth creates additional employment with low entry barriers. Increased agricultural productivity also lowers food prices for both the rural and the urban poor, who typically spend most of their income on food. To achieve faster and inclusive growth, the government set the target of 4 percent growth in agriculture in the 11<sup>th</sup> Plan. The approach paper to the 12<sup>th</sup> Plan also envisages achieving 4 percent growth in agriculture to make the growth process inclusive. Further the linkage between the agricultural and the non-agricultural sectors imply that an increase in agricultural growth generates surplus with a multiplier effect. The additional income generated in the farm sector is also mostly spent on purchasing goods and services produced locally in the non-farm sectors. As income and employment further rises in non-farm sectors, middle and upper middle class households demand high-value farm and non-farm goods, giving an impetus to the diversification of rural economy. In this process, real wages in both the farm and non-farm sectors increase, making it possible for rural households to invest more in education and health. With better education and skills, the future generation of workers would be enabled to diversify in the emerging rural non-farm activities. Further, better education and skill would act as a 'pull factor' for rural to urban migration of workforce which, in turn, creates labour shortage in agriculture. This, in turn, motivates the farming community to use labour-saving technology. Thus, steady and sustained growth in agriculture over a long period of time brings inclusiveness in the economic growth process in agrarian economies like India where a majority of workforce draw their livelihood from agriculture. As said before, over a period of time this would result in a 'structural change' of workforce in which the excessive dependence on agriculture will come down to a more desired level.

#### **7.4.7 Role in Economic Stability and Safety-Net**

Agriculture can also play an important role in maintaining economic stability by providing a safety net to workers during a period of economic slow-down. For instance, during the recent global economic and financial crisis, many workers lost their jobs. It has been observed that many of the rural migrant workers, who become unemployed at such times, temporarily return back to their villages. Agriculture provides some safety-net to such workers as they get support in terms of food and shelter from their families. Agriculture thereby also helps to stabilize the economy in times of crisis. One of the reasons for greater insulation of Indian economy from the recent global crisis is that the agricultural sector largely remained unaffected by the crisis.

#### **7.4.8 Role in Energy Security**

Agriculture is of late being considered as a major contributor of alternative sources of energy. Agricultural biomass is being used to generate biogas and bio-fuel. Several countries have started to produce ethanol from corns and sugarcane so much so that between 2003 and 2007, two-thirds of global increase in maize production went to bio-fuel. About 20 percent of maize production in the US is being used to produce ethanol. High oil prices in the global market have encouraged many countries to frame policies for the development of bio-fuel. It is estimated that conversion of maize into bio-fuel can be profitable at oil prices in excess of

50 dollars per barrel. Brazil, being one of the largest sugarcane producers in the world, is also the largest user of ethanol fuel. In India also, the government has initiated measures to produce bio-diesel from jatropha and ethanol from molasses. Ethanol is used as a fuel in many countries around the world. India is estimated to have the potential to save nearly 800 million litres of petrol annually if the transport sector blends 10 percent ethanol with petrol. Indian Sugar Industry has the potential to co-generate up to 5000 MW of power from sugarcane bagasse.

#### **7.4.9 Contribution to Ecosystem Services**

Agriculture can also provide a variety of non-commodity ecosystem services such as pollution absorption, recreation, environmental protection through social and agro forestry, biodiversity, etc. This is to say, agriculture can produce both positive and negative externalities as part of the production process. On the one side, it can pollute soil and water sources through input-intensification and chemicalization. On the other, it can also generate positive externalities such as wildlife, wetland services, organic products, etc. The organic label is one of the more well-established eco-labels. Organic farming can provide a host of non-commodity ecosystem services including biological pest control and protecting soil and water resources. However, farmers at present do not receive any remuneration for ecosystem services. The situation requires redressal by changes in national accounting practices and institution of incentive/reward systems.

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### **7.5 CHANGING ROLE OF AGRICULTURE IN INDIAN ECONOMY**

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During the last two decades of neo liberal policy regime, Indian economy has undergone a significant change with the result that the growth trajectory has shifted from agriculture to non-agricultural sectors. The economy is now largely insulated from the fluctuations in agricultural growth as today agriculture contributes less than 15 percent to the GDP. However, with rising income in the non-farm sectors, growing urbanization, increasing participation of women in job markets, etc. the composition of demand for agricultural products has significantly changed. During the green revolution period, agricultural development, to a great extent, was supply-driven and policy emphasis was mainly on achieving food security. Today, agricultural development is dependent more on demand-driven factors, though supply-side factors are also still relevant.

With the global integration of Indian economy and fast increase in disposable income, especially of middle and upper middle class households, Indian consumers are seeking quality, variety, convenience and safety in agro-products. Consequently, participation of agri-business companies in agricultural trade, processing, packaging, branding, marketing, storing, and other value chains has increased. Thus with globalization, developments like integrated value chains, rapid technological innovations and environmental issues have changed the role of agriculture in the Indian economy. With this, there is a need to extend the scope of agriculture to include agricultural diversification on modern agri-business lines. This would not only increase the employment opportunities but also add value to agricultural products via: (i) reducing the wastage of agricultural produce; (ii) improving the shelf-life of agro-products, especially perishable products such as fruits, vegetables, and livestock products. Several agri-business companies have already entered into

contract farming, providing technology, inputs and extension services to the farmers and procuring their produce at a pre-determined price thereby minimizing the risk of farmers and eliminating a multilayer of intermediaries. Thus, if we look at the potential of emerging agriculture by improving facilities in many other areas of agricultural importance [e.g. (i) expanding agricultural infrastructure, (ii) agricultural education, R&D, extension, etc. (iii) banking, insurance, transport & communication, marketing, storage facilities, etc.; (iv) input providers, farm suppliers, assemblers, processors, wholesalers, brokers, importers, exporters, retailers, distributors, etc.; and (v) futures markets, advertising and sales promotions], the rewards of a renewed role of agriculture in the Indian economy is quite substantial. All these agribusiness activities are totally dependent on primary agricultural production. The substantial economic contributions of primary agriculture to these fast growing agribusiness activities cannot be ignored.

### **Check Your Progress 3**

- 1) Indicate whether the following statements are true or false:
  - a) Agriculture was viewed by the earlier development economists as a source of releasing factor resources for the industrial development.  
**True/False**
  - b) Contribution of agriculture to GDP gradually declines with the increase in overall development of economy.  
**True/False**
  - c) In a broader sense, agricultural economy consists of primary agricultural production system as well as the agri-food system.  
**True/false**
  - d) Rate of poverty reduction in India was greater during the relatively higher agricultural growth period of 1980s than during the low agricultural growth period of 1990s.  
**True/False**
  - e) India cannot depend on import of food grains for maintaining food security.  
**True/False**
  - f) One of the reasons for greater insulation of Indian economy from the recent global crisis was that, agricultural growth largely remained unaffected by the crisis.  
**True/False**
  - g) High oil prices in the global market have encouraged many countries to frame policies for the development of bio-fuel.  
**True/False**
- 2) Fill in the blank
  - a) Since 1991-92 India's agricultural export grew \_\_\_\_\_ than agricultural import.
  - b) Percentage share of agricultural trade in the total external trade has \_\_\_\_\_ over the period.

- c) Agriculture can produce both positive and negative \_\_\_\_\_  
as part of the production process.
- 3) What are the different areas in which focused efforts are needed in order to reap the maximum potential of 'emerging agriculture'?
- .....
- .....
- .....
- .....

## 7.6 EMPLOYMENT/GDP SHIFT AND EMPLOYMENT ELASTICITY

Figure 7.1 shows trends in the share of agriculture and allied sector in the total GDP (at 1999-00 prices up to 2003-04 and thereafter at 2004-05 prices). It is evident that contribution of agriculture and allied activities has declined steadily during the last 50 years. In percentage terms, it has declined from 50.6 percent in 1960-61 to 44.3 percent in 1970-71 and further to 37.9 percent in 1980-81, 31.4 percent in 1990-91, 23.9 percent in 2000-01 and to 14.2 percent in 2010-11. The share of agriculture in GDP has declined faster during the last two decades of economic reforms, as during this period other sectors have grown faster than agriculture. However, although the share of agriculture in GDP has declined, the volume of agricultural production (expressed in value terms as crores of rupees) has increased from 0.3 million in 1960-61 to 2.2 million in 2003-04 (at 1999-00 prices) and from 3.0 million in 2004-05 to 4.9 million in 2010-11 (at 2004-05 prices). This clearly indicates that the real income in agricultural sector has also increased over the period although the income growth is smaller than that of non-agricultural sectors.

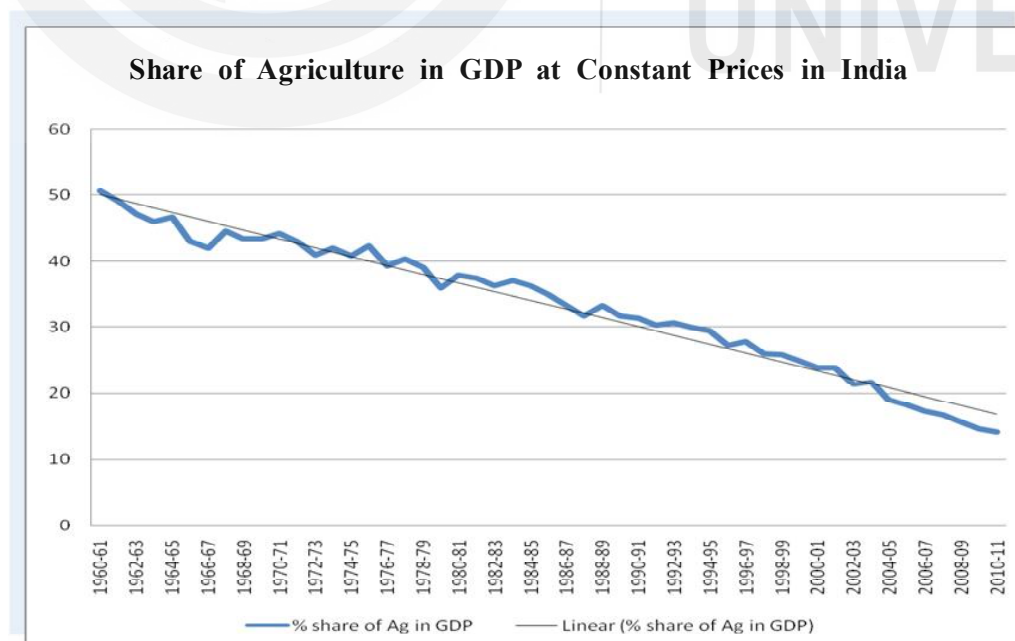


Fig. 7.1: Trend in Agriculture GDP (1961-2011)



## Labour Productivity in Agriculture Versus Non-agriculture

The National Commission on Enterprises in Unorganised Sector (NCEUS) estimated that in 2004-05 the 'per worker GDP' (called 'labour productivity') in agriculture was about one-fourth of industrial sector GDP and one-sixth of service sector GDP. The ratio of labour productivity in agriculture to that in non-agriculture has, in fact, been continuously declining since 1983. This implies that the relative economic condition of agricultural workforce (vis-à-vis industrial and service sector workforce) has deteriorated over time. Further, due to limited access of farmers and agricultural workers to employment in high value added non-agricultural activities, a large number of them could not be occupationally mobile and per force remained dependent on agriculture for their livelihood.

## Employment Elasticity in Agriculture Versus Non-agriculture

Employment growth in agricultural and non-agricultural activities for the period 1993-94 to 2004-05 is presented in Table-7.1. Between 1993-94 and 1999-00, agricultural employment witnessed a negligible 0.03 percent growth (i.e. annual average percentage growth). During this period, agricultural GDP increased by 2.9 percent per annum. As a result, the employment elasticity (defined as the ratio of employment growth to the corresponding GDP growth which indicates the employment generated for every unit of income generated or added to the sector) was low at 0.01. However, in the non-agricultural activities, the employment growth was as high as 2.5 percent, GDP growth was 8.1 percent and the consequent employment elasticity was also high at 0.31. The growth rate of real wages in the non-agricultural sector (5.03) also was nearly twice as high as compared to the agricultural sector (2.74). The growth story was similar even during the next quinquennium i.e. 1999-00 to 2004-05 but the situation for the agricultural sector was one of improvement. The employment elasticity in the non-agriculture was 0.65 as against 0.49 in agriculture. But the improvement in the employment elasticity of agricultural sector itself, from 0.01 in 1994-95 to 0.49 in 2000-2005, is significant. Notably, the real wages in agriculture also grew faster than the non-agriculture i.e. 1.46 percent in the former as compared to 0.13 in the latter. These facts are empirically encouraging from the point of view of agricultural development in India.

**Table-7.1: Trends in Employment Growth rates in Agriculture and**

**In percentage**

	Agriculture			Non-agriculture		
	1993-94 to 1999-00	1999-00 to 2004-05	1993-94 to 2004-05	1993-94 to 1999-00	1999-00 to 2004-05	1993-94 to 2004-05
Employment	0.03	0.85	0.40	2.53	4.66	3.49
GDP	2.88	1.76	2.37	8.11	7.22	7.71
Employment Elasticity	0.01	0.49	0.17	0.31	0.65	0.45
Real wages	2.74	1.46	2.15	5.03	0.13	2.77

**Source:** National Commission for Enterprises in the Unorganised Sector (NCEUS), GOI, 2009.

## Check Your Progress 4

Fill in the blanks

- Share of agriculture in total GDP declined from 50.6 percent in 1960-61 to \_\_\_\_\_ in 2010-11
- Over the period 1961-2001 the real income in agricultural sector also increased, but the income growth has been much \_\_\_\_\_ than that of non-agricultural sectors.
- As per the NCEUS estimates, per worker GDP in agriculture was about one-fourth of \_\_\_\_\_ in 2004-05.
- Between 1993-94 and 2004-05, employment elasticity was higher in \_\_\_\_\_ than \_\_\_\_\_.

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## 7.7 LET US SUM UP

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Role of agriculture in economic development has remained one of the key subjects of development economics. Most of the earlier studies on the subject basically focused on the process of structural transformation of economies through transferring factor resources from traditional agriculture sector to modern industrial sector. The role of agriculture was mainly limited to provide food, create jobs, earn export income, generate savings for investment, and produce primary commodities for agro-processing industries. However, contemporary role of agriculture goes beyond these direct market-mediated contributions. Agriculture now also plays an important role in providing indirect non-commodity contributions that are public goods, social service benefits and environmental services, which are not captured by markets. The current issues relating to ecology and environment, water resources, biodiversity, rural poverty, food, fuel and livelihood securities, etc. have once again put agriculture in the overall development agenda of governments of many developing countries and international institutions.

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## 7.8 KEY WORDS

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- GDP** : Gross Domestic Product - Final production of goods and services produced during a year within the geographical boundary of a Nation, irrespective of ownership of resources.
- Linkages** : Refer to the interdependence between various segments through flows of output to each other.
- Marginal Product of Labour** : Refers to a net change in total output due to one unit change in labour input, keeping all other factors constant.
- Non-farm Sectors** : Comprise all economic activities other than agriculture and allied activities.
- CSO** : Central Statistical Organisation - compiles and publishes National Account Statistics, such as GDP, gross domestic savings, etc.

### Structural Change

: Refers to a major change like the distribution of workers by sectors, which comes about over a long term as a result of developmental initiatives pursued. Achieving a reduction in the workforce of agricultural sector, which at present is shouldering close to 50 percent of total workforce in India, in order that the labour productivity of the sector is high (comparable with the other non-agricultural sectors) is at present the major challenge of policy planning. It will also ensure the concerns of 'inclusive growth' which is one of the policy goals in the country.

### Labour Productivity

: Is expressed in rupees and is obtained as the ratio of sector's income divided by the total number of workers engaged in the sector. It represents the average income per person in the sector.

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## 7.9 SOME USEFUL READINGS

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- 1) Valdes A and Foster W (2010), *Reflections on the Role of Agriculture in Pro-Poor Growth*, World Development, Vol. 38, No. 10, pp. 1362–1374, 2010.
- 2) Johnston, B. F., & Mellor, J. (1961), *The Role of Agriculture in Economic Development*, American Economic Review, 51(4), 566–593.
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- 4) Luc Christiaensen, Lionel Demery, Jesper Kuhl (2011), *The (Evolving) Role of Agriculture in Poverty Reduction—An Empirical Perspective*, Journal of Development Economics, Vol. 96, (2011), 239-254.
- 5) Schultz, T. W. (1964), *Transforming Traditional Agriculture*, Yale University Press.
- 6) Singh S.P. (2010), Agriculture under Neoliberal Policy Regime, in *Alternative Economic Survey, India: Two decades of Neoliberalism*, Dannis Books.
- 7) World Bank (2008), *World Development Report: Agriculture for Development*, The World Bank, Washington D.C.

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## 7.10 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

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### Check Your Progress 1

- 1) See section 7.1 and answer.
- 2) See section 7.2 and answer.
- 3) See section 7.2 and answer.

**Check Your Progress 2**

- 1) See section 7.3 1<sup>st</sup> and 2<sup>nd</sup> para and answer.
- 2) See section 7.3 last para and answer.
- 3) See section 7.4.1 and answer.
- 4) See section 7.4.2 and answer.

**Check Your Progress 3**

- 1) (a) True; (b) True; (c) See 7.4 and answer; (d) True; (e) True; (f) True; (g) True.
- 2) (a) slower; (b) declined; (c) externalities.
- 3) See section 7.5 (last part of 2<sup>nd</sup> para) and answer.

**Check Your Progress 4**

- 1) See 7.6 and answer.
- 2) See 7.6 and answer.
- 3) See Table 7.1 and answer.
- 4) See Table 7.1 and answer.



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## **UNIT 8 DIVERSIFICATION TRENDS OF INDIAN AGRICULTURE**

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### **Structure**

- 8.0 Objectives
- 8.1 Introduction
- 8.2 Principle of Optimal Utilization
- 8.3 Process of Diversification
- 8.4 Agricultural Diversification in India
  - 8.4.1 Determinants of Agricultural Growth/Diversification
  - 8.4.2 Progress of Diversification in Indian Agriculture
  - 8.4.3 Merits of Diversification
- 8.5 Approaches for Diversification
  - 8.5.1 Location Specific Programme
  - 8.5.2 Contract Farming
- 8.6 Crop Diversification as a Strategy for National Commitment
  - 8.6.1 Poverty Alleviation and Food Security
  - 8.6.2 Natural Resource Management for Sustainable Agricultural Development
  - 8.6.3 Area Approach to Agricultural Planning
- 8.7 Constraints and Prospects in Crop Diversification
  - 8.7.1 Globalization and Crop Diversification
  - 8.7.2 Emerging Technology and Crop Diversification
  - 8.7.3 Research and Development Support for Crop Diversification
  - 8.7.4 Institutional and Infrastructure Development for Crop Diversification
- 8.8 Strategy for Promoting Agricultural Diversification
- 8.9 Let Us Sum Up
- 8.10 Key Words
- 8.11 Some Select References
- 8.12 Answers/Hints to Check Your Progress Exercises

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### **8.0 OBJECTIVES**

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After reading this unit you will be able to:

- outline the concept of diversification of agriculture;
- indicate the need for diversification in the agricultural sector;
- discuss the two main approaches for agricultural diversification;
- explain how diversification can be instrumental in transforming the agricultural sector making it a commercially viable modern enterprise;

- identify the constraints in the process of diversification of agriculture; and
- suggest policy measures required for strengthening the process of diversification.

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## 8.1 INTRODUCTION

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The contribution of Indian agriculture and its allied sectors to the GDP is nearly 15 percent with about 50 percent of the population currently dependant on agriculture for their livelihood. Agricultural output, however, depends on monsoon as nearly 60 percent of area sown is dependent upon rainfall. Further, majority of small and marginal farmers mainly cultivate low value, subsistence crops. Due to this, they are facing various problems like: low productivity, low income, low investment and capital formation, low prices, high production costs, low purchasing power, infrastructure deficits, etc. To overcome these difficulties, agricultural diversification is often suggested as a means of improved farm productivity and income. The concept of agricultural diversification basically refers to a shift of resources from low value crop mix to relatively high value crops and farm products. In this unit, we shall study issues of diversification like determinants, approaches, constraints, strategy, etc. We shall, however, discuss to begin with the: (i) principles of optimal utilization of resources; and (ii) meaning, need and significance of diversification in agriculture.

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## 8.2 PRINCIPLE OF OPTIMAL UTILIZATION

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One of the basic universal economic principles is to ensure the optimal utilization of any given resource whether natural or man-made. The theory of optimal utilization, particularly of natural resources, has two important aspects.

- i) The first aspect is that while utilizing any resource we should assure the insurance of its renewability. This means, if any factor of production has a renewable property, then its conservation and regeneration potential must be given utmost priority. In other words, it should not be unsustainably used but its use should be proportional to its renewable potential. Otherwise, it will be like killing the goose that lays golden eggs in order to have all the eggs at one time instead of remaining satisfied with one golden egg every day for a long time.
- ii) The second aspect of optimal utilization relates to deriving optimum benefit from a given resource. For instance, in case of agriculture, land is such a factor. It is a natural gift of nature with full potentialities of renewability. But this natural resource is scarce in comparison to demand from human population for which reason land is intensively used. However, the intensive use of land, without regard to its fertility regain consideration will be against the principle of optimal utilisation.

A mid-path between the two needs of optimum utilization and renewability, is to go for 'diversification of agriculture'. As said above, agricultural diversification implies shifting of resources from crops and farm activities with low productivity to relatively high value crops and other farm products. Sustainability of land and water resources is also an important consideration in agricultural diversification. Diversification of agriculture is a response to changing demand for agricultural

products with the rise in incomes and the growing global integration of agricultural markets. It is thus a challenge as well as an opportunity.

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### 8.3 PROCESS OF DIVERSIFICATION

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Agricultural diversification is a wide-ranging process. In a general sense, diversification of agriculture may mean:

- i) Diversification between agriculture and allied activities like animal husbandry, fishing, etc.; and/or
- ii) Diversification in cropping pattern.

The second category may be sub-divided into:

- a) Diversification between food crops and non-food crops;
- b) Diversification between cereals and non-cereal food crops;
- c) Diversification between traditional crops and horticulture; and
- d) Diversification between low productivity or low value crops to high value crops.

Alternatively, crop diversification can be divided into two categories:

- i) Horizontal Diversification; and ii) Vertical Diversification.

i) **Horizontal Diversification**

The commonly understood mechanism is the addition of more crops to the existing cropping systems (i.e. multiple cropping), which is in a way broadening the base of the system. This method of diversification has special significance under small-holder production systems and has proved beneficial to production increases due to increased cropping intensities.

ii) **Vertical Diversification**

The other type is vertical crop diversification, which reflects the extent and stage of industrialization of the crop production. Practicing of enterprises like agro-forestry, dry-land horticulture, medicinal and aromatic plants and other economic shrubs and livestock come under this. Note that crop diversification takes into account the economic returns from different crops. In light of this, it is different from the concept of multiple cropping. Both types of diversification (i.e. multiple cropping or horizontal diversification and agri-business or vertical diversification) will be essential to improve crop yields and income generation at local, regional and national levels.

**Check Your Progress 1** [answer in about 50 words in the space given below]

- 1) Do you agree that ‘diversification of agriculture’ is a mid-path between the two essentials of the ‘principle of optimal utilisation’?

.....  
.....  
.....

2) What are the four sub-categories of ‘diversification in cropping pattern’?

.....  
.....  
.....  
.....

3) How is ‘crop diversification’ of agri-business type different from ‘multiple cropping’?

.....  
.....  
.....  
.....

---

## 8.4 AGRICULTURAL DIVERSIFICATION IN INDIA

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Agriculture sector is prone to high levels of risks which include uncertain events like droughts/famines, floods, cyclones, hailstorms, frosts, cold/heat waves, etc. Besides, diseases related to plants and animals, and insects and pests also have adverse effect on agricultural output posing losses or risks. The agricultural sector is also subject to uncertainties by environmental, technological and economic factors which impact seriously on the demand and supply dynamics of agricultural products. Such fluctuations, in turn, adversely affects the potential of agricultural trade. Agricultural diversification is also a method of minimising some of these risks by resorting to protective practices.

### 8.4.1 Determinants of Agricultural Growth/Diversification

Agricultural growth is a function of the level of technology, government policies, cropped area and production portfolio. Temporal change in agricultural growth (i.e. changes in output levels of agricultural products over time) is, therefore, the cumulative effect of changes in all these components/variables. A well informed policy formulation to promote the agricultural growth/output ideally requires a decomposition of the effect of each one of these components on output. For national accounting purposes, the value of gross output from agriculture (minus the value of inputs) is considered as a measure of income from agriculture. For empirical purposes, crop yields are used as proxy for the cumulative effect of variables like government policies, gross cropped area, change in production–portfolio (i.e. crop substitution) for agricultural diversification, etc. While these are exogenous (i.e. independent) factors which influences the decision on agricultural diversification, as individuals farmers take certain factors into consideration before deciding on bringing about changes in their cultivation habits. These, therefore, could be counted under endogenous (i.e. dependent) factors.

How do farmers change their cultivation practices or what motivates them to do so? Farmers, being rational economic agents, would change their cropping pattern only when they expect an economic gain from such a change. Various determining



factors, from the farmers' angle, for the adoption of agricultural diversification would therefore be: profit margin of new system, availability of market for produce, risk coverage, availability of technology, alternative incentives, and other compelling reasons to shift for a new system, etc.

#### **8.4.2 Progress of Diversification in Indian Agriculture**

India is currently producing more than 275 million tonnes of food grains every year. The first Green Revolution (GR) during 1960s helped India in achieving the record agricultural produce. Green Revolution was essentially supply-driven. Large incentives were provided to increase production and enhance supply of essential foodgrains. The techniques developed by the Green Revolution are: (i) extensive use of chemical fertilizers; (ii) irrigation; (iii) use of heavy machinery; and (iv) use of pesticides. The GR substantially increased rice production in India using a package of new seeds, fertilizers and irrigation. The first stage of GR in agriculture was followed by 'White Revolution' (i.e. milk production in which with 90 million tonnes of milk production a year, India is among the highest milk producers in the globe), Blue Revolution (in fisheries) and Yellow Revolution (in edible oil, especially mustard/ rape seed oil). Besides these achievements, India also ranks at a high position in the production of fruits and vegetables. While all these are some major strides taken in diversification of Indian agriculture, these are no longer adequate for India whose population is projected to touch 140-150 crores by 2025. Further, associated with increase in income levels, there is also a change in the pattern of consumption (or demand) of consumers. As we already noted in unit 7, our import of food items have exceeded the exports. Due to all these factors, there is a compelling need to infuse modern methods in agriculture to make the Indian agriculture not only more self-sufficient in all farm products but also become leading food producer in the world. In short, there is a need for a second GR. In recent years, genetic engineering techniques have been used to further enhance some of the GR advances. For instance, many commercial crops have been treated with herbicide tolerance so that their application have eliminated weeds leaving the crops unaffected.

The second GR is expected to follow a strategy distinctly different from the first. Whereas the first GR mainly focused on popularization of high yielding varieties (HYV) and crop varieties to overcome food shortage, the second GR is likely to be driven by changing consumer preferences which are increasingly in favour of high value farm products. The response will be based on harnessing a bouquet of new technologies drawn from the advances made in space, Information Technology (IT) and Bio-Technology (BT) areas. It will, therefore, focus not only on traditional farming but on aspects of commercial farming like: horticulture, floriculture, sericulture, aquaculture, medicinal/aromatic crops and linkages with agro-processing. In all this, one of the main components would be launching an action plan for massive crop diversification.

#### **8.4.3 Merits of Diversification**

The merits of diversification are many. These may be stated as follows.

- i) Different crops require different types of soil fertility. A combination or rotation of crops is expected to utilize more fully all the properties of the soil than does concentration, year after year, on one crop. For

instance, cereals use a great deal of nitrates, cabbages more of sulphates, clovers take a lot of lime and root crops make heavy demand on phosphates. If different crops are grown in successive years, it will be possible to restore the elements which one crop uses up before the same crop is planted again sometime later.

- ii) Rotation of crops facilitates reduction of weeds as it permits cleaning operations at different times. It thus minimises any type of weeds from nourishing and spreading year after year.
- iii) Diversification makes it possible to grow more than one crop in a year in the same field where it would be impossible to plant and harvest the same crop twice. It also facilitates breeding of live stock which feeds on the residue of crops/grasses. It, therefore, provides additional source of income to the farmer in the form of meat, milk, wool or fuel.
- iv) Diversification permits more even demand for labour throughout the year due to different crops grown.
- v) Diversification makes it possible for farmer and his family to consume a variety of food that is grown.
- vi) Diversification enables the farmers to spread his risk. If one concentrates on one crop/product, a harvest failure or a price collapse may ruin him. It is very unlikely that all crops/products fail simultaneously in the same year.
- vii) Diversification enables the income of the farmer to be more regular as the crops and animal products will be sold evenly throughout the year.
- viii) Diversification increasingly assumes switching from low value crops to high value crops and helps not only to meet the changing demand for farm products but also increase farmers' income.

### Check Your Progress 2

- 1) Fill in the blanks.
  - a) India is currently producing more than ..... million tonnes of food grains every year.
  - b) The first green revolution used a package of ....., ....., and .....
  - c) The wheat production at present in India has increased from ..... million tonnes to ..... million tonnes.
  - d) Diversification of Indian agriculture has successfully encompassed other products/areas like ....., ....., and .....
- 2) Mention some examples of alternative areas for commercial farming on which the second green revolution is expected to lay its thrust/focus.

.....  
.....

- .....
- .....
- 3) Do you agree that ‘diversification helps an Indian farmer to spread his risk’? State the rationale behind this contention.
- .....
- .....
- .....
- .....

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## 8.5 APPROACHES FOR DIVERSIFICATION

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It is clear from the above that in the modern era, agricultural diversification is very essential for economic growth. The approaches to diversification should be based on economic considerations helpful in minimising losses or maximising profits. The two considerations can be exemplified by delayed transportation of perishable items which causes losses to the farmer and assured market/price for products grown under terms of ‘contract farming’. The approaches for diversification would thus be based on the following considerations.

### 8.5.1 Location Specific Programme

Location specific diversified farming system could be adopted for minimising losses of perishable items. Cold storage facilities and agro-processing will minimise losses. Diversification into high value crops and high value products like dairy, poultry etc. would be essential. Large areas of Eastern India, which are prone to water logging, can, *inter alia*, be put under profitable aquatic farming system for products like Makhana, Singhara, Swamp-taro, etc. as well as fisheries.

### 8.5.2 Contract Farming

Contract farming is another innovation that has been introduced in many states and could accelerate diversification. Indian farmers are constrained in taking to high value crops due to lack of cold storage and ready marketing facilities. India’s laws on agricultural land do not allow corporate bodies to purchase land and operate large scale farms due to a national policy to prevent displacement of a large number of small farmers. Under this situation, corporate buyers who can cater to domestic/export markets, or operate enterprises in agro-processing, can engage in ‘contract farming’ to produce high quality produce. Under this scheme, buyers select area suitable for the crops they are interested in and organize farmers to produce these crops under contract. They provide planting material of the right quality and technical expertise. The process enables the farmers to eliminate their marketing risks while the corporate buyer is assured of quality supplies. The development of agro-processing, based on contract farming, will thus spur agricultural diversification. However, contract farming requires: (i) providing suitable incentives for diversification for which formulating attractive policy initiatives are essential; and (ii) increasing public investment in irrigation, water, rural roads and rural electrification, etc. These infrastructure facilities in turn would attract private investment.

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## 8.6 CROP DIVERSIFICATION AS A STRATEGY FOR NATIONAL COMMITMENT

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Crop diversification can be helpful in addressing some of the national problems like: (i) alleviation of poverty and ensuring food security and (ii) ensuring sustainable agricultural development. It can also help in balanced regional development by focussing on area approach to agricultural planning. In fact, the achievements of the past six decades goes to confirm this.

### 8.6.1 Poverty Alleviation and Food Security

The agricultural growth rate of around 2.7 percent per annum in the post-independence period was much higher than the negligible growth rate of 0.3 percent per annum in the first half of the 20<sup>th</sup> century. It is not only in the areas of food grain production but also in the production of commercial crops like cotton, oilseeds, sugar cane, fruits and vegetables as well as livestock products and fisheries that we achieved significant increases since independence. This achievement has contributed to significant reduction in poverty. For instance, the incidence of poverty declined from 54.9 percent in 1973/74 to 27.50 percent in 2004/05 i.e. by exactly half or 50 percent. The National Agenda for Governance of the present government has, therefore, given top priority to doubling food production in the next ten years. This includes rice, wheat, coarse cereals, pulses, oilseeds, sugar, fruits and vegetables, meat, milk, and fish. The Action Plan envisages a detailed strategy with specific problems of productivity identified and addressed so that substantial increase in the supply of various food items can be so achieved that the demand for such items for the entire population is not only met but some exportable surplus also remains available. The development strategy to be pursued in the medium term has been consciously interwoven with the country's food security concern. If there is a completely market-driven diversification without regard to national priorities there is likely to be threat to food security. For instance, shifting of area under food crops to commercial crops like 'jetropa' for bio-diesel may upset food security. Therefore, caution should be exercised in agricultural diversification.

### 8.6.2 Natural Resource Management for Sustainable Agricultural Development

It is a known fact that there is little scope for further expansion of the net sown area (142 mha) and that land scarcity will become an acute feature of the rural economy. Water is a precious national asset and there are several concerns regarding water resources in the country. Therefore, a judicious use of land and water resources will be the central theme for sustainability of agricultural growth. There has been a growing concern in recent years about the deteriorating conditions of soil and water resources due to improper management and pollution. The deterioration has been in the form of land degradation, water-logging and decline in water table. There is a greater need to have an integrated approach in the management of plant nutrients, chemicals and taking effective measures to deal with the overall pollution problems. There are several possible technologies and alternatives to reduce the use of chemicals in agriculture. These alternatives are not perfect substitutes to chemicals but adoption of these can substantially reduce the adverse impact on environment. Proper land and water management policies would

reduce environmental degradation. Community and village institutions are envisaged to be encouraged to participate in protecting the natural resources from degradation. Under this, programmes for regeneration of land and water resources will be strengthened.

### **8.6.3 Area Approach to Agricultural Planning**

A new approach to agricultural planning - the Agro Climatic Regional Planning (ACRP) was put into action in 1988. This was a holistic approach which explicitly recognized the local resource endowments and constraints of the agro-climatically homogeneous regions which quite often cut across different states. The ACRP was a bridge between the resource base and decentralized planning which aimed at providing a scientific support to planning for attainment of sustainability with due regard to basic resources and the local needs. The project was initiated by regionalizing the country into 15 zones/regions, later divided into 73 sub-regions. The principles used for this sub-regionalization were intrinsically related to the character of the agricultural economy like soil, climate, rainfall, etc.

The above brief account has spelt out the various steps taken in the past, and being taken now, to address some of the national issues like poverty alleviation, food security and sustainable/balanced regional growth through diversification of agriculture. In the next section, we shall see what constraints specifically lie in the path of crop diversification.

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## **8.7 CONSTRAINTS AND PROSPECTS IN CROP DIVERSIFICATION**

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Crop diversification in the recent years is taking the form of increased area under commercial crops including fruits and vegetables. However, this has gained momentum in the last decade favouring increased area under vegetables and fruits and also to some extent on commercial crops like sugar cane, cotton and oilseeds, especially soya-bean. The major problems and constraints in crop diversification, with varied degrees of influence, are primarily the following .

- i) Over 117 mha of the cropped area in the country (63 percent) is completely dependent on rainfall.
- ii) Sub-optimal and over-use of resources like land and water have caused a negative impact on the environment and sustainability of agriculture.
- iii) Inadequate supply of seeds and plants of improved varieties.
- iii) Fragmentation of land holding working against modernization and mechanization of agriculture.
- v) Poor basic infrastructure like rural roads, power, transport, communications, etc.
- vi) Inadequate post-harvest technologies and inadequate infrastructure for post-harvest handling of perishable horticultural produce.
- vii) Weak agro-based industry.
- viii) Weak research-extension-farmer linkages.

- ix) Inadequately trained resources compounding the persistent and large scale illiteracy among farmers.
- x) Host of diseases and pests affecting most crop plants.
- xi) Poor database for horticultural crops.
- xii) Decreased investments in the agricultural sector over the years.

### **8.7.1 Globalization and Crop Diversification**

With the advent of WTO, the scenario of the agricultural sector has changed and will further change very much. Trade liberalization and market access for agricultural products between the different countries has compelled the promotion of a more vibrant diversified agriculture. But there are limits to trade and diversification. For crops on which we have substantial area and production, specially food-grains, the import market has to be insulated through increased productivity which gives us a kind of comparative advantage and also a level playing field so that large scale importation is contained and farmers' interests are protected. The crops which are traditionally exported like basmati rice and spices and condiments also need to be supported in terms of area expansion and quality improvement. More opportunity for both production and post-harvest handling needs to be established. Accelerated growth in fruits and vegetables production is also required for improved nutrition of the country's population. With improved living standards along with increased purchasing power, more and more people will seek nutritional and quality food which call for greater crop diversification. There are some production areas such as food crops, plantation crops, poultry, dairy, sugar, cotton and oilseeds in which India has made its mark. There are some in which its emerging strength is evident like sericulture, marine and inland fisheries. No country grows such a wide range of fruits, vegetables, and flowers and in such abundance as India and yet it has no record worth mentioning in horticultural exports. The rich variety when processed and marketed, can help India take care of the health needs of its population becoming a major exporter of these commodities.

### **8.7.2 Emerging Technology and Crop Diversification**

The agriculture of the twenty first century will increasingly be dependent on farmers' entrepreneurship. This demands harnessing technologies to optimize returns from land and investments made on it. Biotechnology and genetic engineering in crops with focus primarily on productivity and quality is expected to give significant boost for many important crops/plants. With the advent of emerging technologies and consequent scope for increased economic returns, diversification in favour of such crops would have to be the future focus. Many other related technologies and their adoption will also inject an added dimension in crop diversification. Decision support systems, governmental policies, geographic information system, application of information technology leading to market information, etc. will also lead to crop diversification primarily on economic considerations.

### **8.7.3 Research and Development Support for Crop Diversification**

Future agriculture will be much more knowledge and skill based. In the wake of globalization and opening up of the markets, there will be much more opportunity

for entrepreneurship development in agriculture. This calls for paradigm shifts in research and technology development and also transfer of technology for successful crop diversification. The research system not only needs to be vigilant in the areas of emerging technologies but also create a cadre of scientists through continuous upgrading of skills and human resource development. It also needs to popularize the technologies, impart knowledge and skills to the extension functionaries for the transfer of technologies to the farmers. This knowledge-based farming will call for much more interaction between the researchers, extension workers and farmers. The fruits of the innovative technologies should reach the farmers at the earliest and also spread it in the quickest possible time.

### **8.7.4 Institutional and Infrastructure Development for Crop Diversification**

To sustain and operationalise crop diversification, institutional support is required to the two thirds of the country's crop area which is dependent on rains. Crop diversification in terms of reducing the risk of rain-fed farmers is vital to a country like India where two- thirds of the farmers are resource poor. The National Agricultural Research System with its Crop and Commodity based Institutions, Natural Research Management Based Institutions and State Agricultural Universities are jointly addressing the issues connected with crop diversification. The government has also developed a counter support mechanism through the establishment of Crop Directorates for each of the major crops and groups of crops like Oilseeds and Pulses with technology transfer as its focus on each of these crops and commodities. These directorates act as a coordinating agency between the research and development activities and technology transfer including promotional activities.

#### **Check Your Progress 3** [answer in about 50 words in the space given]

- 1) What are the two main approaches advocated for agricultural diversification? Which one of these 'minimise economic losses' for the farmers?  
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.....  
.....
- 2) Which are the two main areas in which greater attention is required to be paid in order to make 'contract farming' approach for diversification function well?  
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.....  
.....
- 3) Fill in the gaps.
  - a) Agricultural growth has increased from ..... per cent per annum (p.c.p.a.) in the pre-independence period to ..... p.c.p.a. in the post-independence period.
  - b) Agricultural growth has contributed to reducing poverty from ..... percent in 1973-74 to ..... percent in 2004-05.

- c) The developmental strategy to be pursued in the medium term has been consciously interwoven with the country's ..... concern.
- d) Proper ..... and ..... management policies would help reduce environmental degradation.
- e) The 'agro-climatic regional planning' (ACRP) approach was a bridge between ..... and ..... Further, the principles used for this were intrinsically related to the character of the agricultural economy like ....., ....., ....., etc.
- f) ..... percentage of total cropped area in India is totally dependent on monsoons.
- g) In the emerging 21<sup>st</sup> century Indian agriculture, ..... and ..... in crops with focus primarily on ..... and ..... considerations is expected to give significant boost for agricultural diversification.

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## 8.8 STRATEGY FOR PROMOTING AGRICULTURAL DIVERSIFICATION

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In the modern era, agricultural diversification is an important strategy for agricultural development. The process of agricultural diversification is largely demand-driven in contrast to the supply-driven process of Green Revolution. In a country like India, there is a greater role to smallholders in agricultural diversification in future in contrast with the rich farmer-driven Green Revolution of the past. There is also greater participation of the private sector especially in marketing and processing. Agricultural diversification for meeting the demand for high value commodities need incentives, institutions and investments. The direction for policy support and emphasis for agricultural diversification, already indicated in the previous sections, is once again reiterated below as suggestions for strategy for agricultural diversification in India.

- 1) Integrated policy such as research, production, post-harvest management, processing and marketing, etc. should be taken under one umbrella.
- 2) Public sector investment in agricultural sector which has witnessed a major decline in the past two decades should be rejuvenated.
- 3) Emphasis on integrated farming system comprising of farming, pisciculture, horticulture, rearing animal, poultry, piggery and goat, etc. to be laid.
- 4) Location-specific diversified farming system to be adopted.
- 5) Measures to conserve and efficiently manage water resources to be facilitated with technological and extension services.
- 6) India's great potential in the field of fruits and vegetable, floriculture, pisciculture, horticulture and animal husbandry, etc. to be harnessed for optimum utilization of the available resources.
- 7) Post-harvest management, storage and marketing facilities to be emphasized. These are critical areas in which the weaknesses should be removed.



- 8) Availability of institutional credit to be enhanced.
- 9) Through attracting and retaining youth in farming, agricultural diversification can be taken to its potential heights. A policy for this to be crafted and implemented in full earnestness.
- 10) The export basket is varied and full of opportunity. Thrust on export of agricultural products which tends to rise agricultural diversification to be duly promoted.

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## **8.9 LET US SUM UP**

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Crop diversification means moving away from growing a single crop to a number of crops. Such a move towards crop diversification helps in: (a) better use of available land, labour, water and other resources; (b) reduce risks arising out of crop failures, yield losses and market failures; and (c) help realize quicker/regular returns to farmers. However, these advantages of diversification are not without costs as: (i) crop diversification demands higher level of managerial input from the individual farmer; and (ii) small surpluses of various agricultural commodities create difficulties in efficient handling and marketing of the produce. Effective policy and public investment are needed to reduce these inherent weaknesses in Indian agriculture. Indeed, crop diversification has been recognized as an effective strategy for achieving the multiple objectives of food/nutrition security, income growth, poverty alleviation, employment generation, judicious use of land and water resources, sustainable agricultural development and environmental improvement.

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## **8.10 KEY WORDS**

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**Diversification of Agriculture :** Refers to the re-allocation of productive resources into new activities.

**Vertical diversification :** Diversification by way of multiple cropping in which a production enterprise moves into a different level of the supply chain.

**Horizontal diversification :** Refers to diversification of agri-business type in which a business enterprise develops or acquires new products that are different from its core business.

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## **8.11 SOME SELECT REFERENCES**

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Anil Kumar Thakur and K. B. Padmadeo (eds.), *Growth and Diversification of Agriculture*, Deep, New Delhi, 2008.

P.K. Joshi, Ashok Gulati and Ralph Commings Jr (eds.), *Agricultural Diversification and Smallholders in South Asia*, Academic Foundation, New Delhi, 2007.

World Bank, *Poverty and Hunger: Issues and Options for Food Security*, Washington D.C. 1998.

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## 8.12 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

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### Check Your Progress 1

- 1) See Section 8.2 and answer.
- 2) See Section 8.3 and answer.
- 3) See Section 8.3 (ii) and answer.

### Check Your Progress 2

- 1) (a) to (d): see section 8.4.2 and answer.
- 2) See section 8.4.2 and answer.
- 3) See section 8.4.3 and answer.

### Check Your Progress 3

- 1) See section 8.5 and answer.
- 2) See section 8.5 and answer.
- 3) (a) to (c): see section 8.6.1 and answer; (d) see section 8.6.2 and answer; (e) see 8.6.3 and answer; (f) see 8.7 and answer; (g) see 8.7.2 and answer.

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## **UNIT 9 FORESTRY IN INDIA: LINKAGE WITH AGRICULTURAL SECTOR**

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### **Structure**

- 9.0 Objectives
- 9.1 Introduction
- 9.2 Benefits of Forests
- 9.3 Development of Forestry in India
  - 9.3.1 Pre-independence Period
  - 9.3.2 National Forest Policy, 1952
  - 9.3.3 National Forest Policy, 1988
  - 9.3.4 Changing Nature of Forestry in India
- 9.4 Forest Agriculture Inter-linkages
  - 9.4.1 Land Use Pattern
  - 9.4.2 Human Ecosystem
  - 9.4.3 Ecological Ecosystem
- 9.5 Types of Social Forestry
  - 9.5.1 Farm Forestry
  - 9.5.2 Extension Forestry
  - 9.5.3 Agro Forestry
  - 9.5.4 Recreation Forestry
- 9.6 Joint Forest Management
- 9.7 Let Us Sum Up
- 9.8 Key Words
- 9.9 Some Useful References
- 9.10 Answers/Hints to Check Your Progress Exercises

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### **9.0 OBJECTIVES**

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After going through this unit, you will be in a position to:

- explain the importance of planned development of forestry for the Indian economy;
- indicate India's position in forestry in a comparative international perspective;
- describe the policy initiatives that has shaped the development of forestry in India;
- delineate the inter-linkages between the agricultural sector and forestry;
- outline different types of social forestry practices pursued in India; and
- discuss the alternative institutional mechanism of Joint Forest Management (JFM).

## 9.1 INTRODUCTION

In unit 2 we noted that over the years 1950 to 2008 the proportion of forest land in India increased from 14.2 percent in 1950 to 22.8 percent in 2008. We also noted that protecting and expanding the forest area is important from the point of view of maintaining a healthy ecological balance. In this unit, we will focus more on issues related to forestry expansion. Beginning with an outline of the various economic and other benefits from forests, we will know about some of the policies/schemes which have been implemented for promotion of forests in India. We will then discuss the scheme of 'social forestry' which was implemented both as a means of expanding the forest cover area and also promote a 'forestry culture' in the general public and institutions at large. Finally, as a further measure of a new institutional mechanism introduced in this direction, we will learn about the benefits and features of joint forest management. But before we proceed to study these aspects, we shall take a quick look at India's position in total forest area vis-à-vis other countries in the world. This comparative profile will set the perspective required for appreciating the importance of expanding forestry in India.

As per the UN's global forest resource assessment (FRA 2010) report, in 2010, India's total forest area was 68 million hectares (mha). As a proportion to its total geographical area (328.73 mha), the percentage of forest cover is 20.7 percent. As a percentage of global forest area, however, India's share is low at 1.7 percent (Table 9.1). Notwithstanding this, India is among the 10 top countries in the world which together account for two-thirds (66.6 percent) of total global forest area, the remaining countries taken together sharing the rest of one-third of global forest cover. This does not by itself accord an equitable position or a place commensurate with its global population share as smaller countries might have greater forest cover in relation to their total population on the one hand and extent of geographical area on the other. In other words, since the forest resources carry an important

**Table 9.1: India's Position in the World in Forestry**

Country	Forest Area (mha)	Global Share (%)	Population (millions)	Forest Per Capita (ha)
Russian Fedn.	809	20.1	142.9	5.66
Brazil	520	12.9	190.7	2.73
Canada	310	7.7	34.6	8.96
U. S.	304	7.5	312.3	0.97
China	207	5.1	1339.7	0.15
Congo	154	3.8	66.0	2.33
Australia	149	3.7	22.7	6.56
Indonesia	94	2.3	237.6	0.40
Sudan	70	1.7	30.9	2.27
India	68	1.7	1210.2	0.06
Others	1347	33.4	3376.0	0.40
<b>World</b>	<b>4032</b>	<b>100.0</b>	<b>6963.6</b>	<b>0.58</b>

**Note:** The countries are the *top ten countries* in terms of their forest area as per the Global Forest Resources Assessment Report, 2010 published by the FAO (link: <http://www.fao.org/forestry/fra/en/>). The source for population data is wikipedia and the figures relate to a year close to 2010.

bearing on the total population of a nation and their needs, the per capita forest area is a more relevant indicator to understand its variability over countries. In this, notwithstanding the fact that India occupies a place in the top 10 countries in the world, India's position is dismal. While the global ratio in this respect is 0.58 hectares [with the corresponding ratio for all remaining countries leaving out the top 10 also being as high as 0.40 hectares], for India it is the lowest at 0.06 hectares. Evidently, with a share of 17.4 percent of global population, India's forest cover is critically small to make this ratio anywhere near to the comparable ratios of other countries. The country has also a high tribal population who reside on the fringe of forests depending on its resources for their livelihood. In realisation of all these factors, the government of India had set a target of increasing its total forest cover to 33 percent of its total land area. Considering that this target was set by the country's first National Forest Policy of 1952, the achievement of 21 percent by around 2010 speaks of a far lower realisation of its targets. The contribution of forestry to GDP has also declined from about 2 percent in 1950-60 to 0.9 percent in 2000-08. In recent times, the importance of forests is seen not merely from its economic contribution but also from the environmental and ecological aspects. Nonetheless, the declining share of forestry in GDP does indicate a relative lower priority accorded to the sector in India. This is more so because of the importance given to 'green accounting' these days. There is, however, a silver lining amidst this gloomy scenario. As per the FRA 2010 report, in terms of annual net gain in forest cover, India has improved its ranking from 5<sup>th</sup> position during 1990-2000 to 3<sup>rd</sup> position during 2000-2010, the percentage increase in the annual net gain having increased from 0.22 percent in the first period to 0.46 percent in the second period. This speaks of the country's position during the recent years as there are very few countries (almost nil) which are managing to increase their forest cover. However, it may not be realistic to sustain the relatively high rate of growth of forests achieved in the last decade or of achieving 33 percent forest cover by 2012.

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## 9.2 BENEFITS OF FORESTS

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In section 9.1, we noted two broad benefits of forests viz. (i) its usefulness in maintaining ecological balance and (ii) providing resources for livelihood of poor tribal people living in and around forests. There are a number of other economic and non-economic benefits of forests. For instance, they provide the raw material for various industries like railways, defence, construction, handicrafts, and domestic use. Through this, they also generate employment, and contribute to country's exports. The various benefits from forests can alternatively be grouped under broad heads as follows.

- i) **Production of clean air, generation of energy and inducement of rain:** Forests generate oxygen, prevent environmental pollution, provide shelter to wild life and birds and add to the aesthetic beauty of the country. Through photosynthesis, they convert solar energy into various forms of energy like food and fuel. It is estimated that in less developed countries like India, forests contribute to nearly 40 percent of our total energy needs. They also help in bringing rains through its influence on changing the moisture content of the atmosphere. Taken together, therefore, these benefits can be clubbed under *environmental benefits* of forests.

- ii) **Prevention of soil erosion and retention of moisture:** Forests are useful in prevention of soil erosion and retention of moisture in the soil as well as in the atmosphere. They are helpful in preventing an area from being turned into barren land and are particularly helpful in preventing floods during rainy seasons. These benefits are referred to as *hydrological benefits* of forests.
- iii) **Providing the source of income and livelihood needs of tribal poor:** Forests are estimated to supply 30 percent of fodder needs of animals besides supplying the much needed firewood for human consumption. The supply of large number of minor forest products (MFPs) are a source of employment and income to many poor tribals living in and nearby the forests. Forests are thus a source of *income and livelihood* for the poor and a major source of food for animals.
- iv) **Medicinal Plants and Other Varieties of Economic Value:** It has been estimated that close to 40 percent of the needs of prescription drugs have active ingredients derived from wild plants, animals, micro organisms, etc. freely growing and residing in forests. In realisation of this benefit to mankind from forests, forests have been described as the natural '*great chemical factory*' of the world. Traditional products of forests include timber and firewood to meet the needs of building material, furniture and rural energy.
- v) **Recreational and revenue yielding benefits:** Forests can be used for bringing about an *effective interface with the urban population* through the establishment of recreational opportunities like wild life sanctuaries and national parks. Besides generating revenue they help in creating an awareness among people, particularly the children, about wildlife conservation. We will read more on this benefit under 'social forestry' later.

In the light of the above benefits, investment in forest development and expansion is undoubtedly justified. Compared to the concrete jungle created by man in the urban areas, the natural forests are described as the treasure house of knowledge and peace. What has ailed the sector from active policy measures by the government? We now turn towards a brief review of the policy dimension of promotion of forests in our next section.

### Check Your Progress 1

- 1) In which range would you place the current percentage of total forest cover in India?  
(a) 20-25 percent; (b) 25-30 percent; (c) 30-35 percent.
- 2) What is the India's share in the global forestry cover?  
(a) 1.1 percent; (b) 1.4 percent; (c) 1.7 percent; (d) 2 percent.
- 3) Mention any six benefits of forests to mankind.

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## 9.3 DEVELOPMENT OF FORESTRY IN INDIA

Development of forest by legislative and other measures have taken place in India right from the 19<sup>th</sup> century. These can be classified under Acts and measures before the independence period and after the independence period. While the pre-independence initiatives laid the ground work for technical administration and management of forests, the post-independence initiatives revitalised them to achieve the national objectives.

### 9.3.1 Pre-independence Period

There was extensive commercial exploitation of Indian forests during the East India company rule. But, it was soon realised that the destruction would reach a point of unsustainability unless measures to protect and promote regeneration of forests are initiated. The Indian Forest Act was first passed in 1865. The Act classified forests into two classes viz. preserved and protected. In 1866, the Department of Forest was created with the objective of protecting the forest resources in the country. The 1865 Act was revised in 1878 reclassifying the forests into three classes viz. (i) reserved forests, (ii) protected forests and (iii) village forests. The same year, the first Forest School was started in Dehradun. The provincial forest services, for recruiting forest officers, commenced in 1891. In 1894, the government issued a notification proclaiming forests as property of state to be administered to fulfil the objectives of providing benefits to the taxpayers and regulate the benefits to the people living within and in the vicinity of forests. All these developments during the greater part of the later half of the 19<sup>th</sup> century marked for the dawn of scientific forestry in India. During this period, forestry was organised on commercial lines with *sustained yield principle* at the core of its management. The practice of preparing Forest Working Plan [a medium term plan of 10 to 15 years covering the whole of forest in a *division* (a unit of forest administration)], spelling out the technical and economic aspects of forest management and development, was introduced for the management of forests. The establishment of these institutional mechanisms paved the way for organizing the forest management on technical lines. However, extraction of timber was considered as the primary function of the forests. Of all the uses, timber for strategic defence use was given priority.

In 1921, forests were made into a provincial subject. To a substantial extent, this diluted the national character of forest administration. Following the re-enactment of the Indian Forests Act, 1927 [which further specified a fourth category viz. non-government (private) forests to the earlier three classifications], the earlier Act of 1878 began to be referred to as the 'old forest policy'. Under the new Act of 1927, unauthorized felling of trees, quarrying, grazing and hunting in reserved forests was made punishable with a fine and imprisonment. The practice of scientific forest administration based on Working Plan continued with prescribed guidelines on minimum girth limit for marking a tree for felling, the number of trees to be felled per hectare, etc. The management of forest in this manner continued till the time of second world war. The two world wars, particularly the second, took a heavy toll on the progress made in the earlier decades in forest management. During the war period, charcoal production was increased and forest based industries cropped up in good numbers. Forests were cleared for making roads and for laying down railway lines. Timber from forests were extensively used for

making wooden sleepers. The working plan regulations were neglected and sustained yield principle could not be followed. Over exploitation of timber and poor regeneration resulted in loss of forest area both under the public and private ownership/control. Further developments to promote forestry management are mainly traceable to the post-independence years.

### 9.3.2 National Forest Policy, 1952

The first national forest policy (NFP) in the post-independence period was formulated in 1952. Acknowledging that many of the provisions contained in the old forest policy were good and therefore should be continued, the first national forest policy retained most of the elements of the old forest policy but incorporated some changes which had become necessary due to developments in the intervening time period. Most notably, for instance, the new policy discouraged the indiscriminate extension of arable land by cutting of forests. Towards this end, the re-classification of forests made by the new Act based on their functional criteria is notable. The reclassification designated the types of forests as: (i) protected forests; (ii) national forests; (iii) village forests; and (iv) tree lands. Emphasizing the evolving of a system based on *balanced and complementary land use*, the policy laid stress on:

- i) persuading the tribal people from the harmful elements of practicing 'shifting cultivation' [which is a method in which an area of forest is felled and burned to allow for crops to be grown on the cleared land];
- ii) giving requisite training to the forest staff of all ranks;
- iii) increasing the efficiency of forest administration by having adequate provisions in forest laws;
- iv) controlling grazing in forests; and
- v) encouraging research in forestry and forest products utilization.

The NFP-1952 thus emphasized on the optimum use of available forest land. While it laid special attention on promotion of protected forests (in view of their vital role in checking soil erosion, controlling floods and promoting physical and climatic balance of the country), the policy also emphasized on the expansion of tree cover in land owned by the government, public and private agencies.

### 9.3.3 National Forest Policy, 1988

During the intervening period of the enactment of first NFP and 1980s, there had been far reaching changes affecting adversely the environmental stability and ecological balance in India. Also, one of the major changes that had taken place was the enactment of 42<sup>nd</sup> amendment of the Indian Constitution in 1976 which once again brought forestry under the 'Concurrent List'. Besides restoring the national character of maintaining and developing forests, the amendment (vide entry 48 A) required the state to protect and improve the environment by safeguarding forests and wildlife. Further, by another clause (viz. entry 51 A) the amendment mandated all citizens to protect and improve the natural environment including wildlife. In the light of these developments, the NFP of 1988 in its objectives laid emphasis on:

- i) Protection of existing forests and forest land;



- ii) Increasing forest and vegetation cover on hill slopes, catchments of rivers/ lakes/reservoirs/ocean shores and semi-arid, arid and desert tracts;
- iii) Discourage diversion of good and productive agricultural land to forestry;
- iv) Encourage planting of trees alongside roads, railway lines, rivers/streams/ canals, and other unutilized land under institutional and private ownership; and
- v) Raising green belts in urban and industrial areas.

### **9.3.4 Changing Nature of Forestry in India**

In the beginning of planning era, the importance of forestry was mainly commercial. The main aim was to supply raw materials to forest based industries. In the later years, particularly after 1988, the emphasis has shifted towards ecological and environmental benefits besides the social and economic benefits. While the national aim was to achieve one-third of total land area to be brought under forests, in hills/ mountainous regions the aim was to have two-third of the area under forest. Towards this objective, a national time-bound programme of afforestation and tree plantation on all degraded and denuded lands in the country was adopted as the national objective. The policy also required that all projects of construction like dams/reservoirs, mining, industrial development, etc. which involved diversion of forest land must provide in their investment budget for regeneration of denuded land by re-afforestation. A system of biannual mapping of forests (by using remote sensing technology of visual interpretation technique through satellites) by the National Forest Survey of India (established in 1981) was also introduced for monitoring the progress made in this respect. The establishment of two other institutions viz. the national wasteland development board (NWDB) and the national afforestation and eco-development board (NAEB), for promoting schemes to enhance forest cover, are also major developments of the post-1980s. Many schemes like: (i) integrated afforestation and eco-development projects (IAEP), (ii) fuel-wood and fodder project scheme, (iii) non-timber forest produce scheme, (iv) seed development scheme, (v) national afforestation programme, etc. have been implemented to increase the forest cover in the country. There was also an action plan called national forestry action plan (NFAP) launched in 1999 with the objective of bringing 25 percent of land area under forest cover by 2007 and 33 percent by 2012. However, as noted before this achievement by the end of 2011 has been about 22 percent.

#### **Check Your Progress 2**

- 1) During the pre-independence period in India, how many Forest Policies had been enacted?  
(a) one; (b) two; (c) three; (d) four
- 2) Mention any three objectives of National Forest Policy, 1952.

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- 3) What was a major change of historical significance that had taken place before the enactment of National Forest Policy, 1988? Which two major clauses had been included in our directive principles in this regard?

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- 4) Would you say that the targets for achieving the forest cover by different policy statements since independence have been achieved? Explain in about 50 words.

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## **9.4 FOREST AGRICULTURE INTER-LINKAGES**

The term forest is traditionally used only for natural vegetation widely spread over vast stretches of land. It is used in the sense of 'wilderness' by which is meant the abundance of growth giving shelter to many wild animals as their natural habitat. But in the context of declining forest area and the need felt to expand its growth, the natural feature has been extended to include manmade cultivation called 'tree cropping'. The term agriculture, on the other hand, also refers to a wider form of cultivation, much beyond mere crop cultivation. In this extended sense, it includes livestock breeding, fishery, forestry, dairy, poultry farming, etc. Loss of forest is felt in a multi-dimensional manner i.e. through (i) loss of bio-diversity, (ii) ecological imbalance and (iii) environmental degradation. The practice of forestry promoted to bridge this loss includes practicing of agriculture in areas such as non-forest land, village commons and private lands. Forestry is, thus, complementary to agriculture in two main ways: (i) ecologically by way of regulation of soil, soil nutrient, moisture content in soil and microclimate; and (ii) economically through efficient utilisation of underemployed rural youth and tribal human power. We can elaborate this agriculture-forest interface from three angles viz. (a) land use pattern; (b) human ecosystem; and (c) ecological ecosystem.

### **9.4.1 Land Use Pattern**

Land is the primary requirement for both agriculture and forestry. Under classical methods like shifting cultivation, land under forestry used to make way for agriculture. Under the modern practices of 'social forestry', however, tree crops are grown in non-forest areas like private land and institutional premises. In this process, therefore, there is an element of agriculture making space for forestry. A range of agro-forestry possibilities have thus come into vogue in which the common aim is to: (i) conserve ecology; (ii) optimize land use; (iii) protect damages from external agents like wind and running water; and (iv) improve the aesthetic value of site/land. Trees, crops and livestock have thus come to be practiced symbiotically

each complementing the other for optimal utilization and conservation of the ecosystem.

### 9.4.2 Human Ecosystem

A large part of agricultural labour belong to the small and marginal farmer community. They are also of tribal community residing in and on the fringe of forests depending on forest resources like timber, MFPs and many non-timber forest products (e.g. medicinal plants, honey, spices, resins, seeds, nuts, etc.). for their income and livelihood needs. Agriculture is a seasonal activity not only for forest based tribal population but also for most others. Forests support them with off-season employment opportunities through plantation and other forest developmental activities undertaken by forest departments. Firewood, a main by-product of trees in forests and elsewhere, constitutes the largest source of fuel for cooking and heating in rural areas. It is in view of these reasons that forests have always been an integral part of the human eco-system. There is also the beneficial side of arresting the rural to urban migration by harnessing on the potential of forests.

### 9.4.3 Ecological Ecosystem

Forests sustain bio-diversity by: (i) reducing global warming; (ii) balancing oxygen and carbon dioxide ratio; (iii) increasing precipitation and causing rains; (iv) moderating local temperature; and (v) keeping the air cool and clean. The role of forests in slowing down the water run-off, distributing rainfall, preventing soil erosion, reducing wind damage and safeguarding water supplies is valued much more than their output of wood and other things. The cumulative influence of all these factors on agricultural production and growth has indeed been immeasurable. The positive influence of the forests on the ecological parameters has always been of extreme relevance, which is being realised more now than before particularly due to the damage to the ecological system caused by factors like indiscriminate industrial and urban expansion in the recent past.

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## 9.5 TYPES OF SOCIAL FORESTRY

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Consequent to increasing pressures from human population resulting in severe depletion of natural forests, the National Commission on Agriculture (1976) made an interim recommendation for considering the concept of social forestry. The concept mainly envisaged growing of trees and other vegetation on all land available, mainly outside the traditional forest areas, so as to result in a balanced land use. It was also aimed at minimising unsustainable withdrawals from forests. Agro-forestry was kept as an integral part of social forestry and thus covered production of food crops too. The scheme was not only aimed at helping alleviate rural poverty but also aimed at improving the socio-economic conditions of society as a whole. The basic objective behind the approach was to develop fuel-food-fodder production on uncultivable land minimising the pressure on forests. The other objectives of social forestry were:

- provide fuel wood supply in rural areas replacing cow dung which could be better used as manure;
- provide small timber supply for rural housing and agricultural implements besides timber for urban construction needs;

- provide green fodder to livestock; and
- protect agricultural fields from wind and wild animals.

Its application was to be made both in the urban and the rural areas along roadsides, school yards, community buildings, village common lands and village approach roads. The system was to cover different forms of farming like: (i) farm forestry; (ii) extension forestry; (iii) agro forestry; and (iv) recreation forestry.

### 9.5.1 Farm Forestry

Farm forestry refers to growing trees by individual farmers on their farmland mainly as cash crops. The method was envisaged to integrate other farm operations with forestry in farms and village lands. The attraction for its implementation was generally confined to rich farmers with larger area of land and better resources for getting returns from short duration species. However, there was also scope for low input approach for relatively resource-poor farmers to enable them to achieve small yet attractive returns with minimal investment. A variant under this system was '*peripheral plantation*' for growing species like eucalyptus to provide supplementary income for meeting the urgent needs of the farmers. Peripheral plantation was expected to require less management skills and less space, hence more suitable to the small farmer segment. Parallel to this, for the rich farmers owing to their larger land ownership, the term '*block plantation*' referring to planting of trees with longer gestation period is in vogue.

### 9.5.2 Extension Forestry

The system envisaged the practicing of mixed forestry like raising of grass and leaf fodder and fruits on suitable wasteland including panchayat land village commons. Afforestation of degraded forest land, raising of plantations of quick growing variety on road sides, railway lines, canal and river banks, etc. also formed part of extension forestry. These activities were mainly carried out by government departments, NGOs, village communities, etc. with financial support from government and external funding sources. In view of the scope for plantation in lines (like railway lines, roadsides, river banks, etc.) or strips of land, the term '*strip plantation*' is also in vogue as a variant of extension forestry. Strip plantation was aimed at: (i) providing shade to travellers; (ii) enhancing the aesthetic values of roads, railway lines and river banks; (iii) augmenting the supply of fuel wood and fodder; and (iv) maintaining ecological balance and green house effect.

### 9.5.3 Agro Forestry

This is the interface of tree-crop i.e. forestry and agriculture being practiced on the same land concurrently. This is a concept of multiple or mixed cropping pattern falling under agro-silviculture. For a tropical country like India, this has special advantage in view of its ability to control soil erosion, enrich soil nutrient and fertility through litter fall, etc. One of the major considerations under this system is to identify compatible species suitable to the local variety of soil and agro-climatic conditions. Due importance is, therefore, given to species which complement productivity conditions suitable to local conditions.

### 9.5.4 Recreation Forestry

This refers to development of big parks in urban areas with deep wooded area

giving a feel of forest like condition to urban dwellers both for recreation and adventure. Development of trekking areas and other recreational facilities in addition to increasing the green cover of cities is the objective of this type of forestry.

**Check Your Progress 3** [answer in about 50 words in the space given]

- 1) Mention the three major dimensions in which the loss of forests to mankind is perceived.

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- 2) Outline the two respects in which forestry can be argued to complement agriculture?

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- 3) Mention the five major headers under which forests are regarded as protective of our bio-diversity.

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- 4) What are the four major aims of 'strip plantation'?

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## **9.6 JOINT FOREST MANAGEMENT**

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The national forest policy of 1988 had indicated that people's involvement in the management of forests is necessary. However, it did not envisage any direct role for the people in the day-to-day management of forests. There has been an increasing awareness on the need to associate the local communities in order that their own ways of valuing bio-diversity could be respected and utilized in conservation measures. In this line of thinking, the joint forest management (JFM) approach initiated during the 1990s sought to develop partnerships between state forest departments as 'owners' and local community as 'co-managers' for sustainable forest management. The JFM was, thus, viewed as a step towards the democratic decentralisation of forest management in India.

In 1991, the government of India initiated a scheme in the name of 'eco-development of protected area management'. The policy aimed at integrating the objectives of local area economic development with the conservation of bio-diversity through increased opportunities for local participation in the management and decisions of the protected area. The other objectives of the project were to: (i) reduce the negative impacts of government's policy on the livelihood elements of affected people; (ii) ensure effective management of the project by developing more effective support for eco-development of protected areas; and (iii) prepare future bio-diversity projects in a manner as to be in consonance with the local area developmental needs. The eco-development activities were to be administered by village eco-development committees (VECs). The aim is to reduce the dependence on forests of the local people by facilitating access to alternative off-farm income generating opportunities. In other words, the scheme envisaged people's participation in natural resource management through empowerment. It is, however, being realised that it has been difficult to involve local people in conservation efforts as the earlier exclusionary approach failed to develop mechanisms for people's involvement with the result that there is lack of interest and trust among local communities. There is also a conflict of laws in that while the JFM seeks to provide a share of forest produce to the villagers, the wildlife laws prohibit the extraction of forest produce (except for some listed products) for human use from national parks and sanctuaries.

In spite of some setbacks, the need to further the JFM philosophy in future forest development efforts has been widely accepted. It is now kept central for getting the funding assistance by the government and external agencies to new projects for forest development. Almost all the states have started practicing JFM with the involvement of local communities in JFM being the maximum in the states of M. P., Bihar, W. B. and Orissa. As of 2005, 27 states of the Indian union had more than 63,000 forest protection committees involved in the joint management of more than 140,000 square kms of forest land in India.

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## 9.7 LET US SUM UP

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The unit has dealt with the importance of forests to the national economy. India figures among the top 10 countries in the world who together share two-thirds of global forest cover, but in terms of the per capita share of forest India is the lowest among these top ten countries. Although India set a target of bringing one-third (i.e. 33 percent) of its total land area under forests as far back as in 1952, even in 2011 the percentage of forest cover in India is around 22 percent. The forest-agriculture linkage is many-fold and this has been well recognised in all our forest policy documents. In light of this, many measures have been taken by the government to protect and enhance the forest cover in the country. While all these policies have yielded limited results, of late there is a widely acknowledged view that only a jointly managed systemic approach, in which the major stake holders to forests like the tribal poor and the small and marginal farming community are included in a major way, can work towards achieving the targeted results in this regard.

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## 9.8 KEY WORDS

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**Green Accounting** : In the traditional system of income accounting, changes in environmental resources used up

in current production of which forests are an integral part is ignored. In recent years efforts have been made to modify conventional measures of national income accounts like GDP by including the non-marketed benefits of forest resources. This is called as green accounting.

**Forest land and forest cover :** Forest land is defined as land statutorily notified as forest. It is possible that some of this notified land may not necessarily bear forest cover. Forest cover, on the other hand, is necessarily distinguished for the extent of 'tree cover canopy density' defined in terms of percentage cover.

**Dense forest, open forest and mangroves :** Depending on the extent of cover, forests are classified into three types viz. dense forest, open forest and mangroves. While dense forest refers to a canopy cover of more than 40 percent, open forest refers to a canopy cover in the range of 10 to 40 percent. Mangroves refer to area with a canopy cover of less than 10 percent.

**Protected forests and reserved forests :** Protected forests are those in which the rights of the community for collection of timber, fuel wood, minor forest products, etc. are either restricted or suspended. In reserved forests, on the other hand, the local community enjoys privileges of forest rights although certain restrictions may apply here also.

**Agro-silviculture, silvipastoral system and agro-silvipastoral system :** Practice of combining agriculture and forestry is known as agro-silviculture. Combination of forestry and livestock is known as silvipastoral system. Co-existence of all three i.e. agriculture, forestry and livestock is referred to as agro-silvipastoral system.

**Social Forestry :** Social forestry is a programme of action for greening of degenerated lands, stepping up of agricultural resources, generating employment in the rural sector, etc. all aimed at correcting the skewed ecological balance.

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## **9.10 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES**

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### **Check Your Progress 1**

- 1) (a)
- 2) (c)
- 3) See section 9.2 and answer.

### **Check Your Progress 2**

- 1) (c)
- 2) See section 9.3.2 and answer.
- 3) See section 9.3.3 and answer.
- 4) See section 9.3.4 and answer.

### **Check Your Progress 3**

- 1) See section 9.4 and answer.
- 2) See section 9.4 and answer.
- 3) See section 9.4.3 and answer.
- 4) See section 9.5.2 and answer.

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## **UNIT 10 RURAL INDUSTRIALISATION PROGRAMME**

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### **Structure**

- 10.0 Objectives
- 10.1 Introduction
- 10.2 Conceptual Overview
- 10.3 Policies for Promotion of Rural Industries in India: An Overview
- 10.4 Impact of Government Policy
- 10.5 Rural Non-farm Sector
  - 10.5.1 The Three Stages of Growth
  - 10.5.2 The Two Associated Hypotheses
- 10.6 Strategy for Future Policy
- 10.7 Let Us Sum Up
- 10.8 Key Words
- 10.9 Some Useful References
- 10.10 Answers/Hints to Check Your Progress Exercises

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### **10.0 OBJECTIVES**

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After reading this unit, you will be able to:

- define the concepts involved in the rural industrialisation strategy/programme;
- outline the various policy initiatives taken to promote rural industries in India;
- analyse the impact of policies pursued for rural industrialisation;
- describe the features of rural non-farm sector (RNFS); and
- suggest a strategy for policy reorientation.

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### **10.1 INTRODUCTION**

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In unit 1, we learnt about how in agrarian economies like India the surplus labour in agriculture needs to be facilitated to find employment in non-agricultural sectors like industry/services. This is required for reasons of: (i) seasonality of employment in agriculture; (ii) large number of small and marginal farmers who subsist on agricultural work are underemployed; (iii) low educational and economic conditions of farming labour family; and (iv) agricultural alone is not adequate to provide full employment to all rural workers. In this unit, we will study about how rural industrialisation programmes have been adopted as a policy instrument in India to increase the employment and income earning avenues of rural workforce in general, and the rural poor in particular. What has been the result of more than six decades of efforts in this direction? Are there any pre-conditions required to be met for a

successful realisation of the potentials of this approach? What stylised theoretical postulations have been advanced about the rural non-farm sector's growth? These are the questions to which we shall seek answers in this unit. We shall begin with a brief conceptual overview of some of the key terms used in this context.

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## 10.2 CONCEPTUAL OVERVIEW

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The development of rural industrialisation would result in three kinds of employment opportunities: (i) regular employment for the relatively better educated; (ii) casual employment of a daily wage type for the illiterates; and (iii) self-employment opportunity for those who are entrepreneurially oriented. Given the fact that a large number of rural workforce are poor and uneducated, the policy focus of rural industrialisation programmes (RIPs) must be to generate employment opportunities of the latter two kinds. We will see in the later sections of the unit that as a proportion of total employment, the self-employed segment constitute an overwhelming majority. An essential pre-requisite for undertaking an entrepreneurial venture is the ability to mobilise the various resources required for it. The main resources required are: labour (or manpower), credit for investment, raw-materials, machinery and skills to process the raw-materials into a final product, ability to find a suitable market outlet for the products produced, etc. Depending on the scale of these resources used, the nature of undertaking set-up would vary in terms of the operation of the 'enterprise'. Such an operation can either be conducted at the individual household level (i.e. as a 'household industry': HHI) or can be run as a 'non-household industry' at a separate location. The ownership of such a non-HHI can be either on individual proprietorship basis or on a partnership basis. These and many other specific characteristics of the rural industrial sector, have contributed to the development of explicit terminologies over time. We shall familiarise ourselves with the meaning and connotations of some of the important terms below.

**Industry:** The term 'industry' refers to the production of an economic 'good' or 'service'. The term has an underlying connotation of a scale of production far and beyond the level of household consumption (i.e. own consumption) needs. In other words, at least a part of the production of such an enterprise would be meant for market. Depending on the main or major material used, the industry is distinguished for its type. For instance, the industry could be of food products, textile products, wood products, paper products, etc. Such industries which depend for their raw material on agricultural sector are referred to as *agro-based industries*. Examples of non-agro based industries are: metals, machinery, repair services, etc. There is a system of classification of industries, called National Industrial Classification (NIC), which specifies all the industries falling under a broad industry group. The NIC is revised from time to time to accommodate new industries and groupings. At a broad level (called 1-digit level) the NIC classifies the economy into nine industries viz: (i) agriculture; (ii) mining; (iii) manufacturing; (iv) electricity, water, gas, etc. (together called 'utilities'); (v) construction; (vi) trade; (vii) transportation & communications, storage & warehousing; (viii) finance and banking; and (ix) public administration, personal and other services.

**Rural Industry:** The main objectives of rural industrialisation strategy/programmes are to generate employment opportunities in rural areas and to curtail the rural to urban migration. This requires that the industries must be either located within the

rural areas or in areas from where the benefits of employment can reach the rural people. Thus, a 'rural industry' can be defined to comprise of *enterprises or establishments* which provide employment and income earning avenues to the rural people in any one of the following ways: (i) industries based upon (or depending on) local resources and skills and largely catering to the local demand; (ii) industries based upon a principle input that is available locally **but linked to resources/markets** elsewhere; and (iii) industries based in rural locations but neither drawing upon nor depending on local resources (including workers) nor catering to the local market. Rural enterprises may be owned by a government or large private sector organisation or informally organised by local or outside entrepreneurs.

**Enterprise vs. Establishment:** Two basic yardsticks are employed to distinguish the scale of an industrial undertaking: (i) number of persons employed; and (ii) extent of 'capital' used. An enterprise run without any hired workers (i.e. run entirely by family labour) is designated as 'own account enterprise'. If there is at least one hired labour from outside the family then the enterprise is called as an 'establishment'. Classification of enterprises based on the extent of capital employed are of three types viz. (i) tiny/micro enterprise (with current investment limit of below Rs. 25 lakhs; way back it was only Rs. 1 lakh); (ii) ancillary enterprise (if the invested capital is in the range of Rs. 25-100 lakhs); (iii) small scale industry (SSI) establishment or unit (with capital invested in the range of Rs. 100-500 lakhs). It is thus clear that most of the 'own account enterprises', set up either as a *household enterprise* or as a *non-household enterprise* by a poor rural household can at best fall under the category of tiny/micro units. The other two segments (i.e. ancillary and SSI) would generally be a unit set up within the rural geographical limits, or in its outskirts, by entrepreneurs having the ability to raise larger capital. Such units provide wage-employment opportunity to the rural labour force. The ceiling of investment on these types of enterprises is revised from time to time to make it correspond to the changing price levels. Enterprises are also distinguished based on the production of goods or services i.e. as *manufacturing enterprises or service enterprises*.

**Economic Sectors:** An economy is broadly classified into three economic sectors viz. primary, secondary and tertiary sectors. The primary sector refers to all those activities (or enterprises) in which the products are obtained or derived from land and other natural resources like water, animals, etc. Thus, agriculture and allied activities like fisheries, dairy, poultry and mining are examples of primary sector activities. The secondary sector refers to those enterprises in which a new value-added product is *manufactured* by using the raw material from the primary sector. Examples of secondary sector are: all agro-based industries, non-agro based industries, electricity, construction, etc. A major part of secondary sector is also generally referred to as '*manufacturing*'. Thus, 'manufacturing, utilities & construction' together constitute the secondary sector. All other activities like trade, hotels & restaurants, transportation, communications, banking and finance, law & order, judiciary, public administration and personal services come under the tertiary or *service* sector. There are also two other types of dichotomised sectoral distinction: (i) public/private; and (ii) organised/unorganised. The former refers to a government or large private sector undertakings (i.e. a classification based on the ownership of the enterprise) while the latter refers to the nature of organisation by its legal status of registered or unregistered nature. We will elaborate on the

sectoral distinction (characterised by stable/unstable type of employment) below.

**Household Sector:** An yet another type of sectoral classification of an economy is one in which the economy is divided into: the *household sector* and the *non-household sector*. By law, all enterprises need to operate under a system of 'registration' (or 'incorporation'; abbreviated as inc.) by which the system of national accounting is rendered feasible. In enterprises employing number of workers above a specified ceiling, such registration is aimed at protecting the working and service conditions of workers engaged in them. Various Acts like Factories Act, Employee State Insurance Act, Shops & Commercial Establishments Act, etc. are examples of legislations under which registration of enterprises is made compulsory. However, smaller enterprises or establishments having 'nil' or small number of hired workers (specified, for instance, as ten or less if using power or 20 or less if not using power by the Factories Act) are exempted from such compulsory registration. The term 'household sector', therefore, refers to unincorporated (or unregistered) enterprises owned by households. Enterprises falling outside the definitional purview of a household sector (i.e. all incorporated or registered enterprises), belong to the non-household sector. In the Indian context, all household sector enterprises are also referred to as *informal or unorganised sector* enterprises; their counterpart being the formal or organised sector enterprises in which the workers employment conditions are protected by social security provisions like defined wages and service conditions, paid holidays, retirement benefits, etc. The proportion of workers in the total workforce coming under the formal or organised sector is very low in India (about 7 percent). With increased economic development the proportion of workers in the informal sector is expected to come down over time. Of the huge 93 percent workforce coming under the informal/unorganised sector, a large majority are in agriculture. Besides agriculture, a large proportion of informal/unorganised non-agricultural activities is located in rural areas. Many of the rural industrial activities are informal in nature. All informal and formal non-agricultural activities are referred to rural non-farm sector.

**Rural Non-farm Sector vs. Off-farm Sector:** The term rural non-farm sector refers to all such activities or enterprises in rural areas which are outside the purview of the farm sector i.e. agriculture and allied. Thus, all activities coming under manufacturing, construction, business, communications, banking & financial, etc. (i.e. all activities coming under the secondary and tertiary/service sector activities) in rural areas are referred to as activities of the rural non-farm sector. The term 'off-farm' is the opposite of the term 'on-farm'. While the on-farm activities refer to the activities up to the stage of cultivation (e.g. tilling, sowing, manuring/pesticiding, irrigating, harvesting), activities which are performed off the farm in the post-harvest season like storage, processing, packaging, marketing, etc. are covered under off-farm activities. Note that off-farm sector is but a subset of the larger non-farm sector. It is also important to note that while the growth of farm sector productivity and off-farm sector development constitute a virtuous cycle of mutually supportive development at one level, at the other level, the on/off-farm-sector activities together provide the much needed catalytic fillip for the growth of the entire rural non-farm sector. There is thus a cyclical effect on the entire process of development in which each sector's growth contributes to the growth of the other.

It is clear from the above that in order to make alternative employment/income

opportunities available for workers engaged in agriculture, we need to focus on the development of rural non-farm sector enterprises. To the extent that the majority of agricultural workers are small and marginal farmers, the enterprises would have to be tiny enterprises requiring less capital investment at least in the initial phases. Simultaneous efforts for promoting the establishment of industries requiring higher capital investment, both within and near to the villages, would create employment opportunities having higher skill content. To capitalise on this front, focusing on development of skills by appropriate short term skill development programmes to rural workers are needed. Focusing on meeting the requirement of credit and other facilities for processing, packaging, marketing, etc. would also be simultaneously needed without which the growth of the rural non-farm sector would be severely stifled.

To sum up, conceptually, increasing employment opportunities for rural workforce would mean focusing on policy formulation for promoting the setting up of small rural non-farm ventures (of the informal sector type) and establishing supporting infrastructure required for development of off-farm activities. The specific efforts made by the government during the last more than six decades and their impact on rural employment are, thus, the issues to which we shall now turn.

**Check Your Progress 1** [answer in about 50 words in the space given]

- 1) How is the term ‘industry’ defined in general? What are the three ways in which a ‘rural industry’ can be defined in particular by virtue of its linkage with resources/markets?

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- 2) Mention the five different types of sectoral distinctions that characterises the employment scenario of labour surplus economies like India. What are the nine industrial categories classified under the NIC?

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- 3) What are the three types of classification of industries made by investment size? Which of this needs to be focused upon more and why?

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- 4) Do you agree that the ‘off-farm’ sector is a subset of the ‘non-farm’ sector? Why?

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### 10.3 POLICIES FOR PROMOTION OF RURAL INDUSTRIES IN INDIA: AN OVERVIEW

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At the policy level, as far back as in 1948 i.e. in the first industrial policy resolution (IPR), the government had accorded a distinct place for rural industries. The IPR, 1948 stated that: essential consumer goods like food, clothes, agricultural implements, etc. can be better produced and utilised by the establishment of ‘cottage and small scale industries’. Following this, in the first five year plan (1951-56), a sharper distinction was drawn by treating cottage industries as synonymous with ‘traditional artisanal crafts’. Under this distinction, cottage industries were perceived to involve *manual operations* carried out primarily through family labour. The plan distinguished small scale industries to comprise of goods and services produced using *mechanised equipment* employing at least some hired labour. Under this description, the role of the cottage industries were primarily meant to cope with the problem of un- and under- employment in rural areas.

#### The Second IPR and Second and Third Five Year Plans

The Second Industrial Policy Resolution (IPR-1956), clubbed the two segments into one and referred to it as a single entity under the banner ‘cottage, village and small scale sector’ (say, CVSS sector in brief). The IPR distinguished the large scale sector from the CVSS sector by placing a ceiling on the volume of production and advocating supportive measures like differential taxation and direct subsidies for the CVSS sector. The policy emphasised that the competitive strength of small-scale producers must be improved in order that they become self-supporting in course of time. The Second Five Year Plan (1956-61) also mentioned that a large variety of consumer goods must come forth from the CVSS sector. Many critics pointed out that the lumping of the ‘cottage and village’ and the ‘small-scale’ sector indicates a lack of policy focus since the nature of the constraints faced by the two sets of industries were very much different. While the ‘cottage industries’ and own account enterprises are small establishments employing less than 5 workers, small scale industries are much larger in size and scale of operation. The cottage industries support an overwhelming majority of the total workforce engaged in the rural sector (close to 85-90 percent) and, therefore, their interests should merit particular policy focus. Thus, although the policy emphasis in the Plan was generally on: (i) pushing the process of industrial expansion and dispersal into the rural areas; and (ii) the CVSS sector was expected to gradually upgrade itself from its traditional character to a ‘modern-small scale industrial unit’, in actual implementation the effect remained marginal. In realisation of this, towards the end of 1950s, an effort to forge a stronger linkage between the agricultural sector and the rural industrialisation efforts was made with the launching of 26 pilot projects in selected community development blocks. The experience of these projects

were later extended to constitute a 'rural industries project (RIP) programme' in the Third Five Year Plan (1961-66). The avowed developmental objective was restated as achievement of 'balanced regional development' by a spread of the 'village and small industries' (VSI) sector spread into the length and breadth of the country. With this, while the 'VSI-sector' terminology became a popular official connotation, the anticipated delinking of 'cottage & village industries' from that of the 'small-scale industries sector' (the latter distinguished for its relatively higher capital requirement) to result in a sharper policy focus continued to remain elusive.

### **Rural Industries and the Backward Area Development Plan (IV & V Plans)**

In the Fourth Five Year Plan (1969-74), the efforts of rural industrialisation was integrated with a new project called the 'backward area development programme' (BADP). The programme envisaged the establishment of growth centres in small towns and rural areas to serve as the nuclei for more widespread development. Following the recommendations of Wanchoo and Pande working groups, a programme for providing financial, fiscal and other support services (like raw material supply, store-purchase, price preference, quality control, marketing assistance, etc.) to private entrepreneurs for locating industrial units in backward areas was launched. In addition, the plan extended the RIP programme to 49 towns/districts. The fifth plan (1974-79) broadened the RIP programme to cover all towns with a population of up to 15,000 and reoriented the BADP to operate in towns with more than 15,000 population.

### **Sixth and Seventh Five Year Plans: Greater Focus on Village and Cottage Industries**

Although the usage of VSI term continued to be used in an integrated manner, the Sixth and the Seventh Plan periods (1980-85 & 1985-90) introduced a distinction separating the cottage and village industries (CVIs) from the small scale industrial (SSI) units. Empowering the newly constituted District Industries Centres (DICs) introduced in 1978, with the overall responsibility for promoting the VSIs in each districts, the Sixth Plan mentioned that within the small-scale sector, special attention would be given to the 'tiny sector'. In order to drive home this emphasis, a special legislation was introduced for 'cottage and household industries' in order to ensure that these activities get due recognition. It is important to note that while the distinction in policy thrust on tiny units was pointed out as required by many analysts, there is also a view advanced by many others that the emphasis on 'traditional artisanal character' in the CVIs contributed to relegating it to a 'static' status failing to recognise the 'dynamic' side of the CVI units to that extent. The latter view drew support from two well conceived arguments viz. (i) the cyclical dependency of all three economic sectors to mutually draw support by growth and contribution to the all round overall growth of the economy; and (ii) the very need to infuse dynamism to the CVI units by instituting measures to make them technologically upgraded and superior. It is perhaps in realisation of this that the seventh plan (1985-90) emphasised on improving productivity of the entire VSI sector by 'enhancing product quality, achieving cost reduction, and restructuring the product-mix through technology up-gradation and modernisation'. To address the financial constraints of the tiny sector, a special wing was created in the Industrial Development Bank of India (IDBI) to coordinate the entire range of credit facilities offered by various institutions to the 'small and cottage sector'. Further, with a view to check the exodus of artisans to urban areas, the suggestion

of setting up a separate commission for ‘village industries and artisans’ was also hinted in the Seventh Plan document.

### **Post-Liberalisation, WTO Compulsions and Dilution of Unconditional Policy Support**

The New Industrial Policy launched in 1991 brought about drastic changes in the approach to industrial promotion. There was gradual shift from protective and promotional measures towards market orientation and competition. The Eighth Plan (1992-97) began with the background of economic liberalisation initiated a year earlier in 1991. To infuse dynamism to the VSI sector, a new classification of export-oriented units was introduced into the SSI framework. A further distinction between the CVI and the SSI units was made in which many benefits like easier access to institutional finance, priority in government purchase, etc. was extended to the CVI units (i.e. tiny enterprises) on a continuing basis but restricted the same to the SSI units for one-time avail. The focus of subsidised and cheaper institutional credit was also shifted to adequate and timely availability to the SSI units. On the other hand, a legislation on Prompt Payment Act to small and tiny enterprises was enacted to ensure timely payment of bills to the small/tiny enterprises. With a view to forging a stronger linkage between agriculture and industry, a new scheme of integrated infrastructural development for SSI units was introduced. Notwithstanding all these initiatives, there was also an emphasis laid on according due importance to market based signals and demand. Under this, features like: (i) gradual elimination of input/price/marketing subsidies; (ii) reduced dependence on budgetary support; (iii) increased reliance on private initiatives and risk absorbing capabilities; etc. were introduced.

### **Ninth to Eleventh Plan Periods**

In the Ninth Plan (1997-2002), realising the need for increasing the competitive strength of tiny units, in 1999-2000, this class of units was brought under the definition of ‘priority lending by the banking sector’. Special financial packages to the ‘tiny sector’ on a heavily subsidised concessional interest rate of 1 percent, under the aegis of National Small Industries Corporation (NSIC) was introduced. In 2006, the ‘Micro, Small and Medium Enterprises Act (MSME Act, 2006)’ was passed with the objective of promotion and development, and enhancing the competitiveness of these type of enterprises. The Act aims at providing an institutional framework to address the problems of access to bank credit, access to capital, technology, skill development/upgradation, markets, etc. The Village and Small-scale Industries (VSI) continue to account for substantial proportion of employment in the manufacturing sector. In 2006, own-account enterprises alone accounted for 76.8 percent of employment in the manufacturing sector, but if we add all establishments employing below five hired workers, then the proportion is as high as 86.9 percent of all workers in manufacturing.

Over the past five decades a number of specialised institutions and programmes were initiated for the promotion and development of village and small industries. The following are some of the major initiatives in this regard: (i) establishment of Khadi and Village Industries Board, National Small Industries Corporation and Small Industries Services Institute (all in 1956-61); (ii) Integrated Rural Development Programme (1978); (iii) scheme for setting up of Integrated Infrastructural Development (IID) centres (1989-91); (iv) district special employment programme



(1992-93) for employment generation in 71 backward districts in 24 states; (v) national project on village industries (1994) for promoting hand-made paper industry, leather industry and beekeeping industry; (vi) rural employment generation programme (1994-2001) for the development of khadi and village industry; (vii) cluster development programmes for bamboo and cane industry (1998-99); (viii) national programme for rural industrialisation (1999-2000) for promotion of 100 clusters each year; (ix) Prime Minister Rozgar Yojna (2002-03) for promotion of agro rural industries aimed at generating 7.6 lakh employment in two years; and (x) establishment of Small Industries Development Bank of India (SIDBI) and the National Bank for Reconstruction and Development (NABARD) *to name only a few*, were set up or implemented during the course of fifty years from 1950-2000.

While all these efforts are still continuing, the roots of market based policy support has also firmly taken its due place in the policy atmosphere of post-1991 years. The establishment of WTO in 1995 forced the entire policy thrust of the ninth plan (1997-2002) to be evolved with a focus on instilling a sense of preparedness to meet the impending challenges of having to compete in a regime of ‘freer imports’ and ‘aggressive export drive’.

While the above overview conveys the consistent policy support rendered by the government to promote rural industrialisation for the creation of employment opportunities in the rural areas, it would be of interest to see what empirical evidence is available to gauge the extent of impact of these policies over time.

#### **10.4 IMPACT OF GOVERNMENT POLICY**

Data on employment and number of units in manufacturing for the period 1984-85 to 2005-06 (Table 10.1) shows that there is a decline in the full-time employment and the number of units over the 20 year time period. We are focusing particularly on own-account enterprises as it is the growth of ‘tiny units’ which are expected to provide employment to the relatively more disadvantaged in rural areas. The average employment per unit increased during 1985-2001 but again slid back to its 1985 level in 2006. Prima-facie, therefore, there is no conclusive empirical evidence to suggest that the period 1985-2006 has witnessed any significant change in terms of employment and number of units in the rural areas on account of manufacturing activities in the smallest segment of the VSI sector. In terms of part-time employment, however, there is a consistent increase over the entire period of 1985-2006. This gives evidence for ‘tiny units’ to have contributed to mitigating under-employment conditions due to rural industrialisation to a certain

**Table 10.1: Employment in Own-Account Rural Unorganised Manufacturing**

Year	Type of employment (millions)			No. of units (millions)	Average Employment Per Unit (for total employment)
	Full-time	Part-time	Total		
1984-85	18.66	3.25	21.91	13.44	1.63
2000-01	14.87	4.28	19.15	11.06	1.73
2005-06	13.52	4.51	18.02	11.11	1.62

**Note:** (i) Source: Das, K (2009); (ii) Figures relate to own-account enterprises and for rural areas.

**Table 10.2: Percentage Share in Total Bank Credit in Rural Areas: 1996-2007**

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Artisans	2.0	2.2	2.0	2.1	1.7	1.3	1.7	1.5	1.5	1.2	1.0	1.1
SSIs	6.6	6.0	5.1	5.6	4.8	4.1	3.0	3.2	3.0	2.6	2.6	2.5

Source: Das K, 2009.

extent. One of the major determinants for the absence of expected progress in rural industrial advancement is the declining access to ‘institutional credit’ (Table 10.2). The percentage share of bank credit for both ‘artisans’ and ‘SSI units’ has witnessed a steady decline over the period 1996-2007. This is despite the fact that in the year 1999-2000 the ‘tiny sector’ was brought under a special ‘priority sector lending’ policy. That the situation was equally difficult even for the relatively larger SSI sector (whose ability to conform to the requirements of institutional credit is larger than those of the tiny units) goes to convey the particular hardship faced by the tiny units for their capital needs. The above evidence supports the view that rural industrialisation policies have not worked out as expected in the last quarter of a century and more so during the post-liberalisation period of 1990s. Thus, while the availability of institutional credit has certainly been a limiting factor for the process of rural industrialisation to show results, we should now turn to see what other factors could have contributed to this slow growth? We will take a look at this in the next section below.

**Check Your Progress 2** [answer in about 50 words in the space given]

- 1) How is a ‘cottage industry’ distinguished from a ‘small scale industry’?  
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 .....  
 .....
  
- 2) What is the alternative view advanced by analysts to justify the lumping of cottage industries with the small scale industries for policy attention? Do you support this view?  
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 .....  
 .....
  
- 3) In which Plan, for the first time, a clear bifurcation of ‘cottage and village industries’ from the ‘small scale industries’ was introduced? What are the three areas in respect of which a major turnaround in the treatment of ‘small units’ from official policy introduced in the 1990s?  
 .....  
 .....

- .....
- .....
- 4) Mention the five major institutions set up and the names of some major programmes implemented by the government to promote rural industries in India between 1951-2000.

- .....
- .....
- .....
- .....
- 5) What has been a single major constraint faced by the small industrial units in the post-liberalisation period? Which type of employment has increased during this period in the small enterprise sector?

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## 10.5 RURAL NON-FARM SECTOR

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We have seen in section 10.2 that the growth of non-farm sector is a natural corollary in the course of a successful development of rural industrialisation. Literature on rural non-farm sector's growth identifies many factors as pre-conditions for its successful growth. Two of the main factors are: (i) adequate basic physical and economic infrastructure like good transportation, adequate power, storage and banking facilities, etc.; and (ii) a well developed synergic relationship between the farm and non-farm sector in the rural areas with the larger industrial economy outside the local economy. The Indian economy in particular, and the entire South-Asian economy in general, is identified for major weaknesses on both these fronts. The literature is abundant with the success stories of China for having not only succeeded in both the above fronts but also for having had a clear focus on technology up-gradation and skill formation. The Indian conditions place the country largely in the first stage of rural non-farm (RNF) sector take-off except for some prosperous states. What characterises the three stages in this respect is outlined below.

### 10.5.1 The Three Stages of Growth

In the **first stage** of transformation, the RNF-sector tends to:

- have a production or expenditure linkage with agriculture with farming directly employing a large share of the rural population;
- the RNF activities tend to be centred nearer to towns/cities with little dependence on rural-urban backward-forward linkages;
- the RNF activities would be mainly home-based;

- the small scale production of non-tradable goods (i.e. goods that are mainly sold locally) are produced in the village hinterlands rather than in rural areas itself; and
- in terms of farm/non-farm linkages, agriculture tends to depend on: (i) local supplies of farm inputs and services and (ii) local processing and distribution of farm products, usually carried out by small to medium size firms employing hired workers in the range of 1-10 like in the Indian context.

In the **second stage** of transformation, the RNF-sector tends to be characterised by:

- a tendency towards a greater mix of situations like activities based on linkages with agriculture as well as on others like mining, tourism, etc.;
- the share of rural population depending on agriculture would be markedly on the decline as compared to the first stage of RNF transformation;
- a greater degree of rural-urban links acts as the basis for RNF employment with nascent sub-contracting of rural enterprises by urban businesses like light durables in the case of clothes;
- a rapid rise in the labour force commuting between the country-side and rural-towns;
- a rapid growth of agro-industrial units both of small-medium scale as also large scale establishments; and
- co-existence of small-scale labour-intensive production enterprises alongside relatively capital-intensive establishments producing the same output in rural and semi-urban locales.

In the **third stage** of transformation, the RNF-sector tends to be characterised by:

- intensification of the characteristics that differentiate the second stage from the first;
- a greater degree of rural-urban linkage manifested by sub-contracting arrangements and increased labour commuting;
- expansion of sub-contracting beyond light durables to medium durables like vehicle parts;
- substantial RNF employment arising outside linkages with agriculture; and
- rapid agro-industrialisation based on commercial agricultural practices/principles.

As mentioned earlier, South Asia and Africa are said to be in the first stage of RNF transformation, Latin America in the second stage of transformation, and East Asia in the third stage of RNF transformation.

### 10.5.2 The Two Associated Hypotheses

There are two hypotheses advanced on the conditions required for the optimum realisation of the results of rural industrialisation process. While one lays emphasis on technology induced agricultural growth, the other identifies the pull-factor of

labour surplus regions to attract capital with its resultant development of the off/non-farm sectors.

### ***The Johnston-Mellor Hypothesis***

Mellor (1978) advanced a hypothesis based on the agriculture-led growth of the non-farm sector. He pointed out that rural diversification would be an outcome of technology-induced growth in the agricultural sector. The presence of production-consumption linkages of agriculture with the non-farm sector (in terms of inputs of fertilizer, seeds, herbicides, pumps, sprayers, equipment and repair services, etc.), would contribute to increased agricultural output stimulating, in turn, milling and processing activities. Growing farm incomes, on the other hand, would give rise to increased consumption linkages for basic consumer goods which over time would spread over to non-food items. In a further improvement of this approach, Johnston-Mellor later associated the high-land productivity to result in greater demand for off-farm goods and services both in rural areas and smaller towns. The growth of farm productivity and off-farm activity would thus constitute a virtuous cycle of mutually supported development. The case of Punjab and other states which experienced the green revolution growth were cited as examples of this type of growth evidenced in India. The Mellor hypothesis would hold good under two necessary assumptions viz. (i) close linkage between agriculture and non-agriculture have set-in in areas of the village and/or closer to the village; and (ii) impending conditions for the non-farm sector to take-off exist in those areas.

### ***The Foster-Rosensweig Hypothesis***

Foster and Rosensweig (2004) developed an alternative hypothesis distinguishing the traded and non-traded types of off-farm activities. While the latter could be an off-shoot of the development of the local economy, the traded part need not necessarily be tied to local development. The development of business activity in the rural areas could be an outcome of capital invested from outside the local economy seeking out surplus labour available at cheaper wages. Thus low-wage regions with low land productivity would attract such investment leading to off-farm development of a pull-effect kind. The proportion of off-farm employment would be higher in such areas attributable to outside capital infusion rather than the local area based capital through higher savings as a result of higher technology led farm incomes as in the case of Mellor's typified growth. A basic distinction between the Johnston-Mellor hypothesis and Foster-Rosensweig alternative is that, while in the former case there would be implication for higher rural wages/income, in the latter case no particular prediction of the wage-income effect could be made per se as the same would depend upon other factors of labour market dimension.

The impact of Green Revolution in India was felt only in some states with a number of other states having been left outside its influence. In view of this, the validity of Johnston-Mellor hypothesis which has been cited in case of more prosperous agriculture-technology based regions like Punjab, is not evidenced in other places. This also gives clue to the reason behind the uneven spread of rural industrialisation growth/benefits in India. Nonetheless, these hypotheses provide a perspective on different conditions under which a fillip to growth of the non/off-farm sector is obtained.

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## 10.6 STRATEGY FOR FUTURE POLICY

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From the foregoing account, the future policy for promoting the dynamism of the 'tiny or micro and medium size units' (as the small scale units with higher capital infusion are considered nearly akin to modern urban enterprises) should focus on the following.

- 1) Worldwide the **cluster approach** of promoting small enterprises or establishments have been followed. In India, this experiment was made with a focus on sectoral approach. This is said to have failed to account for the regional or spatial constraints. This situation needs to be rectified by infusing the technological dynamism required for transforming the 'production clusters' into 'innovation clusters'. The formation of clusters would help rural artisans in removing many of their size and scale-specific bottlenecks.
- 2) One of the key aspects of supporting innovation in business and production is to ensure the supply of **electricity** to the enterprises. This single intervention, lacking drastically in the Indian context, is argued to hold the promise of enabling enterprises to improve their productivity.
- 3) From a regional development perspective, the technological capability of a cluster would be greatly determined by the spatial endowments like social, physical and economic infrastructure. In many cases, either the systems of innovation are poorly developed or do not exist at all. Public training institutions like ITIs are not of great help in imparting training suitable to rural industrial enterprises. **The institutions, rules and governance structures need drastic redesigning.**
- 4) The **synergy** required in linking the research in specialised institutions and universities to suit the technological aspects of rural industrialisation needs to be **established**. In this context, the relevance of '**one village one product**' (as has been successfully implemented in Japan and Thailand) with suitable assistance extended in **networking for product promotion and marketing needs to be considered.**
- 5) The rural industry is a huge heterogeneous conglomerate of a variety of products, scale of operation, market coverage, etc. There are a large number of artisanal sectors, all tiny units, with flexibility and capacity to customise to local demand. The strongest argument for sustained development of rural industrialisation is the promotion of local demand potential. A number of artisanal/tiny enterprises are **excluded** from the benefit of many schemes launched owing to absence of proper coordination between service providers and technology suppliers. A **flexible and inclusive approach** can help sustain by **fostering a symbiotic relationship between the farm and non-farm sectors.**
- 6) There exists a **major disconnect** between technology being generated and its access by the rural enterprises. Efforts at broad-basing adoption of technology developed by rural technology institutes (RTIs) have been both limited and poorly planned/executed. Rural industrialisation policies must be **strategically implemented** not only to infuse an innovative ethos in the production sphere but also to achieve **broad-base skills for productivity improvement.**

- 7) The subject of rural industrialisation is administered by many government departments/ministries like: ministry of industries, department of agriculture and rural industries, ministry of rural development, department of food processing industries, etc. The lack of proper coordination among these *institutions* leads to the tardy progress of rural industrialisation in the country. It is, therefore, important to focus upon ***establishing proper co-ordination between different functionaries*** meant to promote rural industrialisation in the country.

**Check Your Progress 3** [answer in about 50 words in the space given]

- 1) What are the two main factors identified as pre-conditions required to be fulfilled for the successful growth of the rural non-farm sector (RNFS)?

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- 2) In which stage of growth do you say is the Indian RNFS at the current time point?

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- 3) What was the basic tenet on which Johnston-Mellor postulated their hypothesis of RNFS's growth? What was the alternative proposed by Foster-Rosensweig? Which of these two has been evidenced to have prevailed in the Indian conditions and why?

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- 4) In the evidenced instances of the applicability of Johnston-Mellor's hypothesis on the RNFS growth in India, what kind of explanation do you find for the lack of progress achieved in India's rural industrialisation policy?

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- 5) Do you agree that the implementation of rural industrialisation policy in India has not been as much 'inclusive' in its character as it ought to have been? What in your opinion should now be done to rectify this error in the coming years?

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## 10.7 LET US SUM UP

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Prevalence of extensive underemployment in Indian agriculture has been well recognised and to alleviate this condition a number of measures were initiated to promote rural non-farm employment activities. The importance of active government support to promote rural development through specific industrialisation policies and programmes has been recognised since the late 1940s. The heterogeneity in the rural sector has, however, been such that in actual implementation many 'tiny' or 'micro' units (which cater to nearly 86 percent of total employment in manufacturing) has been excluded from effectively benefiting from the many schemes and programmes. The pressures of competition requiring the smaller establishments to scale up their product quality and demands has rendered many rural industrial units ever more vulnerable to forces external to their reach or control. The unit has highlighted the various constraints faced by the unorganised units. An alternative policy strategy needing a drastic reorientation from the hitherto applied practices is the need of the hour. Following a cluster approach with emphasis on development and transfer of suitable technology to the tiny/medium units, developing a synergy in the functioning of service providers and tiny units, broad-basing of skills for productivity improvement, an inclusive approach based on sensitive official support, etc. are all important elements of such an alternative strategy.

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## 10.8 KEY WORDS

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- Rural Artisans** : Comprise of handicrafts and handloom operators. Connotated to operate on traditional skills and family labour and employing low capital. Equivalent of 'own-account enterprises' and smaller establishments employing small number of hired workers (less than 5) called 'non-directory establishments' in the official terminology.
- Rural Non-Farm Sector (RNFS)** : Encompasses all non-agricultural activities like: mining & quarrying, household and non-household manufacturing, processing, repairing, construction, trade and commerce, transport and other services in villages and rural towns undertaken by enterprises varying in size from household own-account enterprises to factories.



- Fast Moving Consumer Goods (FMCG)** : These refer to products like: toilet soaps, pickles, honey, etc. for which there is a huge domestic demand and most of which can be (and are being) manufactured in tiny and small enterprises/units in rural areas.
- Village Industries** : Any industry located in a rural area producing goods or rendering service with or without using power, in which fixed capital investment (i.e. investment in plants & machinery, land, building, etc.) per head of an artisan or worker does not exceed a certain ceiling specified.
- Khadi and Village Industry** : Industries meant to promote local-resource based products and traditional crafts in rural areas. A rural area is any area classified as village as per revenue records of the state irrespective of population. This also includes those areas which are classified as towns but whose population does not exceed 20,000.
- Food Parks** : These are set up by the Ministry of Food Processing in different parts of the country to provide capital-intensive common facilities such as cold storage, warehouses, quality control laboratories, effluent treatment plants, etc. to the adjoining processing units.

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## 10.9 SOME USEFUL REFERENCES

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## 10.10 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

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### Check Your Progress 1

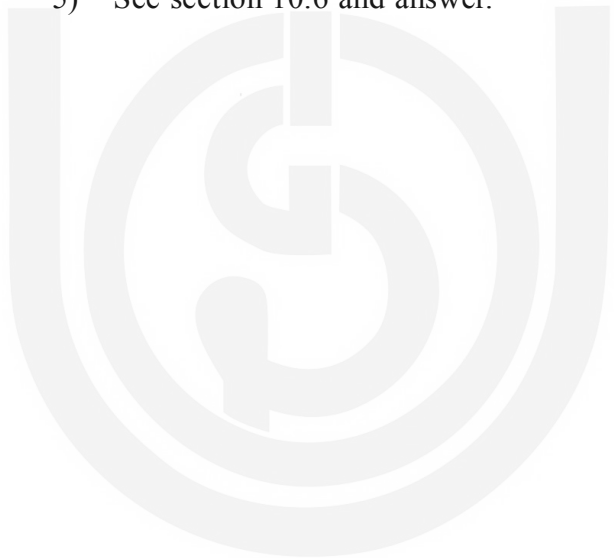
- 1) See section 10.2 and answer.
- 2) Primary/secondary/tertiary; organised/unorganised; household/non-household; public/private; non-farm/off-farm; For nine industrial categories, see section 10.2, para on 'industry' and answer.
- 3) See section 10.2 and answer.
- 4) See section 10.2 and answer.

**Check Your Progress 2**

- 1) See section 10.3, para on I/II Plan period and answer.
- 2) See section 10.3, para on VI/VII Plan period and answer.
- 3) See section 10.3, para on VI/VII Plan period and VIII Plan Period and answer.
- 4) See section 10.3, para on IX/X/XI Plan period and answer.
- 5) See section 10.4 and answer.

**Check Your Progress 3**

- 1) See section 10.5 and answer.
- 2) See section 10.5.1 (last para) and answer.
- 3) See section 10.5.2 and answer.
- 4) See section 10.5.2 (last para) and answer.
- 5) See section 10.6 and answer.



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