PG EC/SO S4-04 (DSE)

TWO YEAR MASTER'S DEGREE COURSE

(CBCS in Accordance with NEP 2020)

SEMESTER-IV

AGRICULTURAL ECONOMICS

Surya Kumar Bhuyan School of Social Sciences

KRISHNA KANTA HANDIQUI STATE OPEN UNIVERSITY

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COURSE INTRODUCTION

"Agricultural Economics'' is the discipline specific Elective Course of 4th Semester, M.A. in Economics programme of this University. This course Agricultural Economics is designed to help the learners to have a deep understanding about various concepts and theoretical perspectives related to Agricultural Economics. This course comprises of 15 units.

The first unit of the course discusses the basic concepts of Agricultural Economics. This unit will help you to know the definition, scope and nature of Agricultural Economics. The second unit discusses role and importance of Agriculture in Economic development. Important concepts discussed in the unit include Life vs. Development of Agriculture during Five Year plans, interdependence of Agriculture and Industry are also discussed in this unit . The third unit deals with the farm organisation and its types, most suitable farm organisation in Indian Agriculture. Unit four explains objectives of land reforms and the needs of land reforms in Indian Agriculture. The concept of ownership vs. tenancy cultivation, large vs. small farms, critical evolution of land reforms are described in this unit. The fifth unit discusses about the Risk and Uncertainity in Agriculture, as well as its types and measures to control the same. The sixth unit will help you to leaser about agricultural price policy, fixation of product price, price policy for agricultural inputs, consumer protection and ancillary policy. This unit gives you an insight into Agricultural Price Policy in India. The seventh unit of this block discusses the topics like Agricultural Marketing, its needs and importance and the status of agricultural marketing in India. Various aspects of agricultural finance are discussed. This unit covers topics like source of various credit, and problems of capital formation. The unit 9 of the course discusses the technologies in Agriculture. This unit will help you to know that details about green revolution, mechanization, HYV food processing etc. Definition, scope and nature of Agricultural Economics. Unit 10 is on Agricultural Labour and this unit discusses employment, types of unemployment, types of labour and different policies on Agricultural labour. Economics of Agricultural Production is discussed in the unit 11. This unit gives you the insight to various contents like production function in agriculture, supply response in agriculture, size of farm, productivity debates etc. The twelfth unit deals with the theories of Agricultural Economics; the Scultzian thesis, Lewis model of Agricultural development. Unit 13 explains the concept of Food Security, definition of malnutrition, impact analysis of different production oriented policies. Concept of Public Distribution System (PDS), Food price policies, food subsidies are discussed in the Unit 14. The fifteenth unit discusses about the importance of Agriculture in North East region, status of Agricultural Development including problems and challenges faced the sector in this region.

While going through the units, you will find that the unit is further divided into certain sections and sub-sections, wherever necessary, for your better understanding. Again, the units carry certain activities after a particular section. These "ACTIVITIES" will provide you the opportunity to practically apply your own thoughts based on the knowledge gained from reading the text in a particular section. Besides, in order to give you additional information on certain relevant topics, you will find a category titled "LET US KNOW" after the sections in each unit. Another category that has been included at the end of each section of a particular unit is "CHECK YOUR PROGRESS". The purpose of this category is to help you

to asses for yourself as to how thoroughly you have understood a particular section. You may then match your answers with “ANSWERS TO CHECK YOUR PROGRESS” given at the end of each unit. The section “FURTHER READING” in each unit contains the names of a few books which you might want to consult if you are intereted in learning more elaborately about the concepts discussed in a particular unit. Furthermore, the category called “POSSIBLE QUESTIONS” is intended to give you a hint of the type of questions you are likely to get in the examination.

UNIT 1: BASIC CONCEPTS OF AGRICULTURAL ECONOMICS

UNIT STRUCTURE

1.1 Learning Objectives

1.2 Introduction

1.3 Definition of Agricultural Economics

1.4 Scope and Nature of Agricultural Economics

1.4.1 Scope of Agricultural Economics

1.4.2 Nature of Agricultural Economics

1.5 Need for a Separate Study of Agricultural Economics

1.6 Importance of Agricultural Economics

1.7 Let us Sum Up

1.8 Further Reading

1.9 Answers to Check Your Progress

1.10 Model Questions

1.1 LEARNING OBJECTIVES

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

- explain the meaning and definitions of Agricultural Economics
- describe Scope, Nature and Importance of Agricultural Economics
- discuss the need for a separate study of Agricultural Economics

1.2 INTRODUCTION

"Agricultural Economics" the term consists of two words viz., "agriculture" and "economics". Before going into the details of agricultural economics as a whole, it is essential to understand what is agriculture and economics first.

The word agriculture comes from two Latin words 'ager' means the soil and 'cultura' means cultivation. Therefore, agriculture in the broader sense can be defined as the science or practice of farming which includes cultivation of the soil for the growing of crops and the rearing of animals to

provide food, wool, and other products.

The other word Economic derived from Greek word 'Oikonomikos'. **OIKOS** means a house or home and Nomos means to manage or management.Thus, economics means home or household management. A head of the family faces the problem of "unlimited wants" and "limited income". Similarly the society also has to make the choices between "unlimited wants" and "scarce resources". Thus, economic refers to the science that deals with the study of the human behaviour; on how individuals, businesses, governments and nations make choices to use scarce productive resources to produce various goods and to distribute these goods among various members of society. Therefore, Economics is the science that deals with production, exchange and consumption of various goods and services in the economic system. It shows how scarce resources can be used to increase wealth and human welfare. In this world, the availability of resources or inputs to produce goods are limited. This scarcity induces people to choose among available alternatives and the knowledge of economics is used to compare the alternatives for choosing the best among them. For example, a farmer can grow different crops like paddy, sugarcane, banana, vegetables etc in his farm. However, he has to choose a crop depending on the availability of inputs like irrigation water, labour and most importantly availability of money etc.

Let us now look into the field of agricultural economics in a defailed manner.

1.3 DEFINITION OF AGRICULTURAL ECONOMICS

Agricultural Economics is an applied field of economics which deals with the principles that help the farmers in the efficient use of scarce resources such as land, labour, capital and management in farming and allied activities. According to Prof. Grey, Agricultural Economics can be defined as "the science in which principles and methods of economics are applied to the special conditions of agriculture industry".

Prof. Hibbard defined the Agricultural Economics "as the study of relationships arising from the wealth-getting and wealth-using activity of

man in agriculture". Jouzier defined that, "Agricultural Economics is that branch of agricultural science which treats that manner of regulating the relations of different elements comprising the resources of the farmers, whether it be the relations of each other, or to human beings in order to secure the greatest degree of prosperity to the enterprise." In the words of Goodwin, "Agricultural Economics as a social science is concerned with human behaviour during the process of producing, processing, distributing and consuming the products on farms and ranches"

From these definitions, it can be concluded that, the subject of agricultural economics deals with the problems of the farms, income earning and spending activities of the farmers and also the management of farm business and making necessary changes according to the situation so as to bring stability of farm income.



CHECK YOUR PROGRESS

Q 1: What do you mean by agriculture?

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Q 2: What do you mean by economics?

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Q 3: Define Agricultural Economics.

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1.4 SCOPE AND NATURE OF AGRICULTURAL ECONOMICS

1.4.1 Scope of Agricultural Economics

Scope means field of study and the scope of economics covers the subject matter of economics. There are two approaches to study the subject matter of economics:

- Traditional Approach

- Modern Approach
- **Traditional approach:** Traditionally, subject matter of economics can be studied under 4 divisions viz., consumption, production, exchange and distribution.
  - **Consumption :** It means the use of wealth, commodities and services to satisfy human wants. It also means the destruction of utility or using up of utility (capacity of goods to satisfy the wants), because, all the goods that are produced are consumed immediately or sometime in the future. Through consumption we use utility, so it represents using up of utilities.
  - **Production :** It is an activity that helps to create or add utility. It involves the processes and methods in which one set of goods is transformed into the other. In economics only creation of utilities is not treated as production, the produced goods should have value too. The production process transforms the input or resource into output or products.
  - **Exchange :** It implies transfer of goods from one person to other. It may occur among groups of individuals, countries, markets, regions and so on. The exchange of goods leads to an increase in welfare of the individuals through creation of higher utilities for goods and services.
  - **Distribution :** It refers to the sharing of wealth produced among different factors of production land, labour, capital and organisation. Proper distribution of wealth and resources leads to growth and economics welfare of the people in the nation.
- **Modern Approach:** Under modern approach, economics is studied under two divisions: Microeconomics and Macroeconomics.
  - **Microeconomics :** It is also known as **price theory.** The term has been derived from the Greek word "**MICROS**"

meaning small. It deals with economic behaviour of individual economic units such as consumer, producer, business firms etc. It also studies the flow of economic resources or factors of production from resource owners to business firms and the flow of goods and services from business firms to households/ultimate consumers. Micro economics covers theory of consumer behaviour, theory of value (product pricing and factor pricing) and theory of economic welfare.

- **Macroeconomics :** The term derived from the Greek word "**MAKROS**" means large. It is also known as **income theory**. It considers the economic system as a whole. It concerns with the value of the overall flow of goods and the value of the overall flow of resources. It covers theory of income and employment, theory of money and prices, banking, policy formulation and analysis, theory of distribution, general equilibrium analysis etc.

Since the agricultural economics is the branch of economics, agricultural economics is not different from the general economics. All the tools of analysis used in general economics are employed in agricultural economics as well. We have the same branches of agricultural economics as in case of general economics such as economics of production, consumption, exchange, distribution, marketing, financing and planning and policy making etc. An economic study at the micro and macro level for the agricultural sector is also made just similar to general economics.

To be more specific, agricultural economics examines how a farmer chooses various enterprises like production of crops or raising of cattle and how he chooses various activities in the same enterprise for eg. which crop to

grow and which crop to drop; how the costs are to be minimised; what combination of inputs for an activity are to be chosen; what amount of each crop is to be produced; what type of commercial relation the farmer should have with people; from whom they purchase their inputs or to whom they sell their products etc. Again, Agricultural Economics does not study only the behaviour of a farmer at the farm level which is under micro analysis. Agricultural problems also have a macro aspect as well. Instability of agriculture and agricultural unemployment, the way governments decide how to support farmers etc are some examples of agricultural problems which have to be dealt with, mainly at the macro level.

Therefore, we can consider the scope of general economics as the scope or subject matter of agricultural economics as well.

1.4.2 Nature of Agricultural Economics

By nature, Agricultural Economics is both a social science and natural science. It is a social science because farmers' decisions, activities and functions are affected by society and precise measurement of farmers' decisions without the influence of social institutions and religious beliefs are difficult. Agricultural economics studies the social relationship of farmers with the other members of society. It is also a natural science because it uses principles, scientific methods, and innovations suggested by agricultural scientists in agricultural activities.

Some agricultural economists have called agricultural economics an applied science. According to Forster and Leoger, **"Agricultural Economics is an applied science and as such is concerned with the identification, description and classification of economic problems of agriculture to the end**

that these problems may be solved." Also according to Gray, 'Agricultural Economics may be defined as the science in which the principles and methods of Economics are applied to the special conditions of agricultural industry.'

Again, Agricultural Economics is both a science as well as an art. Science is a systematised body of knowledge that traces the relationship between cause and effect. An art is a systematised body of knowledge which is a system of procedures to attain a given objective or goal. In other words, Science teacher us to know, art teach us to do. As science, it explains the cause and effect relationships among various economic variables operating in agriculture. On the other hand, the relationship as found to exist can be used for solving various problems affecting agriculture, owing to which agricultural economics is also an art. Further, as is the case with 'General Economics', Agricultural Economics is also a normative science as it prescribes what ought to promote human welfare by making distinction between good and bad and involves ethical values (ethical values are the kind of values that have to do with being good or doing the right thing).

The nature of agricultural economics is **unique** because nature plays an important role in its working. Actually this unique nature of agricultural economics comes from the unique features of agricultural production which distinguishes it distinctly from other non-agricultural sectors especially industrial production. These distinguished features are discussed in the latter part of this section.



CHECK YOUR PROGRESS

Q 4: What are the different approaches studied under the scope of economics?

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Q 5: What is the nature of Agricultural Economics?

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1.5 NEED FOR A SEPARATE STUDY OF AGRICULTURAL ECONOMICS

Prior to 1900 Agricultural Economics did not exist as a field of specialised study either within general economics departments or in colleges of agriculture although courses in “Agricultural Economy” and “Economics of Agriculture” appeared in college catalogues at the University of Illinois and at Cornell University before 1870. The rapid growth of Agricultural Economics as an academic field between 1900 and the early 1920’s reflected the emerging interests of a number of men who had been trained in several agricultural disciplines such as agronomy, horticulture, animal husbandry, and soil science in factors affecting the costs of production and in the economics of farm management -’particularly in problems such as the economics of enterprise selection, choice of production methods, and the financing and growth of the firm. It also reflected the growing interest of a number of economists in problems of agricultural policy, the behaviour of agricultural commodity markets, and the economics of land use.

The nature of Agricultural Economics is such that it obtains most of the principles required from the General Economics which means there is no basic difference between the principles of General Economics as well as of Agricultural Economics. If it is so, the question is why there is need of separate study of agricultural economics. The answer is very simple. Agricultural Economics does not imply a direct application of the principle of economics. Rather, it is just an abstraction from reality. It means that, different principles of economics are required to be modified before applying in agriculture so that their assumptions completely tally with the main features of the real situation. These modifications of economic principles are so large and varied in nature that there is complete justification for studying the agricultural economics as a separate branch.

Again, the need for the separate study of Agricultural Economics also comes from unique nature of agricultural production which makes it different from the other disciplines. Different features of agricultural production as follows:

- Most of the farmers consider farming as a way of life rather than a business opportunity. This is mainly due to small and scattered land holdings and large extent of family labour involvement. They are easily satisfied with mere fulfillment of their family requirement. The sense of entrepreneurship is yet to be well developed among of the farmers.
- Agriculture being a biological activity is totally dependent on weather. Different factors like rainfall, temperature, humidity etc have significant effect on agricultural production. On the other hand, weather has little control over industrial production.
- Agricultural productions are seasonal in nature. Different crops like rice, wheat, pulses, vegetables, fruits etc. are grown in different seasons. Thus, the production of agricultural commodities is not uniform throughout the year unlike the other industrial commodities.
- Again, the agricultural commodities are perishable in nature. The storage period of farm commodities ranges from few hours (eg. flowers) to few days (fruits and vegetables) or few years (cereals, pulses, oilseed etc). It results in price variations in the same day, in the same season and among the different seasons in a year. In industrial products such price variations are not found and they are durable in nature.
- Many agricultural products are joint products meaning that they are produced from the same production processes like paddy and straw, mustard oil and cake etc. Since they are joint products, the cost of production (Rs. per unit of product) of main product (paddy) and byproduct (straw) cannot be separated. However, for the industrial products, it is easy to estimate the cost of production of several products produced in the same plant.
- Most of the farm products are bulky in nature exerting pressure on storage and transportation.

- Problems of standardisation are generally found in Agriculture due to variations in appearance, size, shape, colour, quality, taste etc. for different varieties of crops.
- There is a lapse of time between the decision to produce and gaining actual output in Agriculture, which is called production period. As for example: four to six months for rice, one year for sugarcane, three months for green gram etc. This time lag in production may interfere with the farmer's plan. During that time price fluctuation may occur which in turn effects farm incomes.
- Agriculture requires large proportion of land divided into several small and scattered holdings.
- In agriculture, law of diminishing returns starts to operate at an earlier stage than industry. Law of diminishing returns means that after a certain stage has been reached, the application of every additional capital and labour units in a given unit of land results in a lesser proportionate production of output. Thus, it leads to an increase in costs of production per unit of output.
- Farm business takes relatively longer time to return the investment as compared to the industrial production
- Due to seasonal nature of production, the response of output to change in price is low i.e. demand and supply of agricultural products have low elasticity. Even there price increases if the sowing time is over then the farmer is unable to increase the supply. Similarly, most of the agricultural products are basic necessities of life having definite but limited market demand irrespective of price changes.

  Therefore, to deal with these distinguished problems, Agricultural Economics has been evolved as a separate study.



CHECK YOUR PROGRESS

Q 6: When did the Agricultural Economics evolved as a separate field of study?

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Q 7: What are the different features of Agricultural production that distinguish it from other non agricultural sector?

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Q 8: Why is Agricultural Economics important?

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1.6 IMPORTANCE OF AGRICULTURAL ECONOMICS

The field of Agricultural economics seeks the relevance between cause and effect in agriculture using different advanced methods like production functions and programming models. It uses theoretical concepts of economics to provide answer to the problems relating to production, consumption, exchange and distribution of agricultural goods and services. It also helps the farmers to take decision regarding production of goods and services, as well as quantities and increase in the efficiency of production. Agricultural sector plays a strategic role in the process of economic development of a country. It is convinced that increased agricultural output and productivity tend to contribute significantly to an overall economic development of a nation. Therefore, it will be rational and appropriate to place greater emphasis on further development of the agricultural sector having the foundation links between crops and animal production system. Here, the major role has to be played by agricultural economists in understanding the different complexities involved in these foundation links. Agricultural Economics provides clear insight and understanding of the effect of climate on production and marketing of agricultural commodities. It also provides knowledge regarding problems related to production, finance, marketing, government policies and their impact on production and distribution. This knowledge is very much essential to solve different farm problems. Therefore, under agricultural economics different subject disciplines viz., microeconomics, macroeconomics, agricultural production economics, farm management, agricultural marketing, price analysis, finance etc. are taught separately.



1.7 LET US SUM UP

- 'Agricultural Economics' consists of two words viz., "agriculture" and "economics". Agriculture in the broader sense can be defined as the science or practice of farming which includes cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products. Economic refers to the science that deals with the study of the human behaviour of how individuals, businesses, governments and nations make choices to use scarce productive resources to produce various goods and to distribute these goods among various members of society.
- There are four concepts of definition of economics given by different economists- definition of wealth by Adam Smith, definition of welfare by Alfred Marshall , definition of scareity by Lionel Robbins and definition of Growth by Prof. Samuelson.
- The subject of Agricultural Economics deals with the problems of farms, income earning, spending activities of the farmers and also the management of farm business and making necessary changes according to the situation so as to bring stability of farm income.
- There are two approaches to study the subject matter of economics- traditional and modern approach. Under traditional approach there are four divisions- production, consumption, exchange and distribution. Again under, modern approach, Micro economics and Macro economics are studied. Since the Agricultural Economics is a branch of General Economics, the same subject matters as the General Economics are studied.
- By nature, Agricultural Economics is both a Social Science and Natural Science. Also, it is considered as an applied science. Again, agricultural economics is both a science as well as an art as it explains the relationships of cause and effect among various economic variables operating in agriculture and again use these for solving various problems affecting agriculture. The nature of Agricultural

Economics is **unique** because nature plays an important role in its working.

- Agricultural Economics gives clear insight and understanding of the effect of climate on production and marketing of agricultural commodities. It also provides knowledge regarding problems related to production, finance, marketing and government policies and their impact on production and distribution. This knowledge is very much essential to solve different farm problems.
- The rapid growth of Agricultural Economics as an academic field emerged between 1900 and the early 1920's. Different features of agricultural production like considering farming only as a way of life rather business, Heavy dependence on weather, seasonality of production, perishable nature of agricultural products etc, Also, many agricultural products are joint product, bulkiness of agricultural products, problems of standardisation, time lag in production of agricultural products, large proportion of land, requirement of longer time to return the investment, law of diminishing return, low elasticity of demand and supply etc. make Agricultural Production separate from non agricultural industrial production which calls for the need for separate study about Agricultural Economics.



1.8 FURTHER READING

1) Lekhi, R.K. and Singh, Joginder (2015). *Agricultural Economics -An Indian Perspective,* Kalyani Publishers, New Delhi.

2) Reddy S.S., Ram, P.R.,Sastry, T.V.N., Devi, I.B. (2012) *Agricultural Economics*, Oxford & IBH publishing co. Pvt.ltd., New Delhi



1.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Agriculture in the broader sense can be defined as the science or practice of farming which includes cultivation of the soil

for the growing of crops and the rearing of animals to provide food, wool, and other products.

Ans to Q No 2: Economic refers to the science that deals with the study of the human behaviour how individuals, businesses, governments and nations make choices to use scarce productive resources to produce various goods and to distribute these goods among various members of society.

Ans to Q No 3: There are four concepts of definition of economics given by different economists: 1. Wealth, 2. Welfare, 3. Scarcity, 4. Growth

Ans to Q No 4: Agricultural Economics can be defined as “the science in which principles and methods of economics are applied to the special conditions of agriculture industry” as stated by Prof. Grey.

Ans to Q No 5: There are two approaches to study the subject matter of economics: traditional approach and modern approach.

Ans to Q No 6: By nature, Agricultural Economics is both a Social Science and Natural Science. Also, it is considered as an aApplied Science. Again, Agricultural Economics is both a science as well as an art as it explains the relationships of cause and effect among various economic variables operating in agriculture and again uses these for solving various problems affecting agriculture.The nature of Agricultural Economics is **unique** because nature plays an important role in its working.

Ans to Q No 7: Agricultural Economics gives clear insight and understanding of the effect of climate on production and marketing of agricultural commodities. It also provides knowledge regarding problems related to production, finance, marketing and Government policies and their impact on production and distribution. This knowledge is very much essential to solve different farm problems. It also helps the farmers to take decision regarding production of goods and services and their quantities and increase in the efficiency of production.

Ans to Q No 8: Agricultural economics evolved as a separate field of study between 1900 and the early 1920’s.

Ans to Q No 9: The different features of Agricultural production that

distinguish it from other non agricultural sector are as follows: considering farming only as a way of life rather business, heavy dependence on weather, seasonality of production, perishable nature of agricultural products. Also many agricultural products are joint products, Bulkiness of agricultural products, problems of standardisation, time lag in production of agricultural products, large proportion of land, requirement of longer time to return the investment.



1.10 MODEL QUESTIONS

Q 1: What do you mean by Economics? What are the four concepts of definition of Economics? Discuss briefly.

Q 2: Define Agricultural Economics. Write about scope and nature of Agricultural Economics.

Q 3: What is the importance of Agricultural Economics? Why is a separate study for Agricultural Economics necessary ? Explain briefly.

*** ***** ***

UNIT 2 : AGRICULTURE AND ECONOMIC DEVELOPMENT

UNIT STRUCTURE

2.1 Learning Objectives

2.2 Introduction

2.3 Role of Agriculture in Economic Development

2.4 Changing Importance of Agriculture to Economic Development

2.5 Development of Agriculture During the Five-Year Plans

2.6 Interdependence of Agriculture and Industry

2.7 Let Us Sum Up

2.8 Further Reading

2.9 Answer to Check Your Progress

2.10 Model Questions

2.1 LEARNING OBJECTIVES

Once you go through this chapter you will be able to learn-

- discuss the role of agriculture in economic development,
- explain the changing importance of agriculture in economic development of India,
- highlight the various agricultural development that has taken place during the Five-Year Plans of India
- analyse the interdependence between agriculture and industry

2.2 INTRODUCTION

Indian agriculture is the most important sector in the path of development of India from the beginning of the planning periods. Indian agriculture has witnessed a lot of ups and downs over the years. At the time of Independence, Indian agriculture was in a state of acute food shortage. It portrayed an image of the begging bowl economy as it was dependent on overwhelming imports of food grains during that period. The tremendous population growth rates after independence had placed long

term pressures on Indian agriculture, creating deficiency in the supply against increasing demand for food grains in the markets to feed its growing population. In that 'ship to mouth' period, food prices had risen. In 1956, India had started to import foods from US under the scheme PL-480. The growth of the import of food under this scheme increased from nearly 3 million tonnes in 1956 to more than 4.5 million tonnes in 1963. Again, the wars with China in 1962 and with Pakistan in 1965 along with the drought in 1965-1966 led to about 17 percent and 20 percent fall in the Indian agricultural output and food grains respectively. All these had further worsened the situation of food grain shortage in India. There was food inflation at the rate of 2 percent per annum and India was forced to import more than 10 million tonnes of food grains. With all these problems, problems, those was an outbreak of famines in several parts of India (UP, Bihar etc.) food crisis. Along with this, the pressure of US was tremendons with regwed to the for recognition of the importance of self-sufficiency as well as economic self-reliance.

Aiming at self-reliance and self-sufficiency in food grains, the Green Revolution was initiated in 1964-1965. The High Yielding Variety (HYV) seeds, chemical fertilisers, pesticides, machineries like tractors, power tillers, pump sets, soil testing facilities, agricultural educational programmes, institutional credits etc. were introduced in the field of agriculture in India. The Agricultural Prices Commission was set up in 1965 to assure that the farmers received remunerative prices. Public investment on agriculture had also increased remarkably. All these resulted in an increase in the productivity of agriculture. The total food grain production increased by 35 percent from 1967-68 to 1970-71. The food grain production was only 51 million in 1950-51 and it increased to nearly 200 million by the end of the 1990s. Rapid increase in the marketable surplus due to the Green Revolution enabled the government to procure food grains for maintaining large stocks of food grains. This helped to liberalise India from import of food grains PL-480. It was the first step towards the self-reliant economic development of India. The impact of the Green Revolution was also criticised on many grounds. For example, it has increased the polarisation

among the farmers, created health hazards as well as environmental damage due to the application of pesticides, chemical fertilisers, machineries like tractors, wasteful irrigation practices etc. Thus, the negative impact of Green Revolution is a major area of concern in the context of sustainable agriculture in the present situation.

2.3 ROLE OF AGRICULTURE IN ECONOMIC DEVELOPMENT

Agriculture plays a crucial role in the development of a country. Agriculture provides food security and supports development of other sectors by supplying raw materials. Therefore, an increase in the production of agricultural products is vital for overall development of an economy. It generates national income, provides employment, ensures food security, complements the development of other sectors, helps in alleviation of poverty, generates valuable foreign exchange reserves directly through export of primary goods, etc. Let us discuss the role of agriculture in the context of economic development of India.

2.3.1 Generation of National Income

Agriculture has a determining role in the development of an economy particularly in a developing country. In the First Five Year Plan, agriculture was taken as the basis for economic development of India. The agriculture and allied sectors occupied a major share in the Gross Domestic Product (GDP) of India though its share has registered a steady decline over the years. The share of agriculture to the Gross Domestic Product was 57.7 per cent in 1950-51, 36.4 per cent in 1982-83, 33 per cent in 1990-91 and 14.33 per cent in 2018-19 (II Advanced estimates). However, the share of agriculture in GDP increased to 19.9 per cent in 2020-21 from 17.8 per cent in 2019-20 at constant prices. The share of agriculture sector in Gross Value Addition (GVA) at the current price (2017-18) is 19.5 per cent. Empirical evidence has shown that the share of agriculture and allied sector in GDP is much higher in less developed countries

than in the developed countries. For example, in USA and UK, the share of agriculture to their national income was only 3 per cent. As the backward economies are dependent on agriculture, the role of agriculture in the development of such economies is very crucial.



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The share of agriculture in GDP of India is 19.9 per cent in 2020-21 at constant prices. The share of agriculture in GDP has almost 20 per cent after 17 years of gap, i.e., the share of agriculture to GDP was 20 per cent from 2003-04.

2.3.2 Generation of Employment

Agriculture ensures food security for the entire population of a country. Again, the surplus production of agriculture complements the development of other sectors of a country by providing inputs and raw materials. Therefore, agriculture generates employment opportunities in both direct and indirect ways. Agricultural activities like farming, rearing, selling, processing of agricultural produce, etc. generate the employment opportunity directly for the rural population. Indirectly, the production of raw materials like cotton, jute, sugarcane, oilseeds, etc. in agricultural sector and supply of these raw materials to industrial sectors also increase the employment opportunity for the non-agricultural labourer. In India, agriculture provides livelihood to almost two-third of the total population of India. However, this percentage has come down to nearly 46 percent in 2015-16 and to 44.2 percent in 2019. Despite this decline, agriculture in India still provides employment to the largest share of the population compared to the other sectors of India. However, in the developed countries, the percentage of population employed in agriculture is low as compared to the underdeveloped countries. For example, in USA, it is between 2-3 cent per and in Australia, it is only 7 percent.

2.3.3 Ensuring Food Security

Ensuring food security has been one of the prime objectives of economic policy of India since independence. Food security is not only the availability of food for everyone in a country but also the affordability to consume the food. The affordability can be assured by lowering of prices. In this process, the balance between the demand and supply of food is important. The increase in the production of food grains through enhancing productivity are the primary policy objectives of India since independence. Thus, in ensuring food security, agriculture plays a vital role. In India during 1950-51 only 52 million food grains were available in the country which increased to 264.77 million in 2013-14. The per capita availability of cereals increased from 354.10 grams during the period 1950-51 to 1955-56 to 442 grams during 1996-97 to 1999-2000. Again, the food production has registered a growth rate of about 3 percent against the 1.86 percent rate of population growth since 1970-71. Remarkable steps like introduction of Green Revolution as well as Rainbow Revolution in agriculture resulted in exponential growth in per capita availability of almost all foods in India which ensures food security in the country.

2.3.4 Development of Non-Farm Sectors

Agriculture has immense contribution to the development of non-farm sectors in an economy. The role of agriculture in the development of non-farm sectors (industrial sector and tertiary sector) can be analysed under the following heads:

- Supplier of raw materials.
- Supplier of wage goods
- Generating demands for industrial products in rural areas.

Agricultural sector supplies raw materials for the agro-based industries. Increase in agricultural production make raw materials available at a lower price within the country or/and also generates

valuable foreign exchange reserves required to import technology for industrial development. In both these ways, the enhancement in agricultural production helps to develop the non-farm sectors of a country. Again, expansion in agricultural production widens the market and expansion of market generates demand for services like transportation services, marketing services etc. In this way, agriculture also supports development of services sector. Therefore, without proper development of the agricultural sector, the development of other sectors will be adversely affected. Agriculture produces wage goods or consumption goods. Production always generates factor income. Agricultural production also generates factor income of the rural population as most of the agricultural labourers reside in rural areas. These factor incomes generate demand for the industrial goods which also encourage expansion of the industrial output. Therefore, agriculture plays a vital role for the development of the industrial and services sector of a country.

2.3.5 Revenue Generation

Agriculture generates revenue for the government through the taxation on land (as property tax) and on the incomes generated through the agricultural activities (income tax). The agriculture is a state subject. The taxes on land and agricultural incomes are listed in the state list (list II of the Seventh Schedule enlists the taxes which are within the jurisdiction of the States) of India. Thus, agriculture is a source of revenue generation for the government in a state.

2.3.6 Contribution to International Trade

In a country, the international trade plays an important role in the generation of foreign exchange. In a developing country, the foreign exchange is accumulated through the export of primary products. For example, agricultural goods or primary products (like cotton, food grains, tea, jute, spices, oilseeds, sugarcane, cashews,

fruits, etc.) constitute a major share in India's total exports. Agriculture and allied sector constituted about 9.94 percent of the total exports in 2010-11 which again had increased to 12.47 percent in 2011-12. Apart from primary products, many manufactured items using inputs from agriculture are also being exported by India signifying its indirect contribution to foreign exchange earning of the country. The goods that are produced using raw materials directly from agricultural sector constitute more than 20 percent of India's total exports in recent years. Since 1990-91, except for the year 1994-95, the share of agriculture exports has been steadily increasing. India's agricultural and allied sector's trade export was Rs. 2.52 lakh crores during 2019-20. Even in the COVID-19 pandemic, the agricultural and allied export was worth of Rs. 2.74 lakh crores from April, 2020 to February, 2021.

2.3.7 Gross Capital Formation

The slow rate of gross capital formation has been considered as one of the biggest hurdles in the path of economic development of developing country. The role of agriculture in capital formation is important because in developing and less developed countries, agriculture provides the route to capital formation. Hence, the state of capital formation and the role of agricultural sector in gross capital formation need to be examined with proper attention. The process of capital accumulation depends on the elasticity of the food supply. This is due to the fact that if there is bottleneck in the supply side, wages and costs tend to rise and profit margins are considered to fall, leading to an overall decline in surplus and growth. The process of capital accumulation also depends upon fiscal and monetary policies. The monetary and fiscal policies siphon off surpluses from the agriculture.

Contribution of agriculture to gross capital formation (GCF) in India is remarkable. For example, in 2011-12, the share of agricultural sector in India's CGF was nearly 8.6 percent.

2.3.8 Internal Trade and Transport

Agriculture plays a critical role in expanding the size of the domestic market particularly in developing countries. Increase in agricultural productivity is very important because surplus production helps in export earnings, generation of farmer's income as well as supply of raw materials at low price for development of other sectors. Surplus agricultural production over self-consumption creates market. Market creation and expansion help in the development of many services associated with the marketing of the agricultural surpluses. The income generated through this market creation and expansion creates market for non-agricultural products also. To bring surplus production to the market, the connectivity like road, railways, waterways, airways are needed. Therefore, transportation service has scope for development. Other services like storage services, marketing services, communication services, power services, financial services are also simultaneously developed giving rise to infrastructural development. The market connectivity among internal markets helps in better disposal of surpluses with price stability by reducing wastages. The increase in the domestic production of agricultural products also helps in curbing inflation of food and other goods in the internal market.

2.3.9 Ensuring Price Stability

The increase in production of agricultural products helps to reduce the gap between the demand and supply of food to support entire population of a country. This helps in curbing food inflation. Again, increase in agricultural production helps to supply raw materials at lower prices which in turn lead to increase in production of non-agricultural goods at lower costs. This makes such goods available at lower prices and hence helps in curbing inflation of industrial goods. Therefore, to ensure price stability, agricultural production must be increased. Otherwise, either a major income of

the nation will be used to import food to meet food demand or/and savings of the people will be reduced due to price inflation. Thus, in order to combat price inflation, the productivity of the agricultural crops is to be increased with improvement in the technology etc. Thus, agriculture plays a crucial role in price inflation of the agricultural commodities through balancing demand and supply of agricultural products.

2.3.10 Reducing Poverty and Income Inequality

Increase in agricultural productivity increases per capita income of the farmer and those who are directly or indirectly involved in farming and other agricultural operation. Again, increase in production as well as productivity improve per capita availability of food for all people of a country. If per capita availability of food increases with increase in per capita income, then this will definitely help in reduction of poverty. Most of the rural population is small, marginal and landless farmers who suffer from disguised unemployment and under-nutrition. Therefore, increase in agricultural production and productivity can increase income and improve nutritional intake of poor people in rural areas. With increase in nutritional status, physical health of the rural population gets improved which in turn improves marginal productivity of each and every agricultural worker. This may lead to decline in income gap between rural and urban population (to some extent) as well as agricultural and non-agricultural workers. Moreover, global experiences reveal that GDP growth originating from agriculture is at least twice as effective in reducing poverty as GDP growth originating from outside agriculture.

2.4 CHANGING IMPORTANCE OF AGRICULTURE TO ECONOMIC DEVELOPMENT

In the early years of planning, agriculture had been a dominant sector in India with the highest share in GDP and providing employment

to more than 70 per cent of the total population. However, now with the pace of development, there has been a gradual shift of importance from agriculture to other sectors in India. In India the share of agriculture to GDP has been gradually declining over the past years. While the contribution of the other sectors, particularly services sector to the GDP is increasing rapidly, the share of industrial sector to GDP has remained almost stagnant. This signifies a structural shift of Indian economy directly from agriculture to services making India's recent economic growth pattern as services-led-growth.

At present, although India is experiencing services-led-growth, the importance of agriculture to overall development of India is increasing with plethora of challenges. Without addressing these challenges, it is difficult to develop agriculture and ensure sustainable economic development of India. Some of the major challenges are discussed below which signifies the changing role of agriculture in Indian economy.

The employment opportunities in the field of agriculture are not expanding compared to industry and service sectors. It results in transformation of resources from agriculture to the other sectors. According to National Sample Survey-2019, about 44.2 percent workforce in the country is still engaged in agriculture while the share of agriculture to GDP is reduced to 17 per cent. The sluggish decline in the share of employment in agriculture is not a serious matter. However, it is important to address the problem that its share to GDP is declining more rapidly than the decline in the employment in agriculture. It results in widening of gap between labour productivity in agriculture and non-agriculture sectors rapidly. Again, low or negative marginal productivity enlarges income gap between the agricultural labourers and non-agricultural labourers. As most of the farmers are illiterate and unskilled, lack of proper skill, education and knowledge forces them to remain in the agricultural and allied sector despite the prevalence of underemployment or disguised unemployment in agricultural and allied sector as they are unable to find employment in other sectors. The poor human resource development among rural population is another reason for the higher employment in agriculture and

slow shift of surplus agricultural labourer to other non-agricultural sectors. There was a decline of 39 percentage points in the share of agriculture in GDP from 1960-61 to 2012-13 while for the same period, decline in share of agriculture in employment was 27 percentage points. This has also intensified some of the basic problems like poverty, under-nutrition, starvation etc. Therefore, the role of agriculture as the source of food is becoming more important for India in recent years. India produces about 726 million tonnes of food to meet food demand of 1.3 billion people. About another 1016 million tonnes of food will be required to meet the domestic demand by the year 2031-32. Food production in the country has been increasing annually at a rate close to 3 percent since 1970-71, while population growth rate in the same period was 1.86 percent. As per the Global Hunger Index (GHI), 2020, India occupied 94th position among 107 countries. This reveals that India has serious level of hunger. Low intake of food is the main reason for widespread hunger in India. The domestic absorption of food is lower than the domestic production of food in India. The prevalence of unemployment, underemployment and disguised unemployment are responsible for irregular income patterns as well as poverty. Poverty reduces the affordability of the poor people to consume food. According to Global Multidimensional Poverty Index, 2020, India ranked 62nd position among 107 countries. Most of the agricultural labourers are small and marginal farmers occupying land less than 1 hectare. They are deprived of food due to low purchasing power. Again, Periodic Labour Force Survey (PLFS) revealed that rural unemployment stood at a 6.1 percent during 2017-18, which was the highest since 1972-73. Therefore, this present paradoxical situation of India is termed as 'Hunger in the Midst of Plenty' and this appears to be a biggest challenge to the Indian economy in recent times.

As agricultural production is growing by about 2.9 percent per year and domestic demand is projected to rise by about 2.3 percent, therefore, there is surplus agricultural production over domestic demand. These surpluses are exported to the other countries and India generates valuable foreign exchanges. India exported agricultural products of US $ 3.50

billion in March-June, 2020 which was nearly a 23.24 percent hike from the March-June, 2019. As primary goods have inelastic demand in international markets therefore, export of these goods face intense competition in international markets. In order to deal with this intense competition, the prices of these primary goods should be sufficiently lower than the international market prices, price spread in various stages of marketing of these products should be reduced and the producers of these products should be integrated with global value chain. In view of the increasing importance of agricultural export, the Government of India is taking several steps to increase export of agricultural products. Ministry of Commerce and Industry rolled out Agricultural Export Policy (AEP), 2018 with an aim to double farmers' income by 2022 by doubling agricultural exports and integrating Indian farmers and agricultural products to the global value chain. Government of India has promulgated three ordinances to implement reforms in the agricultural sector: The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Ordinance, 2020, the Farmers (Empowerment and Protection) Agreement on Price Assurance and Farm Services Ordinance, 2020 and the Essential Commodities (Amendment) Ordinance, 2020. Agricultural and Processed Food Products Export Development Authority (APEDA) plays a significant role in tapping India's agricultural strength and works towards expanding the export potential of Indian agricultural and food products.

At present, climate change is the most important global environmental issue. Agricultural practices also impact environment adversely by degrading water, soil and air. The uses of pesticides cause ecological imbalances as it harms and kills beneficial microbes, small creatures with the dangerous and harmful pests. It also gives rise to the phenomena like eutrophication, when mixed with water bodies and bio-magnification, harmful chemicals enters into food cycle. Again, the spreading of pesticides creates health hazards for humans when they get contaminated with the components of environment, i.e., soil, air and water. Agricultural activities emit greenhouse gases (GHGs). Agriculture is responsible for about 17 percent of GHGs in India. In India, 3/4th of the

total emission of GHGs from agriculture is in the form of methane which is produced during rice cultivation along with livestock production while remaining 1/3rd of emission is in the form of nitrous oxide generated from use of fertilisers. Other sources of emission of GHGs are applications of organic and inorganic inputs to the soil for crop production, decomposition of biomass and dead plant residues, crop production, plant respiration, livestock rearing, enteric fermentation in ruminants, manure handling, and burning of crop residues. Again, the over use of agricultural inputs like water, soil etc. has been a threat to sustainability of both agriculture and environment. Over dependence on groundwater as a source of irrigation through tube well technology (shallow/deep) and production of more water intensive crops in India has considerably reduced ground water reserves of the country. Thus, due to over extraction of groundwater for irrigation use, ground water level is significantly decreasing which is a crucial area for concern in Indian agricultural in recent years.

Among other challenges, post-harvest losses of crops is another area of concern in India agriculture. Estimates show that on the average there are nearly 10 to 25 per cent of post-harvest loss of crops in India being particularly high in horticulture, livestock and fisheries. Such a huge quantity of losses has to be checked by developing agricultural markets, grading and standardisation, quality certification, warehouses, cold storages and adopting other post-harvest management of produce. Here, considering the size of required investments such infrastructure can be developed in public-private partnership (PPP) mode.

In order to improve the conditions of agricultural sector as per the requirement for the 21st century, the main challenges are to sustain agriculture growth to increase farmer's income without intensifying hardship of consumers by food price inflation, to increase productivity of agriculture, to obtain production efficiency in agriculture, to increase agricultural production without harming environment, to increase quality of agricultural export etc. To overcome all these challenges, agricultural production must be increased without an increase in average cost of production. To increase farmers' income, the marginal productivity of each farmer should be

increased. For this, the employability as well as efficiency of each and every farmer should be increased. For this good education, skill enhancement programmes, special trainings related to agriculture, business-oriented courses to maintain professionalism among agricultural farmers, labours, etc. in agricultural marketing should be provided with low cost or free of costs specially for economically vulnerable people in rural areas. Pradhan Mantri Kaushal Vikas Yojana (PMKVY), TRYSEM are some of such schemes provided by the government of India. The employment opportunity other than farming should be created through the creation of jobs related to agricultural marketing, post-harvest activities and creation of Medium, Small and Micro Enterprises in agro-food processing units. To increase agricultural productivity and production, adoption of new technology, contract farming, shift from using low technology to high technology like greenhouse cultivation, poly house cultivation, tissue culture, precision farming, etc. with lowering of costs should be adopted. It also requires upgradation and innovation in technology, lowering of wastages of agricultural inputs like water, fertilisers, power, pesticides, etc. The technologies that are adopted by advanced countries to increase agricultural productivity and to decrease wastages of agricultural inputs should be emulated. Therefore, technologies like broadcasting fertilisers, flood irrigation, indiscriminately spraying chemicals and pesticides are to be replaced with sensor-based application of inputs based on requirement of plant. In marketing practices artificial intelligence technology should be widely used. The Research & Development (R&D) should be enhanced.



CHECK YOUR PROGRESS

Q 1: What is the percentage of people engaged in agriculture and allied sector in 2019?

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Q 2: What is the share of agriculture to GDP of India in 2020-21?

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2.5 DEVELOPMENT OF AGRICULTURE DURING THE FIVE-YEAR PLANS

As agriculture is recognised as the most important sector for development of India, Five-Year Plans also set goals for development of agriculture. Although, in the initial plans, planning was made to achieve self-sufficiency in food for its rapidly growing population, but in subsequent years, objectives had been broadened. The development of agriculture during each of the Five-Year Plans in India are discussed below

- **The First Five Year Plan (1951-1955):** Indian agriculture was not performing well on the eve of the first five-year plan. At that time, nearly 70 percent of total population was engaged in agriculture and the productivity was rather low due to which the Indian agriculture faced two major problems, i.e., (i) food crisis and (ii) inadequate supply of raw materials for the industrial development. Thus, Indian economy was dependent on food import as well as import of other industrial inputs. The introduction of first five-year plan for the agriculture was the first attempt to make the Indian economy as a self-sufficient economy. Since the Indian economy was struggling with acute short supply of food and industrial raw materials, the major objectives of this five-year plan in the field of agriculture were to correct the imbalances caused by partition in the supply of food grains and commercial crops and to improve infrastructural facilities. Hence, the focus of this plan was to increase productivity of agriculture. Topmost priority was given to the agriculture along with irrigation and power with the aim of converting agriculture into a successful business. The programs undertaken during this plan period were:
  - To bring more lands under cultivation
  - To increase agricultural productivity through improvement in both conventional and non-conventional methods of agriculture.

- **The Second Five Year Plan (1956-1961):** Second five-year plan placed more emphasis on industrial development. The main reasons behind this shift from agricultural development to industry were:
  - The performance of agriculture during the 1st five-year plan.
  - The possibility of financing the development via foreign aid especially food aid.
  - It was recognised that heavy industry was necessary for development.

  The second five-year plan emphasised on the increase in the production of food grains to meet the demand of increasing population and the raw-material to support the industrial development. It intensified interdependence between industry and agriculture for balanced economic development as well as to create conditions for an appreciable increase in rural incomes and standards of living. In view of inadequacy of food grains, this plan aimed to diversify agricultural production and also planned to provide programmes for increasing the production of coconut, lac, black pepper, cashew nut etc.
- **The Third Five Year Plan (1961-1966) and the Three Annual Plans (1966-1967, 1967-1968 and 1968-1969):** Third Five Year Plan attempted to restructure the rural economy of India giving thrust on increasing agricultural production. For increasing agricultural production, measures like development of irrigation, soil conservation programmes and supplies of fertilisers, improved seed and credit, along with the provision of extension services reaching down to the village level etc., were undertaken. In order to support these programmes, community development and effective mobility of resources were harnessed. Land reform policies were introduced to remove the challenges in developing of a progressive cooperative agriculture. Measures for cooperative development that were taken in the previous plans were strengthened in this plan for building up required institutional frameworks for promoting rapid economic development in rural areas particularly to benefit the weaker section of the rural population. More emphasis was given for the development

of animal husbandry, dairy farming and fisheries. In view of the long-term development, various schemes were undertaken for the conservation of soil, care of forest wealth and plantation for fuel for village.

The major objectives of this pain in regards to agriculture were:

- To attain self-sufficiency in food grains and to increase the agricultural production to suffice the requirements of exports and industry.
- To bring technological changes by adopting scientific methods for agricultural production
- To ensure optimum utilisation of the country's labour power and increase the employment opportunities.
- To reorganise the rural economy via cooperative activities like financing, provision of credits, processing and distribution, marketing, cooperative farming etc.
- To expand non-agricultural activities in rural areas to reduce the dependence on agriculture.
- To improve the utilisation of available land resources through systematic planning like multiple cropping, change in the cropping pattern etc.

In this plan, greater importance was not only lailon attaining self-sufficiency in food grains but also on substantial increase in the production of the commercial crops especially cotton, oilseeds and jute. This was because the export of commercial crops could generate foreign exchange.

There was a gap of eight years between the commencement of the Third plan and Fourth plan. The three annual plans were 1966-1967, 1967-1968 and 1968-1969. These eight years had significant impact on Indian agriculture. During this period in place of traditional agricultural practices new strategy of agricultural development was adopted.



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- There were two wars during the third five-year plan:
  - In 1962 with China, and
  - In 1968 with Pakistan
- Due to the drought and two wars, the agricultural production was below the targeted level.

- **Fourth Five Year Plan (1969-1974):** The two main objectives of this five-year plan were:
  - The target of annual growth rate of agriculture was set at 5 percent.
  - It aimed at more inclusive development by facilitating economic development of large numbers of rural population including small farmers, dry lands farmers, landless agricultural labourers. This means that a huge population was to take part in the development process on India and benefit from it.
- **Fifth Five Year Plan (1974-1979):** In the year 1974-1975, India had witnessed severe price inflation. During that year the wholesale price was increased by 23.1 percent over 1973-1974. The major reason behind this was the population growth rate which was higher than the growth rate of agricultural production. Thus, there was an immediate need for increase in the production of food grain in India. Therefore, the major objectives of this plan were:
  - To achieve self- reliance and self- sufficiency
  - To raise the standard of living of the rural people who were below the poverty line by adopting required technology and measures.

  Therefore, the motives behind the objectives of this plan were to strengthen the objectives of the previous plan period. The target for the production of agricultural output was set at 132.9 million tonnes. The output of food grains was expected to grow at the rate of 4.63 percent per annum. More initiatives were taken for increase in production by increasing consumption of fertilisers and extending

irrigation facilities. It had also put emphasis on the extension of dry land techniques to more lands. The share of public expenditure to total outlay was 20.6 percent, which was equal to Rs.8084 crores.

- **Sixth Five Year Plan (1980-1985):** The aims of the agricultural programmes during the Sixth Plan period were as follows:
  - To consolidate the gains already achieved;
  - To accelerate the pace of implementation of land reforms and institution building for beneficiaries;
  - To extend the benefits of new technology to more farmers, cropping systems and regions and to promote greater farm management efficiency through concurrent attention to cash and non-cash inputs;
  - To make agricultural growth not only an instrument of maintaining an effective national food security system but also a catalyst of income and employment generation in rural areas;
  - To promote scientific land and water use patterns based on considerations of ecology, economics, energy, conservation and employment generation;
  - To safeguard the interests of both producers and consumers by attending to the needs of production, conservation, marketing and distribution in an integrated manner.



CHECK YOUR PROGRESS

Q 3: What are the major objectives of 5th Five-Year Plan for agriculture?

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Q 4: When was the National Bank for Agriculture and Rural Development (NABARD) established?

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- **Seventh Five Year Plan (1985-1990) and Two Annual Plans (1990-1991) & (1991-1992):**

  The main objectives of 7th Five-Year Plan were as follows:

  - Priority was given for increase in agricultural productivity and cropping intensities.
  - It also had emphasis on the providing the facility for increase in productive employment.
  - It emphasised on the efforts to increase in the production of food grains, edible oils, sugarcane and some non-agricultural products.
- **Eight Five Year Plan (1992-1997):** After the completion of the seventh five-year plan, there was a delay in starting the next plan by almost two years due to the political instability in the country. Therefore, the eight five-year plans were initiated in 1992 with the objectives of growth and diversification in agriculture for export and self-sufficiency in food grains particularly in oilseeds and pulses.
- **Ninth Five Year Plan (1997-2002):** The main objective of this plan was to ensure food security (and nutritional security) by the means of the following three-pronged strategies:
  - Increase in overall employment and incomes by raising farm productivity and growth of other economic activities in the rural areas.
  - Provision of gainful supplementary employment through poverty alleviation schemes such as JRY (Jawahar Rojgar Yojana), EAS (Employment Assurance Scheme) which would generate additional employment in the short run and help in the creation of durable rural infrastructure for more sustained employment over time.
  - Distribution of food grains through public distribution system at concessional prices to those people living below the poverty line.
- **Tenth Five Year Plan (2002-2007):** The main objectives of this Plan were:

- The three-pronged strategy envisaged the Ninth Plan (see ninth five-year plan's objectives) to meet the basic food requirements for all were to be continued during this plan.
- It advocated the use of the sustainable agricultural practices for agricultural growth.
- To ensure growth with equity, agricultural growth was to be demand driven.
- The target for annual growth of agricultural sector was 2.4 percent.
- Thrust Areas were utilisation of wastelands and unutilised/ underutilised lands, reclamation or development of problem soils or lands, rainwater harvesting and conservation for the development of rainfed areas, development of irrigation, especially minor irrigation, conservation and utilisation of biological resources, diversification to high value crops/activities, increasing cropping intensity, timely and adequate availability of inputs, strengthening of marketing, processing or value addition infrastructure, revamping and modernising the extension systems and encouraging private sector to take up extension services, bridging the gap between research and farmer's yields, cost-effectiveness while increasing productivity, promotion of farming systems approach, promotion of organic farming and utilisation of organic waste, development of eastern and north-eastern regions, hill and coastal areas, reforms to introduce proactive policies for the farm sector.
- The Government of India has approved a National Policy on Handling, Storage and Transportation of food grains during previous plan was to be continued in this plan.
- The emphasis was to be put on demand-driven research besides adequate thrust on modern biotechnologies like development of transgenics and space technology and on sustainable development of natural resources together with preservation and exploitation of our rich biodiversity.

- **Eleventh Five Year Plan (2007-2012):** The Eleventh Five-Year Plan envisaged a fast and more inclusive economic growth. Since agriculture is one of the major elements of inclusiveness, this plan set up a target of 4 percent annual growth rate for agriculture. With this, the objective of this plan towards agriculture was to increase productivity through improvements in inputs like irrigation in rainfed areas, enhancement of seed quality with high seed replacement rate, increased and balanced use of fertilisers, creating protective irrigation and improving water harvesting, improving research of ground water through water conservation campaign, strengthening and promoting Agriculture Informatics and Communication through Agriculture Information System Network (AGRISNET), facilitation of institutional credit at lower cost, encouragement to organic farming, etc. A technical committee for watershed development known as Parthasarathy Committee was set up by the Ministry of Rural Development (MoRD) and it submitted report in January 2006. As per the recommendation of this committee, focus was to be provided for increase the productivity of rainfed areas to meet the demand of food for 2020. It also placed emphasis on development of livestock with the following objectives:
  - To achieve an overall growth between 6 per cent and 7 per cent per annum for the sector as a whole with milk group achieving a growth of 5.0 per cent per annum and meat and poultry group achieving a growth of 10 per cent per annum;
  - The benefit of growth should be equitable, benefiting mainly the small and marginal farmers and landless labourers and should benefit poorly endowed areas like draught prone, arid, and semi-arid areas;
  - To provide adequate animal health services for effective disease control;
  - The sector should generate additional employment opportunity to people in the rural areas especially to the female population;
  - Livestock should provide major source of income in the selected

areas having potential for mixed crop-livestock farming system,

- The growth in the sector should result in the improvement of environment, especially in the rural areas.

In addition to these, other thrust areas in the Eleventh Plan were development of the untreated area in Desert Development Plan (DDP) and Drought Prone Areas Programme (DPAP) blocks. Also, special attention was to be devoted to developing villages where groundwater was over exploited.

- **Twelfth Five Year Plan (2012-2017):** The thrust areas of this Plan were increase in productivity, efficiency in resource use, technological upgradation and innovation to ensure sustainability of natural resources, adaptation to climate change and improvements in total factor productivity. The main objectives were:
  - Preparing for faster and rapid growth of agriculture through a more diversified agriculture, with investment in the necessary modern infrastructure required for perishable products.
  - Bringing scale through development of farmer producer organisation
  - Increasing funds to the agricultural research and development
  - Emphasising on the research on agriculture. Providing interdepartmental platforms for multi-disciplinary research in agriculture.
  - Importance was provided to the sustainable and climate resilient agriculture.



CHECK YOUR PROGRESS

Q 5: What were the three-pronged strategies to ensure food security in Ninth Five-Year plan?

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Q 6: What is the target growth rate of agriculture during Eleventh Five-Year Plan?

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2.6 INTER-DEPENDENCE OF AGRICULTURE AND INDUSTRY

The industry and agriculture are two main components of an economy. The growth of one sector is related with the growth of another sector and vice versa. The industry and agricultural are both complementary to each other. The interdependence of agriculture and industry are discussed under the following heads:



LET US KNOW

Wage Goods: Wage goods are the goods that a worker can buy with wages. Wage goods are commonly known as consumption goods.

Non-wage goods: Non-wage goods are the goods that a worker with non-wage income may buy. Non-wage goods are also known as investment goods or capital goods. These goods are used for the production of other goods.

Note: The distinction between the wage goods and non-wage goods on the basis of the sources of money is ambiguous because a non-wage earner (for example: a collector of charity) also buys wage goods. Therefore, a wage good is defined as a good use for final consumption is more appropriate. In the same line, non-wage good can be defined as the good which is used for further production (i.e., investment) of the goods.

- **Agriculture is a Supplier of Raw Material to Agro- Based Industries:** Output of the agricultural sectors is used as the raw material for the production of goods in the industrial sector. Especially, food processing industries use agricultural products as the main ingredients for their products like edible oils, ghee, besan, refined flowr, etc. Cotton textile industries use cotton as the raw material.

- **Agricultural Sector is a Source of Labour:** In an economy, particularly agrarian and underdeveloped economy, there is surplus labour in the agriculture sector which leads to the disguised unemployment in agriculture. Again, low labour productivity results in lower as well as irregular income patterns. On the other hand, industrial sector is a lucrative destination of job opportunity for agricultural laborers for offering relatively higher and regular incomes to the industrial labourers. Thus, there is a shift of labour from labour surplus agriculture to the industrial sector as development occurs. Therefore, agriculture acts as supplier of labour to industry.
- **Agriculture as a Generator of Agricultural Income That Enables Rural Demand for Industrial Products:** In underdeveloped countries, a large proportion of labour force is engaged in the agricultural sector. The remuneration obtained by the agricultural labour generates the rural demand for the industrial products. Hence, it enlarges the scope for the expansion of the industrial sector of rural areas.
- **Industrial Development as Opportunity for Technological Improvement in Agriculture:** As the pressure of population on agriculture increases over the years, there is a need for further improvements in the agricultural technology. The technological development in agriculture is crucial for the increase in productivity of agriculture as well as income of the farmers. Use of hybrid seeds, disease resistant varieties of crops, high yielding varieties of crops, artificial manures, machineries like tractors, power tillers, pesticides, modern irrigational facilities, etc. are the determinant factors for increasing production of agriculture. Thus, industrial development is complementary for technological improvements of agriculture.
- **Industrial Development Helps in Easy Market Reach and Opens the Scope for Higher Farmer Income:** Agricultural products are generally produced in the remote and rural areas and so the farmers need good road connectivity to reach the market areas of sub-urban or urban areas. Again, most of the agricultural products are perishable

in nature. Therefore, fast disposal of the perishable commodities is important. Thus, the economic development via infrastructural development like road connectivity ascertain the easy reach to the market and better remuneration to the farmers than selling his produce in the local market.

- **Expansion of Market for Industrial Goods:** Food is necessary for the subsistence of human-beings. The source of food is the agriculture. The surplus food over consumption are used as raw materials for the industries which helps to meet the non-food demand for the goods like cloth, housing, cars, television, etc. of the consumers. Again, the surplus labour of agriculture are also supplied to the industries. The agricultural income increases the purchasing power of the people which will increase the need for the non-food industrial products. All these provide scope for expansion of the market of the industrial goods as a whole.



2.7 LET US SUM UP

- Indian economy is an agrarian economy in which agriculture had remained as the mainstay since time immemorial.
- Agriculture plays an important role to the development of a country particularly a less developed country.
- In India's development, the agriculture and allied sector plays a major role as it also has an impact on the economic development in the context of India. The agriculture and allied sector contribute to the national income. It provides employment opportunity, reduces poverty, generates important foreign exchanges through export of agricultural produce, complements development of other sectors of an economy by providing raw materials and conducive infrastructural development, ensures price stability, ensures food security, generates public revenues, etc.
- With the passage of time, role of agriculture in economic development of India is emerging as more complex as well as important. Although

agricultural production has increased manifold, India has still undernourished children under age of 5 with stunted growth. High maternal and neonatal morality rates also exist in India due to lack of sufficient intake of calories during pregnancy. This paradoxical situation referred to as 'hunger in the midst of plenty' which India has been experiencing now is very serious. Therefore, the basic and most important role of agriculture as source of food security is gathering more importance in order to attain sustainable economic development for India. India is portraying the fact that not only availability of food is necessary to ensure food security but affordability is utmost important. However as the highest proportion of people of India are still engaged in agriculture in spite of prevalence of underemployment and disguised unemployment, this causes negligible as well as negative returns to these people. Therefore, the role of agriculture as venture for employment is to address this issue by innovating new low-cost techniques as well as enhancement of productivity of agricultural labourers by facilitating skill development training and better education. Again, with the shrinking of natural resource base and climate change, the low-cost production of agriculture is another threat. With recognition of the importance of green environment, agriculture is the only sector among all other sectors which can provide sustainable growth. Therefore, the importance of agriculture has been changing according to the need of the hour for sustainable, inclusive and fastest economic growth of India.

- In the Five-Year Plans of India, agriculture is an important component. From the very beginning of First Five-Year Plan, it has been recognised that without developing agriculture, it would not be possible for India to attain economic development. Therefore, in different five-year plans, action plans are proposed to attain target growth of agriculture and to resolve the issues/challenges hindering agricultural improvements.
- Agriculture and industry are interdependent on each other. Without development of one, the development of other cannot be achieved. Agriculture supports industry as:

- Suppliers of wage goods
- Supplier of raw material
- Source of labour
- Generator of rural demand for industrial products.

On the other hand, industry supports agriculture by:

- Helping in technological upgradation of agriculture
- Generating demand for agricultural produce
- Providing better income opportunity for surplus agricultural labourers.



2.8 FURTHER READING

1) Kapila, U. (2016.), "Indian Agriculture: Developments, Issues, policies and Agenda for Reforms (Editorial notes), chapter-21" in Uma Kapila (ed.) *Indian Economy Since Independence*, Academic Foundation, New Delhi.

2) Kapila, U. (2016.), "Indian Economy: Issues in Development and Planning and Sectoral Aspects" in Kapila, U. (ed.) *Indian Economy Since Independence*, Academic Foundation, New Delhi.

3) Reddy, S. S., P. R. Ram, T. V. N. Sastry & I. B. Devi (2020), *Agricultural Economics*, Oxford & IBH, New Delhi

4) Dev, S. M. (2015-16). ''Agricultural Development in India: Peformance, Issues and Policies''. In U. Kapila (Ed.), *Indian Economy Since Independence* (Vol. 26, pp. 647-676). Academic Foundation, New Delhi.

5) For further informations regarding agriculture during Five-Year Plans, https://niti.gov.in/planningcommission.gov.in



2.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: 44.2 per cent.

Ans to Q No 2: 19.9 per cent.

Ans to Q No 3: Major objectives of 5th Five-Year Plan for agriculture were:

- To achieve self- reliance and self- sufficiency
- To raise the standard of living of the rural people who were below poverty line by adopting required technology and measures.

Ans to Q No 4: The National Bank for Agriculture and Rural Development (NABARD) in July, 1982.

Ans to Q No 5: The three-pronged strategies were:

- Increase in overall employment and incomes by raising farm productivity and growth of other economic activities in the rural areas.

Provision of gainful supplementary employment through poverty alleviation schemes such as JRY (Jawahar Rojgar Yojana), EAS (Employment Assurance Scheme) which would generate additional employment in the short run and help in the creation of durable rural infrastructure for more sustained employment over time

Ans to Q No 6: 4 percent



2.10 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: What is the role of agriculture in economic development of India?

Q 2: How does agriculture generate foreign exchange?

Q 3: Why is employment in agriculture still higher than other sectors?

Q 4: What is present share of agriculture to GDP of India?

Q 5: What do you mean by Yellow Revolution?

Q 6: What is the importance of Green Revolution in Indian Agriculture?

Q 7: In which five-year plan, prior importance was given to the development of Indian agriculture?

Long Questions (Answer each question in about 300-500 words)

Q 1: What is the importance of agriculture in economic development of India?

Q 2: Discuss the role of agriculture on economic development of a country.

Q 3: There is paradigm shift of Indian economy from agrarian economy to services led economy. In this context, discuss the importance of agriculture to economic development of India.

Q 4: Discuss the progress of agriculture in five-year plans of India.

Q 5: How do you explain the role of agriculture in price stability in an economy?

Q 6: How do you explain the situation 'hunger in midst of plenty' in context of India?

Q 7: How does agriculture complement industrial development?

Q 8: Discuss the interdependence of Agriculture and Industry.

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UNIT 3 : FARM ORGANISATIONS

UNIT STRUCTURE

3.1 Learning Objectives

3.2 Introduction

3.3 Types of Farm Business Organisation

3.4 Most Suitable Farm Organisation

3.5 Further Reading

3.6 Answers to Check Your Progress

3.7 Model Questions

3.1 LEARNING OBJECTIVES

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

- Learn about the different types of farm business organizations
- Discuss the most suitable farm organisation in Indian Agriculture

3.2 INTRODUCTION

The system of farming is generally concerned with the organisational set up under which the farm is being run. The systems mainly governed by three basic questions viz. who is the owner of land, whether the resources are pooled or used individually, and who makes the marginal decisions. Under the system of farming there may be situation where an individual is the owner of land and he himself makes the managerial decisions what should be produced, how should-be produced, where to market etc. This is different from another situation where land belongs to a group of persons, these persons collectively do the farming operations and a board of management or executive committee is formed to make necessary decisions. Still another system may be found where the landlord gives his land to a tenant farmer on share basis. Here, the tenant decides about the activities to be carried out on the farm, provides his labour and other inputs except land, and whatever output he gets half of that goes to the landlord.

‘‘ Farming System is defined as a complex inter related matrix of soil, plants, animals, implements, power, labour capital and other inputs controlled in part by farming families and influenced to varying degrees by political, economic, institutional and social forces that operate at many levels. The farming system therefore, refers to the farm as an entity of interdependent farming enterprises carried out on the farm

3.3 TYPES OF FARM BUSINESS ORGANISATIONS

- **Peasant Farming:** This is the most commonly followed form of farm business organisation. In this form of farming, individual farmer is the owner, manager and organiser of the farm. The biggest advantage of this farming is that farmer is totally independent in his decisions, as he is the owner. He makes decision and plans for his farm depending upon his resources which are generally not seen in other systems of farming. Compared to other farms, one drawback here is the resource limitation including the land at the disposal of the farmer. He has to judiciously use these resources to run the farm business profitably.
- **Co-operative Farming:** It is a form of farm business organisation in which persons unite voluntarily, pool their lands, resources and cultivate the lands jointly. The pooling of land, labour and capital makes it possible to fully utilise the resources and thereby increase the production capacity of the pooled land most economically.

  The All India Co-operative Planning Committee (1951) classified co-operative farming into four categories viz.,

  - Co-operative better farming society,
  - Co-operative joint farming society,
  - Co-operative tenant farming society; and
  - Co-operative collective farming society
- **Co-operative Better Farming Society:** Any ten or more cultivars can form into a better farming society. Here the ownership as well as the operation is individual. All members abide by a plan of cultivation adopted by the society. The society arranges for the adoption of better methods of cultivation, joint purchase of inputs, etc. Every member is

free to follow his own plan except for the purposes agreed. The administration is done by a managing committee, elected by the general body and it governs all the activities.

- **Co-operative Joint Farming Society:** In this category of the society, the ownership is individual and operation is collective. Individual owners of land merge their lands and other resources in order to form compact blocks for joint cultivation. This pooling of land permits the scientific methods of cultivation. The management of the society is in the hands of an elected body. All the members work jointly and each member gets wages for his daily work. The ownership of the land is recognised by the payment of dividend in proportion to the value of his land.
- **Co-operative Tenant Farming Society:** In this case, landless people organise into a farming society. Here, the ownership is collective but the operation is individual. Land of the society is divided into plots and leased out for cultivation to individual cultivators. Society draws a plan for the best cultivation of the land. The society arranges for the cultivation requirements and also the marketing of the produce. Every member is responsible for the payment of rent only to the society.
- **Co-operative Collective Farming Society:** In this society, ownership as well as operation is collective. Members do not have any right on land. Administration is the same as that of joint farming society. Members work jointly and they are paid according to the volume of work contributed. Profits are distributed according to labour and capital invested by the farmer.
- **Capitalistic Farming:** Under capitalistic farming, the farms are large and owned by the capitalists. These farms enjoy plentiful resources. These are managed by either individuals or groups. These farms are quite efficient using the latest technology available, but this form of farming is not a common feature in India. Capitalistic farms are popular in countries like USA, Canada, UK etc. Farms enjoy plenty of capital and organisational strength. The limitation of this type of farm business organisation is that the actual cultivator is not the owner of the farm.
- **Collective Farming:** Collective farm is a group of farming families

who pool their resources i.e., land, livestock, machinery, etc., and decide to work together under a management committee elected by them. The management committee is responsible for the overall farm management, allocation of work and distribution of income. This type of farming is not prevalent in India. Russia and China follow this form of farm business organisation. The production plan on the farms is laid down by the State and the farms have to sell a fixed portion of the output to the State. Incentives are paid to the farmers for the improvement of the farm.

- **State Farming:** These farms are owned, managed and run by the State. State farms are equipped with latest machinery and equipment and employ scientific methods of cultivation. The workers on these State farms are wage earners. Besides producing foodgrains, the State farms produce raw products like cotton, wool, etc. State farming is suitable in newly reclaimed areas, where large scale mechanised cultivation is possible.
- **Contract Farming:** Another emerging farming system in India is contract farming. In this system land is taken on long time lease base from individual owners. Land remains under ownership of individuals but they have no role to play in farm policy. They are paid rental value of land. It is a good system in developed countries where holdings are large. However in India 75% farmers are small and marginal and if they lease out their land, they become forced to migrate to cities in search of jobs. In the long term, there are chances of landlessness as well.

3.4 MOST SUITABLE FARM ORGANISATION IN INDIAN AGRICULTURE

Farming is an age old practice on which millions of Indian dependent for their livelihood. However, there are few systems on which farmers are assured of a market for their produce. Farmers become compelled to discard their produce more often due to lack of buyers. On the other hand, agri-based and food industry always requires timely and

adequate inputs of good quality agricultural produce. This inconsistency of the Indian agricultural scenario has given birth to the concept of Contract Farming, which promises to provide a proper linkage between the 'farm and market'. Thus contract farming can be considered as the most suitable form of farm business organisation in the Indian agricultural scenario.

The farmers adopting contract farming receive/gain the following advantages:

- The farmers will be exposed to world class mechanised agro-technology, which increases productivity.
- The farmers obtain an assured price for their products. They also get market outlet for their products
- The farmers get healthy disease-free nursery, agricultural implements and improved technology from the contracting company,
- There will be crop monitoring on a regular basis. Technical advice will be provided free of cost at the doorstep of the farmer. This also helps the farmer to get assured output.

In Indian agricultural situation, to develop an agrarian economy that ascertain food and nutrition security to a population of over a billion, supply of raw material for its expanding industrial growth, surpluses for exports, and a fair and equitable rewarding system for the farming community, 'commitment driven' contract farming is no doubt a viable alternative farming model, which provides assured and reliable input service to farmers and desired farm produce to the contracting firm. Few examples of successful cases of contract farming in India are: The Classic Case of Pepsi Foods Ltd; Appachi's Integrated Cotton Cultivation: Innovative Model; Ugar Sugar's experience with barley etc.



CHECK YOUR PROGRESS

Q 1: Name the different types of farm business organisation.

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Q 2: Write the different types of co-operative farming

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Q 3: What is the most suitable form of farm organization.

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3.5 FURTHER READING

1) Reddy, S.S. and Ram P.R. (2018) Agril. *Finance and Management*, Oxford & IBH Publishing Co Pvt.Ltd.

2) Reddy S.S. (2006) *Agricultural Economics*, Oxford & IBH Publishing Co Pvt.Ltd.



3.6 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Manpower P

Ans to Q No 1: The different types of farm business organisation are

a) Peasant farming

b) Co-operative farming

The All India Co-operative Planning Committee (1951) classified co-operative farming into four categories viz., (i) Co-operative better farming society, (ii) Co-operative joint farming society, (iii) Co-operative tenant farming society; and (iv) Co-operative collective farming society

c) Capitalistic Farming

d) Collective Farming

e) State Farming

f) Contract farming

Ans to Q No 2: The All India Co-operative Planning Committee (1951) classified co-operative farming into four categories viz., (i) Co-

operative better farming society, (ii) Co-operative joint farming society, (iii) Co-operative tenant farming society; and (iv) Co-operative collective farming society.

Ans to Q No 3: The most suitable form of farm business organisation is contract farming. The farmers adopting contract farming will get the following advantages: 1.The farmers will be exposed to world class mechanised agro-technology. Which increases productivity; 2. The farmers obtain an assured price for their products. They also get market outlet for their products; 3. The farmers get healthy disease-free nursery, agricultural implements and improved technology from the contracting company, 4. There is also crop monitoring on a regular basis.



3.7 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: Define Farming System

Q 2: What is Peasant Farming

Q 3: Differentiate between Co-operative Better Farming Society and Co-operative Joint Farming Society

Long Questions (Answer each question in about 300-500 words)

Q 1: Discuss in details about different types of business farm organisation

Q 2: Discuss the most suitable form of farm organisation in India

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UNIT 4 : LAND REFORMS

UNIT STRUCTURE

4.1. Learning Objectives
4.2. Introduction
4.3. Objectives and Measures of Land Reforms:
  4.3.1 Objectives of Land Reforms
  4.3.2 Measures of Land Reforms
4.4. Need of Land Reforms in Indian Agriculture.
4.5. Ownership vs. Tenancy Cultivation
4.6. Large Farms Vs. Small Farms
  4.6.1 Definition of Small Farms
  4.6.2 Economics of Large Farms
  4.6.3 Economics of Small Farms
4.7. Critical Evaluation of Land Reforms
4.8. Let Us Sum Up
4.9. Further Reading
4.10. Answer to Check Your Progress
4.11. Model Questions

4.1 LEARNING OBJECTIVES

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

- discuss the context and the meaning of land reforms as a part of agrarian reforms.
- learn the objectives of land reforms and its needs in Indian agriculture.
- grasp the meaning and types of tenancy as well as needs and measures of tenancy reforms in Indian agriculture.
- dwell upon the debate hovered around farms size and evolution of large and small farms.
- discribe the progress of land reforms and critical evaluation of land reforms measures adopted.

4.2 INTRODUCTION

We have learnt from the previous units that agriculture occupies a significant place in Indian economy in terms of its contribution to GDP, to employment and livelihood security to a vast section of rural masses, to the growth of industrial and other sectors and most importantly to India's export sector at large. Further, we have also learnt that over the years, the sector itself has witnessed major changes in terms of it structure and pattern and faced many challenges as well. In this context, it seems highly important to understand the institutional, demographic and socio-political context within which agricultural growth has been taking place. The major thrust of the policies in the first decade of planning (1951 to 1961) was on institutional and agrarian reforms. Agrarian reforms are a part and parcel of evolution of agricultural system of an economy. We all know that Indian economy is primarily an agrarian economy as agriculture shares about 23 percent of the countings GDP providing employment opportunities to nearly to 52 percent of the total work force. It is, thus, imperative to understand state of operation of the agriculture and various reforms undertaken from time to time to strengthen it. India being an agrarian economy with great scarcity and unequal distribution of land along with a large mass of landless rural population, there are pressing economic and political arguments for land reforms. In general, land reforms are a part of the agrarian reforms and have a bearing on agricultural production, productivity and income distribution among small and marginal farmers in rural areas.

According to the Food and Agriculture Organisation (FAO) the term land reforms means: "More than redistribution of land either by breaking up large estates to improve consolidation of land holdings, it must include a number of measures to improve relationship of the man who works the soil to the land he works, including opportunity for land ownership, improved conditions of tenancy, agricultural credit at reasonable rates of interest, reforms of exorbitant rents and taxes and facilities for obtaining agricultural supplies and marketing agricultural products with emphasis on cooperatives."

Thus, land reforms refer to an institutional measure directed towards altering the existing pattern of ownership, tenancy and management of land and land reform largely entails a redistribution of the rights of ownership and/or use of land away from large landowners, in favour of cultivators with very limited or no landholdings.

Before we proceed to the discussion on land reforms, let us have a discussion on land tenure system prevalent in India which witnessed changes over a long period of time. Land tenure mainly deals with the rights and pattern of control of the land resource. There were three types of land tenure systems in India at the time of independence. Based on the mode of payment of land revenue these land tenure systems were classified under Zamindari system, Mahalwari system and Ryotwari system. Thus, under the Zamindari system, the Zamindar collected land revenue from the farmers and paid to the government. While under the Ryotwari system land revenue was directly paid by the farmers to the state government, and in Mahalwari system the village head was responsible to collect the land revenue. Under land tenure system, three types of tenants viz., occupancy tenants, tenants-at-will and sub-tenants were present. Occupancy tenants enjoyed permanent and inheritable rights on land, tenants-at-will and sub-tenants did not have any security of tenants on the land and were subjected to eviction at any time by the landlords. Besides these tenants, the whole land tenure system had a big class of agricultural laborers with no rights on land but worked on land for wages. Let us discuses the following land tenure systems:

- **Ryotwari System**: The Ryotwari tenure system was first introduced in Madras in 1820 by Thomas Munro, then Governor of Madras province and later on it was extended to Bombay (present Mumbai), parts of Assam and Coorg provinces under British India. Under this Ryotwari tenure, every individual is registered and holder is recognised as the proprietor of land and he is responsible for the payment of land revenue to the Government. The rate for land revenue were fixed at 50 percent for dry lands and 60 percent for the wetlands. The ryot or the farmer had all rights on land including sale, transfer and lease as long as he paid land revenue to the Government. There was practically

no room for any intermediary owners of the soil and the state. But later on, money lenders started giving land for lease and collected exorbitant rents from the cultivators. In Punjab this situation was alarming.

- **Mahalwari Tenure:** Mahalwari tenure system was introduced by Holt Mackenzie in 1822. In 1833, this system was reformed by William Bentick in Agra and Oudh. Under this system of tenure, lands were held jointly by the village communities and were collectively liable for the land revenue. As per the system, the village common land, waste lands were the properties of the village community. This waste land was free to be rented and the rent was divided among all members of the community. The entire village (Mahal) was treated as a unit for collection of revenues. The responsibility of collecting land revenue was vested on the village headman or a co-sharer appointed for collection of land revenue.
- **Zamindari System:** Under this system the Zamindar acted as the intermediary agency between the state and the actual cultivators. They were entitled with ownership and control rights in land and to collect rent or appropriate share of crop produce from the actual cultivators. Besides Zamindars, the intermediaries were also known as Jagirdars, Talukdars, Khot, Lambarder etc.

  The Zamindari system in India came into existence in the year 1793 at the behest of the British Government. Lord Cornwallis made settlement with landlords (Zamindars) to collect the land revenue from the farmers. The landlords were declared as full proprietors of land in the return for the land revenue or land rent from the farmers collection. The system was prevalent in India upto 1949 in the states of West Bengal, Orissa, Andhra Pradesh, Uttar Pradesh and Madhya Pradesh. The system had its limitation in terms of unlimited rights enjoyed by the Zamindars to extract as much of rent as they wished resulting in large scale exploitation of the farmers. The Zamindars poverty and misery of the cultivators.appropriated more than 25 percent of the collected rent and the rent constituted 25 percent of the value of the

produce. Thus, the Zamindari system resulted in large scale exploitation and innumerable

Land reforms measures have been adopted by various developing and underdeveloped countries for attaining a rational land distribution pattern and viable farming structure. Land reforms cover a vast contour of meaning. While in narrow sense, land reforms are concerned with those reforms related to land ownership ad land holdings. However, in the larger sense of the tem, it means those measures of reforms necessary to raise agricultural productivity which include reforms relating to fixation of rent on land, abolition of intermediaries, credit and marketing arrangement. Land reforms received top on policy agenda at the time of independence. In decades following independence, India passed a significant body of land reform legislation. The constitution of 1949 left the adoption and implementation of land and tenancy reforms to the state governments.



According to the Food and Agriculture Organisation (FAO) the term land reforms means: "More than redistribution of land by breaking up large estates to improve consolidation of land holdings, it must include a number of measures to improve relationship of the man who works the soil to the land he works, including opportunity of land ownership, improved conditions of tenancy, agricultural credit at reasonable rates of interest, reforms of exorbitant rates and taxes and facilities for obtaining agricultural supplies and marketing agricultural products with emphasis on cooperatives."Broadly," Land reforms refer to an institutional measure directed towards altering the existing pattern of ownership, tenancy and management of land and largely land reform entail a redistribution of the rights of ownership and or use of land away from large landowners and in favour of cultivators with very limited or no landholdings."

4.3 OBJECTIVES AND MEASURES OF LAND REFORMS

Let us now discuss the objectives and measures of land reforms:

4.3.1 Objectives of Land Reforms

The two basic objectives of land reforms were, viz. (i) to remove such impediments on agricultural production that arises from the character of agrarian structure in rural areas and (ii) to reduce or eliminate exploitation of landless and small cultivators through measures of land redistribution. The Planning Commission of India (known as NITI Ayog since 2014) outlined the following objectives of land reforms in India:

- To remove such impediments to increase agricultural production
- To eliminate all forms of exploitation and social injustice within the agrarian system
- To provide security to the tiller

- To assure equality of status and opportunity to all sections of rural people

Taking into consideration the whole measures of land reforms, the objectives of land reforms can be outlined as mentioned below:

- Redistribution of land across society so that land is not held in the hands of a few people
- Land ceiling to disburse surplus land amongst small and marginal farmers
- Removal of rural poverty
- Abolition of intermediaries
- Tenancy reforms
- Increasing agricultural productivity
- Consolidation of land holdings and prevention of land fragmentation
- Developing cooperative farming
- To ensure social equality through economic parity
- Tribal protection by ensuring their traditional land is not taken over by outsiders
- Land reforms were also for non-agricultural purposes like development and manufacturing



CHECK YOUR PROGRESS

Q 1: What do you mean by land reforms?

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.....

Q 2: What are the main objectives of land reforms?

.....

.....

4.3.2 MEASURES OF LAND REFORMS

Land reforms measures/legislation in India comprises of four main categories: abolition of intermediaries who were rent collectors

under the pre-independence land revenue system; tenancy regulation that attempted to improve the contractual terms for tenants including crop share and security tenure; a ceiling on land holdings with a view to redistributing surplus land to the landless and finally to consolidate disparate landholdings. The land reforms measures can be stated as the following:

- Abolition of intermediaries
- Tenancy reforms
- Reorganisation of agriculture

Tenancy reforms include:

- Regulation of rent
- Security of tenure
- Ownership of rights
- Ceiling on land holdings

Measures of reorganisation of agriculture include:

- Redistribution of land
- Consolidation of holdings
- Co-operative Farming

Points to Remember: The two basic objectives of land reforms in India are,

- to remove such impediments on agricultural production that arises from the character of agrarian structure in rural areas and
- to reduce or eliminate exploitation of landless and small cultivators through measures of land redistribution.

  Land reforms legislation in India comprises of four main categories:

  - abolition of intermediaries who were rent collectors under the pre-independence land revenue system,
  - tenancy regulation that attempted to improve the contractual terms for tenants including crop share and security tenure,
  - a ceiling on landholdings with a view to redistributing

surplus land to the landless

- to consolidate disparate landholdings.

Following is the detailed discussion on objectives and measures of land reforms in India:

- **Abolition of Intermediaries:** The Land reforms committee constituted under the chairmanship of Kumarappa in 1949 recommended for abolition of intermediaries as a part of land reforms measures. Abolition of Zamindari and other similar intermediary tenures largely involved removal of intermediary levels or layers of various amorphous and parasitic groups in land between state and the actual cultivators which of course requires compensation to the owners of land. In response to this, towards the end of first plan, Zamindari system was abolished and nearly 173 million acres of land was acquired from intermediaries and 2.5 crores tenants were brought into direct relationship with the state. It also made possible distribution of about 61 lakhs hectares of land to landless farmers. As a result of this, large acres of land (mostly privately owned forests) and wasteland came under the jurisdiction of the state. Those tenants cultivating lands for more that 6 years were given the right to purchase the land at fair prices fixed by the land tribunal. They were also protected from exorbitant rents and illegal extortions. Zamindars were given compensation for the land acquired from them based on the net income or net asset basis.

  Despite abolition of intermediary rights, poor peasantry was exploited in various ways. It also led to large scale disruption of poor tenants from the land. While landlordism has been abolished, absentee landlordism now continues to grow in numbers. This is mainly due to the fact that the legislation conferred ownership rights not upon the actual cultivator, but on the statutory tenant who himself was an intermediary with a chain of sub-tenants under him. The reasons for this can be cited thus,

- The law permitted the intermediaries to retain their home farms.
- No limit was put on the area of land they could retain.
- The term personal cultivation was ill defined.
- No protection was given to sharecroppers and other tenants at will.

Thus, though the abolition of zamindari has paved the way for a remarkable shift in the balance of power, the major goal of "land to tiller" is yet to be achieved.

- **Tenancy Reforms:** As a result of tenancy reforms, occupancy tenants enjoyed permanent rights like the owner of land and did not face any fear of eviction. Under tenancy reforms there were regulation of rent, security of tenure and conferment of ownership rights on tenants.
- **Regulation of Rent:** In order to regulate rent, the first five year plan recommended that the rent should be fixed at one fourth or one fifth of the value of total produce obtained from land. All states accepted this limit except Andhra Pradesh, Punjab, Haryana, Jammu and Kashmir and Madras. These states fixed their own limit. For example, in Madras it was 40 percent of the gross produce which was fixed as maximum rent which in Bihar was 50 percent of the gross produce. In Andhra Pradesh 30 percent of the gross produce of irrigated land and 25 percent of the gross produce of dry land was fixed as rent.
- **Security of Tenure:** Tenants are the persons cultivating the land on payment of rent though in some states like West Bengal and Uttar Pradesh share croppers were not regarded as tenants. Tenants were insecure in the sense that land owners were permitted to resume the land rights up to the ceiling limit and the term personal cultivation was defined with lots of flaws.



CHECK YOUR PROGRESS

Q 3: What do you mean by cooperative farming?

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Q 4: State the reasons for failure of abolition of intermediaries though attempted under land reform measures.

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4.4 NEED OF LAND REFORMS IN INDIAN AGRICULTURE

The need for land reforms in an agrarian country like India is immense. In many cases, backwardness of Indian agriculture can also be attributed to defective land policy adopted in the country. Some of the problematic areas in land policy of India as identified by the Planning Commission of India are as follows: (i) presence of multiplicity of intermediaries between government and cultivators, (ii) land of adequate security of tenure; (iii) fixation of high rent and lack of incentive; (iv) large scale sub-division and fragmentation of holdings and the impediments arising on it towards adoption of modern and scientific methods of cultivation; (v) unequal distribution of land among farmers; (vi) low productivity per hectare of land, and (vii) increasing inequality between rich and poor as a result of green revolution. Some of the important land reforms in India are the following:

- Creation of economic holdings through redistribution of land to small and marginal farmers with a view to facilitate adoption of modern improved farming techniques.
- Removal of intermediaries and tenancy system thereby giving ownership of land to actual cultivators which in turn provide incentive to the famers.
- Increase in production and productivity through increase in size of land holdings and development of co-operative farming.

- Establishment of direct link between government and farmers through abolishing intermediaries which in turn facilitate the government to implement plan for agricultural development.
- Securing social justice among millions of farmers in India by transferring them ownership rights to lands, fixing ceiling on land holdings and by reducing the exploitation of farmers.
- **Economic arguments in favor of land reforms:** Equity is the most celebrated argument in favour of land reforms in India. In a land scarce country with significant section of BPL rural population, it became imperative that everyone has access to minimum portion of land.

  Secondly, quite a large number research from various parts of the country by researchers have widely documented that small farm tend to be more productive than large farms. Further, there are evidences that owner-cultivated plots of land tend to be more productive than those under sharecropping tenancy.

The presence of large numbers of intermediaries in agricultural sector has been identified as an impediment to growth and development of Indian agriculture. Land reforms were argued for abolition of intermediaries. In fact, the intermediaries were abolished within a few years after independence and the actual tillers accounting for about 40 percent of the cultivated area became owners.

4.5 OWNERSHIP VS. TENANCY CULTIVATION

We have discussed above that tenancy reform is a major part of land reform measures. Under tenancy reforms, the important component was the conferment of ownership rights to tenants.

As per the tenancy regulation policy introduced at the national level, large landowners were allowed to evict their tenants and to bring the land under personal cultivation up to a ceiling limit which is to be prescribed by each state. The term “personal cultivation” was used to define as cultivation by the owner of the land and other members of a farmers’ family.

The tenants of those lands which were not resumable (i.e., without landowners) were given occupancy rights on payment of a price to be fixed

as a multiple of the rental value of the land. The owners of land not exceeding a family holding were defined as small owners. Land belonging to small and middle owners was divided into two categories viz. land under personal cultivation, and land leased to tenants at will. If the land possessed was below a ceiling restriction, tenants of such land owners were given limited protection, provided that it should be renewed for five to ten years and should be renewable, and that the maximum rent payable should not exceed 20 to 25 percent of the gross produce. However, in the second five-year plan, the definition of "personal cultivation" was amended with three elements viz. risk of cultivation, personal supervision, and personal labour. This further narrowed down the definition of who was eligible for the ownership rights on land. In the third five-year plan, the final goal was fixed on conferring rights of ownership to as many tenants as possible. The policy suggested that the states should study the problem and determine the suitable action in light of prevailing conditions. In the fourth plan, the tenancies were suggested to be declared non-resumable and permanent, except in the case of landowners working in defence services or with any disability." Thus, the lands where cultivators, agricultural labourers, and artisans had constructed their houses, was now to be their own land.

All these efforts were partially successful in reversing the conditions of the British Era. However, there were issues of tenants being forced to sell the lands due to poverty. The government was suggested to make efforts to bring them within the institutional credit regime.

In the sixth five-year plan, a time bound schedule was given to the states to implement the measures of land reforms. It further recommended that the states in which legislative provisions for conferment of ownership rights on all tenants did not exist, should immediately introduce appropriate legislative measures within one year (by 1981–1982). However, it was not achieved in all states.

4.6. LARGE FARMS VS. SMALL FARMS

In this section let us discuss about the relative importance large farms and small farms one by one.

4.6.1 Definition of Small Farms

Quiet a large number of criteria has been used to define a small farm. Different economists and agriculturalists define small farms by using different criteria. For example, Cohen classified farms according to the numbers of workers or value of the gross output produced. The common criteria used for the classification of farms into large and small farms are: number of workers or laboures, value of the gross output and area of cultivation. In capitalist agriculture, the quantity of scare factor in agriculture is taken as measure for farm classification. For example, in USA, where labour is scarce number of labourers/workers engaged in cultivation is considered as a criterion for division of farms into small and large farms. In India, land has become a scarce factor in agriculture. Therefore, area of land holdings is used as the criterion for classification of farms into large and small farms. According to Small Farmer's Development Agency (SFDA), farms with 1 to 2 hectares of land is considered as small farms while farms with less than 1 hectare of area of land holdings is considered as marginal farms.

4.6.2 Economies of Large Farms

Let us discuss the benefits of large farms on the following on the following grounds.

- **Technical Economy:** A large farm may have the advantage of application of specialised machineries, scientific equipment, technical know-how etc. as the average cost of production of farm decreases with increase in the size of the farm.

  In case of large farms, more area is available for productive use. The overhead cost of production per unit of output declines on large farms.

  Rotation of crops is easy for large farms as large area is available for cultivation of various crops.

  Operational cost of machinery in per acre of land is low

due to full utilisation of machinery in large area of cultivation in case of large farms.

Huge resources and capacity to tackle the risk of failure enable a large farm to introduce new crops.

For an optimum use of scarce management and skilled man power, a large farm is necessary.

The quality of the output can be controlled if the size of the farm is large and its number is few in the market. This situation is also an impetus for proper adjustment of the individual farm output to the market outlets.

- **Financial Economy:** The size of a large farm enables the farmer in obtaining easy credits from multiple sources. The availability of borrowing a huge sum of money at lower interest rate from outside sources makes a large farmer gain the opportunity to invest in agriculture as per the requirement. When the large farmer needs immediate money, he can withhold the sale of his output in the market. This will also permit him to sell his output at the most favourable price in the market.
- **Commercial Economy:** The commercial economy refers to the benefits that a large farm can obtain in business (buying and selling activities). A large farm can obtain economy in buying large quantity of inputs at lower prices. It can also get the economy of supplying its large amount of outputs to various markets (local, districts, national, international) with lower cost of transportation.

4.6.3 Economies of Small Farms

Let us discuss the economies of small farms over large farms in agriculture.

- **Advantage in Monitoring and Supervision:** The supervision of each and every worker in agriculture is difficult if the size of the farm is large. In case of small farm, as the workers are working in close vicinity, therefore supervision of workers is easy.

- **Need for Spot Decision:** The decisions in agriculture are to be made mostly at spot as most of the products of the agriculture are perishable and agricultural production is affected by many physical factors. These fresh, frequent and immediate decisions are to be taken by the farmer himself. If the size of the farm is small, it is easy for the farmer to take decision otherwise it is dificult to take decisions.
- **Agriculture is Generally a Family Proposition:** As agriculture is taken as a family proposition, therefore policy regarding amount of input to be used, output to be produced or quantity and quality of workers to be employed is decided by the family members. If his policy is to change from generation to generation then large-scale farming organisation will be discouraged.
- **Tenacity of Small Farms:** Small scale farming is a feature of small farm and generally family members work in their own farm. The higher flexibility in the supply of labourers by the family members determine the tenacity of a small farm by coping up with various fluctuations in requirement quantity of labour supply due to vacillation of weather condition and unpredictable needs of crops and livestock.
- **Productivity of Small Farms:** Some studies reveal that the output per acre was higher on small farms than on large farms. This is mainly due to the fact that in small farms the scope for intensive cultivation is much larger than the large farms.
- **Generation of Employment Opportunity:** Small farms use labour intensive techniques and large farms use capital intensive techniques. Therefore, small farms create more employment opportunities than large farms. Again, greater intensity of cultivation in small farms generates more employment in these farms.
- **Quality of Output:** Agriculture is a tough occupation and it requires consistent hard work, care and attention. In small farms, farmers render majority of the activities manually and

nourishes the crops as their baby as they do not have capital, access to modern and costly machineries. Again, if the motivation of small farmers is to feed their own family, they never compromise on the quality of the products. However, in case of large farms, farmers are concerned with the cost benefit calculations and they seem to be ready to comprise on quality of the products.



CHECK YOUR PROGRESS

Q 5: How do you address the debate between ownership cultivation and tenancy cultivation?

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Q 6: On what basis the farms are classified in India?

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Q 7: Define small farm in India.

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Q 8: What are the advantages of large farms over small farms?

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4.7 CRITICAL EVALUATION OF LAND REFORMS

Here, let us look at the progress of land reforms measures adopted by the goverment of India in its various five-year plans. We can discuss the progress of land reforms measures in India under three different phases viz. 1936-55, 1956-71 and 1972-95.

- **First Phase (1936-55):** During this period the state governments and the union territories had given top priorities in bringing actual cultivators in direct contact with the state government through abolition of zamindars and other intermediaries. To the achievement of this move it has been noticed that towards the end of second

five-year plan, intermediaries covering about 40 percent of the area were largely abolished and as many as 20 million tenants were brought into direct contact with the state. Nearly 57.7 lakhs hectares were distributed to landless agricultural labourers under Zamindari/ Jagirdari abolition acts in various states.

During this phase, emphasis were laid on bringing tenancy reforms which basically aimed at conferring the rights of ownership of tenants. Several measures like declaring tenants as owners and making them pay compensation to owners in suitable installments, acquisition of the right of ownership by the State for payment of compensation and transfer of ownership of tenants and State's acquisition of the landlord's rights bringing tenants into direct relationship with the state. About 30 million tenants had the rights on tenure-held land in the process and most of them free of cost. A significant number of tenants in Assam, Kerala, Maharashtra, West Bengal, Gujarat and Karnataka had benefited from the tenancy reforms while in other states it was marginal. In the states when ownership rights could not be conferred on tenants they were protected through security of tenure by not allowing eviction of tenants and reducing the rent from 20 to 25 percent of the yield. Out of an estimated 15 million protected tenants, West Bengal alone had given recorded rights of hereditary occupancy to 1.46 million tenants.

Though tenancy reforms were undertaken, the reforms measure still had certain limitations:

- Share croppers who constitute bulk of the tenant cultivators have been excluded from reform measures.
- On several grounds, eviction of tenants had taken place.
- As a fall out of the tenancy reforms especially resumption given in the legislation, land grabbing by the unscrupulous was quite present.
- There is non-recording of tenancy in land records, hence ownership rights could not be conferred on a large body of tenants.

- **Second Phase (1956 -1971):** During this phase, as part of reform measures, ceiling on agricultural land holdings has been imposed. In response to this, all states enacted ceiling laws by the end of 1961 though ceiling limits were different for different states. Near about one million hectares of agricultural land were identified out of which about 50 percent were distributed among the rural poor.
- **Third phase (1972-1995):** During the phase the major breakthrough was to reduce existing land holding ceiling limit especially in the conference of chief ministers held in New Delhi on 23rd July, 1972. The revised ceiling limits were: (a) the Government irrigated land should enjoy a lower ceiling limit ranging from 4 ha to 7 ha, (b) the privately irrigated land the ceiling limit ranges from 5 ha to 7 ha and (c) the dry land and other kinds of agricultural land, the ceiling limit should not exceed 22 ha. The ceiling laws were implemented during the sixth five-year plan period (1980-85) but during the seventh and eight plan periods, there was no progress and it had come to a standstill in a majority of states. Towards the end of 1996, the area declared surplus was 30.59 lakh ha of which 26.47 lakh ha were taken possession of and 21.28 lakh ha were distributed among 51.21 lakh beneficiaries in the country. About 8.78 lakh hectares of land was not available for distribution for reasons such as involvement of litigation in various courts, reserved or transferred surplus land for public purposes, unsuitable for cultivation etc. The estimates from planning commission state that the area distributed under ceiling laws accounted for only 1.5 percent of the net cultivated area and beneficiaries. At the same time most the ceiling surplus lands were very poor in quality and require heavy investment for bringing them under the plough. Equally important is to note that in most cases the beneficiaries received less than 0.5 ha of land and hence such holding could not provide economic sustenance to the beneficiaries of farm households.

  As regards the ceiling on land holdings and distribution of surplus land among landless, there were two rounds of land reform legislation – one in 1950s and another in the early 1970s. However, due to

numerous exemptions provided in the law and due to lack of political will, the objectives of this reform could not be fulfilled and not much surplus land could be acquired by the government for redistribution among the landless.



4.8 LET US SUM UP

- Land reforms are a part of the agrarian reforms.
- "Land reforms refer to an institutional measure directed towards altering the existing pattern of ownership, tenancy and management of land and largely land reform entail a redistribution of the rights of ownership and or use of land away from large landowners and in favour of cultivators with very limited or no landholdings."
- Land tenure deals with the rights and pattern of control of the land resources. There were mainly three types of land tenure systems in India during the British period. These were:
  - Zamindari system
  - Mahalwari system
  - Ryotwari system
- The objective of land reforms as stated in the report of Planning Commission of India were:
  - To remove such impediments to increase agricultural production
  - To eliminate all forms of exploitation and social injustice within the agrarian system
  - To provide security to the tiller.
  - To assure equality of status and opportunity to all sections of rural people.
- Two important changes caused by land reforms are: (a) grant of ownership to tenants or other landless workers, (b) small size of the farms due to redistribution of lands.
- The advantages of ownership cultivation over tenancy cultivation are: (a) ownership cultivation reduces the extent of underutilisation of resources; (b) ownership cultivation ensures adaptation of an

appropriate technique of production; (c) ownership to the cultivable land provides best incentive to the cultivator to use resources for efficiently and productively; (d) ownership cultivation leads to investment in both variable capital (improved seeds, fertilisers etc.) as well as in fixed capital (bullock, machinery etc.) which helps in better capital formation in future. (e) financial assistance (loans, grants) can be easily available in case of ownership cultivation than in tenant cultivation as the land can be used as a security. Despite these advantages of ownership cultivation over tenancy cultivation, under certain circumstances (for examples: when the owner died and heir is too younger or when the owner of the land possesses more capital than the land), the tenancy cultivation can only ensure optimum combination of factors of production. Tenancy cultivation provides mobility to the factors of production which opens the door to maximisation of returns to these factors. In case of tenancy cultivation, risks and uncertainties can be distributed among the land owner and the tenants.

- A large farm has advantage over the small farms on the following grounds: scale of operation, cost of production, full utilisation of capital equipment, availability of easy credit facility at lower interest rates, low transportation cost, optimum use of scarce managerial and skilled manpower, availability of inputs at lower concessional prices etc. While small farm also has some advantages over large farms. These include easy monitoring of farming activities of workers, quality of products, flexible supply of family labour, greater employment opportunity for labourers etc.
- Although large farms have many benefits, there is persistence of small farms in underdeveloped countries. The main reasons behind the persistence of small farms are: technical difficulties to increase the size of the farms, financial scarcity, rising population pressure/ rapid population growth, breaking up of joint family system, distribution of lands among all the heirs, fragmentation of landholdings etc.
- The implementation of the land reforms in India are criticised on the following grounds:

defective nature of the land reform legislation, opposition of the land owners, lack of social consciousness among the beneficiaries, inefficiency and partiality of the administrative machinery, emergence of new agricultural technology.



4.9 FURTHER READING

1) Reddy, S. S., Ram, P. R., Sastry, T. N., & Devi, I. B. (2020). *Agricultural Economics*. (Second, Ed.) New Delhi: CBS Publishers & Distributors Pvt Ltd.

2) Soni, R. (2002). *Leading Issues Agricultural Economics* (Fifth ed.). Vishal Publishing Co. Jalandhar, India.

3) Dev, S. M. (2015-16). *Agricultural Development in India: Peformance, Issues and Policies*. In U. Kapila (Ed.), Indian Economy Since Independence (Vol. 26, pp. 647-676). Academic Foundation, New Delhi.

4) Meier, G. M., & Rauch, J. E. (2006). *Leading Issues in Economic Development.* (Eight, Ed.) Oxford University Press.



4.10 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: According to the Food and Agriculture Organisation (FAO) the term land reforms means: “More than redistribution of land by breaking up large estates to improve consolidation of land holdings, it must include a number of measures to improve relationship of the man who works the soil to the land he works, including opportunity of land ownership, improved conditions of tenancy, agricultural credit at reasonable rates of interest, reforms of exorbitant rates and taxes and facilities for obtaining agricultural supplies and marketing agricultural products with emphasis on cooperatives.”

Broadly, land reforms refer to an institutional measure directed towards altering the existing pattern of ownership, tenancy and management of land and largely land reform entail a redistribution

of the rights of ownership and or use of land away from large landowners and in favour of cultivators with very limited or no landholdings.

Ans to Q No 2: The main objectives of land reforms are:

- Redistribution of land across society so that land is not held in the hands of a few people.
- Land ceiling to disburse surplus land amongst small and marginal farmers.
- Removal of rural poverty.
- Abolition of intermediaries.
- Tenancy reforms.
- Increasing agricultural productivity.
- Consolidation of land holdings and prevention of land fragmentation.
- Developing cooperative farming.
- To ensure social equality through economic parity.
- Tribal protection by ensuring their traditional land is not taken over by outsiders.
- Land reforms were also for non-agricultural purposes like development and manufacturing.

Ans to Q No 3: Cooperative farming is an agricultural practice in which farmers pool their small landholdings for the purpose of cultivation and reap benefits of large-scale farms. In this farming operations are conducted cooperatively.

Ans to Q No 4: The reasons for failure of abolition of intermediaries though attempted under land reform measures are:

- The law permitted the intermediaries to retain their home farms.
- No limit was put on the area of land they could retain.
- The term personal cultivation was ill defined.
- No protection was given to sharecroppers and other tenants at will.

Ans to Q No 5: Refer to the section 4.5.

Ans to Q No 6: On the basis of area of land holdings farms are classified in India into large and small farms.

Ans to Q No 7: According to Small Farmer's Development Agency (SFDA), farms with 1 to 2 hectares of land is considered as small farms

Ans to Q No 8: Advantages of large farms over small farms are as follows:

- **Technical Economy:** A large farm may have the advantage of application of specialised machineries, scientific equipment, technical know-how etc as the average cost of production of farm decreases with increase in the size of the farm.

  In case of large farms more area is available for productive use. The overhead cost of production per unit of output declines on large farms.

  Rotation of crops is easy for large farms as large area is available for cultivation of various crops.

  Operational cost of machinery in per acre of land is low due to full utilisation of machinery in large area of cultivation in case of large farm.

  Huge resources and capacity to tackle the risk of failure, enables a large farm introduce new crops.

  For an optimum use of scarce management and skilled man power, a large farm is necessary.

  The quality of the output can be controlled if the size of the farm is large and its number is few in the market. This situation also provids an impetus for proper adjustment of the individual farm output to the market outlets.

- **Financial Economy:** The size of a large farm enables the farmer in obtaining easy credits from multiple sources. The availability of borrowing a huge sum of money at lower interest rate from outside sources make a large farmer gain the opportunity to invest in agriculture as per the requirement. When the large farmer needs immediate money, he can withhold the sale of his output in the market. This will also permit him to sell his output at most favourable price in the market.

- **Commercial Economy:** The commercial economy means the benefits that a large farm can obtain in business (buying and selling activities). A large farm can obtain economy in buying large quantity of inputs at lower prices. It can also get the economy of supplying its large amount of outputs to various markets (local, districts, national, international) with lower cost of transportation.



4.11 MODEL QUESTIONS

Short Questions (Answer within 150 words)

Q 1: How are land reforms different from tenancy reforms?

Q 2: State the objectives of land reforms in India.

Q 3: Write a note on Zamindari system as a part of land tenure system of India.

Q 4: What are advantages of ownership cultivation?

Q 5: What are reasons for persistence of small farms in India

Long Questions (Answer each question in about 300-500 words)

Q 1: Discuss objectives and measures of land reforms of India?

Q 2: Do you think ownership cultivation is better than the tenancy cultivation? Give arguments.

Q 3: Discuss the circumstances in which tenancy cultivation results in optimum allocation of resources.

Q 4: How do you resolve the debate between large farm vs small farm?

Q 5: Critically discuss the achievement of various land reforms measures adopted in India.

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UNIT 5 : RISK AND UNCERTAINTY IN AGRICULTURE

UNIT STRUCTURE

5.1 Learning Objectives

5.2 Introduction

5.3 Difference Between Risk and Uncertainty in Agriculture

- 5.3.1 Definition of Risk
- 5.3.2 Definition of Uncertainty
- 5.3.3 Key Difference Between Risk and Uncertainty

5.4 Types of Risk and Uncertainty in Agriculture

5.5 Measures for Reducing Risk and Uncertainty in Agriculture

5.6 Let Us Sum Up

5.7 Further Reading

5.8 Answers to Check Your Progress

5.9 Model Questions

5.1 LEARNING OBJECTIVES

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

- discuss the difference between risk and uncertainty in agriculture
- explain different types of risk and uncertainty in agriculture
- describe measures for reducing risk and uncertainty in agriculture

5.2 INTRODUCTION

Being biological and seasonal in nature, agricultural production is encountered with conditions of risk and uncertainty. Farmers are generally concerned with different decisions what crops to be grown, when to be grown, seed rates, fertiliser application, application of other crucial inputs etc. These decisions are subjected to change depending on the nature of weather or other associated risks. Similarly, a livestock farmer has to take numbers of decisions regarding his livestock farm and he has to wait for several years to get back the investment and income from the

investment. Changes in the weather, prices and other socioeconomic factors may occur between the time periods which in turn may affect the investment decisions. For that reason, the farmers have to consider various management strategies relevant to the risk and uncertainty conditions. Only a few farmers can become efficient, particularly those who could understand better about different risk and uncertainty situations in farming and rearing livestock and follow different relevant risk management strategies accordingly. Therefore, it is very important to know about different risk and uncertainty in agriculture and how to manage them in better way.

5.3 DIFFERENCE BETWEEN RISK AND UNCERTAINTY IN AGRICULTURE

Quite often, the terms risk and uncertainty are used interchangeably. In reality, there is a very significant difference between the two of them. **Risk** can be understood as the potential of loss. It is not exactly same as **uncertainty**, which implies the absence of certainty of the outcome in a particular situation.

5.3.1 Definition of Risk

In the ordinary sense, the risk is the outcome of an action taken or not taken, in a particular situation which may result in loss or gain. It is termed as a chance or loss or exposure to danger, arising out of internal or external factors, that can be minimised through preventive measures. The risk refers to the probability or outcomes which are measurable in an empirical manner. Risk is defined as a situation when all possible outcomes are known for a given management decision and probability associated with each possible outcome is also known. Risk is measured through probability concepts. It can be insured by the insurance companies. As a result of experience of the farmer, some future outcomes can be fairly calculated. Eg. Poultry farmers, rice farmers etc having long and repeated experience can predict cost, output and price closure to the reality.

5.3.2 Definition of Uncertainty

By the term uncertainty, we mean the absence of certainty or something which is not known. It refers to a situation where there are multiple alternatives resulting in a specific outcome, but the probability of the outcome is not certain. This is because of insufficient information or knowledge about the present condition. Hence, it is hard to define or predict the future outcome or events. Therefore, uncertainty refers to future events where outcomes cannot be measured empirically or quantitatively. Uncertainty is not insurable and cannot be measured in quantitative terms through past models. Therefore, probabilities cannot be applied to the potential outcomes, because the probabilities are unknown. Based upon the experience of using familiar inputs such as known varieties of crop seeds, fertiliser etc one can make an estimate of possible yield with some degree of risk. But if there is change in technology like introduction of new variety, the possible yield cannot be estimated. Thus the change in yield due to change in technology is merely an uncertainty.

5.3.3 Key Differences between Risk and Uncertainty

The difference between risk and uncertainty can be drawn clearly on the following grounds:

- The risk is defined as the situation of winning or losing something worthy. Uncertainty is a condition where there is no knowledge about the future events.
- Risk can be measured and quantified, through theoretical models. Conversely, it is not possible to measure uncertainty in quantitative terms, as the future events are unpredictable.
- The potential outcomes are known in risk, whereas in the case of uncertainty, the outcomes are unknown.
- Risk can be controlled if proper measures are taken to control it. On the other hand, uncertainty is beyond the control of the

person or enterprise, as the future is uncertain.

- Minimisation of risk can be done, by taking necessary precautions. As opposed to the uncertainty that cannot be minimised.
- In risk, probabilities are assigned to a set of circumstances which is not possible in case of uncertainty.



CHECK YOUR PROGRESS

Q 1: Define risk and uncertainty.

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Q 2: What are the key differences between risk and uncertainty?

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Q 3: What are the different types of risk and uncertainty in Agriculture?

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5.4 TYPES OF RISK AND UNCERTAINTY IN AGRICULTURE

There are different risks and uncertainties exist in Agriculture. These are broadly categorised into four groups as follows:

- **Production Risk/ Yield Risk :** Production of crops and livestock is subject to change due to weather, disease, insects, weeds and inadequate technology. These factors are unpredictable and hence they result in the variability of the output. Besides these yield variations are due to many factors. Some are controllable, while some others are not under control of management. Weather risk and technical risk are the most important components of production risk. Again yield risk may arise due to change in production costs, institutional factors, change in management, non-availability of timely inputs including labour, seeds, breeds, fertilisers, feeds, irrigation, change in

technology of production, variation in prices of inputs and outputs etc.

- **Price Risk or Marketing Risk :** Marketing risk is also called as price risk, because prices are determined by two major forces in the market i.e. demand and supply. All the factors affecting the demand and supply are likely to cause risk of falling price. Supply is very much affected by weather risk and production risk, where as demand for a commodity is mainly changed due to consumer's income, habits, taste, preferences, export and import policies and general economic measures taken up by the government etc. Production of crops and livestock is influenced by prices in the market which are beyond the control of farmers. These prices vary from year to year, season to season and exhibit seasonal variation. In case of most of the agricultural commodities, there is a vast time lag between production and marketing activity which permit enough time for prices to fluctuate when the commodities move from production centre to consumption centre.
- **Risk of Fall in Real Return :** There are a number of enterprises in agriculture where the gestation period is much longer. Eg: for fruit crops like mango, gestation period is taken as 5-6 years. So the cost is incurred at present, but the return is spread over the entire period. In case, there is fall in value of money (e.g., due to inflation), the real value of future return would also fall which is a serious risk to the farmers.
- **Financial Risk :** This type of risk increases with increased amount of borrowed money in farm business. Uncertainty arises due to the changes in future interest rates and fiscal policies and finally changes in the ability of farm business to generate required cash flow for the clearance of debts.

5.5 MEASURES FOR REDUCING RISK AND UNCERTAINTY IN AGRICULTURE

Measures to Reduce Production Risk

- **Selection of Less Risky Enterprise :** Various farm enterprises differ

from each other in terms of different risk. For example, crop of long gestation period such fruits the risk is high due to possible fall in value of money and thus fall in the real value of net return. Again vegetable crops are risky because of highly fluctuating prices due to its perishable nature and high resource requirement which may not be available when needed. On the other hand, wheat and paddy are less risky due to almost stable yield and effective price support (Minimum support price) given by Government. However, weather risks like flood, drought can hamper these crops. Thus, the nature and degree of each type of risk varies from one enterprise to the other. It is upto the farmer's capacity to take risk and to make a choice accordingly.

- **Adopting Production Methods with Low Variability :** By selecting the least risky method of production would be helpful in reducing variability in return. As example: at the time of land preparation using of human labour may be less risky than by a tractor (if human labour is easily available and availability of tractor is not certain.) Similarly the sale of produce by storage for longer period is generally more risky for price fluctuation than post harvest sale.
- **Insurance :** There are many types of insurances in farming to reduce production risk and financial risk. Crop insurance scheme can reduce production risk. Similarly, livestock insurance provides safety against the fatal diseases of cattle. Farm assets like farm factory, tractors, power tillers also can be insured against theft, burglary, fire or any other damage.
- **Diversification of Enterprise :** Diversification of enterprise means having large variety of enterprise under a single farm management. It can help the farmers to reduce the risk. Eg.: a farmer having some area under rice, some area under maize, some area under vegetable crops has less risk as compared to putting the entire area under cultivation of any one of these crops. As already mentioned, vegetable crops like cauliflower, cabbage, carrot, chilli etc are much more risky than field crops due to yield and price fluctuation. Therefore, by combining these crops production with

other crops, farmers can lower the risk to a reasonable extent. Again, a number of non cropped allied enterprises like dairy, poultry, fishery, mushroom cultivation etc. if combined with crop farming can be helpful in reducing the risk in future.

- **Agronomic Practices :** Different agronomic practices such as crop rotations, selecting suitable varieties like flood tolerant varieties of rice, disease resistant varieties, adoption of deep tillage operation, mulching etc should be adopted to reduce production risk.
- **Asset Structure :** Keeping capital assets in more liquid form can reduce the financial risk to fall back upon. Asset means anything which is owned by the farmer. Example: cash, crop produce, machinery, livestock, tractors, building, land etc. Liquid assets are those which can be converted into money or cash within a short period of time usually one year. Example: cash in hand, cash in bank, farm produce ready for disposal or sale etc. Similarly, a pair of bullock is generally considered more risky than a tractor. Therefore, the asset structure is important to estimate the degree of risk.
- **Flexible Production Plan :** If possible, adjustments in the production plan can lead to minimisation risk and uncertainty. For example: during the sowing time of wheat, if there is continuous rain then it is desirable to shift over to next best alternative crop i.e. sunflower rather than sowing wheat late and facing heavy risk of fall in yield. Similarly, scarce resources may be shifted from one crop to another depending upon the possible risk in each crop. For example: the use of labour may be made more on cauliflower than on wheat, if cauliflower is likely to pay much more than wheat and the manpowers is limited.
- **Market Risk Management :** If commodity prices are changing to a greater degree, then the price risk arising from market is more. Following methods can be used to reduce marketing risk:
  - **Selling the Farm Products at Different Points of Time :** Due to financial obligations, farmers sell their produce immediately after the harvest. During the harvesting periods generally prices will be low in the market due to large arrivals. Such

sales at harvest period at lower price are called as distress sales. If the farmers avoid such selling practices, they can get reasonable prices for their farm produce. However, for this good knowledge regarding supply and demand, price of farm products, good storage facilities, processing facilities etc are required to get remunerative prices.

- **Government Price Policies and Programmes :** Different price policies like minimum support price, procurement price, levy price, issue price etc. are implemented for different agricultural commodities by the Government to bring about price stabilisation. Minimum support price provides protection to the farmers against fall in prices of farm products.

- **Financial Risk Management**
  - **Keeping Farm Records :** A key to a farmer reducing financial risk is to know his financial situation. By having good farm records, a farmer can evaluate where he has been, where he is now, and whether or not he is moving in the right direction. Good financial records allow a farmer to better understand his financial risks and in what areas he needs to improve his financial situation. By evaluating balance sheets, income statements, cash flow statements, etc., a farmer can more adequately evaluate his financial performance and make more financially sound decisions regarding his enterprise. In short, good financial records reduce a farmer's financial risks and guides him to take actions that will improve the overall profitability of his enterprise and better secure its long-term success.
  - **Smart Loans :** If loans must be secured for large amounts of money or long periods of time, getting a fixed interest rate reduces the financial risk associated with the loan. A variable interest rate may increase in later years of the loan, making repayment difficult or impossible. While a fixed interest rate may be slightly higher at the beginning of the loan, the cost of the loan will not increase over the life of the loan. Self-liquidating loans also

reduce financial risk. Self-liquidating loans, essentially, are loans which can be repaid by the productivity of what the loan was secured to purchase, such as loans for crop production and dairy cows or feeder cattle. A crop production loan can be paid off when crops are sold, a loan for dairy cows can be repaid with the sale of the cow milk, and a loan for feeder cattle can be repaid when the cattle are sold.

- **Reserves :** Maintaining liquid and credit reserves can also protect a farmer against adverse effects of financial risk. A liquid reserve of cash or other liquid assets can be easily used if needed to weather financial difficulty. Similarly, many financial institutions offer various types of credit lines and many farmers borrow amounts below their imposed credit limit. Such credit reserves allow the farmer to obtain additional loan funds (if necessary) to continue operation under adverse financial situations.
- **Renting/Leasing :** Renting or leasing land or machinery can reduce financial risk. By renting or leasing land, a farmer can avoid the financial risk associated with a large land loan. As with land, renting or leasing equipment can also lessen financial risk by making equipment loans unnecessary. Further, if the rented or leased equipment is newer or more reliable, the farmer can avoid the production risks associated with an equipment breakdown or the need to pay for costly repairs.



CHECK YOUR PROGRESS

Q 3: What are the different types of risk and uncertainty in Agriculture?

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Q 4: List out different measures to reduce risk and uncertainty in Agriculture.

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5.6 LET US SUM UP

- In agriculture, farmers face different risk and uncertainty while performing different farming activities. Although, the terms risk and uncertainty are used interchangeably; in reality, there is a very significant difference between the two of them.
- Risk is termed as a chance or loss or exposure to danger, arising out of internal or external factors, that can be minimised through preventive measures.
- By the term uncertainty, we mean the absence of certainty or something which is not known.
- Risk can be measured and quantified, while it is not possible to measure uncertainty in quantitative terms. The potential outcomes are known in risk, whereas in uncertainty, the outcomes are unknown. Risk can be controlled while uncertainty is uncontrollable. Minimisation of risk can be done, as opposed to the uncertainty that cannot be minimised.
- Production risk/ yield risk, price risk or marketing risk, risk of fall in real return, financial risk are the different types of risk and uncertainty in agriculture.
- Different measures can be taken to reduce risk and uncertainty in agriculture such as selection of less risky enterprise, adopting production methods with low variability Insurance, diversification of enterprise, appropriate agronomic practices, liquid asset structure, flexible production plan, market risk management like selling farm product at different time, government price policies and financial risk management through keeing farm record, smart loan, reserves, renting/leasing etc.



5.7 FURTHER READING

1) Lekhi, R.K. and Singh, Joginder (2015). *Agricultural Economics Kalyani Publishers*, New Delhi.

2) Reddy S.S., Ram, P.R.,Sastry, T.V.N., Devi, I.B. (2012) *Agricultural Economics*, Oxford & IBH publishing co. Pvt.ltd., New Delhi



5.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Risk is defined as a situation when all possible outcomes are known for a given management decision and probability associated with each possible outcome is also known. Uncertainty refers to a situation where there are multiple alternatives resulting in a specific outcome, but the probability of the outcome is not certain.

Ans to Q No 2: The risk is defined as the situation of winning or losing something worthy. Uncertainty is a condition where there is no knowledge about the future events. Risk can be measured and quantified, through theoretical models. Conversely, it is not possible to measure uncertainty in quantitative terms, as the future events are unpredictable. The potential outcomes are known in risk, whereas in the case of uncertainty, the outcomes are unknown. Risk can be controlled if proper measures are taken to control it. On the other hand, uncertainty is beyond the control of the person or enterprise, as the future is uncertain. Minimisation of risk can be done, by taking necessary precautions, as opposed to the uncertainty that cannot be minimised. In risk, probabilities are assigned to a set of circumstances which is not possible in case of uncertainty.

Ans to Q No 3: Production risk/ yield risk, price risk or marketing risk, risk of fall in real return, financial risk are the different types of risk and uncertainty in agriculture.

Ans to Q No 4: Different measures to reduce risk and uncertainty in agriculture are: selection of less risky enterprise, adopting production methods with low variability insurance, diversification of enterprise, appropriate agronomic practices, liquid asset structure, flexible production plan, market risk management like selling farm product at different time, government price policies etc.



5.9 MODEL QUESTIONS

Q 1: What do you mean by risk and uncertainty in Agriculture?

Q 2: Differentiate between risk and uncertainty.

Q 3: What are the different types of risk and uncertainty faced by farmers in agricultural activities? Write briefly.

Q 4: How can risk and uncertainty be reduced in agriculture? Write briefly about different measures to reduce them.

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UNIT 6: AGRICULTURAL PRICE POLICY

UNIT STRUCTURE

6.1 Learning Objectives

6.2 Introduction

6.3 Objectives of Agricultural Price Policy

6.4 Main Elements

6.5 Agricultural Price Policy in India

- 6.5.1 Features of Agricultural Price Policy in India
- 6.5.2 Advantages of Agricultural Price Policy in India
- 6.5.3 Failures of Agricultural Price Policy in India

6.6 Let Us Sum Up

6.7 Further Reading

6.8 Answers to Check Your Progress

6.9 Model Questions

6.1 LEARNING OBJECTIVES

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

- discuss the meaning of agricultural price policy and its objectives
- describe the main elements of agricultural price policy
- highlight the features, advantages and failures of agricultural price policy in India.

6.2 INTRODUCTION

Agricultural price policy plays an important role in the economic development of a country. It is an important tool for providing incentives to farmers and motivating them in the production oriented investment and technology. Agricultural price policy refers to that policy which determines, regulates and control the prices of agricultural products. The main objective of agricultural price policy is to prevent frequent fluctuations in the prices of agricultural products

and to provide fair prices to the farmers. This policy aims to maintain a balanced relationship between the prices of food grains and non-food grains and help to raise the agricultural production of developing countries. In this unit we will discuss the agricultural price policy in details.

6.3 OBJECTIVES OF AGRICULTURAL PRICE POLICY

The main objectives of agricultural price policy are :

- To control insistent fluctuation in the prices of agricultural food grains, so that it does not hamper in the country's terms of trade.
- To raise the production of agricultural products that will help in the development of an economy.
- To protect the interest of the farmers by providing fair prices for agricultural products, this will encourage to invest more in the agricultural production.
- To provide facilities for processing, marketing, storage and irrigation of agricultural products for all round development of agricultural sector.
- To develop infrastructure facilities related to agriculture and to enhance dynamism through large volume of public investment.
- To ensure a stable relationship between prices of agricultural products, manufactured goods and prices of food grain, and non-food grain.
- To maintain the relationship between farmers and consumers so that farmers does not suffer due to the prices of the food grains.
- To increase an aggregate agricultural output by practicing the use of high yielding variety seeds, fertiliser, technology, etc.
- To provide incentive to the farmers for raising their agricultural output that results in an increase in the level of income and standard of living.

- To maintain the regular flow of marketable surplus and enhancing the export of farm products. The policy aims to integrate prices between the various regions in the country.



CHECK YOUR PROGRESS

Q 1: What is meant by agricultural price policy? (Answer in about 20 words)

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Q 2: What are the main objectives behind the introduction of agricultural price policy in India? (Answer in about 30 words)

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6.4 MAIN ELEMENTS

- **Fixation of Product Price:** Government fixes the prices of agricultural products like rice, wheat, cotton, sugarcane, pulses, etc to protect the farmers. In this regard, Government has set the Minimum Support Price (MSP) to safeguard the farmers and helping them to get a minimum profit. MSP is a fixed price paid by the government or government agency to farmers whenever they procure a particular crop. This price is fixed prior to the sowing seasons which encourage high investment in agricultural production. The government also fixes the maximum price of agricultural product to protect general people from excessive rise in prices.
- **Price Policy for Agricultural Inputs:** Input price policy plays an important role for providing incentives to the farmers. The price policy for agricultural inputs helps to maintain stability in the prices of agricultural products. Rise in agricultural price leads to high input price. As a result, price of industrial goods increases which reduces demand for them. Consequently, it reduces the purchasing power of consumers as well as demand and output of industrial goods.

- **Consumers' Protection:** The main objective of price policy in India is to protect the interest of the consumers. The procurement price set by the government is usually higher than the minimum support price so that it can provide the proper incentive to the producer as well as reasonable price to the consumers. Agricultural price policy considers the matter of the shortage of essential commodities and undertakes some measures to control the prices of agricultural products. It protects the consumers from unwanted inflation. The policy has also resulted in considerable benefit to the consumers by supplying the essential agricultural products at reasonable price regularly. The policy has also taken into consideration the provision for buffer stock of food grains for its distribution among the consumers through public distribution system.
- **Ancillary Policies:** For the overall growth of an economy, the ancillary policy provides all necessary support or facilities to the agricultural activities or the functioning of an organisation. So that this policy give more importance on stimulating and strengthening co-operatives and local communities which will bring the desired development of the primary sector in developing countries. The policy makes provision for providing loans to small and marginal farmers for purchasing land and any other agricultural purpose. To give relief to the farmers, the policy aims to provide loans to the farmers for agricultural activities such as harvesting, spraying, sorting, grading, transporting etc.



CHECK YOUR PROGRESS

Q 3: What is meant by procurement price? (Answer in about 20 words)

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Q 4: Define the Minimum Support Price? (Answer in about 30 words)

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Q 5: How does agricultural price policy protect consumers? (Answer in about 40 words)

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6.5 AGRICULTURAL PRICE POLICY IN INDIA

Agricultural price policy is an instrument which provides incentives to the farmers and encourages them to invest in agriculture. In a developing country like India, majority of population is engaged in agriculture and people spend their income more on food or consumption. To protect the farmers as well as the consumers, every year the government announces support prices for essential agricultural products.

In India, agricultural price policy was introduced since independence. In 1947, the price policy was first introduced in India with the formation of Food Grains Policy Committee. The main aim of the price policy in India was to protect the interest of consumers, no attention was on providing incentive price to farmers. After that in 1964, a clear cut policy was set up by the government for providing incentive to the farmers. Agricultural Prices Commission was constituted by Government of India in 1965. The commission has announced the minimum support prices and procurement prices in order to guarantee minimum price to the farmers and for building adequate buffer stock to maintain public distribution system. The commission has also given importance on the adoption of improved technology and maximising agricultural production. In the year 1985, Agricultural Prices Commission was renamed as Commission for Agricultural Costs and Prices (CACP).

In 1965, The Food Corporation of India (FCI) was set up. The main aim of FCI is to ensure necessary procurement, storage and distribution of food grains through public distribution system and effective price support for safeguarding the interest of the farmers.

6.5.1 Features of Agricultural Price Policy in India

- **Raising Capital Formation:** The policy has given more importance to raise the rate of capital formation in India in agricultural or primary sector. It has introduced measures to reallocate the available resources for productive investment between agriculture and industrial sector.
- **Enhancing Public Investment:** The agricultural policy aims to raise the volume of public investment and take effective steps to create efficient infrastructure facilities for agriculture. Water conservation, soil conservation, use of alternative and renewable sources of energy for irrigation or for other agricultural activities have also been encouraged. It will reduce the regional disparities and generate more marketable surpluses.
- **Improving Agricultural Marketing:** One of the main features of new agricultural policy in India is to improve or develop the agricultural marketing and storage, agro-processing etc. It helps in moving an agricultural product from farms to the consumer.
- **Raising Agro-Exports:** The policy has laid emphasis on raising the level of exports of agricultural products such as vegetables, fruits, flowers, poultry and livestock products so as to raise the share of agricultural exports in India. It will help in raising the national income of our country.
- **Land Reforms:** The policy has undertaken some land reform measures like regulation of rents, ceiling on land holding, abolition of intermediaries etc. for the interest of small and marginal farmers so that it will raise agricultural output.
- **Crop Insurance Scheme:** The policy has introduced the crop and livestock insurance scheme in a broad manner so that the problems of crop failure and high risk of instability in production has reduced and the farmers can recover their losses.

6.5.2 Advantages of Agricultural Price Policy in India

- Agricultural price policy has helped to raise agricultural output by providing necessary incentives to the farmers. To protect the farmers, the minimum support price is determined by the government.
- The policy has provided necessary benefits to raise the agricultural output and as a result income of the farmers and their living standard has improved.
- One of the major advantages of the policy is the stabilisation of prices of agricultural products. The policy has successfully controlled the violent fluctuations of prices of agricultural products.
- The policy has provided benefits to the consumers by supplying the agricultural products at a reasonable price.
- The policy has made provision for supplying essential raw-materials for the agro-industry like cotton textile, sugar, vegetable oil etc at reasonable price.
- The agricultural price policy has resulted in a notable change in the cropping pattern of Indian agriculture. The production of wheat and rice has increased through the adoption of new technology.

6.5.3 Failures of Agricultural Price Policy in India

- There is an inadequate coverage of agricultural price policy in India. The official procurement facility reaches only a few farmers.
- The public distribution system in India is not fully effective. A large number of poor farmers are not getting benefits of this programme.
- Continuous rise in the prices of essential food products for last few years is a major failure of the policy. The policy is unable to control the wholesale price inflation in India.

- The issues relating to increase in transportation costs, over fragmentation of the distribution network etc. are not considered by this policy resulting in wide variation in prices for producers and consumers.
- The success of the policy depends on some inherent factors associated with the system of agricultural operation like cropping pattern, land holding, income distribution etc. However, the agricultural policy in India had failed to incorporate these factors as a result total or overall development of the agriculture sector is hampered.



CHECK YOUR PROGRESS

Q 6: State three features of agricultural price policy in India. (Answer in about 50 words)

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Q 7: Mention two advantages of agricultural price policy in India. (Answer in about 40 words)

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Q 8: State any two shortcomings of agricultural price policy. (Answer in about 40 words)

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6.6 LET US SUM UP

- Agricultural price policy plays an important role in the economic development of a country. It is an important tool for providing incentives to farmers and motivating them in the production oriented investment and technology.
- Agricultural price policy determines, regulate and control the prices of agricultural products.
- The main objective of agricultural price policy is to prevent frequent fluctuations in the prices of agricultural products and provide fair prices to the farmers.
- The policy aims to maintain a balance relationship between the prices of food grains and non-food grains and help to increase the agricultural production of developing countries. The policy had made provision for providing loans to small and marginal farmers for purchasing land and any other agricultural purpose.
- The main objective of price policy in India is to protect the interest of the consumers. The procurement price set by the government is usually higher than the minimum support price so that it can provide the proper incentive to the producer as well as reasonable price to the consumers.
- Government fixes the prices of agricultural products like rice, wheat, cotton, sugarcane, pulses etc to protect the farmers. In this regard, government sets the Minimum Support Price (MSP) to safeguard the farmers and helping them to get a minimum profit.
- MSP is a fixed price paid by the government to farmers whenever they procure a particular crop. This price is fixed prior to the sowing seasons which encourages high investment in agricultural production.
- Agricultural Prices Commission was constituted by Government of India in 1965. In the year 1985, Agricultural Prices Commission has renamed as Commission for Agricultural Costs and Prices (CACP).
- In 1965, The Food Corporation of India (FCI) was set up. The main

aim of FCI is to ensure necessary procurement, storage and distribution of food grains through public distribution system and effective price support for safeguarding the interest of the farmers.

- The policy has given more importance to raise the rate of capital formation in India in agricultural or primary sector. New agricultural policy aims to raise the volume of public investment and takes effective steps to create efficient infrastructure facilities for agriculture.
- The policy has laid emphasis on raising the level of exports of agricultural products such as vegetables, fruits, flowers, poultry and livestock products so as to raise the share of agricultural exports in India. It will help in raising the national income of our country.
- There is inadequate coverage of agricultural price policy in India. The public distribution system in India is ineffective. Continuous rise in the prices of essential food products for last few years is a major failure of the policy. The policy is unable to control the wholesale price inflation in India.
- The success of the policy depends on some inherent factors associated with the system of agricultural operation like cropping pattern, land holding, income distribution etc.



6.7 FURTHER READING

1) Dhar, P.K. (2008). *Indian Economy: Its Growing Dimensions*. Ludhiana: Kalyani Publisher

2) Agrawal, A.N.(2006). *Indian Economy: Problems of Development & Planning*. New Delhi: New Age International (P) Limited.



6.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Agricultural price policy refers to that policy which determines, regulate and control the prices of agricultural products. It is an important tool for providing incentives to farmers and motivating

them in the production oriented investment and technology.

Ans to Q No 2: The main objective of agricultural price policy is to prevent frequent fluctuations in the prices of agricultural products and provides fair prices to the farmers. The policy also aims to maintain the relationship between farmers and consumers so that they never suffer due to the prices of the food grains and to ensure a stable relationship between prices of agricultural products and manufactured goods and prices of food grain and non-food grain.

Ans to Q No 3: The procurement price of a commodity refers to the price at which the goverment purchases the commodity for maintaining the buffer stock in the public distribution system. Generally, procurement price is announced for food grains.

Ans to Q No 4: Minimum support price is a fixed price paid by the government to farmers whenever they procure a particular crop. This price is fixed prior to the sowing seasons which encourages high investment in agricultural production.

Ans to Q No 5: The agricultural price policy has provided considerable benefit to the consumers by supplying the essential agricultural products at reasonable prices regularly. The policy has also taken into consideration the provision for buffer stock of food grains for its distribution among the consumers through public distribution system. The procurement price set by the government is usually higher than the minimum support price so that it can provide the proper incentive to the producer as well as reasonable price to the consumers.

Ans to Q No 6: The features of agricultural policy in India are:

- **Raising Capital Formation:** The policy has given more importance to raise the rate of capital formation in India in agricultural or primary sector and introduces some measures to reallocate the available resources between agriculture and industrial sectors.
- **Raising Agro-Exports:** The policy has laid emphasis on raising the level of exports of agricultural products such as vegetables, fruits, flowers, poultry and livestock products so as to raise

the share of agricultural exports in India.

- **Improving Agricultural Marketing:** One of the main features of new agricultural policy in India is to improve or develop the agricultural marketing and storage, agro-processing etc.

Ans to Q No 7: The advantage of agricultural price policy can be stated as:

- Agricultural price policy has helped to raise agricultural output by providing necessary incentives to the farmers.
- One of the major advantages of the policy is the stabilisation of prices of agricultural products. The policy has successfully controlled the violent fluctuations of prices of agricultural products.

Ans to Q No 8: The failures of agricultural price policy can be stated thus:

- There is inadequate coverage of agricultural price policy in India. The official procurement facility reaches only a few farmers.
- The public distribution system in India is ineffective. A large number of poor people still do not receive the benefits of this programme.



6.9 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: Discuss the meaning of the following terms (a) Minimum Support Price (b) Procurement Price and (c) Buffer Stock as an element of agricultural price policy.

Q 2: Discuss the meaning and objectives of agricultural price policy in India.

Long Questions (Answer each question in about 300-500 words)

Q 1: Discuss the role of agricultural price policy in India.

Q 2: Explain the advantages and failures of agricultural price policy in India.

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Unit 7 : AGRICULTURAL MARKETING

UNIT STRUCTURE

7.1 Learning Objectives

7.2 Introduction

7.3 Objective of Agricultural Marketing

7.4 Need and Importance of Agricultural Marketing

7.5 Status of Agricultural Marketing in India

7.6 Let Us Sum Up

7.7 Further Reading

7.8 Answer to Check Your Progress

7.9 Model Questions

7.1 LEARNING OBJECTIVES

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

- discuss agricultural marketing
- grasp objectives and importance of the agricultural marketing
- analyse the status of the agricultural marketing in India
- highlight the challenges faced by agricultural marketing in India

7.2 INTRODUCTION

Agricultural marketing system is the physical and institutional set up to perform all activities involved in the transfer of ownership of agricultural products from the producers to the consumers. Thus, agricultural marketing includes all the business activities such as assembling, handling, storage, transporting, processing, wholesale, retailing and export of agricultural commodities as well as accompanying supporting services such as market information, establishment of grades and standards, commodity trade, financing, price risk management and the institutions involved in performing these activities. Agricultural marketing comprises two words: agriculture and marketing. Agriculture means not only crop production; it includes production of crops and all the allied activities like forestry, fishery and animal

husbandry. Marketing is all the economic activities involved in facilitating the flow of produce from point of production to the point of final consumption. Thus, agricultural marketing involves the exchanges of both input and output of agriculture among buyers and sellers through the input markets and output markets respectively. The institutional set up that facilitates exchange activity among buyers and sellers is known as the market. Input market deals with the marketing of the inputs like machineries, tools, chemical fertilisers, pesticides, growth hormones etc. While in the output market, the agricultural products (like food grains, fruits, vegetables, meat, fish, eggs, milk, dairy products, processed products etc.) are traded among the buyers and the sellers. According to National Commission on Agriculture (NCA) in its XII report, Agricultural Marketing involves all aspects of agricultural market structure and system i.e., both functional and institutional aspects based on technical and economic considerations and includes post-harvest operations assembling, storing, transporting, distributing etc. According to it, "Agricultural marketing is a process which starts with a decision to produce saleable farm commodity and it involves all aspects of market structure of system both functional and institutional, based on technical and economic considerations and include pre-harvest and post-harvest operations, assembling, grading, storage, transportation and distribution."

According to Thomsen, "Agricultural marketing comprises all the operations, and agencies conducting them involved in the movement of farm produced foods, raw materials and their derivatives, such as textiles, from the farms to the final consumer and effects of such operations on farmers, middlemen and consumers."

In general, agricultural marketing involves: assembling, equivalisation and dispersion. Assembling is the process of collection of surpluses of individual farmer's produce. There are two types of assembling: primary assembling and secondary assembling. Equivalisation is the process of adjustment in the supply and demand as per the requirements based on time, place and quantity. Dispersion is the process of reaching the collected (assembled) agricultural produce through the market channels to the consumers.

In this section, we have placed emphasis on understanding of the preliminary concept of agricultural marketing. Now, let us proceed to the following sections of this unit to delve into other issues of agricultural marketing.

7.3 OBJECTIVE OF AGRICULTURAL MARKETING

The main objectives of agricultural marketing are as follows:

- To assure that selling and buying activities are conducted at a favourable time, place and price
- To ensure consumers' satisfaction as well as buyers' satisfaction
- Providing facility to choose better marketing channels to distribute agricultural produce in the most cost- effective way
- To help in mobilisation of resources among buyers and sellers or among the agricultural and non-agricultural sectors of an economy
- To widen the product range which allows consumers to select products from a wide variety of the same product
- To help in development of backward areas through spread effect of the infrastructural development in the agriculture of the rural areas and increases transport connectivity (road connection is more common) with the developed areas
- To increase overall productivity of the economy by generating better return for the farmers and the other stakeholders which motivates the farmers to produce more with existing resources scientific technologies
- To mitigate the risks associated with the agriculture as it also deals with the risk management techniques
- To reduce the price differences between the primary producer and ultimate consumer which help in curbing food inflation?
- To get financial aid and credit easily as per the farmers' requirements
- To enable the primary producers to get the best possible returns
- To provide facilities for lifting all produce of the farmers to sell at an incentive price
- To facilitate scientific storage with better management.



CHECK YOUR PROGRESS

Q 1: What do you mean by agricultural marketing?

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Q 2: What do you mean by a market?

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Q 3: Mention any two objectives of Agricultural marketing?

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7.4 NEED AND IMPORTANCE OF AGRICULTURAL MARKETING

During of independence, the Indian economy had an image of begging bowl economy which signified that the agricultural production was not adequate to feed total population of India. At that time, Indian economy was dependent on the agricultural imports for meeting the food requirements as well as the inputs requirements for the industry. Therefore, during the planning periods, special emphasis was said on the attainment of self-sufficiency in the agricultural production. For this purpose, agricultural productivity had to be increased. The success of green revolution resulted in increase of food production. However majority of the Indian farmers were small and marginal farmers and they produced limited quantities only. They mainly confined their produce to the local markets and sold their products at very low prices. They even did not have money to go to the urban markets to sell their products at higher prices. Thus, they were exploited by middlemen and brokers. Thus, the agricultural marketing is important to provide the best agricultural practices to the farmers. The basic procedures (assembling, equivalizing and distributing) of agricultural products are needed to help the marginal and small farmers to reach the larger markets in the urban centres.

As Agricultural Marketing comprises of all the procedures assembling, storing, grading, transporting, buying, selling, standardising processing, sales promotion, advertising etc., Thus, Agricultural Marketing acts as a link between the producer and consumers of agricultural products. India had witnessed the introducing of several revolution such as the green revolution, yellow revolution, white revolution, blue revolution, pink revolution, brown revolution, red revolution, golden revolution, grey revolution and silver revolution. This had resulted in manifold increase in the agricultural production. As a result of these revolutions in Indian agriculture, there were oversupplies of the agricultural production. Thus, India exported these surpluses to the other countries. These was a need for marketing channels to facilitate the international trade for agricultural produce. Again, most of the agricultural products were perishable in nature and thus, the importance of scientific storage facility was recognised. Standardisation and grading were considered as almost necessary to gain reputation in the international markets. Thus, these types of issues regarding the export of agricultural products to the other countries signalled the need and importance of proper and efficient Agricultural Marketing.

To keep pace with the increased domestic as well as foreign demands for agricultural products, productions need to increase with greater speed. The introduction of science and technology in the field of agriculture is vital in this aspect. The scientific methods of agricultural production like use of machines (tractors, power tiller, pump sets), high yielding variety seeds, chemical fertilisers, pesticides etc. imply higher demands for inputs. As the agricultural marketing also includes the marketing of inputs through inputs market, increasing demand for inputs signifies the need and importance of agricultural market.

The presence of disguised unemployment is common in Indian agriculture. Hence the incomes of the farmers are low. For increase in the productivity, the expensive scientific techniques are required. Thus, the farmers require financial support. This issue also signifies the importance of agricultural marketing for fulfilment of finance that is required for investment in agriculture. Again, the farmers and the ranchers are highly unorganised. Agricultural marketing is the organised system of marketing.

Thus, agricultural marketing is needed for transforming unorganised farmers to organised one.

There is uncertainty as well as risks associated with agricultural production. The Agricultural Marketing provides the way on how one could talce up trade risk. Generally, the risks that are associated with agriculture are physical risks, price risks and institutional risks. To reduce or manage the risk, one can insures against risk. Though insurance is the most common method of bearing risk, but all risks cannot be insured. Market information is vital to take decisions. The information regarding price is crucial for making decision about what to produce and how much to produce. It also helps in deciding in which time the agricultural produce should be traded in order to gain maximum market margins. Now-a -days, Market Intelligence based marketing and Artificial Intelligence-based production techniques are gaining popularing. In the e- trading platform, Artificial Intelligence plays a crucial role in the marketing of agricultural product. Along with these, the role of government is also important for the management or minimisation of the risks. The fixation of maximum and minimum prices for major products and also allowing the fluctuation of prices within a definite range by the government is utmost important. This will protect farmers as well as consumers from abrupt price fluctuations. Again, the practices like speculation and hedging are used to treat risks. Speculation is the process of buying and selling with the motive of then selling or buying and thus making a profit, if prices and exchange rates change (according to the definition provided by *Macmillan Dictionary of Modern Economics*). While hedging is the action taken by a buyer or seller to protect his income against a rise in the prices in the future (according to the definition provided by Macmillan Dictionary of Modern Economics). In India, agriculture is considered as gambling due to existence of risks. Indian agriculture is also prone to uncertainties like bad weather, pests, disease etc. The overwhelming effects of risks and uncertainty result in indebtedness and in many cases lead to suicides of the indebted farmers. Thus, it is utmost important to manage the risks and uncertainty associated with the agricultural production. This also reveals the need and importance of

agricultural marketing as it includes the methods of risks management.

Agricultural Marketing also provides the marketing channels. Marketing channels is the chain of intermediaries through which all the agricultural commodities are exchanged among producers and consumers. The role of marketing channel is very crucial for the success of agricultural marketing. The marketing channels differ from product to product. For example, the marketing channel for food grains are different from that of poultry. Again, marketing channels are different for the small farmers to large farmers even for the same agricultural produce. The development of the markets for agricultural produce facilitates the marketing channels for the agricultural commodities. The main objective of the marketing channel is the movement of agricultural produce from the producers to the final consumers. Such movements involve marketing costs in the form of cost, freight, tax, cess etc. Marketing cost vary across the marketing channels. For example, packaging cost, transportation cost, processing cost, costs associated with loading and unloading activities etc different for different marketing channels even for a same commodity. The difference between the price of the commodity and the marketing cost of that commodity is the marketing margin. Estimation of marketing margin is essential for the efficiency of a marketing channel and hence of a marketing system. Thus, there is a need for the Agricultural Marketing as it provides insight for cost- margin analysis of a marketing system.

Agricultural Marketing is important for the numerous functions that it provides. The functions are classified as (a) function of transfer of ownership of a product (b) function of physical movement of a product (c) function of transforming a product and (d) facilitating functions. The function of transfer of ownership of a product involves selling, buying, creation of demand for the product through the sale promotion activities like distribution of free sample, offer discounts, exhibition sales etc. and determination of price of a product. Determination of a price reveals that each and every intermediary of a marketing channel should be awarded. Thus, the price determination and price discovery are important. The price is determined by the forces of demand for and supply of the product while price discovery involves the determination of price at each stage in the marketing channel.

Intermediary determines the price on the basis of the availability and the demand for the commodity. Discovery prices at each stage helps to clear the supplies at each stage so that the distribution of commodities flow smoothly among the persons who need them. Function of physical movement includes transportation and storage of agricultural produce. Function of transforming a product involves standardisation, grading and packaging. Facilitating functions involves functions like market financing, risk bearing etc. All these have proved the importance of agricultural marketing.

Agricultural Marketing plays an important role not only in stimulating production and consumption, but also ensuring development of remote areas. Suppose in a remote area there is a huge agricultural production, after meeting the local demand, there is a huge surplus. Then the farmers need transportation facility to sell their surpluses in a town market. As most of the agricultural produce are perishable in nature, there is also a require for storing facility. It requires a huge expenditure and the farmers need financial support. After all these expenditures, there are also risks associated with prices as the farmers are not aware about the conditions of the town market. However, if these activities are done by different individuals at each stage, then the cost is reduced. These different individuals are the intermediaries and are known as market channels. Agricultural Marketing facilitates such market channels for betterment of the farmers. Even the government has role in the agricultural marketing such as setting MSP, providing subsidies, distribution of free seeds, fertilisers, power tillers, tractors, establishment of roads for transportation, warehouse facilities etc. Therefore, with a well-established marketing structure, not only the conditions of farmers have developed, but the area also undergoes new development. In this way, Agriculture Marketing is important for economic development of the rural areas.



CHECK YOUR PROGRESS

Q 4: Match the following:

1. Grey revolution a. Milk

2. White revolution	b. Oilseeds
3. Silver revolution	c. Fertiliser
4. Yellow revolution	d. Eggs

Q 5: What is Speculation?

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Q 6: Define risk?

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Q 7: What is hedging?

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7.5 STATUS OF AGRICULTURAL MARKETING IN INDIA

In India, agricultural production was at subsistence level in the early years. The condition of farmers was very poor. They produced for the personal consumption and whatever was in surplus sold at prices below the remunerative prices. Thus, in the early years distress selling of agricultural output was common everywhere. The lower level of educational attainment or the illiteracy among the farmers were the main reason behind the farmers' exploitation by the middlemen. However, over the years the consequent increase in the productivity as well as government's investment on the agriculture and allied activities resulted in the development Agricultural Marketing. The development in the Agricultural Marketing are the efforts of farmers, government and middlemen of several years. In the process of the development of agricultural marketing, government's intervention is remarkable in the context of India. Over the years Government has taken many steps to improve the agricultural marketing. Now-a-days, agricultural marketing is more than merely linking the producer with consumer. The concept of agricultural marketing has expanded with the extension of the functions it provides for the overall development of the agricultural sector including

creation of favourable economic environment for farmers to keep them productive as well as efficient by introducing many new forms like regulated marketing, co-operative marketing, group marketing, contract marketing, future trading, direct marketing and e-commerce etc.

Let us discuss the status of Agricultural Marketing in India under the following heads:

- **Marketing Institutional Infrastructure:** The Agricultural Marketing is a complex process with the involvement of a large number of activities, a variety of agricultural commodities as well as intermediaries. The agricultural products are different in their sizes, characters like perishability, quality etc. All these demand different marketing channels for different commodities. It has been witnessed that there are forced sales or distress sales of agricultural commodities due to the financial obligation of the farmers. The National Planning Committee on rural marketing and finance reveals that the farmers in general sell their produce at both an unfavorable place and price. In India, a large percentage (nearly 50%) of the total agricultural produce are sold at the village markets at prices below than the remunerative prices. A small part of the surplus production is sold in nearby town or weekly village markets. A part of agricultural surplus is sold in the 'mandis'. And rest are sold through co-operative marketing facilities. The presence of co-operative markets at primary, state and national level help farmers to find best markets and best prices for their products. For the improvement of Agricultural Marketing in India, institutional infrastructure has been created by the government of India. Among the various steps taken for improvement in the agricultural marketing, the establishment of the regulated markets and the co-operative marking are most important. Let us discuss separately each of these markets in some details.
- **Regulated Markets:** The regulated market is the market whose main purpose is to eliminate unhealthy market practices, to reduce marketing charges and to ensure fair prices. Under this market, food grains prices are stabilised by the government on the basis of the

recommendation provided by the Agricultural Prices Commission. In 1886, the Karanjia Cotton Market was established. It was the first regulated market in India. A regulated market is established for either single commodity or for a group of commodities. A regulated market is managed by market committees. The members of the market committees are the representatives of the state government, legal bodies, traders, commission agents and farmers. It ensures that no 'broker' represents the buyer and the seller. The market committee is responsible for enforcement of the rules and regulations. Some of the major functions of this committee are as follows:



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- Market Area: The area from which the produce naturally and abundantly flows to a commercial center, i.e., the market, and which assures adequate business and income to the market committee
- Principle Assembling Market: It is the main market which is declared as a principal market yard on the basis of transactions and income generated for the market committee
- Sub-Market Yard: It is sub yard of the principle assembling market. This is a small market and does not generate sufficient income to declare as a principal assembling market
- Market Yard: This is a specified portion of the market area where the sale, purchase, storage and processing of any of the specified agricultural commodities are carried out.

- To provide marketing facilities for notified crops in the notified area
- To provide regulation on the marketing of notified crops
- To establish market yards with the required infrastructural facilities
- To grant or deny licenses to market functionaries and renew, suspend or cancel such licenses or set conditions for licenses
- To provide incentive prices to farmers for inducing them to

increase the production both in quantitative and qualitative terms

- To determine market practices and market charges, prevent adulteration, promote standardisation and grading, collect and disseminate information of markets, ensure right weighmen of agricultural produce, implement the government's directions for development of the markets etc.

The functioning of these markets is supervised by the Director of Agricultural Marketing.

In India, there were more than 200 regulated markets in 1951. This number has been increased to 7001 in 1998 and to 7249 during 2010-11. All the states have regulated markets and the number of regulated markets in geographically larger states is higher than the smaller states.

The benefits of the regulated markets are given below:

- It prevents the exploitation of farmers
- It encourages the farmers to bring their produce directly to the markets
- It settles the disputes between the producers and traders. The market committee hears all the complaints, settles the disputes and arranges for arbitration for disputes
- It prevents unauthorised deduction of price received by the farmers and ensures better prices for the produce
- It also provides the platforms for marketing, storage and warehousing facilities, rest house, car parking etc
- It provides the information about markets to the producers and provides open auction trading
- It is vested with the powers to punish those who involved in fraudulent practices

- **Co-operative Marketing:** Co-operative Marketing is one of the major steps taken for the improvement in agricultural marketing in India. Co-operative Marketing societies are established for the purpose of collectively marketing the products of the member farmers. Co-operative Marketing is defined as the organised sales of the agricultural

produce on the non-profit basis to protect the interests of the farmers. Thus, Co-operative Marketing societies are associations of producers for the collective marketing of their produce with the objective of securing the benefits of large-scale business which is higher than benefits obtained from marketing of small marketable surplus of an individual producer. Co-operative Marketing society is organised by the farmers themselves and hence the control of the organisation is in the hands of the farmers. The profit earned by the Co-operative Marketing is distributed among the farmer-members on the basis of the quantity of the produce marketed by them. The main functions of Co-operative Marketing societies are:

- To collect the produce from all the members and non-members who are willing to sell their produce at fair prices
- To provide the opportunity of collective bargaining as a substitute for individual bargaining. This will result in attainment of fair prices as collective bargaining is more powerful than individual bargaining
- If the prices of the produce are not favourable and there is an expectation of price rise in the future, then these societies advance credits to the farmers which enable farmer to wait for better prices. They also provide credits to farmers for other purposes
- They have own storing and warehousing facilities.They can also arrange facilities for the scientific storage of the members' produce and reduce the damages
- To provide the facilities of grading and market information which may help them to get a good price for their produce and this way it can encourage farmers to produce graded output and also discourage them from adulterating their produce
- To arrange quick transport with lower cost. Sometimes, it has its own vehicle for providing less expensive transportation facility.
- To act as an agent of the government for the procurement of food grains and for the implementation of the price support policy.

It can have control on the flow of supply and thus can have influence on prices.

- To supply the inputs that required by the farmers, such as improved seeds, fertilisers, pesticides, machines etc.
- To arrange for the export of the produce of the members which reduces the cost associated with it.
- To check malpractices by reducing the number of unnecessary middlemen which also increase farmers' income to a great extent.

Thus, the co-operative credit societies can link credit, farming, marking and processing that farmers are able to get best advantages. Again, safeguarding the farmers from excessive marketing costs and malpractices, the formation of Co-operative Marketing society is probably the best step. It also opens the path for the development of rural areas.



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- The history of co-operative marketing in India dates back to 1912, when the Cooperative Marketing Societies Act of 1912 was passed.
- The first Co-operative Society was formed in Hubli in 1915 to encourage cultivation of improved cotton and to sell it collectively.
- The First Five Year Plan (1951-56) laid stress on the establishment of agricultural marketing and processing co-operative societies.
- In 1958, the National Agricultural Co-operative Marketing Federation (NAFED) was established as the apex body of Co-operative Marketing.
- In 1963, the National Cooperative Development Corporation (NCDC) was set up for promoting programmes relating to co-operative societies.
- Frederic Nicholson, known as 'Father of the Cooperative Movement' in the country.

The types of co-operative marketing society are as follows:

- **On the Basis of Number of the Commodities:**
  - **Single Commodity Co-operative Marketing Societies:**This type of marketing societies deals in the marketing of single agricultural commodity. Examples: sugarcane co-operative marketing society, cotton co-operative marketing Society, Oilseed Growers Co-operative Marketing Society etc.
  - **Multi-Commodity Co-operative Marketing Societies:** In this type of societies, a large number of commodities produced by the members, such as food grains, oilseeds and cotton. This is the most common type of co-operative marketing society in India.
  - **Multi-purpose, Multi-commodity Co-operative Marketing Societies:** These societies deal not only marketing of a large number of commodities but also performs additional functions like providing credit to members, arranging for the supply of the inputs required by them, and meeting their requirements of essential domestic consumption goods.
- **On the Basis of Operational Structure:** The Co-operative Marketing societies may have two-tier, three-tier and four-tier structures. In the two-tier system, marketing takes place at two levels: at the base level, there are marketing societies at 'taluka' level and at the apex level there are 'state' level cooperative marketing societies. In three tier structure, the marketing takes place at three levels: at the base level, there are primary co-operative marketing societies, at the middle level (i.e., at the district or regional level) there are central co-operative marketing societies and at the apex level, there are State Co-operative Marketing Societies or Federations. However, in India, most of the Co-operative Marketing has four-tier structures. It consisting of primary marketing societies, district or regional cooperatives, state Marketing Federations and National Level Marketing Cooperatives.

  There are two types of membership in a co-operative marketing society: Ordinary members and Nominal members. Ordinary members are those who have the right to participate in the

deliberations of the society, share in the profits and participate in the decision-making process of the cooperative marketing society. It includes Individual farmers, co-operative farming societies and service societies of an area. Nominal members are those who do not have the right to participate in decision making and share in the profits of the societies. It includes traders with whom the society establishes business dealings.

Some of the most important co-operative marketing societies in India are: National Agricultural Cooperative Marketing Federation (NAFED), National Cooperative Development Corporation (NCDC), Tribal Cooperative Marketing Federation (TRIFED), National Dairy Development Board, State Cooperative Marketing Federations (general as well as commodity specific), Tobacco Growers Federation Ltd. etc.

There are also public sector organisations for the agricultural marketing in India. The role and functions of the different public sector organisations are different. For example, the main function of the Central and State Warehousing Corporations is to privatise the storing facilities for the agricultural commodities while for the FCI, one of the prime objectives is food security. Some important public sector organisations are Food Corporation of India (FCI), Cotton Corporation of India (CCI), Jute Corporation of India (JCI), Commodity Boards: Tea, Coffee, Cardamom, Rubber, Tobacco, Spices, Areca nut, Horticultural Crops, Dairy Products (NDDB), Indian Silk Export Promotion Council (ISEPC), Agricultural and Processed Food Products Export Development Authority (APEDA),State Trading Corporation (STC),Marine Products Export Development Authority (MPEDA), Commission for Agricultural Costs and Prices (CACP), Directorate of Marketing and Inspection(DMI), Departments of Food and Civil Supplies, Council of State Agricultural Marketing Boards (COSAMB), Agricultural Produce Market Committees (APMCs), Central and State Warehousing Corporations, and Agricultural Produce Market Committees etc.



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- NAFED was established in October 1958 as an apex organisation of marketing cooperatives with primary objective of strengthening cooperative marketing structure in the country.
- FCI (Food Corporation of India) was set up under the Food Corporation Act 1964, with the objectives of to promote effective price support operations for safeguarding the interests of the farmers and distribution of food grains throughout the country by public distribution system.

- **Storage Facility:** Most of the agricultural produce are perishable in nature. Thus, storing or warehousing is an important component of Agricultural Marketing. It stores and preserves the commodities from decaying and damaging by pests, rodents, weather conditions, humidity, volatile temperatures etc. from the period of harvesting to the period of consumption.Therefore,it is crucial for maintaining a continuous flow of commodities in the market throughout the year (from the period of harvesting to the next harvesting) particularly for the seasonal commodities. It is important to maintain a balance between the demand for and supply of the commodity to keep agricultural prices almost stable.The existing storage facility of India has three-tier structure: local/ village level, district level and state/ national level. At the local or village level, co-operatives provides the storage facilities at primary and marketing society's level, at the district/ state level, State Warehousing Corporations (SWCs) provides the storage facilities and at the national level, the Central Warehousing Corporations (CWCs) provides the same. Food grains are procured and stored by Food Corporation of India (FCI) that are collected for the distribution and buffer stock. FCI is the single largest agency with the storing capacity of 26.62 million tones. The storing capacity of FCI, CWCs and SWCs are used for the storage of food grains procured for government agencies for the central pool. As per the recommendation of All India Rural Credit Survey Committee of

Reserve Bank of India to strengthen the rural credit and marketing, Government of India, enacted the Agricultural Produce (Development and Warehousing) Corporation Actin1956. The main provisions of this act were: establishment of Central Warehousing Corporation (which was set up in 1957), the state Warehousing Corporation in various states (set up in 1957). In 1962, this act was divided into two parts: National Co-operative Development Corporation Act (1962) and Warehousing Corporation Act (1962) with the following objectives: to provide scientific storage facility to protect the agricultural produce and prevents quality and quantity loss, to bear the cost of the warehouse by the depositors of the commodities in the warehouse, to stabilise the price through balancing the demand for and supply of agricultural commodity, to provide market information to the buyers and sellers, to develop buying and selling strategies etc. The 'Warehousing Development and Regulation Act,' 2007 is the latest act till date which came into effect from 25 October, 2010. It introduced the negotiable receipt system in India for the first time with the presumption that farmers would get better credits and reduce the cost of credit. It authorised the registration and the issue of negotiable warehouse receipts in electronic format. According to the National Commission on Agriculture (NCA), the agricultural produce is commonly stored in dwelling houses, tins, drums, earthen wares, underground mud-walled cellars, RCC bins, kottu, puri, bamboo structures, cement bins, cement based puris etc.

Cold storage is also very important for the proper storage of agricultural produce. It had been calculated that India needs cold storage of capacity of 350 lakh tonnes, till October, 2019, India has a total cold storage capacity of 226.7 lakh tonnes.



CHECK YOUR PROGRESS

Q 8: What is the full form of NAFED?

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Q 9: What do you mean by Regulated markets?

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Q 10: What do you mean by Co-operative Marketing?

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Q 11: What do you mean by Warehouse?

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Q 12: Who is known as 'Father of the Cooperative Movement' in India?

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- **Marketing Channels:** The marketing channels are the middlemen in the process of transfer of agricultural output from producers to the final consumers. The common types of marketing systems exist in India are represented by arrow diagram as follow:
  - Farmer → Consumers
  - Farmer → Retailer → Consumers
  - Farmer → Village Merchant → Wholesale -cum- Processor → Fair price shops → Consumers
  - Farmer → Village Merchant → Wholesale -cum- Processor→ Retailer → Consumers
  - Farmer → Food Corporation of India → Civil Supplies Corporation → Fair Price shops → Consumers etc.

  Selection of marketing channels is based on the marketing margins associated with each marketing channel. Marketing margins is the difference between the price paid and the price received by an intermediary during the marketing of a commodity.

  In the last few years, the share of the total market surpluses that received by the farmers had continually decrease with the involvement of the intermediary increases over time. With the expansion in the demand for value-added services as well as the geographic expansion

of markets, length of the marketing channels has also increased over the recent years. Along with extension of the marketing channels, there is also a specialisation of the traders both in terms of commodity and marketing function in Agricultural Marketing have increased. Thus, the specialised intermediaries keep significant portions of the return which reduces the income of the farmers. The marketed surpluses handled by the co-operatives as well as public agencies are less as compared to the private counterpart. In view of the exploitation of the farmers by the middlemen, there is an initiative for the direct marketing of perishable agricultural commodities by the farmers. Many states have taken initiative to eliminate middlemen and encourage direct marketing by farmers, and established farmers' market. For example: April Mandi (Punjab), Kisan Mandi (Rajasthan), Hadaspur Vegetable Market (Pune), Rythu Bazaars (Andhra Pradesh), Krushak Bazaars (Orissa) etc. These farmers' markets are beneficial for both the farmers as well as consumers as these ensure increase in the share of farmers' income and the curtailment the stiff price inflation.



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- **Mandi:** Mandis are secondary and assembly markets for agricultural produce.
- **Mandi- tax:** it is the fee of a market (mandi).

- **Grading and Standardization:** Grading is the process of categorisation of products into dissimilar groups, on the basis of significant characteristics (for example: quality, size, type, weight etc.) that the agricultural produce possesses. In this process, agricultural produce of different characteristics is divided into groups or lots such that agricultural produce of same characteristics is grouped under same grade or lot.The grading should be simple, clear and easily understandable.Grading is an important function of standardisation. It implies that on the basis of prescribed standards, the division of products into classes are made.

  The main objectives of grading are:

- It helps to ascertain the quality of the agricultural produce for sale or purchase that the farmer gets the proper price for his produce.
- It protects consumers from unfair trade practices by traders or farmers. Again, it protects farmers from the greedy and dishonest middlemen by enabling farmers to get price as per quality and grade of his agricultural produce.
- It helps in fixing different prices for different categories of the product.

Standardisation is the process of fixing certain rules for the product that helps in grading tham into different groups. Standardisation process involves the specification of the agricultural produce on the basis of the size, colour, form, weight, taste, shape, quality etc. It helps in comparisons of the different products. The term of 'standardization' is used in a broader context than the term 'grading'. In standardization process, certain standard is provided to goods for the purpose of marketing. After standardisation, grading is done. Thus, standardisation is the base for grading and without it, there may be confusion and unfairness.To reduce the dissimilarities in the standards of same product offered by different sellers, the rules for specification of the product are given by the authority, customs, or by some traditions. Thus, the main purpose of standardisation is to make quality specification of a grade universal for both the sellers and buyers. The benefits of standardisation are as follows:

- It enhances the confidence of the consumers as it facilitates homogeneity and consistency in quality of the agricultural produce.
- It gives better returns to both buyers and sellers as it provides grading wise differentiation of the products.
- It helps in market expansion through the increase in the production of the agricultural produce by mitigating the risks associated with the selling and buying activities as well as increase the confidence of the consumers.

- As standardisation of the products build up, confidence among financial institutions and money lenders helps in receiving financial assistance easily.

In India, AGMARK is a certification mark for agricultural produce. It ascertains that the product satisfies certain standard specified by the Directorate of Marketing & Inspection (DMI), Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture & Farmers Welfare under Agricultural Produce (Grading Marking) Act, 1937.These standards differentiate between quality and prescribed 2 -3 grades for each commodity. Till date, grade standards for 222 agricultural commodities have been notified. These include fruits, vegetables, cereals, pulses, oilseeds, vegetable oils, ghee, spices, honey, creamery butter, wheat, atta, besan, etc. While framing the standards, the existing standards in the Food Safety and Standards Act, 2006, Codex Alimentarius Commission, International Organisation for Standardisation, etc. are considered. Trade Associations, Research Institutions, etc. are also consulted. The AGMARK certification, for the most part, is a voluntary certification, unless expressly made compulsory as per the provisions of the Food Safety and Standards (Prohibition and Restriction on Sales) Regulations Act, 2011.The Government of India, through its agency, Directorate of Marketing and Inspection (DMI), lays down standards for agricultural products which is implemented at State level.The AGMARK certification is considered as a necessity for both domestic as well as international marketing of Indian agricultural produce as it assures authenticity and the quality of the products. In order to compete in the international markets, the grading standards are fixed, keeping in mind the requirements of the World Trade Organisation.



CHECK YOUR PROGRESS

Q 13: What is a marketing channel ?

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Q 14: Define Grading

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Q 15: What do you mean by Standardization?

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Q 16:  Identity this logo.

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- **Futures Trading in India:** A lot of uncertainties are associated with the agriculture. Thus, to mitigate the risks and uncertainties related to agriculture, futures contracts are introduced in the field of agriculture. Futures contracts are the hedging instruments in agricultural commodities. The futures market in India are regulated by the Forward Markets Commission (FMC) which was established in 1953. FMC was merged with Securities and Exchange Board of India (SEBI) with effect from September 28, 2015.

  The government of India, permitted the futures trade in agricultural commodities from 2003. The futures market for agricultural produce is in nascent stage because most of the farmers in India are marginal and small farmers and they are not confident to trade their limited produce through futures market. They have considered the future market as gambling. Thus, Farmer Producer Organisation (FPO) plays a major role in collecting and accumulating the produce of the farmers and traded them through futures market.In 2014, the Ram Rahim Pragati Producer Company of Madhya Pradesh hedged Soyabean price risk on the NCDEX with the help of FPO. This is recognised as the first future trade in the history of Indian Agriculture by an FPO. From 2014 to 2018, the total number of FPO had been increased to 69. However, only 55 amongst 69 FPOs traded only once. The government of India, have realised the importance of the FPO in the futures trading and thus announced that there would be 1000 FPOs by 2024.Thus, it opens the path for NCDEX to link with

FPOS and expands the futures trading of agricultural produce in India.

The number of national level commodity exchanges and regional commodity exchanges are 6 and 20 respectively. The national level exchanges are MCX, NCDEX, NMCE, ICEX, ACE and UCX. These 26 commodity exchanges carry out futures trading. Currently 43 of the 113 commodities that are notified for futures trading are actively traded in 4 national exchanges and 6 commodity-specific exchanges trading in the commodities. The major agricultural commodities traded in futures exchanges are guar seed/gum, gram, soya oil, sugar, raw cotton, jaggery, castor seed, rubber, wheat, rice and other oilseed / edible oils.



LET US KNOW

- **National Commodities and Derivatives Exchange (NCDEX):** It is an online commodities exchange, dealing primarily in agricultural commodities in India. It is the largest agricultural commodity exchange in India
- **Farmer Producer Organization (FPO):** An FPO is a legal entity formed by primary producers (farmers, milk producers, fishermen, weavers, rural artisans, craftsmen etc.). FPO is used to form effective alliance of producers, especially small and marginal farmers so as to collectively address many challenges of agriculture. The FPO can be a production company, a cooperative society or any other legal form which provides for sharing of benefits among the members.

- **Processing Infrastructure:** Processing in agriculture is the method of the biological, physical, mechanical, and biochemical transformation of the original agricultural produce. Thus, processing involves many steps to manipulate original products into consumer finished products. India's Food Processing sector is one of the largest sectors in terms of production, growth, consumption, and export. The Indian food processing industry is primarily export-oriented. India has geographical

advantage for the export of the countries of Europe, the Middle East, Japan, Singapore, Thailand, Malaysia, Korea and also to the countries of the gulf regions. The food processing sector of India covers mainly fruits, vegetables, spices, meat, poultry, milk and milk products, alcoholic beverages, fish and fish products, processed grains and other consumer product groups like confectionery, chocolates and cocoa products, soya-based products, mineral water, high protein foods etc. India's exports of Processed Food were Rs. 31,204.78 Crores in 2019-20.

There are several food processing units like bakeries, mills for processing of different types of agricultural produce etc. At present, there are over 516 flour mills, 568 fish processing units, 5293 fruits & vegetable processing units, 429 sugar mills, 725 solvent extraction plants and 1.50 lakh rice mills, 35,088 modern rice mills, more than 15,000 pulse mills etc. in the organised sector. There is more scope for the enlargement of the food processing units in India to meet the growing domestic as well as foreign demands.

- **Agricultural Export Zones (AEZs) and Food Parks in India:** In March 2001, Government of India announced a policy of setting up of Agri Export Zones (AEZs) across the country to boost agricultural exports from India. For this purpose, the Central Government has sanctioned 60 AEZs comprising 40 for agricultural commodities. AEZs are spread across 20 states in the country. The main objectives of these AEZs are to provide facility for enhancing exports of various agricultural commodities from India and the efforts have been made by the central and state governments to fulfil this objective. Both the Central and State governments work on convergence and co-ordination to utilise all the on-going schemes of various Central and State governments agencies to cover the entire value chain from farm to consumers. For the purpose of developing and sourcing raw materials, their processing /packaging, and finally exporting of a particular product that is located in a geographically contiguous area, the AEZ considers a comprehensive concept. The major components

of this comprehensive concept are:

- Cluster approach of identifying the potential products and geographical region in which these products are grown.
- Adopting an end-to-end approach of integrating the entire process, right from the stage of production to the consumption stage.
- Integrating the activities of various agencies connected with the product department.

The anticipated benefits of AEZs are strengthening of backward linkages with a market-oriented approach, product acceptability and its competitiveness both in foreign and domestic markets, value addition to basic agricultural produce, reduction in the cost of production by enhancing economies of scale, better price for agricultural produce, quality improvement, packaging and standardisation of agricultural commodities, promote trade-related research and development, increase in employment opportunities etc.

Certain activities like cleaning, washing, grading, packaging, refrigerated transportation etc. needs to be undertaken in conformity to international trade. To address these problems, Agricultural and Processed Food Products Export Development Authority (APEDA) has implemented a scheme for catering Export Oriented Agri- Zones. Under this scheme, there have been 111 grading and packing houses established. Total amount of investments is shared by the Central, State governments and Private entrepreneurs in various proportions. The amount of investment also varies between ¹ 3.5 crore - ¹ 212.65 crores. The farmers can accrue benefits from AEZs only if they organise into groups and are linked with players in AEZs directly or through contract farming arrangements.

In the last six years the performance of the overall AEZs failed to fulfil the targets. To enhance the performance, there should be an increase in the investment and marketing should be to extended to the horticulture growing areas as well.

- **Mega Food Park:** The Mega Food Park is a scheme based on

"Cluster" approach. Its aim is to provide a mechanism that links agricultural production to the market by bringing together farmers, processors and retailers to ensure maximisation of value addition, minimisation of wastage, increase of farmers income and creation of employment opportunities particularly in rural sector. It envisages creation of support infrastructure in a well-defined agri / horticultural zone for setting up of modern food processing units in the industrial plots provided in the park with well-established supply chain. Mega food park typically consists of supply chain infrastructure including collection centers, primary processing centers, central processing centers, cold chain and around 25-30 fully developed plots for entrepreneurs to set up food processing units. At present, there are 19 Mega Food Parks are operational in India. Some of these are Srini Mega Food Park, Godavari Mega Aqua Park, North East Mega Food Park, Gujarat Agro Mega Food Park, Integrated Mega Food Park, Indus Mega Food Park, Zoram Mega Food Park, Greentech Mega Food park, Smart Agro Mega Food Park, Tripura Mega Food Park, Patanjali Food and Herbal Park etc. Besides these, food parks have also been established in the country with a view to give exposure to farmer – producer. There have been 56 food parks available in the 20 states in the country.

- **Transportation Facilities:** Transportation plays a crucial role in the Agricultural Marketing. Good transport system is critically important for efficient Agricultural Marketing. The modes of transportation within India are roadways, railways, airways, inlands waterways like riverways for domestic transportation of agricultural goods. Roadway transportation is vital in the domestic transportation of agricultural commodities in the context of India. For the international trade, the modes of transportation are also roadways, airways, waterways and railways. However, the modes of transportation are selected on the basis of the distance, nature of the commodity traded, warehouse facility at the airport, port, railway stations and the cost of transportation.
- **Centre for Perishable Cargo in India:** Export of perishable

agricultural commodities requires a well-equipped Cargo centres. Perishable commodities are at a very high risk of damage as they are vulnerable to the extreme and frequent fluctuations of temperature, weather conditions, humidity, poor and inefficient handling. Thus, there is requirement for the well-equipped and efficient cargos for the supply of perishable agricultural produce from domestic farmers to the foreign consumers. Thus, the APEDA (Agricultural and Processed Food Products Export Development Authority) has established six Centres for Perishable Cargos (CPCs) at Bangalore, New Delhi, Chennai, Thiruvananthapuram, Hyderabad, and Mumbai of varying capacities. Cargo means goods carried by a large vehicle. The word 'cargo' originates from the Latin word 'carricare' which means 'to load on a cart, or wagon'. The prescribed charges for users vary from Rs 0.35 per kg to Rs 2.29 per kg. APEDA also provides walk-in type cold rooms facilities at Kolkata, Agartala, Guwahati, Lucknow, Coimbatore and Ahmedabad. India's first perishable cargo-handling center in an airport was set up at Kempegowda International Airport, Bengaluru and it started operating from 1st October, 2016. The center is operated by Air India SATS Airport Services Pvt. Ltd. (AISATS). AISATS is a 50:50 joint venture between Air India Limited, and SATS Limited, a leading gateway services and food solutions provider in Asia. It has 11,000 sq. m area to facilitate services for handing perishable cargo such as pharmaceuticals, fruit, vegetables, flowers, meat and seafood.

- **Market Information and Market Intelligence:** Now-a-days, Market Information and market Intelligence are crucial to enable farmers and traders to make informed decisions about what to grow, when to harvest, produce to be sent to whice markets and whether to store it or not etc. The term 'market information' is simply the data of prices, demands and supplies of agricultural product for different dimensions of time. While the term 'market intelligence' signifies the decision made on the basis of the available market information. Both these concepts are used to make informed decisions such as: what to grow, when to harvest, where to markets the produce, whether to store it or not,

which marketing channel to be used for marketing, how much to produce, the cost transport for the product, in which market the price is higher etc. These help in reducing the risks and volatility in incomes of the stake holders. The most important Marketing Intelligence is t Price Intelligence. Price Intelligence leads to the arbitrages.

In India, agricultural Market Information Services (MIS) are used to receive information. However, the information is not adequate to always make right decisions. In India, farmers gather information through the information provided by the APMCs, SAMBs, state departments of Agricultural Marketing, field staff of Directorates of Economics and Statistics and Departments of agricultural marketing, field staff of Directorates of Economics and Statistics and Department of Food, open auctions, display boards in market yards, personally from other farmers, middlemen, traders etc. Farmers also gather information via Radio, TV and Newspapers. However, there is a lack of a farmer friendly, easily accessible market intelligence system in India which results in imbalances in the market mechanisms.

Agricultural Marketing Information Network (AGMARKNET) was launched in March 2000 by the Union Ministry of Agriculture which provides web- based information of the daily arrivals and prices of commodities in the agricultural produce markets across the country. It is the largest network in India to provide market information across the country. Some of the other sources of market information in India are Market Research and Information Network (MRIN), ITC's e-choupals, Gramdoot project etc. There is a vast scope for extension of sharing of market information with the help of Information Technology.

- **e-NAM: National Agriculture Market:** The NAM is a unified market where farm goods are being sold without any 'mandi tax'. It's primary objective is to make the food inflation moderate and remove price differentials across the country. With this in view the Prime Minister of India, Shri Narendra Modi had integrated 21 wholesale markets electronically as National Agriculture Market (NAM) on 14 April, 2016

in India. There have been 21 'mandis' selected as electronic trading platforms for trading of one or more agricultural commodities. As on 1 July, 2018, 497 mandis of 14 states have been integrated with e-NAM where 90 agricultural commodities are traded electronically. A total trade volume of 2.25 crore tonnes of agricultural commodities worth of ₹ 58,930 crore was traded on e-NAM portal till 31 December, 2018 in India.

There have been improvements in the Agricultural Marketing system in India over the years. However, these improvements are not adequate to address all the challenges that hinder the development of farmer and consumer friendly efficient agricultural marketing system in India. There have been a lot of scopes for further improvements in agricultural marketing in the near future.



CHECK YOUR PROGRESS

Q 17: In which year the Ram Rahim Pragati Producer Company of Madhya Pradesh hedged Soyabean price risk on the NCDEX with the help of FPO?

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Q 18: How many AEZs are established in India till now?

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Q 19: What is the full form of APEDA?

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Q 20: What is the prime objective of e-NAM in India?

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7.6 LET US SUM UP

- Agricultural Marketing includes all the business activities such as

assembling, handling, storage, transporting, processing, wholesaling, retailing and export of agricultural commodities as well as accompanying supporting services such as market information, establishment of grades and standards, commodity trade, financing and price risk management and the institutions involved in performing all the activities.

- To assure that selling and buying activities are conducted at a favourable time, place and price; to ensure consumers' and buyers' satisfaction; facility to choose better marketing channel; to ensure mobilisation of resources among buyers and sellers or agricultural and non-agricultural sectors of an economy; to widen product range; development of backward areas; increase productivity of agriculture; management of risks are some of the primary objectives of agricultural marketing.
- The need and importance of agricultural marketing has been increasing with the expansion of agricultural output. The introduction of various types of revolutions such as green revolution, yellow revolution, white revolution etc extends the need for an efficient agricultural marketing for both input and output of agriculture.
- As all the activities related to marketing of agricultural produce extended with the requirement of the society, the overall importance of the agricultural marketing has increased.
- A lot progress have been made in the agricultural marketing system of India. The role of government is remarkable in this case. The introduction of the regulated markets, cooperative banks, NABARD, e-NAM, scientific storage facility etc are remarkable. However, there are still many challenges that pave the formation of efficient agricultural marketing in India.



7.7 FURTHER READING

1) Govt. of India (n.d.). Retrieved from *APEDA Agri Xchange: the changing face of agri business*. (n.d.). Retrieved from APEDA: http://

agriexchange.apeda.gov.in/Ready%20Reckoner/AGRI%20EXPORT.aspx

2) Narvariya, R. K. (2021) "Regulated Markets-Definition-Important Features of Regulated Markets, Function, Progress and Defects. Retrieved from http://www.jnkvv.org/PDF/04042020184018REgulated.pdf.

3) Sastry, S. S., & Devi, I. B. (2020). *Agricultural Economics* (2nd ed.). New Delhi: CBS Publishers & Distributors Pvt. Ltd.

4) Soni, R. (2002). *Leading Issues Agricultural Economics* (Fifth ed.). Vishal Publishing Co. Jalandhar, India.

5) Ministry of Food Processng Industries, Government of India. (https://mofpi.nic.in/Schemes/mega-food-parks)

7.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: "Agricultural marketing comprises of all the operations, and agencies conducting them involved in the movement of farm produced foods, raw materials and their derivatives, such as textiles, from the farms to the final consumer and effects of such operations on farmers, middlemen and consumers."

Ans to Q No 2: The institutional set up that facilitates exchange activity among buyers and sellers is known as the market.

Ans to Q No 3:

- To assure that selling and buying activities are conducted at a favourable time, place and price.
- To reduce the price differences between the primary producer and ultimate consumer which helps in curbing food inflation.

Ans to Q No 4: 1-c, 2-a, 3-d,4-b.

Ans to Q No 5: When did Agricultural Marketing Information Network (AGMARKNET) launched in India?

Ans to Q No 6: Risk refers to a situation where there is more than one possible outcome to a decision and the probability of each specific

outcome is known or can be estimated.

Ans to Q No 7: Hedging is the action taken by a buyer or seller to protect his/her income against a rise in the prices in the future.

Ans to Q No 8: National Agricultural Cooperative Marketing Federation.

Ans to Q No 9: A market in which food grains prices are stabilised by the government on the basis of the recommendation provided by the Agricultural Prices Commission.

Ans to Q No 10: Co-operative marketing is defined as the organised sales of the agricultural produce on the non-profit basis to protect the interests of the farmers.

Ans to Q No 11: A "warehouse" is a premise (including any protected place) conforming to all the requirements including manpower specified by the Authority by regulation wherein the warehouse-man takes custody of the goods deposited by the depositor and includes a place of storage of goods under controlled conditions of temperature and humidity.

Ans to Q No 12: Frederic Nicholson.

Ans to Q No 13: A marketing channel is an intermediary in an agricultural marketing.

Ans to Q No 14: Grading is the process of categorisation of products into dissimilar groups, on the basis of significant characteristics (for example: quality, size, type, weight etc.) that the agricultural produce possesses.

Ans to Q No 15: Standardisation is the process of fixing certain rules for the product that helps in grading the products into different groups.

Ans to Q.16: This is 'AGMARK' logo, recognises as the certification mark for quality of agricultural products in India.

Ans to Q.17: In 2014.

Ans to Q.18: 60 AEZs.

Ans to Q.19: Agricultural and Processed Food Products Export Development Authority.

Ans to Q.20: The prime objective is to moderate the food inflation and remove the price differential across the country.



7.9 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: What is the definition of Agricultural market as provides by the National Commission on Agriculture (NCA) in its XII Report?

Q 2: Why do storage and warehouse use for agricultural products?

Q 3: What are the objectives of FCI?

Q 4: What is the acronym for FPO?

Q 5: What do you know by Agricultural Export Zones (AEZs)?

Q 6: How many Mega Food Parks in India? Give examples.

Long Questions (Answer each question in about 300-500 words)

Q 1: What are the functions that included under the purview of agricultural marketing?

Q 2: Discuss about the need and importance of the agricultural marketing in the present times.

Q 3: Do you think the regulated markets are beneficial for both the farmers and consumers? Explain.

Q 4: Discuss about the status of cooperative marketing in India.

Q 5: How do the market information and market intelligence help in taking informed decisions by farmers? How does a farmer in India gather market information? What are the sources of market information in India?

Q 6: Explain about the grading and standardisation of agricultural produce in India.

Q 7: Write short notes on the following topics:

a) e-NAM
b) Marketing Channel
c) Market Intelligence
d) Centre for Perishable Cargo
e) AEZs
f) Mega Food Park

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UNIT 8 : AGRICULTURAL FINANCE

UNIT STRUCTURE

8.1 Learning Objectives

8.2 Introduction

8.3 Need and Importance of Agricultural Finance

8.4 Sources of Credit

- 8.4.1 Co-Operative Banks
- 8.4.2 Rural Banks
- 8.4.3 NABARD
- 8.4.4 Microfinance-SHG-NGOs

8.5 Problems of Capital Formation

8.6 Let Us Sum Up

8.7 Further Reading

8.8 Answers to Check Your Progress

8.9 Model Questions

8.1 LEARNING OBJECTIVES

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

- grasp the Need and Importance of Agricultural Finance
- discuss different sources of credits for agricultural finance
- describe the problems of capital formation in a developing country like India

8.2 INTRODUCTION

Agriculture plays an important role in the mainstay of developing economy like India. One of the priority concerns in this sector as a whole entails improving input delivery mechanism to enhance farm productivity. Indian agriculture is characterised by low savings, low investment and uncertain returns. Farmers' requirement of adequate capital is inevitable to increase the productivities of various resources used in farm production. Both organised and unorganised agencies provide finances to the farm

communities in India. However, most of the time, farmers remain unaware of and unable to access various sources of affordable credits, which in turn impede their productivity.

8.3 NEED AND IMPORTANCE OF AGRICULTURAL FINANCE

With modernisation, the agricultural sector, in general, has gradually become more competitive. Consequently, it requires a proper combination of money, management and marketing for development of agriculture. Money, as an important ingredient, more often comes from credit and contributes in capital formation. Only small sections of the farming community have their own capital to invest in agriculture. In fact, a major portion of the farming community needs capital to meet various expenditures both in the short run and the long run. Those farmers have to search for various sources which supplies farm credits. Also, majority of the farming communities in India are marginal and small who cultivate their own consumption needs and have rather low marketable surpluses. For those farmers, proper farm finance policy is needed as they are in need of more consumption credit and unable to offer security due to small size of holding. Farmers need credit support to have access to the resources on time as well as to maintain proper capital acquisition. However, care should be taken in utilising the credit for productive purposes, so that it becomes a lever for the development. Institutional credit support network is, therefore, extremely crucial in the interest of the farming community with a timely monitoring mechanism to ensure an adequate financial flow to the agriculture sector.

Agricultural finance is as important as other inputs in agricultural sector. It is important for agro-socio-economic development both at micro and macro levels. Agricultural finance plays a catalytic role in enhancing resources' productivity and increase the farm income. Adoption of new and improved technology is imperative to augment agriculture as a business venture. We can call it as a supportive infrastructure set up, for instance a combination of new potential seeds with other inputs like fertilisers, irrigation facility, plant

protection measures, modern and improved post harvesting techniques, market intelligence and connectivity etc. Starting from sowing to post harvest measures to marketing, every step in agribusiness needs adequate amount of capital to increase the productivity and efficiency. Proper framework of agricultural finance provides all necessary capital to create a strong resource back up at each and every step of farm business on timely basis not only in supplying of quality inputs; agricultural finance is equally important for farm output managements. Large scale financial investment activity entails asset and farm supportive infrastructure to increase farm income and overall improvement in the living standard of the farm community. Agricultural finance can also contribute in minimising regional imbalances and inter farm variations between rich and poor. Importance of farm finance in both forward and backward linkages at micro and macro level is crucial and significant. In a country like India, where agriculture is still subsistence and stagnant in nature, agricultural finance is important to adopt new science and technology to speed up the overall development in farming. Moreover, massive investment is also necessary to carry out micro and macro level projects on irrigation, energy and electrification; installation of chemical fertiliser plants, biogas plants, storage infrastructure, food processing plants; improved road and other connectivity; marketing infrastructure including an efficient market intelligence network; execution of socio economic development schemes and projects etc. Hence, a good framework of agricultural finance is necessary for overall development in agriculture and to promote welfare in the society.



CHECK YOUR PROGRESS

Q 1: Discuss the need of finance in Indian agriculture.

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Q 2: What is the importance of agricultural finance in a country like India?

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8.4 SOURCES OF CREDIT

In India, Agricultural credit can be availed by the farming communities from various sources. Both short term and long term agricultural credit requirements of farming community are usually met by both government sector and private sector- organised and unorganised. Sources of agricultural credit can be broadly classified into two categories, i.e., institutional and non-institutional sources. Non-Institutional sources include moneylenders, traders and commission agents, relatives and landlords; and institutional sources include co-operatives, commercial banks, RBI and NABARD. In this section, the various institutional sources of agricultural credit are discussed briefly.

8.4.1 Co-Operative Banks

Co-operative banks are an important segment of the Indian banking system. Co-Operative Banks are relatively small financial institutions that offer lending facilities to small businesses/ entrepreneurs and individuals in both urban and rural areas. Cooperative banks have been organised under the provisions of the co-operative society's law which is based on the principles of cooperation. A co-operative bank is a financial institution which is established on the cooperative basis and belongs to its members, who are at the same time the owners and the customers of their bank. A Cooperative bank deals in ordinary banking business and like other banks, these are founded by collecting funds through shares, accepting deposits and granting loans.

According to Huber Calvert, "Co-operation is a form of organisation, wherein persons voluntarily associate together on the basis of equality for the promotion of common economic interest of themselves".

A financial cooperative (co-op) is a type of financial institution that is owned and operated by its members. The goal of a financial cooperative is to act on behalf of a unified group as a

traditional banking service. Cooperative banks are the type of financial cooperatives which follows various principles of cooperation. A co-operative bank is a financial entity which belongs to its members, who are at the same time the owners and the customers of their bank. It is often established by people belonging to the same local or professional community having a common interest. It is formed to uplift the financially weaker section of the society and to protect them from the clutches of money lenders who provide loans at an unreasonably high-interest rate to the needy. The co-operative structure is designed on the principles of cooperation, mutual help, democratic decision making and open membership. It follows the principle of 'one shareholder, one vote' and 'no profit, no loss'.

The history of Indian cooperative banking began with the passing of Cooperative Societies Act in 1904. These are monitored and regulated by the Reserve Bank of India (RBI) and come under the Banking Regulations Act, 1949 as well as the banking laws act, 1965. Cooperative banks differ from commercial banks on the grounds of organisation, governance, interest rates, scope of functioning, objectives and values.

- **Structure of Cooperative Banks in India:** The co-operative banking system, with two broad segments viz. urban cooperative banks and rural co-operative credit institutions. While the urban co-operative banking system has a single tier comprising the Primary Co-operative Banks (commonly known as urban co-operative banks – UCBs), the rural co-operative credit system is divided into long-term and short-term co-operative credit institutions which have a multi-tier structure. Here, we will discuss only rural cooperative credit structure as it is dominated by agricultural credit institutions.

  The short-term co-operative credit institutions has a three-tier structure comprising State Co-operative Banks (SCBs), Central Co-operative Banks (CCBs), and Primary Agricultural

Credit Societies (PACSs) which are not banks but only societies. The long-term co-operative credit institutions have generally a two tier structure comprising the Central Land Development Bank (CLDB) and Primary Land Development Banks (PLDB), now known as State Cooperative Agriculture and Rural Development Banks (SCARDBs) and Primary Cooperative Agriculture and Rural Development Banks (PCARDBs).

- **State Cooperative Banks (SCBs):** These are the apex credit organisations existing at the state level. District cooperative central banks (DCCBs) and primary agricultural cooperative credit societies act as members of these banks. These SCBs supervise the activities of the member banks and mobilise and deploy the financial resources among the member banks.
- ***Functions of State Cooperative Banks:***
  - SCBs help the state governments in formulating developmental plans pertaining to cooperative institutions and also to coordinate the cooperatives with the government.
  - SCBs formulate and implement uniform credit policies pertaining to cooperative development in the state.
  - SCBs act as bankers' bank to District Cooperative Central Banks (DCCBs) and grant subsidies for the smooth functioning of DCCBs
  - Similar to any other commercial bank, they also perform the normal banking operations.
- **District Cooperative Central Banks (DCCBs):** DCCBs act as link between state cooperative banks and primary agricultural cooperative credit societies. They also undertake normal banking functions like accepting of deposits from public, collection of bills, cheque and drafts etc. and also provide required credit for needy persons. Membership of DCCBs is open to individuals and other societies falling under its area of

operation, *viz*., marketing societies, consumers' societies, farming societies, urban banks and PACS.

- ***Functions of District Cooperative Central Banks:***
  - Supervising and inspecting the activities and functions of PACS and help them to function smoothly.
  - Apart from providing guidance they also provide leadership to PACS
  - Undertaking non-credit activities like supply of seeds, fertilisers and also consumer items like sugar, kerosene etc.
  - Providing requisite credit for societies under their control.
  - Accepting deposits from the member societies as well as from public.
- **Primary Agricultural Cooperative Credit Societies (PACS):** With the enactment of Cooperative Societies Act of 1904, Primary Agricultural Cooperative Credit Societies (PACS) came into existence following the guidelines of Raiffeissen model cooperatives as practiced in some of the countries of the Europe. PACS are framed bases on cooperative principles like limited liability, limited area of operation, honorary management, voluntary participation of villagers etc**.** These societies function at village level providing the farmers the required short term and medium term loans as well as supply of other agricultural inputs and essential consumer items. PACS also help in formulating and implementing the agricultural developmental plans.
- Functions of Primary Agricultural Cooperative Credit Societies:
  - Borrowing adequate and timely funds from DCCBs and help its members by providing required finances.
  - Inculcating the habit of thrift to generate local savings of members towards share capital and mobilising deposits from the villagers.
  - Supervising the end use of credit.

- Distributing fertilisers, seeds and pesticides to the needy farmers and supply consumer goods like rice, wheat, sugar, kerosene, clothes etc, at fair prices.
- Providing machinery to the farmers on hire basis.
- Helping the farmers in marketing of farm produce.
- Providing storage facilities and marketing finance.
- Helping in formulating plans and programmes meant for the socio-economic development of the village.

➢ **Central Land Development Bank (CLDB):** Central Land Development Bank is an apex bank in the two-tier cooperative credit structure providing long-term credit to PLDBs and its subsidiary/affiliated branches. The branches of CLDBs, PLDBs and individual entrepreneurs are the members of CLDB. National Bank for Agriculture and Rural Development (NABARD) and Life Insurance Corporation (LIC) subscribe for its debentures. NABARD is a refinancing agency to the CLDBs. CLDB is a link between NABARD and government in long-term transactions.

➢ **Functions of CLDB:**

- CLDB inspects, supervises and guides PLDBs in their banking operations.
- It floats debentures for raising the necessary funds.
- It inculcates the spirit of thrift among the members by mobilising savings and stimulating capital formation i.e. asset creation.
- It provides loans to the member banks for the redemption of old debts, development of land, purchase of machinery and equipment, development of minor irrigation etc.

➢ **Primary Land Development Banks (PLDBs):** PLDBs operate at district level with branches at block / taluk level. All the PLMBs are federated into Central Land Development Banks at the state level. They receive massive support from institutional agencies like RBI, SBI, LIC and NABARD to direct their lending policies

towards small and marginal farmers emphasising agricultural development.

- **Functions of PLDBs are:**
  - Providing long-term credit to the needy farmers for the land development, increased agricultural production and productivity of land.
  - Providing loans for minor irrigation, purchase of land and for redemption of old debts.
  - Finance farmers in purchase of tractors, machinery and equipment.
  - Providing finance to farmers for the construction of farm buildings.
  - Mobilising rural savings, etc.

8.4.2 Rural Banks

The Regional Rural Banks were established on the recommendations of Narasimham Committee on Rural Credit. As per the recommendations, the regional rural banks were established in 1975 for supplementing the commercial banks and co-operatives in supplying rural credit. Considering the recommendations of the committee, the Government of India passed Regional Rural Banks Act 1976. The **first Regional Rural Bank** was set up in 1975 itself by the name **Prathama Grameen Bank**. After passing the Act, within a year, as many as, 25 RRBs were established in different parts of India. As on 1 April 2020, there are 43 RRBs in India.

The Regional Rural Banks were established with a view of serving primarily the rural areas of India with basic banking and financial services. The Regional Rural Banks Act, 1976 provide for incorporation, regulation and winding up Regional Rural Banks with a view to develop rural economy by providing credit and other facilities, particularly to the small and marginal farmers, agricultural labourers, artisans and small entrepreneurs. The act is also endowed

with the purpose for developing of agriculture, trade, commerce, industry and other productive activities in the rural areas.

- **Objectives of Regional Rural Banks (RRBs):**

  RRBs were established with the following objectives to:

  - Bridge the credit gap in rural regions in India
  - Check rural credit outflow to urban areas and develop measures which could restrict such outflow
  - Reduce regional imbalances in terms of availability of financial facilities
  - Increase rural employment generation

- **Area of operation of RRBs:** Regional Rural Banks (RRBs) are Indian Scheduled Commercial Banks operating at regional level in different states of India. However, RRBs may have branches set up for urban operations and their area of operation may include urban areas too.

  The Regional Rural Banks are required to function within a limited area where they are established. The area of operation of RRBs is limited to the area as notified by Government of India covering one or more districts in the State.

  The area of functioning of RRBs is decided by central government in consultation with NABARD and the Sponsor Banks by way of a notification issued in this regard.

- **Ownership of RRBs:** The equity of RRBs is held by the stakeholders in fixed proportions shares of 50:15:35 distributed among Central Government- 50%, State Government-15%, and the Sponsor Bank (any commercial bank can sponsor the regional rural banks) - 35% share.

- **Functions of RRBs:**

  - Providing banking facilities to rural and semi-urban areas
  - Encouraging the saving habits among the rural and semi urban population.
  - Granting of loans and advances to small and marginal farmers and agricultural labourers, whether individually

or in groups, and to co-operative societies, agricultural processing societies, co-operative farming societies, primarily for agricultural purposes or for agricultural operations and other related purposes

- Granting of loans and advances to artisans, small entrepreneurs and persons of small means engaged in trade, commerce and industry or other productive activities
- Carrying out government operations like disbursement of wages of MGNREGA workers, distribution of pensions etc.
- Providing Para-Banking facilities like locker facilities, debit and credit cards, mobile banking, internet banking, Unified Payments Interface (UPI) system etc.

8.4.3 NABARD

National Bank for Agriculture and Rural Development (NABARD) is a development bank focusing primarily on the rural sector of the country. It is the apex banking institution to provide finance for agriculture and rural development. NABARD's head-quarter is located in Mumbai.

The importance of institutional credit in boosting rural economy has been clear to the Government of India right from its early stages of planning. The Reserve Bank of India (RBI) at the insistence of the Government of India, constituted a Committee to Review the Arrangements for Institutional Credit for Agriculture and Rural Development (CRAFICARD) to look into these very critical aspects on 30 March 1979, under the Chairmanship of Shri B. Sivaraman, former member of Planning Commission, Government of India.

On recommendation of the committee report (1979), NABARD (National Bank for Agriculture and Rural Development) was set up in 1982 as a statutory body under National Bank for Agriculture and Rural Development Act, 1981. NABARD came into existence by

transferring the agricultural credit functions of RBI and refinance functions of the then Agricultural Refinance and Development Corporation (ARDC). Its initial paid up capital was Rs. 100 cr. contributed with 50:50 by government of India and Reserve Bank of India. Its paid up capital stood at Rs.14,080 crore as on 31 March 2020. Consequent to the revision in the composition of share capital between Government of India and RBI, NABARD today is fully owned by Government of India.

- **Functions of NABARD:** The mission of NABARD is to promote sustainable and equitable agriculture and rural development through participative financial and non-financial interventions, innovations, technology and institutional development for securing prosperity.

  In order to achieve the above mission, NABARD undertakes a number of functions/ activities:

  The major functions of NABARD include promotion and development, refinancing, financing, planning, monitoring and supervision. We can broadly divide the functions into two categories:

- **Non-credit Related:**
  - Credit Planning and Monitoring, Coordination with various agencies and institutions.
  - Assist in policy formulation of GoI, RBI and State Governments on matters related to agricultural credit and rural development
  - Institutional development and capacity building of Cooperatives and Regional Rural Banks (RRBs) to strengthen the rural credit delivery system. Statutory inspection of Regional Rural Banks (RRBs), State Cooperative Banks (SCBs) and District Central Cooperative Banks (DCCBs), voluntary inspection of State Cooperative Agriculture and Rural Development Banks (SCARDBs) and their off-site surveillance

- Promotional and developmental initiatives in the areas of farm, off-farm, micro-finance, financial inclusion, convergence with government sponsored programmes.
- Supporting the financial inclusion efforts of Regional Rural Banks and Cooperative Banks
- Thrust on promotion of livelihood opportunities and Micro Enterprises
- Capacity Building of Personnel and Board Members of Credit Cooperatives and Staff of Rural Financial Institutions.
- Support to research and development, rural innovations, etc.

➢ **Credit Related:**

- Refinance to Rural Financial Institutions for investment credit (long term loan) and production and marketing credit (short term loan) purposes for farm and off-farm activities in rural areas.
- Loans to State Governments for developing rural infrastructure and strengthening of the Cooperative Credit Structure
- Loans for warehousing infrastructure to State Governments, State/ Central government owned/ assisted entities, Cooperatives, Federation of Cooperatives, Farmers' Producers Organizations (FPOs), Federations of Farmers' Collectives, Primary Agricultural Credit Societies (PACS)/ Cooperative Marketing Societies (CMS) or similar institutions, Corporate/ Companies, Individual entrepreneurs, etc.,
- Direct lending to Cooperatives and Producers' Organisation, support to State owned institutions / corporations under NABARD Infrastructure Development Assistance and direct lending to individuals, partnership firms, corporate, NGOs, MFIs, Farmers' collectives etc.

under Umbrella Programme for Natural Resource Management (UPNRM)

- Pass through agency of select Government of India Capital Investment Subsidy Schemes.

8.4.4 Microfinance-SHG-NGOs

Microfinance is the provision of savings accounts, loans, insurance, money transfers and other banking services to customers that lack access to traditional financial services, usually because of poverty. The Microfinance is the cluster of banking services, relatively of lower monetary amounts, designed specifically to meet the banking requirements of an unemployed or low-income people. It is not just about giving micro credit to the poor rather it is an economic development tool whose objective is to assist poor to work their way out of poverty. It covers a wide range of services like credit, savings, insurance, remittance and also non-financial services like training, counselling etc. Nobel Laureate Muhammad Yunus is credited with laying the foundation of the modern Microfinance Institutions (MFIs) with establishment of Grameen Bank, Bangladesh in 1976.

- **Salient Features of Microfinance**
  - Borrowers are from the low income group
  - Loans are of small amount – micro loans
  - Short duration loans
  - Loans are offered without collaterals
  - High frequency of repayment
  - Loans are generally taken for income generation purpose
- **Channels of Micro Finance**

In India microfinance operates through two channels:

- SHG – Bank Linkage Programme (SBLP)
- Micro Finance Institutions (MFIs)

- **SHG – Bank Linkage Programme (SBLP):** This is the bank-led microfinance channel which was initiated by NABARD in

1992. Under the SHG model the members, usually women in villages are encouraged to form groups of around 10-15. The members contribute their savings in the group periodically and from these savings small loans are provided to the members. In the later period these SHGs are provided with bank loans generally for income generation purpose.

- **Micro Finance Institutions (MFIs):** Those institutions which have microfinance as their main operation are known as micro finance institutions. MFIs lend through the concept of Joint Liability Group (JLG), i.e., an informal group that consists of 5-10 members who seek loans either jointly or individually. Microfinance Institutions (MFIs) in India exist as NGOs (registered as societies or trusts), Section 25 companies and Non-Banking Financial Companies (NBFCs). Commercial Banks, Regional Rural Banks (RRBs), cooperative societies and other large lenders have played an important role in providing refinance facility to MFIs.



CHECK YOUR PROGRESS

Q 3: Mention the institutional sources of agricultural credits in India? (Answer in about 30 words)

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Q 4: What are the functions of primary agricultural cooperative credit societies? (Answer in about 120 words)

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Q 5: Mention the distribution of equity of Regional Rural Banks? (Answer in about 30 words)

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Q 6: What are the non credit functions of NABARD? (Answer in about 150 words)

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Q 7: What are the salient features of Microfinance? (Answer in about 30 words)

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8.5 PROBLEMS OF CAPITAL FORMATION

Capital is the major driver of agricultural productivity and growth, which is a very important element of economic development. According to Ragnar Nurkse, “Society uses its present production not only for the satisfaction of its consumption but also uses a part of it on capital goods that is making machines, transport facilities or other production equipment, which is regarded as capital formation”. Capital formation means accumulation of capital goods or creation of real assets and we should understand that it does not mean to increase in the money capital. Moreover, capital formation does not only refer to the increase in physical goods but

also to the development of human capital. Hence in other words, capital formation implies creation of both tangible physical goods like machinery, factories, transport equipment, bridges, power projects, dams, irrigation systems, etc and intangible goods like education, health, developing skills, living standard etc.

For Capital accumulation, saving and investment are essential components. In order to make addition to the stock of capital goods, a part of the current consumption has to be sacrificed in form of savings and savings must be invested in order to have capital goods. However, in a modern economy, saving and investment are done mainly by two different classes of people, there must be certain means or mechanism whereby the savings of the people are obtained and mobilised in order to give them to the businessmen or entrepreneurs to invest in capital. Hence, the process of capital formation is not as simple as it may seems to be.

- **The Process of Capital formation Occurs in Three Stages.**
  - **Creation of Savings:** Creation of savings out of the total income by curtailing a part of consumption expenditure is the first step of moving towards capital formation. An increase in the volume of real savings helps to release resource for further investment.
  - **Mobilisation of Savings:** Created savings need to be effectively mobilised and made available to businessmen and entrepreneurs for investments. A prompt finance and credit mechanism as for example banks, insurance companies, improvement trusts, finance corporations, etc., play a very important role in bringing individual savers and investors together for mobilisation of savings.
  - **Investment of Savings:** The saving must be invested properly in order to produce capital goods by the entrepreneurs in different productive systems like agriculture, industry, trade, communication network etc.
- **Reasons for Slow Growth of Capital Formation in India:** Unlike the advanced countries, the rate of capital formation in India is very low. The reasons behind the slow pace of capital formation in India

are many, some of the important reasons are mentioned below:

- **Low Saving Ability:** The people in India have the willingness to save and possess all those factors such as old age considerations, family affection, socio-political influence. However, due to lower per capita income people end up with low savings which lead to lower rate of capital formation.
- **Habit of Hoarding:** Most of the people have little capacity to save, and have a habit of hoarding their savings in their houses. Unless these hoardings are utilised for any productive purposes, these savings are of no use as far as capital formation is concerned.
- **Inflation:** Due to an inflationary trend, the prices of commodities rise very high and it is thus becomes increasingly impossible for the majority of middle-class to contribute savings and investment.
- **Inadequate Investment Channels:** The banking and financial facilities are still inadequate in many parts of our country, especially in remote areas. Lack of improved transport and communication facilities in those remote areas hinder financial development, which adversely affect the mobilisation and investment of savings.
- **Taxation Policy:** High level of taxes on property in India, affect the savings and accumulation of capital adversely. The new taxation policies are still in the way to gain momentum in India.
- **Socio Political Issues:** Many parts of the country have little functioning of law and order which is why there is no adequate security of life and property to start new industries in those areas. Frequent failure of companies due to many socio economic issues also creates a fear of big private investment.
- **Lack of Infrastructure Facilities:** Lack of infrastructure facilities such as power, engineering industry, technical training, public health systems and measures restrict the expansion and widening of market and also reduce productivity of workers.

- **Unequal Distribution of Income and Wealth:** Real investment in the economy is restricted due to unequal distribution of income and wealth which results in low rate of capital formation.



CHECK YOUR PROGRESS

Q 8: What are the stages of capital formation?

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Q 9: Mention any five reasons for slow growth in capital formation in India?

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8.6 LET US SUM UP

- India is a country where agriculture is still subsistence and stagnant in nature. Vast majority of the farming community need credit support to have access to the resources on time as well as maintain proper capital acquisition. Agricultural finance acts as a supportive infrastructure set up, which play a catalytic role in enhancing resource productivity and increase the farm income.
- Sources of agricultural credit can be broadly classified into two categories, i.e., institutional and non-institutional sources. Non-Institutional sources include moneylenders, traders and commission agents, relatives and landlords; and institutional sources include co-operatives, commercial banks, RBI and NABARD.
- Co-operative banks are important segment of the Indian banking system. Cooperative banks have been organised under the provisions of the co-operative society's law which is based on the principles of cooperation.
- The cooperative credit structure has short and medium term as well as long term cooperative credit institutions. The short-term co-operative credit institutions have a three-tier structure comprising

State Co-operative Banks (SCBs), Central Co-operative Banks (CCBs), and Primary Agricultural Credit Societies (PACSs) which are not banks but only societies. The long-term co-operative credit institutions generally have a two-tier structure comprising the State Co-operative Agriculture and Rural Development Banks (SCARDBs) and the Primary Co-operative Agriculture and Rural Development Banks (PCARDBs).

- Regional Rural Banks were established in 1975 for supplementing the commercial banks and co-operatives in supplying rural credit. The Regional Rural Banks were established with a view of serving primarily the rural areas of India with basic banking and financial services. The first Regional Rural Bank was set up in 1975 by the name of Prathama Grameen Bank. As of 1 April 2020, presently there are 43 RRBs in India.
- The equity of RRBs is held by the stakeholders in fixed proportions shares of 50:15:35 distributed among Central Government- 50%, State Government-15%, and the Sponsor Bank (any commercial bank can sponsor the regional rural banks) - 35% share.
- NABARD (National Bank for Agriculture and Rural Development) established in 1982 is the apex banking institution to provide finance for Agriculture and rural development in the country. The major functions of NABARD include promotion and development, refinancing, financing, planning, monitoring and supervision of agricultural finances.
- Microfinance is the cluster of banking services, relatively of lower monetary amounts, designed specifically to meet the banking requirements of an unemployed or low-income people. In India microfinance operates through two channels: 1) SHG – Bank Linkage Programme (SBLP) and 2) Micro Finance Institutions (MFIs)
- Capital formation means accumulation of capital goods or creation of real assets, tangible and intangible. For Capital accumulation, saving and investment are essential components. The process of capital formation occurs in three stages: creation of savings, mobilisation of

savings and investment of savings.

- Unlike the advanced countries, the rate of capital formation in India is very low. The reasons behind slow pace of capital formation in India are less ability to save, hoarding habit of people, inflation, inadequate investment channels, socio-political issues, lack of infrastructure facilities, income and wealth imbalances etc.



8.7 FURTHER READING

1) Reddy, S.S. and Ram P.R. (2018) *Agricultural Finance and Management*, Oxford & IBH Publishing Co Pvt. Ltd.

1) Reddy S.S. (2006) *Agricultural Economics*, Oxford & IBH Publishing Co Pvt. Ltd.



8.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Investment in capital plays an important role in agricultural development. However, only small portions of farming communities have their own capital to invest in agriculture. Since major portion of the farming communities in India are marginal and small and they need capital to meet various expenditures both in short run and long run. Farmers need credit support to have access to the resources on time as well as maintain proper capital acquisition. However, care should be taken in utilising the credit for productive purposes, so that it becomes a lever for the development. Institutional credit support system network is essential in the interest of the farming community with timely monitoring system mechanism to ensure a healthy financial system in agriculture.

Ans to Q. No. 2: Agricultural finance is important for agro-socio-economic development both at micro and macro level of a country. It plays a catalytic role in enhancing resource productivity and increase the farm income. Proper framework of agricultural finance provides all

necessary capital to create a strong resource back up at each and every step of farm business on timely basis. Agricultural finance is also important for farm output managements. Large scale financial investment activity entails asset and farm supportive infrastructure to increase farm income and overall improvement in the living standard of the farm community. Agricultural finance can also contribute in minimising regional imbalances and inter-farm variations between rich and poor. A good framework of agricultural finance is necessary for overall development in agriculture and to promote welfare of the society.

Ans to Q. No. 3: Institutional sources credits: Government, Co-operative banks, Commercial banks, RRBs, RBI and NABARD.

Ans to Q. No. 4: Functions of Primary Agricultural Cooperative Credit Societies are

- Borrowing adequate and timely funds from DCCBs and help its members by providing required finances.
- Inculcating the habit of thrift they attract local savings of members towards share capital and deposits from the villagers.
- Supervising the end use of credit.
- Distributing fertilisers, seeds and pesticides to the needy farmers and supply consumer goods like rice, wheat, sugar, kerosene, clothes etc, at fair prices.
- Providing machinery to the farmers on hire basis.
- Helping the farmers in marketing of farm produce.
- Providing storage facilities and marketing finance.
- Participating in formulating plans and programmes meant for the socio-economic development of the village.

Ans. To Q.No. 5: The equity of RRBs is held by three stakeholders in fixed proportions shares of 50:15:35.

- Central Government- 50%,
- State Government-15%,
- Sponsor Bank (any commercial bank can sponsor the regional rural banks) - 35%.

Ans. To Q.No. 6. Non credit functions of NABARD are:

- Credit Planning and Monitoring, Coordination with various agencies and institutions.
- Assistance in policy formulation of GoI, RBI and State Governments on matters related to agricultural credit and rural development
- Institutional development and capacity building of Cooperatives and RRBs to strengthen the rural credit delivery system. Statutory inspection of RRBs , State Cooperative Banks and District Central Cooperative Banks, voluntary inspection of State Cooperative Agriculture and Rural Development Banks and their off-site surveillance
- Promotional and developmental initiatives in the areas of farm, off-farm, micro finance, financial inclusion, Convergence with government. sponsored programmes.
- Supporting the financial inclusion efforts of RRBs and Cooperative Banks
- Promotion of livelihood opportunities and micro enterprises
- Capacity Building of Personnel and Board Members of Credit Cooperatives and Staff of Rural Financial Institutions.
- Support to research and development, rural innovations, etc.

Ans. To Q.No. 7. Salient features of microfinance are:

- Borrowers are from the low income group
- Loans are of small amount – micro loans
- Short duration loans
- Loans are offered without collaterals
- High frequency of repayment
- Loans are generally taken for income generation purpose

Ans. To Q.No. 8. The process of capital formation occurs in three stages.

- **Creation of Savings:** Creation of savings out of the total income by curtailing a part of consumption expenditure is the first step of moving towards capital formation.
- **Mobilisation of Savings:** Created savings need to be

effectively mobilised and made available to businessmen and entrepreneurs for investments.

- **Investment of Savings:** The saving must be invested properly in order to produce capital goods by the entrepreneurs in different productive systems like agriculture, industry, trade, communication network etc.

Ans. To Q.No. 9. Reasons for slow growth in Capital formation:

- Low Saving Ability: The people in India have the willingness to save which lead to lower rate of capital formation.
- Inflation: Due to inflationary trend, the prices of commodities go very high and it is becoming increasingly impossible for the majority of middle-class to contribute savings and investment.
- Inadequate Investment Channels: The banking and financial facilities are still inadequate in many parts of our country, especially in remote areas.
- Socio political Issues: Many parts of the country have little functioning of law and order which is why there is no adequate security of life and property to start new industries in those areas.
- Lack of Infrastructure Facilities: Lack of infrastructure facilities such as power, engineering industry, technical training, public health systems and measures restrict the expansion and widening of market and also reduce productivity of workers.



8.9 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: What do you mean by microfinance? What are the channels of microfinance in India?

Q 2: When did the Regional Rural Banks (RRBs) come into existence? Mention the objectives of RRBs.

Q 3: What do you mean by cooperation and financial cooperative? When did the first cooperative society act was passed?

Long Questions (Answer each question in about 300-500 words)

Q 1: Describe the need and importance of agricultural finance in Indian context.

Q 2: What is the full form of NABARD? Explain various functions of NABARD.

Q 3: Explain elaborately about the problem of capital formation in Indian Agriculture.

Q 4: Describe the structure of cooperative banks in India briefly

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UNIT 9: NEW TECHNOLOGIES IN AGRICULTURE

UNIT STRUCTURE

9.1 Learning Objectives

9.2 Introduction

9.3 Green Revolution and Mechanisation

9.4 Irrigation

9.5 HYV of Crops

9.6 Food Processing

9.7 Let Us Sum Up

9.8 Further Reading

9.9 Answers to Check Your Progress

9.10 Model Questions

9.1 LEARNING OBJECTIVES

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

- point out the rational for new agricultural strategy in India
- discuss the various technological changes made towards promotion of agricultural production and productivity
- explain Green revolution and its achievement under different phases
- discribe the development and challenges in development of irrigation in India
- analiese the development in HYV crops and its adoption in Indian agriculture.
- present the status and potential of food processing industries in India.

9.2 INTRODUCTION

As we all know India passed through a serious phase of food insecurity notwithstanding the fact that India is basically an agrarian economy with nearly 70 percent of its population dependent on agriculture.

Between 1951 and 1966 India's food grain production rose at a rate of 2.8 percent per annum which was insufficient to keep up with the population growth of 2 percent per annum and the availability of foodgrain per head declined sharply. From mid 1950s India started to depend on food grains import to feed its burgeoning population. The two wars (with China in 1962 and Pakistan in 1965) further contributed to India's food insecurity as a large amount of resources were diverted to finance war at the cost of considerable loss in rural investment for the promotion of Indian agriculture. Meanwhile, the two consecutive droughts that took place in 1965-66 placed the country into an unprecedented food crisis with food grain production and yield declining by 19 percent and 17 percent respectively in 1966. The food crisis gripped the nation to such an extent in the early 1960 that a ship to mouth existence came to the fore. The country was left with no other option than relying on importing large grain (mainly rice and wheat) under PL-48 agreement from the USA.

It was becoming apparent by the mid 1960s that there was no alternative to technological change in agriculture for achieving self-sufficiency in food grains. The need for modernising Indian agriculture became utmost urgent in the mid 1960s. This new agricultural strategy took the form of package approach consisting of adoption or use of HYV seeds, fertilisers, pesticides, irrigation, pumpsets, tractors, etc. Thus technological intervention in Indian agriculture came into being with a slew of measures where mechanisation received the special target. This is simply because of the fact that farm mechanisation helps to enhance the overall productivity and reduce input cost 15-20 percent savings in seeds, 15-20 percent savings in fertilisers, 5-20 percent increase in cropping intensity, 20-30 percent savings in time, 20-30 percent reduction in manual labour and 10-15 percent overall increase in farm productivity. Here mention may be made that agricultural mechanisation has a very broad meaning. This includes production, distribution and utilisation of a variety of tools, machinery and equipments for the development of agricultural land, planting, harvesting and primary processing. Technological transformation in Indian agriculture has seen considerable progress in

the mechanisation of farming which stands at about 40 to 50 percent. With this background, this unit discusses various technological changes that took place in Indian agriculture over the years as a result of deliberate government policy. The importance, scope and various challenges faced in adopting new technologies with reference to mechanisation, irrigation, HYV of crops and food processing are discussed in details.

9.3 GREEN REVOLUTION AND MECHANIZATION

After the independence, there were efforts to develop agriculture in India. To increase the production of food grains many infrastructural (construction of new roads, expansion of irrigation, fertiliser production etc.) and institutional changes (mainly land reform) were made, but the agricultural production was almost stagnant. The production of food grains increased from 54.9 million tonnes in 1950-51 to only 68 million tonnes in 1955-56. The growth of food grain was only 2.8 percent in the period 1951-1966. Therefore, India continued to rely upon import of food grains to feed its rapidly growing population and to meet demand of raw materials for industrial development.

The government of India invited a team of experts sponsored by the Ford Foundation to find the way out to the problem of India's food dependency in the later years of Second-Five Year Plan. This team submitted a report titled as "India's Food Crisis and Steps to Meet It" in 1959. According to this report, India should provide intensive efforts to develop agriculture only in selected areas which has ample potential for growth. It also suggested to rely on modern inputs (particularly fertilisers, irrigation, credit, etc.) to increase agricultural production and productivity. On the basis of these suggestions, the Government of India started Intensive Area Development Programme (IADP) in seven selected districts of seven states on the basis of the availability of ample irrigation facility, less occurrence of natural calamities like drought or flood, higher potential for increase agricultural production in shorter duration, etc. in 1961. These seven districts were: West Godavari in Andhra Pradesh, Shahabad in Bihar, Raipur in Madhya Pradesh, Thanjavur in Tamil Nadu for rice,

Ludhiana in Punjab and Aligarh in Uttar Pradesh for wheat and Pali in Rajasthan for millets. In 1965, this IADP was expanded to 114 districts and renamed as Intensive Agricultural Area Programme (IAAP). This increased agricultural production to 89 million tonnes in 1965.

During this period, a new High Yielding Variety of wheat (Mexican dwarf variety) was developed by Professor. Norman Borlaug with his associates in Mexico in an International Institute for Research on wheat 'CIMMYT (Centro International de Mejorameinto de Meizy Trigo)'. The prominent result (i.e., rise of wheat production to 5,000 kg-6,000 kg per hectare of land) was shown by use of this Mexican dwarf variety of wheat in many countries: Mexico, Taiwan and countries of South and South East Asia. This HYV seed required other inputs (irrigation, fertilisers, pesticides and insecticides) to grow properly within a short span of time. Therefore, it introduced a package approach to agriculture. India also imported this dwarf variety of wheat (about 18000 tonnes) in 1966. In India, this new agricultural strategy (i.e. the package approach) was introduced in Kharif season of 1966 under the programme High Yielding Variety Programme (HYVP) in a total area of 1.89 million hectares.

The adoption of new agricultural strategy under HYVP resulted in spectacular increase in wheat and rice production. Agricultural scientist of India, M.S. Swaminathan noted that: "The progress made by India in increasing wheat production during 1964-68 exceeded that of the preceding four thousand years." In 1968, Professor William S. Gadd of Washington D.C. used the term "Green revolution" in a seminar titled as ' The Food Crisis in 3rd World Countries' for this miraculous increase in production of rice and wheat. Therefore, Green Revolution refers to the multiple increase in crop production in 3rd world countries by application of a package approach (i.e., use of modern inputs, technologies, HYVs, irrigation, fertilisation, power, pesticides and insecticides). The Green Revolution in India can be discussed under the following three phases:

- **The First Phase (1966-72):** Subramaniam, the then Minister of agriculture, adopted a new agricultural strategy to end India's food dependency on P.L. 480 by increasing food grain production with

remunerative support price to increase farmers' income. To recommend a Minimum Support Price (MSP), in January, 1965, Agricultural Prices Commission was set up, followed by setting up of the Food Corporation of India (FCI). The main task of FCI is to ascertain logistics of procuring major agricultural commodities.

In this phase of Green Revolution, benefits obtained from adoption of the new agricultural strategy 'trickled down' to the other sectors of the country and rural poverty declined significantly from 64 percent in 1967 to 57 percent in 1973.

- **The Second Phase (1973-1980):** During this period the major economic changes that took place is the nationalisation of banks inter alia other measures with a view to extend the role of the state in important areas of economic management.

  During this period especially after the oil shock, the fertilisers' prices increased resulting in drop in fertiliser consumption. Fertiliser being the important input under composite new agricultural strategy, the government increased fertiliser subsidy to prevent a drop in its consumption. At the same time during this period government put heavy emphasis on minor irrigation development which is based on groundwater irrigation. The share of groundwater irrigation rose from 0.55 percent to 19.5 percent between 1960 and 1975 on account of private investment in tube wells by farmer who reinvested the income from earlier burst in food grain production. As a result of development of groundwater based irrigation, govt. also raised the amount of power subsidies for water pumping which reached as high as 44 percent of total input subsidy at the start of 1980s.

  One of the remarkable dimensions of green revolution during this phase is the extension of HYB technology from wheat to rice. Greatly favoured by the growth of tube wells, the green revolution thus spread into new areas, marking a new phase in the expansion of domestic production.

- **The Third Phase (1981-1990):** The third phase of green revolution is remarkable in the sense that by the end of 1980s India

consolidated its status as a food secured country with sufficient amount food grains. One interesting development noticed during this phase is that the HYV technology spread eastward to states like West Bengal and Bihar, which experienced surpluses in rice with output over the 1980s growing at 5 and 3.7 percent respectively. However, in the rest of the country the impact of Green Revolution became weaker by 1985 once the new seed varieties had been widely adopted in the main producing regions.



LET US KNOW

- 'Begging bowl' is a term coined by Richard Bradly in 1940 to describe the dependence of India on import of food grains from USA.
- The starting point of Green Revolution in India was the implementation of the High Yielding Variety Programme (HYVP) in 1965-66.

9.3.1 Introduction of Mechanisation in Indian Agriculture

The transition from traditional agriculture to modern agriculture needs upgration of the agricultural technology. The technological uplift requires application of the machines in the agricultural activities for efficient use of all the inputs used in agriculture. The use of machines increases the productivity of agriculture by increasing the marginal productivity of land, labour and other inputs. The mechanisation of agriculture is the application of machines and technologies in the farming activities (for eg: ploughing, sowing, harvesting, threshing, levelling, watering etc.) which may or may not replace the manpower and animal labour to increase the efficiency of the agriculture. The machines that are used commonly in India are tractors, power tillers, harrow, harvesters, power-pump sets, etc. The mechanisation of agriculture is said to be complete when all the agricultural operations are conducted with the help of the machines (i.e., automated) while it is partial when

machines are used in combination with manpower and animal. Mechanisation of agriculture may result in replacement of the manpower and animal power by the machines. Therefore, farm mechanisation can be termed as the substitution of labour for capital which invites contradictory arguments for and against mechanisation of agriculture.

9.3.2 Arguments for Mechanisation of Indian Agriculture

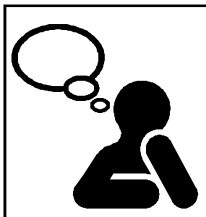
- **Better Agricultural Yield:** Mechanisation helps to get better agricultural yield by sowing and harvesting in proper time. Without mechanisation, sowing and harvesting may take longer duration which may reduce the outcome of the crops. Majority of the crops have very tight sowing and harvesting time. The delaying of sowing and harvesting in such crops may lead to lower output. Sowing and harvesting with machines help to maintain proper sowing and harvesting routine. Again, mechanisation increases agricultural yield by increasing the net area sown and also increasing the cropping intensity in less time.
- **Cost Reduction:** Mechanisation helps the farmer in ploughing, sowing, harvesting, threshing, etc. in less time. It leads to large scale production. Less availability of manual labours during harvesting and sowing seasons increases wages. Therefore, using machines can enable farmers to cultivate in their lands with lower cost and lower risks of crop failure.
- **Multiple Cropping:** Multiple cropping is essential to feed increasing Indian population. Multiple cropping requires simultaneous cultivation of more than one crop on the same piece of land in a growing season.
- **Reclamation of Land:** Mechanisation of agriculture helps in reclamation of lands. In India large area of land is infested with rooted weeds. Machines help in reclamation of such weed infested lands in less time with ease.

- **Soil Conservation:** The operations like drainage, soil conservation involving contour bunding, terracing and ridging can be carried out more effectively with the help of machines. Therefore, mechanisation of agriculture helps in soil conservation in both time and time-saving manners.
- **Substitution of Land of Fodder Production for Food Production:** In the traditional method of agricultural production, animal power is used for farming operations and a large area of cultivable land is used for growing fodder to feed these animals. Modern method of agriculture uses machines in place of animal which is more efficient than animal power.
- **Use of Sub-soil Water:** Due to either slow pace of increasing or even scarcity of surface water in India, sub-soil water is the source of water for the agriculture. Sub-soil water can be extensively used only with the help of the power driven pumpset or diesel driven pumpset. Therefore, mechanisation leads to use of sub-soil water for agriculture.
- **Scarcity of Labour in Certain Areas:** Although India is a labour abundant country but distribution of the labour is not uniform across all the states. The states where labour is scarce, mechanisation is the only way to conduct agricultural activities.
- **Relief to Men and Animals:** The farming operations such as reclamation of weed infested lands, digging and carrying of earth for bunding, etc. which are extremely tiring and strenuous, labourers and animals cannot work effectively. The completion of such operations requires extra effort and time. Mechanisation of agriculture gives relief to labourers and animals from these types of extremely strenuous activities. Mechanisation also helps in completion of these operations in time effectively.
- **Employment Generation in Non-Farm Sector:** Mechanisation of agriculture also generates employment op-

portunities in non-farm activities for the labourers. The labourers can get employment in machine making industry, machines servicing industry, machine transportation services, etc.

9.3.3 Arguments Against Mechanisation of Indian Agriculture

- **Increase unemployment among low skilled rural people:** In India, the low skilled and less educated rural population is engaged. Application of machines in place of labourers increase the severity of the problem of unemployment as these low skilled and less educated people are also not fit for the non-farm activities. The use of machines also substitutes animals which also create unemployment of animals.
- **Difficulty in Use on Small Land Holdings:** Application of machines in small land is costly. No farmer would like to purchase machines for cultivation in a very small plot of land. Again, the application of machines in such land is difficult.
- **Uneconomical for Poor Farmers:** As most of the farmers in India are small and marginal farmers, the use of machines is a costly affair for them. Farmers do not have the money to purchase or hire the machines to cultivate.
- **Shortage of Fuels:** India is an oil importing country. Petrol and diesel are used to operate the machineries. Mechanisation of agriculture will lead to manifold increase of import of oil.
- **Illiteracy of Farmers:** Most of the Indian farmers are illiterate. The illiteracy in farmers leads to improper use of machines as they do not possess technical know-how to operate machine efficiently. This may lead to unnecessary frequent wear-tear of machineries used in agriculture.



LET US KNOW

The term 'mechanisation of agriculture' is used in a broader sense as it not only includes the application of machines for tillage, harvesting and threshing activities but also includes machines for transportation of agricultural produces (wagons, trucks etc.,), irrigation, processing of agricultural produce (churning of milk, crushing of sugarcane, grinding of oil seeds etc.), spraying of fertilisers, pesticides, marketing of agricultural produce.

9.3.4 Mechanisation of Indian Agriculture

The mechanisation in Indian agriculture can be discussed under two phases.

- **The First Phase:** The process of mechanisation was started in India during fifties as a consequence of land reforms. The mechanisation in India was not for developmental purposes rather it was due to land owners who started using machines in their land with an aim at turning out tenants from their lands. Contemporary literatures on land reforms also provide evidences that there were large scale eviction of tenants from the land where they were cultivating by land owners in fear of losing their lands and about their conversion into landless agricultural workers. Therefore, in this phase mechanisation was performed for self protection of land by land owners. Tractors, and tube wells were the machines used in this phase. Generally, manually operated machines or equipments were used in this phase of mechanisation in India.
- **The Second Phase:** This phase of mechanisation was started with Green Revolution in India i.e., in mid-sixties. In this phase, mechanisation was initiated in Indian agriculture for productive purposes: to increase production as well as

income of the farmers. The techniques are not only manually operated but also power (petrol, diesel, coal) driven and electricity driven. The machines used in this phase were-tractors, pumpsets, mechanical threshers, mechanical harvesters, centrifugal pumps, seed drills, disc harrows, sprayers for distribution of water, fertilisers, pesticides, etc. These machines are used in multiple cropping to increase agricultural production and to conduct farming operation before time. Before Green Revolution, the pace of mechanisation was slow because the production function related to Indian agriculture was static. The machines were used for non-productive purposes in this period. But during and after Green Revolution, the pace of mechanisation was fast as dynamism was introduced in agricultural production. The machines were used for productive purposes. Machines are also used in this phase to overcome labour shortages due to Green revolution in Indian agriculture. After Green Revolution, not only large farmers but also most of the medium farmers purchased machineries for their farms for the first time.



CHECK YOUR PROGRESS

Q 1: What do you mean by 'Green Revolution' in India?

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Q 2: Who did coin the term 'Green Revolution'?

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Q 3: What do you mean by mechanisation of agriculture?

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Q 4: Give any reasons in favour of mechanisation of agriculture.

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9.4. IRRIGATION

Irrigation is the method of artificially applying water to the soil with the help of pumps, tubes, pipes, ditch, sprayers, canals, etc. to help crop grow. According to Stern (1979), "irrigation is any process, other than natural precipitation, which supplies water to crops, orchards, grass or any other cultivated plants". The comprehensive definition of irrigation describes that irrigation includes all operations or practices in artificially supplying water to the soil for growing crops. It is a means by which water is conveyed to arid areas from rivers, reservoirs or wells to increase fertility of land. The sources of water for irrigation are ponds, rivers, lakes, wells, dams, canals, tube wells etc. The amount, frequency and time of irrigation required by crops depends on many factors: type of soil where the crop is grown, type of the crop, season of crop growing, amount of rain, location of the field where the crop is growing, etc. Before we proceed, it is important to draw the distinction between irrigation water and irrigated area. Irrigation water is the quantity of water artificially applied in the process of irrigation and does not include precipitation. Thus, irrigation requirement is the quantity of water exclusive of precipitation that is required for crop production and it includes economically unavoidable wastes. But irrigated area is the cropped area to which irrigation water has been applied at least once in a season irrespective of whether the irrigation is adequate, inadequate or surplus of requirement. Normally, irrigated area does not take into account the depth or frequency of watering.

9.4.1 Importance of Water/Irrigation in Agriculture

Water is essential for agriculture as it provides moisture to the soil and thus promotes growth in crops by making the environment more conducive for the development of overall plant growth. It

also dilutes and drains out salts from soil, softens the soil clods which facilitates easy tillage operation and reduces hazards of the frost action. It facilitates better absorption of nutrients by plant through plant roots.

Though Indian agriculture is mainly rainfed, the distribution of rain is not equitable across all areas and regions in India. The areas where rain is scanty, irrigation is the only way to provide water to the crops. In the areas with uncertain rain, irrigation helps in making water available in regular interval for the entire crop period. Irrigation helps the farmer grow water intensive crops even in dry areas/ regions.

In India about 47 percent of agricultural land is cultivable. Lack of irrigation is one of the major reasons for lower availability of cultivable land. Gross cropped area in 1951-52 was 133 million hectares and out of which only 17 percent cropped area had irrigation facility. This increased to almost 47 percent in 2012-13. Evidences also showed that the increment of crop production from early 1970s to early 1990s was related to increase in the number of lands with irrigation facility.

The role of irrigation in agriculture is two-fold. On the one hand, it promotes growth in agricultural productivity while on the other hand it contributes towards stabilisation of agricultural production. Its contribution to agricultural production takes place through (a) increase in yield, (b) rise in proportion of net sown area of a agricultural holding and (c) increase in gross cropped area and cropping intensity. In addition to these, irrigation can help in the replacement of low-valued crops by high valued crops thereby increasing gross value addition in agriculture. Irrigation contributes to stability of agricultural production by reducing farmer's dependence on rainfall which is quite erratic.

9.4.2 Classification of Irrigation Projects/Schemes (available in India)

According to Planning Commission of India, irrigation schemes/projects are classified into three types on the basis of Culturable Command Area (CCA). CCA of an irrigation project is the total command area excluding the unculturable land. These are:

- Major Irrigation Projects/Schemes
- Medium Irrigation Projects/Schemes
- Minor Irrigation Projects/ Schemes

Criteria for Classification of Irrigation Schemes

Minor schemes	Those with CCA up to 2000 hectares
Medium schemes	Those with CCA above 2000 hectares and upto 10000 hectares.
Major schemes	Those with CCA of more than 10000 hectares.

9.4.3 Methods of Irrigation/Irrigation Technology

There are different scientific methods of irrigation which have been developed by different countries in the world for efficient use of water to the crop fields. Generally, irrigation water may be applied to the fields by flooding it on the field surface, by applying it beneath the soil by spraying it under pressure or applying it by drop. The correct method however depends on availability of water (surface or ground water), the types of soil, the topography of the land and most importantly the crops grown (whether water intensive). Various methods of irrigation used by different countries are the following:

- **Surface Irrigation Methods:** In such methods, water is directly applied to soil surface diverting from the river into the canal by the construction of a diversion structure like weir or barrage across the stream without attempting to store water. This method was practiced where the stream has adequate perennial supply.

- **Sub-surface or Storage irrigation method:** In this system water is stored in a reservoir during monsoon by construction of a dam across the river. The stored water is diverted to the fields through a network of canals during the dry period. It is further classified into the following types:
  - **Perennial Irrigation Scheme:** In this scheme assured supply of water is made available to the comand area throughout the crop period to meet irrigation requirement of the crops.
  - **Non-Perennial Irrigation Scheme:** In this scheme canal supply is made available in non-monsoon period from the storage. It is also known as the restrictive irrigation scheme.
- **Sub-surface irrigation method:** Under this method water is applied below the ground surface by maintaining an artificial water table at some depth depending upon the soil texture and the depth of the plant roots.
- **Sprinkler irrigation methods:** In this method irrigation is done by spraying water onto the air and allowed to fall on the ground surface like rainfall. The spray is made by the flow of water under pressure (obtained by pumping) through small nozzles.
- **Drip (trickler) Irrigation Methods:** Drip irrigation method is also known as micro irrigation method. In this method water is applied at low rate over a long period of time at frequent intervals directly to the plant's root zone and also through a low pressure deliver system.
- **Lift irrigation method:** The lift irrigation method consists of installation of a pump at a height close to the riverbank that taps water from the river and allows it to reach the field through small channels. It can be of two types: (a) surface water lift and (b) ground water lift.

9.4.4 Development of Irrigation in Indian Agriculture

Irrigation being the crucial sector for the overall development in agriculture, the sector received considerable attention as a part of India's agricultural development strategy from the economic planners since independence. However, development in the provisioning of irrigation facility/infrastructure has become more prominent since the later half of 1960s when India adopted green revolution and the new technology required assured irrigation for optimal use of other inputs.

There has been tremendous growth in both gross irrigated area and net irrigated area in the country since 1950-51 and particularly since the Green Revolution. During 1950-51 to 2012-13 gross irrigated area increased by almost four times while net irrigated area increased by about 3 times during the same period. Comparing the same with the land utilisation statistics in the country, it is found that in 1950-51 the total net irrigated area of the country was 20.8 million hectares which was about 17.56 percent the net sown area. The share of net irrigated area as percentage of net sown area increased moderately to 19.34 percent in 1965-66 which then increased rapidly to reach 33.61 percent in 1990-91 and 47.24 percent in 2012-13. The fact that since 1965-66 there was spectacular growth in net irrigated area is clearly ramification of adoption of green revolution strategy in India.

Though irrigation development in India is tremendous, the growth is not even across the country. The north-western region of the country has experienced relatively high expansion in terms of area irrigated compared to other regions. The ratio of gross cropped area to total cropped area for the country as a whole increased from 41.7 percent in 2001-02 to 47.6 percent in 2012-13 with a great deal of variation in its growth across states and regions. While states like Bihar, Jharkhand, Chhattisgarh, Madhya Pradesh, Gujarat and Rajasthan have seen satisfactory improvement, Punjab

registered a huge leap and a pretty dismal development has been seen in north eastern states including Assam.

9.4.5 Challenges of Irrigation

Although the Government of India has taken many steps to irrigate crops in most efficient and proper ways, they have not been successful in meeting desired objectives. The main challenges are:

- Most of the farmers choose the crop on the basis of the government support on that crop. Most of the crops on which the Government gives MSP, subsidies are water intensive crops (crops needs large amount of water to grow). Therefore, cultivation of such crops in large areas needs more water. This also reduces amount of water available for cultivation of other crops.
- The demand for water increases with increasing population growth and industrialisation. The multiplicity demand of water reduces ground water available for agriculture.
- The percentage of contamination of surface water with poisonous or harmful chemicals through the littering process of pesticides, chemical and fertilisers in agriculture has increased over years. This deteriorates water quality and reduces clean water availability for all purposes (domestic use, agricultural use, industrial use, etc.)
- Lack of proper implementation of irrigation projects, lack of proper operation and maintenance, incomplete distribution system, changes in cropping patterns, diversion of use of irrigated lands for other purposes are also responsible for poor availability of irrigation facility in India.

  The challenges confronted by the major/medium irrigation projects in India as suggested by various committees constituted to evaluate the schemes were:

  - Lack of adequate drainage facilities in irrigation areas,
  - Absence of proper irrigation distribution system,

- Lack of non-introduction of rotational distribution system of water to the farmers,
- Lack of anticipatory research on the optimum irrigation water use,
- Poor coordination among the concerned governmental organisations in the command areas, and
- Lack of suitable infrastructure and extension services.



CHECK YOUR PROGRESS

Q 5: What do you mean by irrigation?

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Q 6: Mention different types of irrigation projects in India.

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Q 7: Give two examples of major irrigation projects of India.

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9.5 HYV OF CROPS

High Yielding Variety (HYV) crops are those crops which are resistant to environmental damage, disease and pests. HYV seeds are genetically modified seeds which are created by selective cross pollination. The yields obtained from the cultivation of HYV seeds are about two to ten times higher than the traditional varieties.

9.5.1 Importance

HYV crops were developed to increase agricultural production and to reduce occurrence of famines particularly in developing and less developed countries.

- HYV crops have shorter life span which helps farmer to practice multiple cropping.
- HYV crops are resistant to disease, pests and insects.

- HYV crops require more labour per unit of area which increase employment.
- HYV crops are scale neutral that the large farmer and small farmer get output and income in the same proportion of crop area.

9.5.2 Government Initiatives

High Yielding Variety (HYV) seeds were introduced during Green Revolution in India. In 1960, hybridisation techniques for maize and millets were initiated. In the beginning, HYVs were introduced for five crops: wheat, rice, bajra, maize and jowar. The production of maize, bajra and jowar increased. The new strategy of agriculture was also concerned with greater intensity of cropping. The development of short varieties of rice, maize, jowar and bajra suited to different agro- climatic conditions evolved into an entirely new rotation of crop. This new crop rotation was introduced for some other crops like barley, ragi, oilseeds, potato, etc. In 1967-68 a few multi-cropping programmes were taken up.

In Fifth Five-Year Plan, HYV seeds were used in 35.2 million hectares of land. Under the 20-Point Programme introduced in 1982 during Sixth Five-Year Plan, improved and drought resistant seeds were extensively used. The area under High Yielding Varieties (HYV) was increased from 38.4 million hectares during 1979-80 to a level of 56 million hectares in 1984-85. In the Eight Five-Year Plan, technological advancements were introduced in crop production which led to development of over 550 HYV of different crops. Hybrid varieties of rice for commercial cultivation were released in different States. Development of hybrids of oilseeds also took place which increased the production of oilseeds. Three superior hybrids for maize with cold tolerance were identified. New hybrids of cotton released for cultivation in Punjab, Haryana and Rajasthan. All India Coordinated Research Project on Biological Control laid more emphasis on biological control of insect- pests for protection of plants. The Integrated Pests Management (IPM) approaches worked out for the

major nematode pests in a number of crops. A number of improved breeds of cattle and poultry such as Frieswal and CARI-Gold were also evolved.

For ascertaining regular availability of HYV seeds Government of India established institutes like National Seed Corporation, State Farms Corporation, State Seeds Corporations, Agricultural Universities, etc. The seed sector of India comprises National Seeds Corporation (NSC), State Farms Corporation of India (SFCI), 13 State Seed Corporations (SSCs) and about 1000 major private sector seed companies. For determining and checking of quality of HYV seeds there are 22 States Seed Certification Agencies (SSCAs). SSCAs control quality and provide certification to HYV seeds. There are also 101 State Seed Testing Laboratories (SSTLs) to control quality and provide certification to HYV seeds. The private sector also significantly involve in distribution of HYV seeds in India. The Indian Council of Agricultural Research (ICAR), State Agricultural Universities (SAUs) and private Companies are continuously engaged in the development of hybrids and HYV seeds of different crops suitable for varied agro-climatic conditions of India. Government of India is promoting development of Hybrids and HYV seeds of different crops by providing financial assistance to States and implementing agencies under various schemes/ programmes related to crop development: National Food Security Mission (NFSM), Bringing Green Revolution in Eastern India (BGREI), Rashtriya Krishi Vikas Yojana (RKVY), etc.



LET US KNOW

Genetically Modified (GM) crops are those crops which are created in lab by using high-tech and sophisticated techniques like gene splicing. Examples of GM crops are Bt tobacco, Bt cotton, Bt brinjal etc. These are unnatural and therefore, it is hard to accurately predict the impact of these crops on environment and

other living components of ecology. Therefore, there are huge restrictions on use of these seeds.

9.6 FOOD PROCESSING

Processing in agriculture is basically a method that refers to the biological, physical, mechanical, and biochemical transformation of the original agricultural produce into finished products or directly consumable items. Processing involves many steps to manipulate original products into consumer finished products.The main methods of food processing are sun drying, preserving with salt, fermenting, roasting, baking, smoking, steaming etc.



LET US KNOW

Food fortification is the method of addition or alteration of nutrients to foods irrespective of the nutrients naturally present/absent in the foods. The main motive behind fortification of food is to increase food value of the food which may help to reduce nutrient deficiency in consumers. Some of the common examples of food fortification are iodine added to table salt (iodised salt), folic acid added to flour, vitamin A and D added to milk and oils/fats, artificial sweeteners added to biscuits etc.

In India, FSSAI has laid down standards for fortification of staple food like salt, wheat flour, milk and oats.

9.6.1 Development of Food Processing in India

Food processing sector is considered to be an agro-based industry. India's food processing sector is one of the largest sectors in terms of production, growth, consumption, and export. The Indian food processing industry is primarily export-oriented having its exports mostly to the countries of Europe, the Middle East, Japan, Singapore, Thailand, Malaysia, and Korea and also to the countries of the gulf regions. The food processing sector of India

covers mainly fruits, vegetables, spices, meat, poultry, milk and milk products, alcoholic beverages, fish and fish products, processed grains and other consumer product groups like confectionery, chocolates and cocoa products, soya-based products, mineral water, high protein foods, etc. India's total export of processed food was Rs. 31,204.78 crores in 2019-20 and is rising over the years.

Indian economy is an agrarian one. India has the second largest arable land of 161 million hectares and has the highest acreage under irrigation. India is the largest producer of many agricultural and horticultural foods. According to Agricultural and Processed Food Products Export Development Authority (APEDA) of India, India is the largest producer of milk, cashew nuts, coconuts, tea, ginger, turmeric and black pepper. It is the second largest producer of wheat, rice, sugar, groundnut, and inland fish. It is the third largest producer of tobacco. It accounts for 10 percent of total production of fruits in the world. In the production of banana and sapota, India is ranked first. Thus, the huge production of agricultural and horticultural products facilitates India to be emerged as a major producer of processed foods. India's food processing industry accounts for 32 percent of the India's total food market. In terms of size, the food processing industry of India ranks fifth in the world. In 2020, the food processing industry contributed 8.80 percent and 8.39 percent to the Gross Value Addition (GVA) in manufacturing and agriculture respectively. It accounts for 13 percent of India's exports and 6 percent of total industrial investments of India. According to the data of Department of Industrial Policies and Promotion (DIPP), the total Foreign Direct Investment (FDI) in the food processing industry of India from 2017 to 2020 is about US $ 7.54 billion.

Investments in the registered food processing units have been growing in the recent years. In 2007-08, the fixed capital of registered food processing units has increased by 18.93 percent

over the previous year. But, India accounts for less than 1.5 percent of international food trade despite being one of the world's major food producers, which indicates huge potential for both investors and exporters. Food processing industry in India is increasingly seen as a potential source for driving rural economy as it brings synergy between industry and agriculture.

9.6.3 Significance of Food Processing in India

The importance of food processing in India can be understood from the following grounds:

- Employment generation: It provides direct and indirect employment opportunities, because it acts as a bridge between Agriculture and Manufacturing.
- Doubling of farmers' income: Globalisation and changes in the lifestyles has changed consumer preferences for processed food all over the world. This derived demand increases the incomes of the farmers by the following ways:
  - Increasing production and productivity of agriculture.
  - Increasing price of raw materials (i.e., agricultural produces) for processed food industries as the demand for processed foods increases.
  - Increasing diversification of crops.
  - Increasing production of high valued processable varieties of agricultural outputs which has high value addition in processed food sector.
  - Increasing direct and indirect employment for disguised agricultural labours.
  - Providing employment opportunity for women.
- **Reduction in malnutrition:** Fortification of the processed foods increases the nutritional benefits of the foods. This enhances the food value of the processed food as well as helps in curbing the nutritional deficiency of the Indian population.

- **Reduction in food wastage:** Post-harvest loss is one of the main challenges in Indian agriculture. According to the survey entitled "Assessment of Quantitative Harvest and Post-Harvest Losses of Major Crops and Commodities in India," conducted by the Indian Council of Agricultural Research (ICAR) in 2016 about 3.9 to 6.0 percent, 4.3 to 6.1 percent, 2.8 to10.1 percent, 5.8 to 18.1 percent and 6.9 to 13 percent of cereals, pulses, oilseeds, fruits and vegetables respectively were lost during harvesting, post-harvesting activities including handling and storage. Here, processed food technology helps in the reduction of the food wastages by reducing the spoilage of agricultural products.
- **Source of valuable foreign exchange:** Food processing industry of India is an important source of foreign exchange. For e.g. Indian Basmati rice has great demand in Middle Eastern countries.
- **Curbing migration:** Food processing is basically a labour intensive industry. Therefore it can provide localized employment opportunities. It helps in reduction in both rural to urban and international (from backward country to developed country) migrations of labours.
- **Curbing food inflation:** Processing increases the shelf life of the food thus keeping supplies in balance with the demand. Thus, food processing industry may control food-inflation.
- **Promotes crop-diversification:** Food processing requires different types of inputs/raw materials to produce a wide range of processed food products. This generates derived demand for different types of agricultural products and this creates an incentive for the farmers to grow diversified crops.
- **Reduction in spoilage or increase in shelf life:** In food processing industry, microbes and other anti-spoilage technologies are used to increase shelf life of the agricultural products.

- **Enhances the quality and taste:** In food processing technology, fortification is used to increase the nutritional quality of foods. The additives are also used to increase the tastes of the foods.
- **Expansion of consumer choices:** International trade and processing technology can make processed food available all over the world. Food processing allows food from other parts of the world to be transported to our local market and vice versa. In this way, food processing industry helps in expanding the consumer choices.



LET US KNOW

The key growth drivers of Food Processing Sector in India are:

- Increasing expenditure on nutritional foods
- Increasing the number of nuclear families
- Increasing number of working women
- Lifestyle changes
- Growing demand for functional foods, fresh and processed foods
- Increasing income of the people

9.6.4 Government Initiatives for Development of Food Processing in India

Agricultural and Processed Food Products Export Development Authority (APEDA) is an apex organisation under the Ministry of Commerce and Industry which focuses on 'export' of scheduled processed products. The Ministry of Food Processing Industry of India introduced an umbrella scheme 'SAMPADA (Scheme for Agro-Marine Processing and Development of Agro-Processing clusters) in 2016 for the period 2016-2020 which was renamed as Pradhan Mantri Kisan SAMPADA Yojana (PMKSY) in 2017. The main objectives of PMKSY are:

- To supplement agriculture.
- To create processing and preservation capacities.
- To modernise and expand existing food processing units with a view to increase the level of processing.
- To value addition of the agricultural produce.
- To reduce the agricultural wastages.

PMKSY has seven components which are as follows:

- Mega food parks.
- Integrated Cold Chain and Value Addition Infrastructure.
- Creation/ Expansion of Food Processing Clusters.
- Creation of Backward and Forward linkages.
- Creation/ Expansion of food processing and preservation capacities.
- Food safety and Quality Assurance Infrastructure.
- Human Resources and Institutions.

Prime Minister Kisan SAMPADA Yojana is a comprehensive package which results in creation of modern infrastructure with efficient supply chain management from gate to retail outlet to promote and develop processed food industry in India. Its main objective is to boost food processing sector and providing better returns to farmers and is step towards doubling of farmers income, creating huge employment opportunities especially in the rural areas, reducing wastage of agricultural produce, increasing the processing level and enhancing export of the processed foods.

The government of India has undertaken many strategic roles for development of food processing industry. The food processing industry is playing an essential role in linking agricultural farmers to the domestic as well as international consumers. The central government has given the priority status to all agricultural processing businesses to promote growth and efficiency of food processing industry of India. The Ministry of Food Processing Industries (MoFPI) has taken many steps to ameliorate investment opportunity in food processing industry that its output could

increase to US $ 535 billion by 2025-26. The major initiatives are:

At present, there are 22 mega food parks operational in India. Many food processing units (bakeries, mills) for processing of different types of agricultural produce are available in India. At present in organised sector, there are over 516 flour mills, 568 fish processing units, 5293 fruits & vegetable processing units, 429 sugar mills, 725 solvent extraction plants and 1.50 lakh rice mills, 35088 modern rice mills and more than 15 thousand pulse mills. There is more scope for the enlargement of the food processing units in India to meet the growing domestic as well as foreign demands for processed food products. On March 31, 2021, the union cabinet approved the Central Sector Scheme 'Production Linked Incentive Scheme for Food Processing Industry (PLISFPI)' for the period from 2021-22 to 2026-2027 with a total outlay of ? 10,900 crores. The Govt. of India allowed FDI up to 100%, under the automatic route in order the develope food processing industries.



LET US KNOW

- The Agricultural and Processed Food Products Export Development Authority (APEDA) was established by the Government of India under the Agricultural and Processed Food Products Export Development Authority Act passed by the Parliament in December, 1985.
- The Ministry of Food Processing Industries (MoFPI) has announced the celebration of the Food Processing Week from 6th to 12th September, 2021 as a part of the Azadi Ka Amrit Mahotsav celebration to commemorate 75 years of India's Independence.



CHECK YOUR PROGRESS

Q 8: What is acronym of HYV seeds?

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Q 9: What do you mean by food processing?

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9.7 LET US SUM UP

- The importance of technological change in agriculture was recognised during mid 1960s as the only means to end the 'begging bowl' image of India. Therefore, during mid sixties, Indian agriculture was transformed from traditional to modern agricultural practices and as a result of this transformation, Indian agriculture experienced a spectacular increase in production of wheat and rice. This increase in production of food grains was termed as 'Green Revolution' for the first time in 1968 by William Gadd of USA.
- The 'Green Revolution' of India encompasses three phases: first phase from 1966 to 1972; second phase from 1973 to 1980 and the third phase from 1981 to 1990.
- The mechanisation of agriculture is the application of machines and technologies in the farming activities (for eg: ploughing, sowing, harvesting, threshing, levelling, watering etc.) which may or may not replace the manpower and animal labour to increase the efficiency of agriculture.
- Some experts favour mechanisation while others are against of this. The arguments in favour of mechanisation are: better agricultural yield, reclamation of land, reduction in cost of agricultural practices etc. While, the arguments against mechanisation are: increase

unemployment, difficult to adopt by illiterate and low skilled farmers, inefficient to use in small size of agricultural lands, scarcity of fuel to operate machineries, etc.

- Irrigation is the method of artificially applying water to the soil with the help of pumps, tubes, pipes, ditch, sprayers, canals, etc. to help crop grow. The sources of water for irrigation are ponds, rivers, lakes, wells, dams, canals, tube wells, etc. The amount, frequency and time of irrigation required by crops depends on many factors: type of soil where the crop is grown, type of the crop, season the crop growing, amount of rain, location of the field where the crop is growing, etc.
- There are many irrigation schemes/ projects available like major irrigation projects, medium irrigation projects, minor irrigation projects. The modern technologies for irrigation available in India are: drip irrigation, sprinkler irrigation, surface irrigation, perennial irrigation, sub-surface irrigation, etc.
- The government has taken many initiatives to ascertain irrigation in low rain areas and in dry areas.
- High Yielding Variety (HYV) crops are those crops which are resistant to environmental damage, to disease and to pests. The experts provide arguments in favour of use of HYV crops as HYV crops increase agricultural production and reduce occurrence of famines particularly in developing and less developed countries; HYV crops have shorter life span which helps farmer to practice multiple cropping; HYV crops require less water to grow than traditional crops; HYV crops require more labour per unit of area which increase employment; HYV crops are scale neutral that the large farmer and small farmer get output and income in the same proportion of crop area etc.
- The negative potential impact of application of HYV seeds are: application of HYV seeds intensifies inter regional and intra regional inequalities, creates health hazards, degrades other units of agriculture, accurse only short-time benefits, generate threat of extinction for indigenous and traditional varieties of the same crop etc.
- The government of India has been taking steps for development of

research to develop and identify new HYV crops. In the last five years, more than 100 Hybrids and HYV seeds of crops mainly maize (44), pearl millet (13), sorghum (5), rice (3) sunflower (9), castor (7), sesame (2), and cotton (23) were released and developed under different All India Coordinated Research Projects (AICRPs) of respective crops by ICAR and State Agricultural Universities.

- Processing in agriculture is the method of the biological, physical, mechanical, and biochemical transformation of the original agricultural produce into consumer finished products. Thus, processing involves many steps to manipulate original products into consumer finished products.
- Processing of food emerged as a need to preserve food for future consumption or to reduce spoilage and wastages of perishable agricultural products. Processing of food has been done since pre-historic period although at that time the processing techniques were in nascent stage. The main methods of food processing were sun drying, preserving with salt, fermenting, roasting, baking, smoking, steaming, etc.
- India's food processing sector is one of the largest sectors in terms of production, growth, consumption, and export. The Indian food processing industry is primarily export oriented. India has geographical advantage for the export to the countries of Europe, the Middle East, Japan, Singapore, Thailand, Malaysia, and Korea and also to the countries of the gulf regions.
- The food processing sector of India covers mainly fruits, vegetables, spices, meat, poultry, milk and milk products, alcoholic beverages, fish and fish products, processed grains and other consumer product groups like confectionery, chocolates and cocoa products, soya-based products, mineral water, high protein foods, etc.
- The focus sectors in the food processing industry in India are Nutraceuticals, fruits and vegetables, dairy, food grains, poultry and meat, fisheries and marine, spices, RTE (Ready to Eat)/ RTC (Ready to Cook).
- Agricultural and Processed Food Products Export Development

Authority (APEDA) is an apex organisation under the Ministry of Commerce and Industry which focuses on 'export' of scheduled processed products.

- The food processing sector of India has a lot of scope to make India as the country with 'largest food processing industry' in the world in the near future.



9.8 FURTHER READING

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4) Dev, S. M. (2015-16). *Agricultural Development in India*: Peformance, Issues and Policies. In U. Kapila (Ed.), Indian Economy Since Independence (Vol. 26, pp. 647-676). Academic Foundation, New Delhi.



9.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: The Green Revolution is the new agricultural strategy that was initiated in 1965-66 for making India self-sufficient in the production of food grains.

Ans to Q No 2: The term 'Green Revolution' is coined by

Ans to Q No 3: The mechanisation of agriculture is the applications of machines and technologies in the farming activities (for eg: ploughing, sowing, harvesting, threshing, levelling, watering etc.)

which may or may not replace the manpower and animal labour to increase the efficiency of the agriculture.

Ans to Q No 4:

Ans to Q No 5: Irrigation is the method of artificially applying water to the soil with the help of pumps, tubes, pipes, ditch, sprayers, canals, etc. to help crops grow.

Ans to Q No 6: The different types of irrigation projects in India are major irrigation projects, medium irrigation projects and small irrigation projects.

Ans to Q No 7: Bhakranangal irrigation project, Hirakund irrigation project.

Ans to Q No 8: High Yielding Variety seeds.

Ans to Q No 9: Food processing in agriculture is the method of the biological, physical, mechanical, and biochemical transformation of the original agricultural produce into consumer finished products.



9.10 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: What do you mean by Green Revolution?

Q 2: When did Green Revolution start in India?

Q 3: How did Green Revolution increase mechanisation of Indian agriculture?

Q 4: What do you mean by 'mechanisation'?

Q 5: Define irrigation.

Long Questions (Answer each question in about 300-500 words)

Q 1: Critically discuss Green Revolution and mechanisation of Indian Agriculture.

Q 2: Do you think mechanisation is always helpful for agriculture in India? Give arguments.

Q 3: Discuss the importance of irrigation in Indian agriculture.

Q 4: Critically discuss the impact of introduction of HYV crops in Indian agriculture?

Q 5: Discuss the present status of food processing sector of India.

Q 6: Discuss the role of Government in development of food processing sector in India.

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UNIT 10 : AGRICULTURAL LABOUR

UNIT STRUCTURE

10.1 Learning Objectives

10.2 Introduction

- 10.2.1 Categories of Agricultural Labour
- 10.2.2 Landless Labour
- 10.2.3 Characteristics of Agricultural Labour
- 10.2.4 Magnitude of Agricultural Labour in India
- 10.2.5 Causes of the Poor Status of Agricultural Labourers

10.3 Agricultural Labour and Employment Conditions

10.4 Agricultural Labour and Unemployment Problem

- 10.4.1 Disguised Unemployment
- 10.4.2 Seasonal Unemployment

10.5 Income and Wage Determination of Labour

10.6 State Policy For Agricultural Labour

- 10.6.1 Important Policies
- 10.6.2 Suggestions

10.7 Let Us Sum Up

10.8 Further Reading

10.9 Answers to Check Your Progress

10.10 Model Questions

10.1 LEARNING OBJECTIVES

On reading this unit, you should be in a position to-

- explain the concept of agricultural labour
- identity the different types of unemployment that are seen in the agricultural sector
- describe how incomes and wages of agricultural labour are fixed
- gain an idea of the various state policies which are introduced for the betterment of agricultural labour.

10.2 INTRODUCTION

One of the important factors of production is labour. According to Prof. Marshall “Labour is any exertion of mind or body undertaken partly or wholly with a view to some good other than the pleasure derived directly from the work.” In Economics, labour indicates both physical and mental work undertaken for earning livelihood. Therefore, labour is regarded as an active factor of production. Labour can be classified in many forms such as physical labour, mental labour, skilled labour, unskilled labour, etc. But one of the famous types of labour is agricultural labour which is mainly seen in most of the less developed countries and developing countries.

In simple words, agricultural labourers are those persons who are engaged in the agricultural sector. Basically, those persons who work on the land of others on wages for the major part of the year and earn a major portion of their income as a payment in the form of wages for works performed on the agricultural farms owned by others are known as agricultural labourers. According to the first Agricultural Labour Enquiry Committee of 1950-51, those who worked for 50% or more days on the payment of wages were termed as agricultural workers or agricultural labourers. However, the second Agricultural Labour Enquiry Committee of 1956-57 gave an extended version and regarded those persons as agricultural labourers who worked in agriculture as well as in allied activities such as horticulture, animal husbandry, fisheries, dairy, etc. We have to define agricultural labour separately from industrial labour as the definition of industrial labour cannot be applied to them. One of the reasons for this is that it is not possible to make distinction among agricultural labourers as unskilled, semi-skilled and skilled labour like industrial labourers.

10.2.1 Categories of Agricultural Labour

Like industrial labour, agricultural labour cannot be classified as unskilled, semi-skilled and skilled labour. However, the first Agricultural Labour Enquiry Committee of 1950-51 categorises agricultural labour as

- **Attached Labour:** Those labourers who are attached to some other farmer household on the basis of a written or oral agreement are known as Attached Labourers. They are also termed as Bonded Labour as they are working as serfs or servants. These workers are not allowed to work in other places.
- **Casual Labour:** When workers are free to work in any farm or any places on the basis of the payment of daily wages, then that type of labour is known as Casual Labour. Casual labour may include different types of labour. For example in India, casual labour includes:
  - Small farmers who possess very little land and consequently have to devote most of their time working on the lands of others as labourers.
  - Share-Croppers who, while sharing the produce of the land for their work, work as agricultural labourers.
  - Landless labourers who exclusively work for others.
  - Tenants who work on leased land but work most of the time on the land of others as labourers.

Significantly, agricultural labourers can be divided into two main categories-

1. Landless agricultural labourers 2. Very small cultivators whose main source of earnings due to their small and sub-marginal holdings is wage employment. Again, landless labourers may be Permanent Labourers attached to cultivating households or Casual Labourers.

10.2.2 LANDLESS LABOUR

One of the main categories of agricultural labourers is Landless Labourers. Landless labourers are those persons who work on the land of others on wages as they do not have their own plot of land. Landless labourers in turn can be classified into two broad categories: (1) Permanent Labourers attached to cultivating households. (2)

Casual Labourers. The second group can again be divided into three subgroups: (i) Cultivators (ii) Shares Croppers (iii) Lease holders. Permanent or attached labourers generally work on an annual or seasonal basis and they work on some sort of contract or agreement. Their wages are fixed by the custom or tradition. On the other hand, temporary or casual labourers are engaged only during peak periods for work. Their employment is temporary and they are paid at market rate. They are not attached to any landlords.

The problem of landless labourers is quite common in India. Therefore, from time to time, the government has taken some measures to solve this problem. Bonded Labour System (Abolition) Act, Land Reform Policy, etc. were mainly introduced to solve the problem of landless labour.

10.2.3 Characteristics of Agricultural Labour

From the definition and the categories of the agricultural labour, we can identity the following main characteristics of agricultural labour:

- Agricultural labourers are those persons who work on the land of others on wages for the major part of the year and earn a major portion of their income as a payment in the form of wages for works performed on the agricultural sector.
- Agricultural labour includes those workers who are engaged in agriculture as well as in allied activities such as horticulture, animal husbandry, fisheries, dairy, etc.
- Agricultural labourers are mainly seen in the rural areas of a country. Therefore, it is said that agricultural labourers are the most exploited unorganised class in the rural population of a country like India.
- Agricultural labourers can be categorised as attached labourers, landless labourers, tenants labourers, etc.
- Agricultural labourers are unskilled and unorganised in nature.

10.2.4 Magnitude of Agricultural Labour

During the colonial period, the number of agricultural labour was very insignificant. According to the 1881 census, the number of landless labourers was 7.5 millions. This margin was increased to 21 millions in 1921 which constituted around 17.4 % of the total labour force. After that the number of agricultural labour has increasing to 27.5 million, 31.5 million, 47.5 million, 55.4 million and 74.6 million in the year 1951,1961,1981 and 1991 respectively. Simultaneously the percentage of landless workers as a proportion of the rural labour force has increased from 18 % in 1964-65 to 25% in 1981. Due to the increasing size of population, decline of cottage and village industries, growing indebtedness and expansion of capital intensive farming, the number of agricultural labour has been increasing.

10.2.5 Causes of the Poor Status Agricultural Labour

The condition of agricultural labourers in India is not very good. Basically they are living in inhumanc conditions and are deprived of all the basic necessities of their life. The main factors which are responsible for the poor conditions of agricultural labourers in India are discussed in the following points:

- **Unorganised:** Because of aspects like ignorance, illiteracy and widely scattered; agricultural labourers are totally unorganised in India. They do not even have the capacity to fix a proper wage level for their work.
- **Low Social Status:** The social status of agricultural labour in India is very low as they come from oppressed classes and they have no courage to assert their basic rights.
- **Seasonal Unemployment:** Indian agricultural sector is seasonal in nature. Therefore, most of the agricultural labourers often face the problem of seasonal unemployment in India. Thus, the conditions of labourers are very poor.
- **Growing Indebtedness:** Due to low wage level, lack of proper

credit facilities, etc. most of the agricultural labourers in India are highly indebted. They are compelled to borrow from lenders and become their bonded labour.

- **Absence of Alternative Occupations:** Indian agricultural labourers frequently face the problem of disguised unemployment and seasonal unemployment because of the absence of alternative occupations or jobs in the rural areas. That is why, the conditions of agricultural labour in India are poor.



CHECK YOUR PROGRESS

Q 1: Define agricultural labour. (Answer in about 20 words)

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Q 2: What are the main features of agricultural labour? (Answer in about 40 words)

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Q 3: Identify the factors responsible for the continuous and enormous increase in the number of agricultural labourers in India. (Answer in about 30 words)

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10.3 AGRICULTURAL LABOUR AND EMPLOYMENT CONDITIONS

The conditions of agricultural labour in India are not very good. They are generally poor. Their standard of living is also very low as they face many problems like poverty, unemployment, exploitation, uncertainty, etc.

If we discuss the employment condition of agricultural labour, then we have seen that most of the agricultural labourers do not get a regular basis of work. Some of them remain unemployed or underemployed. For example, labours do not get permanent work for longer periods. Bonded labourers are not allowed to work in other places and are exploited by the land owners. Moreover, wages of the agricultural labourers are very low. Data of the Secondary Agricultural Labour Enquiry, 1956-57 stated that casual workers get wages employment for 197 days and work on their own for 40 days. For the remaining 128 days of the year, these labourers remained unemployed. Female workers remained unemployed for a longer period of about 197 days. Thus, casual agricultural labourers remained without work for 4 to 5 months in a year. The position is not even better in the present time. Agricultural labourers are not only adequately employed, but also their working conditions are not very good. They have to do very hard labour in dificult conditions at times. There is no provision for holidays or other facilities. All these adversely affect their health, work efficiency, etc.

10.4 AGRICULTURAL LABOUR AND UNEMPLOYMENT CONDITIONS

Unemployment is the most serious problem from which India has been suffering from the very beginning till now. In fact it is regarded as the greatest problem faced by many countries of the world. The nature of unemployment differs from developed countries to underdeveloped countries. In India, the unemployment problem is structural in nature which can be broadly classified into rural unemployment and urban unemployment. Between rural unemployment and urban unemployment, the magnitude of rural unemployment is high in India. Rural unemployment is basically related to the agricultural sector. Basically agricultural labourers face the problem of unemployment in rural areas of the country. Since the agricultural sector is not free from limitations, the problem of unemployment is also seen in the agricultural sector. However rural unemployment is of two types. They are-

- Disguised Unemployment
- Seasonal Unemployment

10.4.1 Disguised Unemployment

Disguised unemployment refers to that type of unemployment in which some people look like being employed but are not employed fully in reality as their marginal productivity is either zero or even negative. Indian agriculture is characterised by this type of unemployment. As a result of not having opportunities for jobs other than agriculture, disguised unemployment is seen in India. This is also known as perennial unemployment. The main reasons for disguised unemployment are -

- Practices of the joint family system.
- Small size of land holdings.
- Lack of alternative jobs other than agriculture.

Following measures should be taken to solve the problem zof disguised unemployment:

- Agricultural sector should be modernised.
- Consolidation of land holding should be done by proper legislation.
- Impart knowledge, skill so that rural people can get other jobs.

10.4.2 Seasonal Unemployment

If people are employed only in seasons of the year and unable to get employment in other seasons then that type of rural unemployment is known as seasonal unemployment. This type of unemployment is seen in the agricultural sector in India. For example, the agricultural labourers are employed only in certain months of the year, for example, at the time of waiting seeds planting harvesting etc. Except these period and seasons they are unemployed. This type of unemployment is seen in India because of the following reasons:

- Absences of multi-cropping systems.
- Absences of other occupations in rural areas.

By adopting the following measures, we can solve the problem of seasonal unemployment:

- Promote co-operating farming.
- Educate rural people so that they can find jobs in other fields.



CHECK YOUR PROGRESS

Q 4: What do you mean by perennial unemployment? (Answer in about 20 words)

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Q 5: What are the main reasons for seasonal unemployment? (Answer in about 40 words)

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10.5 INCOME AND WAGE OF THE LABOUR

The reward that a labour earns for his/her work is simply known as wage. Basically wage can be determined by the equilibrium position of labour supply and labour demand. But in India, labour supply indicates surplus labour. Here, the total agricultural population determines the size of the labour force available to agriculture. This raises the problems of its employment. Similarly, the demand for labour is determined by the nature of the farm work. Moreover, demand for agricultural labour is seasonal in nature. So, demand for labour is neither permanent nor stable. Therefore, we have seen an organised labour market in India. Because of this, the agricultural wages are very low in India. Wage includes both money wage and real wage. The certain amount of money paid to the labourers for the work is called the money wages. Again the amount of goods and services which the labourer actually gets is called the real wages. In India the agricultural labour has not been benefited by an appropriate amount of money wages or real wages.

The statistical data of the First Agricultural Labour Enquiry committee revealed that the per capita annual income of Agricultural labour families was as poor as Rs. 104 in 1950-51 and the annual average income of the household was Rs. 447. In 1955 -66, the average annual income declined to Rs. 437. But that was increased to Rs. 600 and 1,671 in 1963- 64 and 1974 -75 respectively. But due to the introduction of improved farming methods and mechanisms, the demand for labour and real wages declined continuously. In 1984-85, G. Parthasarathy estimated that the daily money wages varied between Rs. 6 and Rs. 11 in all states except Punjab, Kerala and Haryana. Thus, we can say that the living condition of Agricultural labourers is not very good in India as the level of agricultural wages is very poor.

10.6 STATE POLICY FOR AGRICULTURAL LABOUR

India is an agrarian country. Majority of the people of the country is engaged in this sector. Therefore, agricultural labour plays an important role in the process of economic development. The government has shown awareness of the problems of agricultural labourers and suggested various ways and measures to improve their situation. Some of the main measures adopted under the various plans are be briefly mentioned:

- **Minimum Wages Rate:** The Minimum Wages Act was passed in 1948. In view of the practical difficulties of fixing minimum wages for agricultural labourers because of differing employment conditions, the first plan recommended that fixation of minimum wages should be covered first to improve the conditions of agricultural labour. Now most of the states except Jammu and Kashmir, Nagaland and Sikkim have taken necessary legislation for fixing minimum wages.
- **Abolition of Bonded Labour:** The practices of bonded labour should be abolished in order to improve the conditions of agricultural labourers. Because of this, the Bonded Labour System (Abolition) Act was passed in 1976 where about 2.51 lacs bonded labours were identified and freed in different parts of the country. Moreover around 2.29 lacs bonded labour were rehabilitated till 1995 in India.

- **Distribution of Landless Labourers:** Agricultural labourers have been helped to settle on land as cultivators. For this purpose, the ceiling on land holdings was fixed by proper legislation under the land reform system. Because of this, 74 lakh acres of land were identified as surplus land and around 45 lakh acres were distributed among 41.5 lakh landless labourers.
- **Various Schemes:** From time to time, both state and central government have introduced various programmes and policies for the betterment of the agricultural labourers. Some of them are Food for Work, National Rural Employment Programme, Rural Landless Employment Guarantee Programme, Jawahar Rozgar Yojana, etc.
- **Special Programmes for Weaker Sections:** As part of the overall strategy of helping weaker sections of the population through special programmes, agricultural labourers were given special assistance. These programmes were designed to promote social justice through the spread of the new technology. The programmes were - Small Farmers Development Agency (SFDA) and Marginal Farmers and Agricultural Labourers Development Agency (MFAL). They were developed for conducting various works like irrigation, land leveling, poultry breeding, etc. Both the Agencies were merged into one single programme in the fifth plan.

10.6.1 Important Policies

- **Integrated Rural Development Programme (IRDP):** Integrated Rural Development Programme was launched on 2nd October, 1980 in all the blocks of the country. The main aim of this programme was to provide productive assets or skills to the poor labourers so that they can employ themselves usefully to earn greater incomes and not remain unemployed.
- **Rural Landless Employment Guarantee Programme (RLEGP):** Rural Landless Employment Guarantee Programme was launched during the Sixth Five Year Plan on 15th August, 1983. It was totally a centrally sponsored scheme

as its entire cost was financed by the central government. The main purpose of this programme was to provide guarantee of employment to at least one member of every rural landless household up to 100 days in a year and improve the standard of living of the poor.

- **National Rural Employment Programme (NREP) :** National Rural Employment Programme was introduced on 24 October, 1980. But it became a regular plan programme from April 1981. This was a centrally sponsored scheme where 50% assistance came from the central government. The main purpose of this programme was to extend the employment of 300-400 million men per year and improve nutritional status and living standards of the rural people.
- **Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) :** Initially, National Rural Employment Guarantee Act was launched on February 2, 2006. However, it was renamed as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) on 2nd October 2009. The main aim of this Act is to provide jobs to the rural poor. It aims to enhance livelihood security in rural areas by providing at least 100 days of wage employment in a financial year to every household whose adult members volunteer to do unskilled manual work.
- **Swarna Jayanti Gram Swarozgar Yojana (SGSY) :** Swarna Jayanti Gram Swarozgar Yojana was launched in April 1999. Actually Integrated Rural Development Programme (IRDP)and allied programmes such as Training of Rural Youth for Self Employment (TRYSM), Development of Women and Children in Rural Areas (DWCRA) and Million Wells Scheme have been reconstructed into a single self employed programme and this is known as Swarna Jayanti Gram Swarozgar Yojana (SGSY). This programme aimed at providing self employment to villagers through the establishment of self help groups (SHGs).

- **Kisan Credit Card Scheme:** Kisan Credit Card Scheme was launched in 1998-99 on the basis of the model scheme prepared by NABARD. This is an innovative mechanism for facilitating short run credit to agricultural labourers. To rescue the agricultural labourers or farmers from growing indebtedness, this scheme was launched in India. By introducing this scheme, the Government of India tried to facilitate access to credit from commercial banks and regional rural banks to the farmers.

10.6.2 Suggestions

To uplift of the socio-economic and cultural conditions of the agricultural labourers, the following suggestions can be made-

- Agricultural sector should be modernised.
- Working conditions should be improved so that agricultural labourers can do their work efficiently.
- Credit should be given at cheaper rates of interest on easy terms of payment for undertaking subsidiary occupation.
- Steps should be undertaken for proper training for improving the skill of farm labourers.
- Initiative should be taken for Cooperative farming.



CHECK YOUR PROGRESS

Q 6: In which year was the IRDP scheme launched? (Answer in about 20 words)

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Q 7: What is the main aim of the Kisan Credit Card Scheme? (Answer in about 20 words)

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Q 8: What is the full form of MGNREGA? (Answer in about 20 words)

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10.7 LET US SUM UP

- Agricultural labourers play an important role in an economy. Basically those workers can be termed as agricultural labourers who are mainly engaged in agriculture and allied activities like animal husbandry, dairy, piggery, poultry farming, etc.
- Like industrial labour, agricultural labour cannot be classified as unskilled, semiskilled and skilled labour. Agricultural labourers can be categorised as attached labourers, landless labourers, Tenants labourers, etc. They are unskilled and unorganised in nature.

  The number of agricultural labourers has been increasing from time to time. Due to the increasing size of population, decline of cottage and village industries, growing indebtedness and expansion of capital intensive farming; the number of agricultural labour has been increasing.
- Most of the agricultural labourers do not get a regular basis of work. Some of them remain unemployed or underemployed. For example, laborers do not get permanent work for longer periods. Bonded labourers are not allowed to work in other places and exploited by the land owners. They have to do very hard labour under unfavorable conditions.
- We can identify many factors for the poor conditions of agricultural labourers in India. Some of them are-
  - Unorganised labourers.
  - Lower social status of the labourers.
  - Problem of seasonal as well as disguised unemployment.
  - Absence of alternative occupations.
  - Growing indebtedness.

- Since Indian agricultural sector is seasonal in nature, agricultural labourers are facing the problem of seasonal unemployment and disguised unemployment. Disguised unemployment refers to that type of unemployment in which some people look like being employed but are not employed fully in reality. If people are employed only in seasons of the year and unable to get employment in other seasons then that type of rural unemployment is known as seasonal unemployment.
- The agricultural wages are very low in India. The agricultural labour has not been benefited by an appropriate amount of money wages or real wages. Therefore, they are living in inhumance conditions and in the absence of organised status they are deprived of all the basic necessities of their life.
- Both the central government and the state governments have taken various steps in order to improve the conditions of agricultural labourers in India. Government have introduce various schemes and policies for this purpose. Some of the important schemes and policies are Food for Work, National Rural Employment Programme, Rural Landless Employment Guarantee Programme, Jawahar Rozgar Yojana, MGNREGA, etc.



10.8 FURTHER READING

1) P. K. Dhar; *Indian Economy- Its Growing Dimension* (Edition-2020). Kalyani publisher

2) V. K. Puri and S. K. Misra (2017); *Indian Economy*. Himalaya Publishing House Pvt. Ltd.



10.9 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Those persons who work on the land of others on wages for the major part of the year and earn a major portion of their income as a payment in the form of wages for works performed

on the agricultural farms owned by others are known as agricultural labourers.

Ans to Q No 2: The main features of agricultural labour are:

- Agricultural labourers are mainly seen in rural areas.
- Agricultural labour are engaged in agriculture as well as in allied activities such as horticulture, animal husbandry, fisheries, dairy, etc.

Ans to Q No 3: The factors responsible for the continuous and enormous increase in the number of agricultural labourers in India are-

- Increase in population
- Decline of cottage industries and handicrafts.
- Absence of alternative occupations, etc.

Ans to Q No 4: Perennial unemployment refers to that type of unemployment in which some people look like being employed but are not employed fully in reality as their marginal productivity is either zero or even negative.

Ans to Q No 5: Seasonal unemployment is seen in India because of the following reasons:

- Absences of multi-cropping systems.
- Absences of other occupations in rural areas.

Ans to Q No 6: Integrated Rural Development Programme (IRDP) was launched on 2nd October, 1980.

Ans to Q No 7: The main aim of the Kisan Credit Card Scheme is to facilitate short run credit to agricultural labourers at cheaper interest rate.

Ans to Q No 8: The full form of MGNREGA is Mahatma Gandhi National Rural Employment Guarantee Act.



10.10 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: What do you mean by agricultural labour? What are the main categories of agricultural labour?

Q 2: Analyse the employment condition of agricultural labourers in India.

Q 3: Write a short note on:

- Disguised Unemployment
- Seasonal Unemployment

Long Questions (Answer each question in about 300-500 words)

Q 4: Distinguish between money wage and real wage.

Q 5: Explain the main factors that are responsible for the poor conditions of agricultural labourers.

Q 6: Explain the measures that were adopted by the Government to improve the conditions of Indian agricultural labourers.

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UNIT 11 : ECONOMICS OF AGRICULTURAL PRODUCTION

UNIT STRUCTURE

11.1 Learning Objectives

11.2 Introduction

11.3 Meaning of Production Function

11.4 Laws of Returns

11.5 Cost Functions and Cost Curves in Agricultural Production Decisions

11.6 Let Us Sum Up

11.7 Further Reading

11.8 Answers to Check Your Progress

11.9 Model Questions

11.1 LEARNING OBJECTIVES

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

- explain the meaning of production function and, the different cost curves in agricultural production
- discribe the meaning of isoquant, isocost and laws of return in agricultural production.

11.2 INTRODUCTION

Farmers are the producers of farm products like crops, livestock products, etc. They use factors of production or resources or inputs for producing various farm products. But in actual farm situation, resources or inputs are limited or scarce. Moreover, these resources have alternative uses i.e. the inputs can be put to different uses. As a consequence, farmers are frequently confronted with production decision problems relating to the use of scarce resources. The major production decision problems faced by the farmers are:

- What to produce? It involves decision relating to type of product or

combination of products to be produced using given amount of input for maximisation of profit.

- How much to produce? It is related to level of input to be used for producing optimum amount of output for maximisation of profit.
- How to produce? It involves selection of type of inputs and their combination to be used for producing given level of output at minimum cost.
- When to buy and sell? This decision is related to buying of inputs and selling of farm products.

Answers to these decision problems are obtained with the use of certain production relationship between products and resources.

11.3 MEANING OF PRODUCTION FUNCTION

Production is a process whereby some goods and services, called inputs are transformed into other goods and services called output. The production function refers to the relationship between the input of factor services and the output of the resultant product. The production function is based on the idea that the amount of output in a production process depends upon the amount of inputs used in the process.

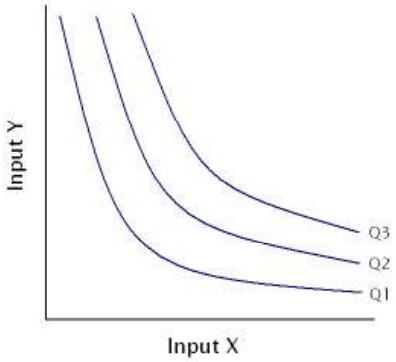
Output depends upon an input or a set of inputs in such a way that there is one unique amount of output resulting from each set of inputs. This unique relationship between output and inputs is termed as production function.

Halcrow defines production function as follows :

“Production function is the technical relationship between inputs and output indicating the amount of output that can be produced with each and every set or combination of the specified inputs”.

11.3.1 Conventional Isoquant

- An isoquant (derived from quantity and the Greek word iso, meaning equal), in microeconomics, is a contour line drawn through the set of points at which the same quantity is produced while changing the quantities of two or more inputs.



A family of isoquants can be represented by an isoquant map, a graph combining a number of isoquants, each representing a different quantity of output. Isoquants are also called equal product curves.

11.3.2 Isocost Approach

In economics an isocost line shows all combinations of input which cost the same total amount. Although similar to the budget constraint in consumer theory, the use of the isocost line pertains to cost-minimisation in production, as opposed to utility-maximisation.

11.3.3 Cobb Douglas Production Function

In economics and econometrics, the Cobb–Douglas production function is a particular functional form of the production function, widely used to represent the technological relationship between the amounts of two or more inputs (particularly physical capital and labor) and the amount of output that can be produced by those inputs.

11.4 LAWS OF RETURNS

Production is the result of application of various input factors. In the process of production, the farmers combine the required input factors in various proportions. This type of usage of inputs by the farmers gives way for the operation of the laws of returns. In the production process, the relationship that takes place between single variable input and the

consequent output pertains to either one or a combination of the following relationships

- **Law of increasing returns :** The addition of each successive unit of the variable factor to the fixed factors in the production processes, adds more to the total output than the previous unit i.e., each successive unit of variable factor adds more and more to the total output.
- **Law of constant returns :** The addition of each successive unit of the variable factor to the fixed factors adds the same to the output as observed for the previous unit i.e., each successive unit of variable factor results in an equal quantity of additional output.
- **Law of decreasing returns :** The addition of each successive unit of the variable factor to the fixed factors adds less to the total output than the previous unit i.e., each successive unit of variable factor adds less and less to the total output.
- **Return to Scale :** It refers to the change in output as a result of a given proportionate change in all the factors of production simultaneously. When all the factors or inputs involved in a production process are increased or decreased simultaneously, in a certain fixed proportion, the response of output to such an increase or decrease in the input levels is explained through the concept of returns of scale.

11.5 COST FUNCTIONS AND COST CURVES IN AGRICULTURAL PRODUCTION DECISIONS

Production cost is related to cost of producing a commodity or product. It refers to expenditures incurred for producing one unit of a product. Thus cost of production is always expressed as cost per unit of the product e.g. cost/kg, cost/q, cost/t etc. Cost production has no meaning if the time and unit of product is not mentioned. For example, price of rice is Rs 30/kg in the month of July, 2017. Therefore, cost of production has great influence on the decisions of the farmers.

In cost function, cost is a function of output i.e. C = f(Y) whereas

in input-output relationship or production function, output is a function of input i.e. Y = f(X). However, both the functions are used to determine the optimum level of output to be produced for profit maximisation.

11.5.1 Types of Cost Function

- **Aggregate cost function :** It shows the total cost of production at any level of production. In other words, cost involved in total quantities of output produced is called as aggregate cost function. Various aggregate cost functions are:
  - **Total fixed cost (TFC) :** Sum of expenditure on all the fixed inputs, these are the costs which are incurred irrespective of level of output. Thus, it remains same for all output levels. These are relatively long run cost. It is expressed as

$$TFC = \sum P_j X_j$$

Where, Xj = fixed input and Pj = Price/unit of the fixed input

  - **Total variable cost (TVC):** These are also called as out of pocket cost. It represents sum of expenditure on all the variable input. It gradually increases with the increase in the output quantity. They are short run costs. Farmers have control on all the variable inputs. In short run, TVC must be covered i.e. gross return must be higher than TVC. It is expressed as

$$TVC = \sum P_i X_i$$

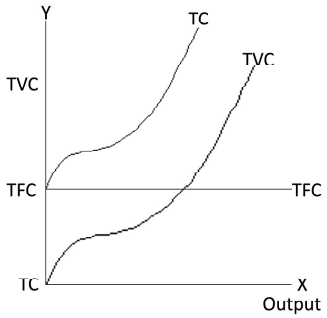
Where, Xi = variable input and Pi = Price/unit of the variable input

  - **Total cost (TC):** It is the sum of total fixed cost and variable cost. It also increases gradually with the increase in output quantity.

TC = TFC + TVC

Relationship between TFC, TVC and TC

TFC is a straight line parallel to the x-axis. This is because fixed costs are same for all output levels.



TVC is zero when output is zero. It increases as Cost output increases. The shape of TVC curve depends on shape of production function used.

TC curve is exactly similar to that of TVC. But it TFC starts higher on y-axis by the units of fixed cost because TC is sum of fixed cost and variable cost.

- **Unit cost function:** It shows per unit cost of production at any level of production. Unit cost functions play an important role in deciding optimum level of output. These cost functions are also used to understand the relationship between cost and output at different levels of output. Various unit cost functions are:
- **Average fixed cost (AFC):** It is computed by dividing TFC by the amount of output produced. It gradually declines as output increases.

$$AFC = \frac{\text{Total fixed cost}}{\text{Total quantity of output}} = \frac{TFC}{}$$

- **Average variable cost (AVC):** It is computed by dividing total variable cost by the amount of output produced. It initially declines, reaches minimum and increases again with the increase in output quantity.

$$AVC = \frac{\text{Total variable cost}}{\text{Total quantity of output}} = \frac{TVC}{Y} = \frac{Px.X}{Y}$$

- **Average total cost (ATC):** It is the sum total of AFC and AVC. It can be computed in two different ways i.e.

$$ATC = \frac{\text{Total cost}}{\text{Total quantity of output}} = \frac{TC}{Y}$$

$$ATC = AFC + AVC$$

The shape of ATC depends on the shape of production function. Its nature is similar to AVC. It also declines initially, reaches minimum and again rises with the increase in output quantity. ATC is often referred to as unit cost of production i.e. cost of producing one unit of output.

- **Marginal cost (MC):** It is the additional cost of producing one additional unit of the output. It is expressed as:

$$MC = \frac{\Delta TC}{\Delta Y} \text{ or } \frac{\Delta TVC}{\Delta Y}$$

$$AVC = \frac{1}{APP}$$



CHECK YOUR PROGRESS

Q 1: What do you mean by production function? Define isoquant and isocost line.

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Q 2: Define returns to scale and discuss in brief the different laws of return.

.....

.....

Q 3: Define production cost and also discuss the different cost function.

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11.6 FURTHER READING

1) Reddy, S.S. and Ram P.R. (2018) Agril. *Finance and Management*, Oxford & IBH Publishing Co Pvt.Ltd.

2) Reddy S.S. (2006) *Agricultural Economics*, Oxford & IBH Publishing Co Pvt.Ltd.



11.7 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: The production function refers to the relationship between the input of factor services and the output of the resultant product. The production function is based on the idea that the amount of output in a production process depends upon the amount of inputs used in the process.

An isoquant (derived from quantity and the Greek word iso, meaning equal), in microeconomics, is a contour line drawn through the set of points at which the same quantity is produced while changing the quantities of two or more inputs.

An isocost line shows all combinations of inputs which cost the same total amount.

Ans to Q No 2: The major production decision problems faced by the farmers are

1. What to produce?
2. How much to produce?
3. How to produce?

Ans to Q No 3: Production cost refers to expenditures incurred for producing one unit of a product. Thus cost of production is always expressed as cost per unit of the product e.g. cost/kg, cost/q, cost/t etc. The different cost function are:

- **Total fixed cost (TFC):** These are the costs which are incurred irrespective of level of output.

- **Total variable cost (TVC):** These are also called as out of pocket cost. It represents sum of expenditure on all the variable input.
- **Total cost (TC):** It is the sum of total fixed cost and variable cost. It also increases gradually with the increase in output quantity.

  Various unit cost functions are:
- **Average fixed cost (AFC):** It is computed by dividing TFC by the amount of output produced. It gradually declines as output increases.
- **Average variable cost (AVC):** It is computed by dividing total variable cost by the amount of output produced.
- **Average total cost (ATC):** It is the sum total of AFC and AVC. It can be computed in two different ways i.e.

  $$ATC = AFC + AVC$$
- **Marginal cost (MC):** It is the additional cost of producing one additional unit of the output. It is expressed as:

Ans to Q No 4: The different laws of return are:

1. Law of increasing returns: Increasing returns to scale or diminishing cost refers to a situation when all factors of production are increased, output increases at a higher rate.
2. Law of constant returns: Constant returns to scale or constant cost refers to the production situation in which output increases exactly in the same proportion in which factors of production are increased.
3. Law of decreasing returns: Diminishing returns or increasing costs refer to that production situation, where if all the factors of production are increased in a given proportion, output increases in a smaller proportion.



11.8 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: Discuss the major production decisions faced by the farmers.

Q 2: Define Production Function and discuss its types

Q 3: Explain laws of return.

Long Questions (Answer each question in about 300-500 words)

Q 1: Describe Cobb Douglas Production Function

Q 2: Discuss the types of cost function

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UNIT 12 : THEORIES OF AGRICULTURAL ECONOMICS

UNIT STRUCTURE

12.1 Learning Objectives

12.2 Transforming Traditional Agriculture- The Schultz Thesis

- 12.2.1 Characteristics
- 12.2.2 Schultz's Suggestions for Transforming Traditional Agriculture
- 12.2.3 Critical Appraisal of the Suggestions made by Schultz to Transform Traditional Agriculture

12.3 Lewis' Model of Economic Development

- 12.3.1 Assumptions of the Model
- 12.3.2 The Working of the Model
- 12.3.3 Critical Evaluation of Lewis Model

12.4 Let Us Sum Up

12.5 Further Reading

12.6 Answers to Check Your Progress

12.7 Model Questions

12.1 LEARNING OBJECTIVES

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

- discribe how Schultz defined the 'Traditional Agriculture'
- explain how Schultz proved that zero value labour does not exist in traditional agriculture
- elaborate how Lewis divided the capitalist and subsistence sector

12.2 TRANSFORMING TRADITIONAL-AGRICULTURE THE SCHULTZ THESIS

T.W. Schultz is one of those economists who have suggested ways and means to develop agriculture. His book entitled *Transforming Traditional Agriculture* appeared in 1964 and is considered a hallmark on

agricultural development.

Schultz defines traditional agriculture in his own way; it does not mean a backward, labour intensive agriculture, using very little of modern machinery and other necessary inputs and having a low productivity. This is Mellor's definition of traditional agricultural and it provided a very general concept about traditional agriculture. For Schultz, agriculture can be capital intensive as well as highly productive and yet be traditional in its character. Schultz used the term "Traditional" in a different sense. It is in the sense of being stagnant or non-dynamic. With this view, even the American agriculture of today, can be traditional after sometime if its further development comes to a halt. We cannot deny the fact that traditional agriculture ultimately becomes a backward agriculture in relation to the agriculture of other economies, if it stagnates while others move forward. But according to Schultz, "traditional agriculture" and backward agriculture are not synonymous.

- **Clarification of some Misconceptions :** In order to clarify what Schultz means by traditional agriculture, he makes the following important observations-
  - Traditional character of agriculture has nothing to do with the cultural attributes of the cultivating community. Some people might feel that customs and conventions of the society, its level of literacy and aspiration for a higher standard of living will determine whether the agriculture is traditional in character or not. They might say that agriculture is traditional simply because the society is conservative, superstitious and consists of members who are not at all ambitious. Schultz does not agree with such views. He feels that the factors influencing production e.g., thrift attitude towards work and industriousness have nothing to do with the culture of a society. Rather these can be handled as economic variables. Take for example, the attitude towards work. There is every likelihood that one finds people of an economy, with stagnating agriculture idling away their time. They may not

seem to be hard working. According to Schultz, this lack of hard work is not due to any value system of a society. This is either because of their poor health or because of the fact that hard work does not yield sufficient returns. Both of these reasons are economic in character.

According to Schultz the basic attitude towards work in all societies, irrespective of their social and cultural values, is the same. As he says, "……when it comes to being industrious, including work and thrift, it is hard for even an industrious protestant to fault the behaviour of the Guatemalan Indians described with such care and thoroughness by Sol Tax in Penny Capitalism". We may note here that Schultz considers Guatemalan agriculture as traditional in character.

- Another important observation that Schultz makes with regard to the traditional agriculture, is that the traditional character of agriculture is not determined by the institutional arrangements, obtaining in agriculture. According to Shultz, like cultural attributes of a society, the institutional arrangements for agriculture also, do not help in determining whether the agriculture is traditional in character or not. Traditional agriculture is compatible with tenancy cultivation as well as with self-cultivation, with large farms as well as with small farms, with private as well as public enterprise in agriculture, and with production carried on for domestic purposes as well as with production carried on for the market.
- The third observation concerning traditional agriculture that has been made by Schultz is that technical attributes of factors of production also do not determine the nature of agriculture. Though some economists fell that if sophisticated machinery and other highly productive inputs are being used in agriculture, it should be called non-traditional agriculture. Schultz does not distinguish between traditional and non-traditional agriculture

on the basis of technical efficiency of the inputs used. According to him, as indicated earlier, different types of farming skills and capital goods can be found in a traditional agriculture. According to his definition of traditional agriculture, even American agriculture, at present considered to be most modern agriculture, can become traditional in character if it starts showing some economic symptoms.

- **The Definition :** The above narration was aimed at clearing some misconceptions which Schultz felt, people could have about traditional agriculture. The next logical step, was to give a lucid, positive definition of traditional agriculture.

Schultz has defined 'Traditional Agriculture' in economic terms. According to him, an agriculture becomes traditional when it comes to acquire some characteristics which are economic in nature. According to his definition, agriculture can become traditional only if, in the first instance, the art of cultivation becomes static. The farmers use the same factors of production and in the same manner as their forefathers have been doing. Neither new factors of production are introduced nor is there any change in the relative importance attached to the existing factors as sources of income. When such a situation comes to prevail in agriculture, farmers as a result of their long experience, start expecting a well-defined and at the same time, an unchanged pattern of returns (in physical terms) to various factors being used in production. Such a certainty in return, in turn, will encourage agricultural production to move towards an equilibrium. Farmers will go on employing more and more of the each of the existing factors till a situation arrives when, to put it in simple words, the cost of each factor becomes equal to its marginal return (at given input and output prices). An equilibrium is then reached and there is no incentive to invest beyond this point of equilibrium simply because the marginal return to a factor of production will be less than its cost. So incentive to make savings for purposes of net investment will disappear.

Such an equilibrium will indicate that the agriculture has become traditional and will remain so as long as the art of cultivation and motives and preferences to hold productive assets remain static.

12.2.1 CHARACTERISTICS

Schultz highlights two important characteristics of traditional agriculture. These are: (a) there is perfect allocation of resources in traditional agriculture and (b) there is no disguised unemployment in traditional agriculture.

- **Allocative efficiency in traditional agriculture :** Schultz is of the view that as the art of cultivation is completely static for a long time and as the farmer knows, by his long experience, about the returns to various factors of production, a state of equilibrium is likely to be reached where the marginal returns of these factors are finely balanced with their respective marginal cost. This is called perfect allocation of resources. He puts forth a hypothesis which is quite well known now called "poor but efficient hypothesis". He mentioned some assumptions under which such a perfect allocation of resources will be obtain in traditional agriculture. These are as under :
  - The factors of production are traditional in character. These have been used without any change, for generations.
  - There is no significant event taking place as will temporarily disturb the equilibrium e.g., construction of road, dam, canal, etc.
  - The prices of factors or of the returns to these factors can change, though not repeatedly.
  - There are no political upheavals in the society, such as war, partition, recruitment of available labour in the army etc.
  - Relative prices of various agricultural products are not

constantly changing.

- The community is not experiencing any advance in knowledge which can be useful in agriculture.
- There is perfect knowledge about the rate of return to various factors.
- There are no significant indivisibilities.

➢ **Doctrine of zero value labour in agriculture :** The other important characteristic of traditional agriculture, according to Schultz, is non-existence of zero value labour in such an agriculture.

Existence of zero value labour in agriculture means that if some seemingly active labourers are shifted from agriculture to the other sectors of the economy, or if they are simply asked not to work in agriculture, the agricultural production will not suffer at all. And this is despite the fact that all workers engaged in agriculture are assumed to be equally efficient. The reason for no change in agricultural production even after these labourers have ceased to work in agriculture is that their marginal productivity is equal to zero (or even negative).

Schultz, however, has questioned the existence of disguised unemployment or zero value labour in such economies. In order to elaborate his view, he refered to the three economic situations, in this regard.

- Where marginal productivity of labour engaged in agriculture is very low but is quite comparable with that of labour engaged in other sectors, after cost of transfer of labour is taken into considerations. Such a situation exists in many backward economies.
- Where marginal productivity of labour, engaged in agriculture is lower than that of labour engaged in other sectors of the economy when cost of transfer of labour is taken into consideration. It may otherwise, be quite high. This is what we find in developed economies. This

implies that there is excess of labour in the agricultural sector and that should be transferred to non-agricultural sector.

- Marginal productivity of a part of the labour engaged in the agricultural sector is zero.

Schultz does not believe that the third situation exists in a traditional agriculture. According to him, it can be very low but can never be zero and any transfer of labour from the agricultural sector to the non-agricultural sector will always, reduce total production in the agricultural sector.

Schultz has tried to adduce evidence to prove that there is no zero-value labour in traditional agriculture. In the first instance, he has cited two examples from Latin American countries where labour was withdrawn from neighbouring farms in order to meet the increased demand for labour for construction activity at the nearby site. The two examples pertain to a) construction of a road in Peru and (b) construction work in a city in Brazil. Schultz found that as a result of withdrawal of labour from agriculture in the two cases, agricultural production in these countries declined. Schultz thus concludes that marginal productivity of labour engaged in agriculture is positive.

In his book "Transforming Traditional Agriculture" he also cites the example of influenza that raged in India in an epidemic form in 1918-19 to show that zero value labour does not exist in traditional agriculture.

Through such examples Schultz has tried to prove that marginal productivity of labour in traditional agriculture is not zero and as such, there is no disguised unemployment in traditional.

12.2.2 Schultz's Suggestions for Transforming Traditional Agriculture

According to Schultz, problem of transforming traditional agriculture, is basically a problem of creating new investment opportunities in agriculture. And this is possible only when the equilibrium of the traditional agriculture is disturbed through the introduction of new and at the same time more productive factors of production in agriculture. This also implies that the art of cultivation will undergo a change. According to Schultz, agricultural transformation will follow only a technological transformation. And technological transformation as per Schultz, implies the introduction of some new factors of production or of some new agricultural practices or of some new skills and sometimes even the dropping of some of them from the process of cultivation.

Schultz has made various suggestions, in order to ensure that more efficient factors of production are used by the farmers to take agriculture out of its traditional rut.

The following points discuses his suggestions.

- **Market approach Vs Command approach :** Market approach implies that the farmers should be left free to decide whether to adopt a new factor or not. Let them be guided by the profitability of new factors, as determined by the market forces. The responsibility of the Government, under market approach should be confined only to measures for development and distribution of new agricultural inputs, publicity about them, development of necessary skills through education and training, provision of cheap credit and such other measures. But in no case, the farmers should be coerced to use the new inputs. Mexico is considered to be a fine example of market approach.

  In case of command approach, the farmers who happen to be the ultimate adopters of the new factors are simply directed to use them. They have no choice in this regard. It is

the state that takes the ultimate decision about what to produce, how to produce and how much to produce. The farmers are supplied the inputs by the state and in return, they are expected to deliver a part of the produce to the state. Working of collective and state farms in Russia is an example of command approach.

According to Schultz, market approach is better than the command approach, In market approach the farmers who are the ultimate judge of the efficiency of a factor are given full freedom to decide whether to use it or not and if yes, in what quantity. In case of command approach, the new inputs are rationed out to the farmers for compulsory use. In such a case, the local conditions of soil are totally ignored.

- **The process of transformation :** According to Schultz, the whole process of transformation can be explained in terms of supply of and demand for the new factors. It has to be ensured that on the one hand the new factors of production which are really more profitable than the traditional factors so far in use, are made available in the market and on the other hand the demanders of such factors i.e., the farmers who are so far using the traditional factors, are willing to accept them. Only then, these factors will be actually used in agricultural production.
  - **Supply of new factors:** On the supply side, the ultimate object is to ensure that the new factors are available in ample supply and that too, at reasonable prices. Both these conditions are necessary for their effective use and profitability.

    Schultz is of the view that there are three important steps involved in the process of ultimate supply of the new factors to the people who have to use them. These are (a) research and development of new inputs, (b) distribution of new inputs to cultivators and (c) development of extension services for the new inputs.

- **Demand for new factors:** Not only has the state to make certain that the new factors are available in the market and the users are made aware of their availability, but it also has to ensure that the users are willing to use it. Or in other words, it has to see that a demand is generated for them.

  Schultz then points out that the basic factor favouring the use of new inputs is purely economic in character. It is the profitability of the new inputs that will generate a demand for them. And profitability of a non-traditional input, according to Schultz depends upon two factors namely, the supply price of the new input and its prospective yield.

- **Importance of acquired skills in Agricultural Transformation :** It may be noted that availability of a new input and even its acceptability by the farmers may still fail to produce the desired results. Additional knowledge and skills are required for the use of new inputs. If the farmers are not imparted the necessary knowledge or if they themselves are unwilling to acquire it, the new input may not be used at all. This becomes more important when the new inputs happen to be technically far superior to existing ones. This is the reason, why Schultz lays much emphasis on the acquisition of knowledge and skills while suggesting various measures for transforming traditional agriculture.

12.2.3 Critical Appraisal of the Suggestions Made By Schultz to Transform Traditional Agriculture

- In the first instance, Schultz's undue bias for market approach seems to reveal an ideological tilt rather than an assessment of economic reality. In the initial stages of agricultural transformation, the state may have to undertake many other activities in the form of controls and intervention than what has been suggested by Schultz. Financial and material resources

of an economy are limited. These have to be used in the optimal manner. Only a planned economy, with a set of national and sectoral priorities, will achieve this objective. A free market means uncoordinated decisions. This can often lead to an imbalance between the supply and demand for factors.

- Moreover, market approach dos not ensure a complete harmony between the social welfare and private interest or between the national interests and regional interests. This can be ensured only through a central planning.
- Shultz has totally ignored the role of institutional reforms. In the transformation of traditional agricultural, this constitutes a serious omission from the thesis.
- Further, Schultz has totally ignored the differences in various poor economies with regard to their factor endowments, infra-structure necessary for developments, degree of commercialisation, extent of monetisation, administrative efficiency, etc. These differences do affect the extent of final use of the new input.



CHECK YOUR PROGRESS

Q 1: State the characteristics of traditional agriculture as mentioned by Schultz. (Answer in about 30 words)

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Q 2: Define "Traditional Agriculture" as described by Schultz. (Answer in about 40 words)

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12.3 LEWIS' MODEL OF ECONOMIC DEVELOPMENT

In his model, Lewis divides the economy of an under-developed country into two sectors namely: the capitalist sector and the subsistence sector.

The capitalist sector is that part of the economy which uses reproducible capital and pays capitalists for the use thereof. The capitalist sector includes, besides the manufacturing industries, the plantations and the mines where labour is hired. The capitalist sector can be private or public in character.

The subsistence sector is that part of the economy which does not use reproducible capital. It mainly includes agriculture which is predominantly labour intensive, uses poor techniques of cultivation and has low productivity. Output per head in this sector is lower than the output per head in the capitalist sector.

12.3.1 Assumptions of the Model

Before we explain the working of the model of economic development given by Lewis, it is necessary to describe the assumptions of this model.

The basic assumption of Lewis' model is that there exist surplus labour in the subsistence sector, i.e., labour with zero marginal productivity as well as that whose marginal productivity is positive but is less than the institutional wage. This labour mainly consists of farmers, casual workers, petty traders, domestic retainers and women. According to Lewis the surplus labour in the subsistence sector acts as a source from which an unlimited supply of labour can be drawn for the development of the capitalist sector. Unlimited supply of labour implies that the labour is available to the industrial sector at a constant wage rate. This wage rate has to be the higher from the institutional wage rate that prevails in the subsistence sector, by a small and fixed margin.

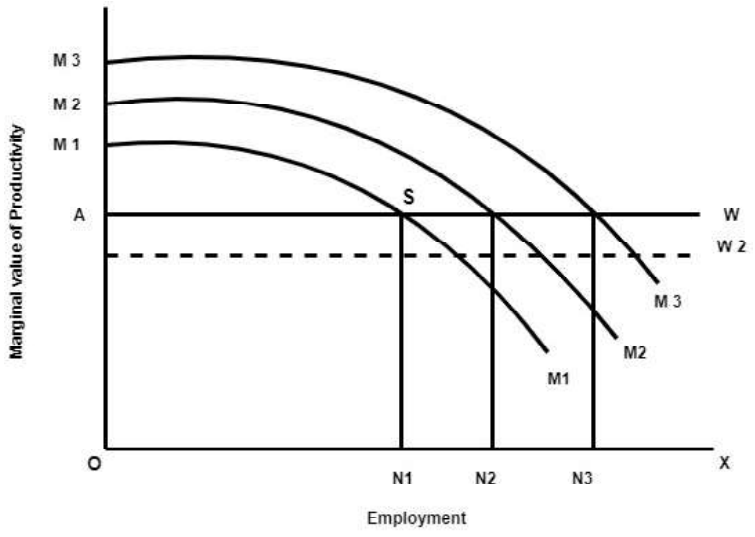
Lewis presumes that everybody in the subsistence sector get an equal share in the total product in the subsistence sector. This is despite the fact that marginal productivity of the surplus labour is less than this average share. He has called this share, the institutional wage because it cannot be ensured for everybody in the subsistence sector if only the market forces are allowed to operate.

There is yet another assumption underlying Lewis' model. It is that it is only the capitalist sector (whereby he means the industrial sector) which utilises its saving productively. The subsistence sector, on the other hand, squanders away its savings, if any, in unproductive pursuits like purchase of jewellery, land, construction of temples, etc. The propensity to save the subsistence sector is also lower than that of the industrial sector.

12.3.2 The Working of the Model

Lewis feels that existence of surplus labour in the subsistence sector is a boon for entrepreneurs with a high propensity to save, for expanding the capitalist sector. This labour is available at a constant wage and it can be attracted to the industrial sector if it is offered a wage rate which is a little higher than the institutional wage rate prevailing in the rural areas. The saving generated in the capitalist sector through the employment of this labour can be reinvested, leading to more employment of surplus labour from subsistence sector. His will in turn lead to more savings, more investment, and more employment and so on. This process of expansion goes on for quite some time. This process is explained with the following diagram.

Figure 12.1: The Working of the Model



Here W2 is the institutional wage in the rural sector and W represents the conventional wage in the industrial sector. In the first stage, labour up to ON-1, is attached and engaged in the industrial sector by payment of wage rate W. Here its marginal value productivity is equal to its wages. AM1S is the surplus earned in the industrial sector. When the capitalist invests this surplus in the industrial sector and also possibly improves the existing technologies of production, the marginal value productivity curve of labour will shift to M2M2. The new marginal value productivity curve of labour makes it profitable for the capitalist to employ labour up to ON2 because at this point, the marginal value productivity of labour and the wage rate which remains constant, are equal to each other. The per capita income of workers remain unchanged and entire benefit of development accrues to the capitalists. There is now more surplus in the industrial sector which will be reinvested. This will shift the marginal value productivity curve for labour to M3M3 making it possible for the capitalists to employ more labour which is still available at a constant wage. This process of the expansion of the capitalist sector and that of the transfer of surplus labour from the rural sector continues for quite some.

According to Lewis, even the state can act as a capitalist and supplement the efforts of the private capitalists by employing surplus labour in its own projects. It can even tax the subsistence sector for getting funds for investment. It can also resort to deficit financing for this purpose.

- **Role of Bank Credit**

  According to Lewis, the main problem in labour surplus economies, is to employ the labour available in the subsistence sector for the development of the capitalist sector and this can be done even through increase in money supply, especially by way of expansion of bank credit. Such a method will lead to extra output without loss of any other output.

  No doubt, expansion of bank credit can lead to inflationary

pressures. However, according to Lewis, the price rise cannot go on forever. The inflationary process will come to an end as soon as the level of total voluntary savings, made after the capitalist sector has expanded, as a result of the use of bank credit, becomes just equal to the total level of investment, as it would be after the use of bank credit. This, in fact, amounts to saying that a new equilibrium is reached as soon as the savings generated through additional bank credit becomes equal to the latter.

- **Decrease in the Pace of Expansion of the Capitalist sector**

According to Lewis, there are four reasons due to which labour may no longer be available to the industrial sector at constant wages. These are:

Firstly, the expansion of the industrial sector may be at such a rapid pace that it encourages a transfer to labour from the rural sector at a rate which is more than what is made up by the growing population in that sector.

Secondly, the technological progress in the agricultural sector itself may raise the productivity per man in that sector. This may mean an increase in both W 2and W.

The fourth factor that will raise the wages in the industrial sector, will operate when the workers in the capitalist sector, start imitating capitalist way of life. For that, they may demand higher wages and this will slow down the process of capital formation.

12.3.3 Critical Evaluation of Lewis Model

Lewis' model is based upon many assumptions. And most of these assumptions have not been accepted by economists. Some of the objections are as follows:

- Existence of disguisedly unemployed labour force and the impression that its transfer to the non-agricultural sector will not affect the agricultural production for quite some time, has

been questioned by a number of economists. Schultz for example, has tried to prove that there is no disguised unemployment in under-developed countries and agricultural production falls when labour is transferred from the agricultural sector to the non-agricultural sector. According to him, marginal productivity of labour in the agricultural sector in under-developed economies may be quite low but it is not zero.

- The model assumes, not only an unlimited supply of labour in the subsistence sector but also an ample supply of entrepreneurs for the industrial sector. This is not a correct assumption. Majority of the under-developed countries, especially in the early stages of development, have suffered from the problem of non-availability of entrepreneurial skills.
- Profits of the industrial sector may not be reinvested. The model assumes that whatever surplus is earned in the industrial sector, is reinvested for its further expansion. The industrialists may use their surpluses for speculative purposes. They, too, can squander away their earnings.
- The model takes the market for the industrial products for granted. Lewis assumed that there would be no problems of marketing the industrial products. The market for the industrial products too, was taken to be 'unlimited'. This assumption is not correct for the under-developed countries.
- Low income group also saves. According to the model, only top 10% of the people save. This is not correct. Even low income group saves. In fact, Lewis himself has admitted about the saving made by low income groups in Japan.
- Every under-developed country does not have unlimited supply of labour. The model is applicable to over-populated countries. However, an under-populated country can be under-developed. Latin American countries fall in this category.
- **Conclusion:** The model, no doubt, has unrealistic assumptions and suffers from various infirmities. However, despite its failure

to find any empirical evidence in support of its broad conclusions, it has succeeded in highlighting the fact that in the initial stages, the surplus agricultural labour has an important role to play in economic development, and that efforts should be made to keep the terms against agriculture, at least in the initial stages of economic development.



CHECK YOUR PROGRESS

Q 3: Define subsistence sector of Lewis model. (Answer in about 30 words)

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Q 4: What is the fundamental assumption of Lewis' model? (Answer in about 30 words)

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12.4 LET US SUM UP

- T.W. Schultz is one of those economists who have suggested ways and means to develop agriculture. His book entitled "Transforming Traditional Agriculture" appeared in 1964 and is considered as a hallmark in the literature on agricultural development.
- Schultz has defined 'Traditional Agriculture' in economic terms. According to his definition, agriculture can become traditional only if, in the first instance, the art of cultivation becomes static.
- Schultz is of the view that as the art of cultivation is completely static for a long time and as the farmer knows, by his long experience about the returns to various factors of production, a state of equilibrium is likely to be reached where the marginal return of these factors are finely balanced with their respective marginal costs. This is what called perfect allocation of resources.
- Existence of zero value labour in agriculture means that if some

seemingly active labourers are shifted from agriculture to the other sectors of the economy, or if they are simply asked not to work in agriculture, the agricultural production will not suffer at all. And this is despite the fact that all workers engaged in agriculture are assumed to be equally efficient.

- Market approach implies that the farmers should be left free to decide whether to adopt a new factor or not. Let them be guided by the profitability of new factors, as determined by the market forces. In case of command approach, the farmers who happen to be the ultimate adopters of the new factors are simply directed to use them. They have no choice in this regard. It is the state that takes the ultimate decision about what to produce, how to produce and how much to produce.
- Lewis divides the economy of an under-developed country into two sectors namely: the capitalist sector and the subsistence sector.
- The basic assumption of Lewis' model is that there exist surplus labour in the subsistence sector, i.e., labour with zero marginal productivity as well as that whose marginal productivity is positive but is less than the institutional wage.
- Lewis' model has succeeded in highlighting the fact that in the initial stages, the surplus agricultural labour has an important role to play in economic development, and that efforts should be made to keep the terms against agriculture, at least in the initial stages of economic development.



12.5 FURTHER READING

1) Soni, R.N., & Malhotra, S. (2017). *Leading issues in agricultural economics* (12th ed.). Jalandhar, Delhi: Vishal Publishing Co.

2) Singh, A., Sadhu, A.N., & Singh, J. (2012). *Fundamentals of Agricultural Economics* (12th ed.). Girgaon, Mumbai-40004: Himalayan Publishing House.

12.6 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: Schultz highlighted two important characteristics of traditional agricultural. These are: (a) there is perfect allocation of resources in traditional agriculture and (b) there is no disguised unemployment in traditional agriculture.

Ans to Q No 2: According to Scholer, an agriculture becomes traditional when it comes to acquire some characteristics which are economic in nature. According to his definition, agriculture can become traditional only if, in the first instance, the art of cultivation becomes static.

Ans to Q No 3: The subsistence sector is that part of the economy which does not use reproducible capital. It mainly includes agriculture which is predominantly labour intensive, uses poor techniques of cultivation and has low productivity.

Ans to Q No 4: The basic assumption of Lewis' model is that there exist surplus labour in the subsistence sector, i.e., labour with zero marginal productivity as well as that whose marginal productivity is positive but is less than the institutional wage.

12.7 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: Discuss how does Schultz proved that zero value labour does not exist in traditional agriculture.

Q 2: Explain the notion of allocative agriculture in traditional agriculture.

Q 3: Explain the role of bank credit in Lewis model.

Long Questions (Answer each question in about 300-500 words)

Q 1: Explain Shultz's views on "Transforming traditional agriculture".

Q 2: Explain the Lewis model of economic development.

*** ***** ***

UNIT 13 : FOOD SECURITY AND MALNUTRITION

UNIT STRUCTURE

13.1 Learning Objectives

13.2 Food Security and Malnutrition: As a Concept

13.3 Food Security and Nutritional Status at Global Level

13.4 Food Security and Nutritional Status in India: An Analysis

13.5 Policy Level Nutritional Interventions to Fight Against Malnutrition in India

13.6 Ministerial Level Efforts to Combat Malnutrition Problem

13.7 Some Strategic Community Level Nutrition Related Interventions Rolled out by the Government of India

13.8 Impact Analysis of Production Oriented Policies

13.9 Let Us Sum Up

13.10 Further Reading

13.11 Answer to Check Your Progress

13.12 Model Questions

13.1 LEARNING OBJECTIVES

After reading this unit, you will be able to-

- explain the meaning of food security and malnutrition
- discribe the different directions of Food Security and its determinants
- list the types of Food Security
- discuss Food and Nutritional Security in India
- point out the policies to combat malnutrition in India

13.2 FOOD SECURITY AND MALNUTRITION : AS A CONCEPT

Food and Nutrition security are related but both are distinct concepts. The acceptable definition of food security has been given by the Food and Agriculture Organisation of the United Nations (FAO), which states that Food Security prevails “when all people, at all times, [have]

physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO 1996, par. 1). Thus, from this definition it is imperative in food security that food must be available in adequate quantity and with sufficient quality at all times throughout the year which should be also culturally acceptable. The definition of food security highlights four crucial dimensions: availability, accessibility, utilisation and sustainability, which recognizes that food security is a multi-facet problem.

Table 13.1: The Four Dimensions of Food Security

Physical AVAILABILITY of food	The availability dimension of the food security deals with the "supply side" of food security and is determined by the level of food production, stock levels and net trade
Economic and physical ACCESSIBILITY to food	Mere availability and adequate supply of food at the national or international level does not inevitably contribute household level food security. Concerns about insufficient food access have resulted in a greater policy focus on incomes, expenditure, markets and prices in achieving food security objectives
Food UTILIZATION	Food Utilization is generally the practice of Sufficient energy and nutrient intake by individuals, which is the result of good care and feeding practices, food preparation, diversity of the diet and intra-household distribution of food. Combined with good biological utilization of food consumed, this determines the nutritional status of individuals
SUSTAINABILITY/STABILITY of the other three dimensions over time	Sustainability could be understood as the consistent intake of nutritious food every day. A person is considered to be food insecure if you have inadequate access to food on a periodic basis, risking a deterioration of your nutritional status. Adverse weather conditions, political instability, or economic factors (unemployment, rising food prices) may have an impact on your food security status.

Sources: *Ruel, M and Aldrin, B. Food Security and Nutrition: Linkages and Complementarities*

However, for the food security objectives to be realised, it is imperative that all the four dimensions must be fulfilled simultaneously. A failure in achieving any one of them would mean that food security does not

prevail. Therefore, it is important to take into the consideration the determinants of these four dimensions.

Table 13.2: Dimensions of Food Security and its Dereminants

Dimension of Food Security	Determinants
Availability	•Domestic production • Import capacity • Food stocks • Food aid
Accessibility	•Income, purchasing power, own production • Transport and market infrastructure • Food distribution
Utilization	•Food safety and quality • Clean water • Health and sanitation • Care, feeding and health-seeking practices
Sustainability/Stability	•Weather variability, seasonality • Price fluctuations • Political factors • Economic factors

Thus, each dimension of food security and its determinants are pivotal to ensure the food security at household level. The analysts have defined the problem of food insecurity into two broad types:

- Chronic food insecurity and
- Transitory food insecurity.

The definition of these two types of food insecurity is based on their temporality, severity and the rate of occurrence. Chronic food insecurity is a long-term and persistent condition of food insecurity. The common indication of this type of food insecurity is that people lack access to minimum requirements of food for a sustained period of time due to extended periods of poverty, lack of assets and lack of access to productive or financial resources. While transitory food insecurity is a short-term and temporary condition of food insecurity. It is caused by short-term shocks and fluctuations in food availability, food access, and variation in domestic production, inflationary issues and household incomes. An overview of the

nature, occurrence, causes and remedial measures of chronic and temporary food insecurity are discussed in table 3 below.

Table 12.3: Types of Food insecurity types

	Chronic Food Insecurity	Transitory Food Insecurity
Is	Long-term or persistent.	Short-term and temporary.
Occurs When	People are unable to meet their minimum food requirements over a sustained period of time.	There is a sudden drop in the ability to produce or access enough food to maintain a good nutritional status.
Results From	Extended periods of poverty, lack of assets and inadequate access to productive or financial resources.	Short-term shocks and fluctuations in food availability and food access, including year-to-year variations in domestic food production, food prices and household incomes.
Can be overcome With	Typical long term development measures also used to address poverty, such as education or access to productive resources, such as credit. They may also need more direct access to food to enable them to raise their productive capacity	Transitory food insecurity is relatively unpredictable and can emerge suddenly. This makes planning and programming more difficult and requires different capacities and types of intervention, including early warning capacity and safety net programmes.

Source: *United Nations Food and Agriculture Organization (FAO)*

Hence, food security refers to availability, accessibility, affordability and sustainability of food globally and locally at all times. However, food security is a necessary, but not sufficient condition to ensure nutrition and to prevent malnutrition. Nutrition security, by contrast, exists when, besides people have access to a healthy and balanced diet, they also have access to adequate care giving practices and to a safe and clean environment that allows them to stay healthy and utilise the foods they eat effectively. Thus borrowing from both definitions, “food and nutrition security” can be defined as a situation that prevails when all people have physical, social and economic access to food, at all times, which is consumed in adequate quantity and quality to meet the dietary needs, food preferences and requirements for growth and is also supported by an environment of adequate

sanitation, health services and care-giving (United Nations Food and Agriculture Committee on World Food Security)". Thus nutrition security implies an optimal nutritional status of an individual.

"Malnutrition refers to deficiencies, excesses or imbalances in a person's intake of energy and/or nutrients. The term malnutrition covers two broad groups of conditions. One is 'under-nutrition'—which includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals). The other is overweight, obesity and diet-related non-communicable diseases (such as heart disease, stroke, diabetes, and cancer)" (WHO).



CHECK YOUR PROGRESS

Q 1: What are the dimensions of food security?

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.....

Q 2: Name two broad types of food insecurity.

.....

.....

Q 3: State True or False:

Heart Disease, strokes are result of malnutrition. (True/False)

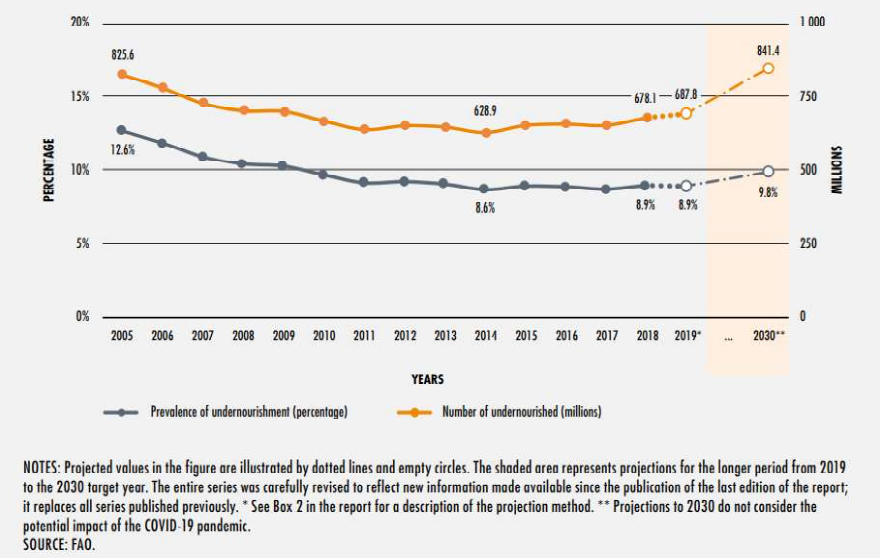
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13.3 FOOD SECURITY AND NUTRITIONAL STATUS AT GLOBAL LEVEL

FAO's most recent estimates reported that nearly 690 million people are hungry which comprises 8.9 percent of the world population, thus showing an upward trend by nearly 60 million in five years. The number of people affected by severe food insecurity also showed a similar upward trend. In 2019, close to 750 million – or nearly one in ten people in the world – were exposed to severe levels of food insecurity. The increasing trend in food insecurity contributes to malnutrition among children, in 2019, 21.3

percent (144.0 million) of children under 5 years of age were estimated to be stunted, 6.9 percent (47.0 million) wasted and 5.6 percent (38.3 million) overweight, while at least 340 million children suffered from micronutrient deficiencies. Between 2000 and 2019, the prevalence of child stunting declined by one-third, but the world is not on the track to achieve the global nutrition targets as the adult obesity is on the rise in all regions across the world. Figure 13.1, presents the prevalence of undernourishment in the world.

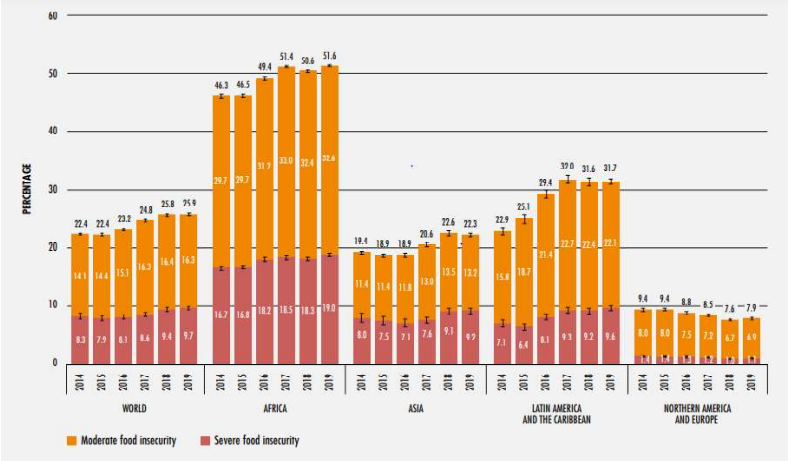
Figure 13.1: The Prevalence of Undernourishment



NOTES: Projected values in the figure are illustrated by dotted lines and empty circles. The shaded area represents projections for the longer period from 2019 to the 2030 target year. The entire series was carefully revised to reflect new information made available since the publication of the last edition of the report; it replaces all series published previously. * See Box 2 in the report for a description of the projection method. ** Projections to 2030 do not consider the potential impact of the COVID-19 pandemic.
SOURCE: FAO.

It can be seen from Figure 13.1 that the number of undernourished people in the world continued to increase in 2019. If recent trends are not reserved, the SDG 2.1 zero hunger target will not be achieved.

Figure 13. 2: Moderate or severe food insecurity



Note: Differences in total are due to rounding of figures to the nearest decimal point.

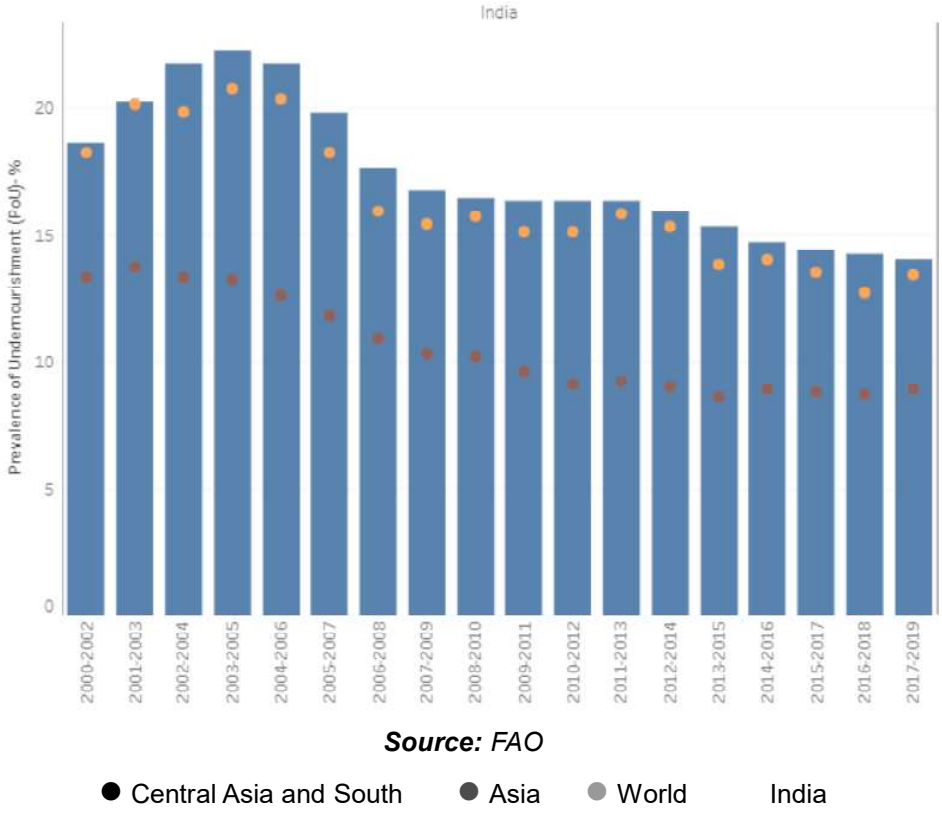
Moderate or severe food insecurity affects one quarter of the world population, and it has been increasing over the past six years. Over half of the population in Africa, almost one-third in Latin America and the Caribbean and more than one-fifth in Asia are food insecure.

13.4 FOOD SECURITY AND NUTRITIONAL STATUS IN INDIA: AN ANALYSIS

India accommodates around 46.6 million stunted children, a third of world's total as per the Global Nutrition report 2018. Almost half of under-5 child mortality in India is attributed to under nutrition. As per the recent data from the National Family Health Survey IV (2014-15), in India 38.4, 21 and 35.7% of children under 5 years suffer from stunting, wasting and underweight respectively, the corresponding figures for the NFHS III, 2005-06, were 47.9, 19.8 and 42.5% respectively.

The 'Asian enigma' is a phenomenon of consistent and unusually high prevalence of undernourishment among children in South Asia as compared to other countries across the globe. The immediate causes of under nutrition reflect a negative synergy between insufficient food intake and persistence of infectious diseases. Underlying these causes is a constellation of factors particularly salient to India (Gragnolati M, et al, 2005). These include poor health system, inefficient implementation of nutritional programmes and policies, poor sanitation, socio-economic inequality, lack of political commitment and unscrupulous governance and strategic leadership. However, India has shown a persistent and significant improvement in health indicators and food security. Figure 3 provides the scenario of undernourishment of people in India between 2000 and 2019.

Figure 13.3: Percentage of undernourished people in India



Source: *FAO*

● Central Asia and South ● Asia ● World India

The regional figures of prevalence of undernourishment was estimated for sub-Saharan Africa to be 22.0 percent of the population in 2019, which was nearly 235 million undernourished people, up from 21.2 percent in 2015. For Central and Southern Asia in 2019 more than 13 percent (259 million) undernourished people lived and the region has also shown progress in reducing the total number of hungry people by 5.8 million since 2015 and India has played a major role in reducing hunger and undernourishment. From 2013 onwards India has persistently succeeded in reducing the number of undernourishment which is apparent in the figure 3.

13.5 POLICY LEVEL NUTRITIONAL INTERVENTIONS TO FIGHT AGAINST MALNUTRITION IN INDIA

Towards the understanding of factors responsible for malnutrition, the policy makers in India adopted several multi-sectoral approaches to achieve the goal of optimum nutrition for all. Important policy interventions

and programmes led by the Indian government to combat the problem of malnutrition are as follow:

- **Direct Policy Interventions :**
  - Integrated Child Development Scheme (ICDS)
  - Fortification of essential food items with legal provisions
  - Popularize low cost nutritious food
  - Control of Micro Nutrient deficiencies
- **Indirect Policy Interventions :**
  - Guarantee food security by increasing the foodgrains production
  - Improving Dietry pattern by increasing the production and per capita availability of nutrient rich food items.
  - Prevention of food adulteration by Law
  - Strengthening nutrition surveillance
  - Improving purchasing power of rural and urban landless poor
  - Improving the efficiency of public distribution system

Besides the direct and indirect policy interventions the government of India adopted various initiatives over the years to improve the nutritional status in the country. Table 4 below provides a list of various programs and schemes that have been launched over the years as policy intervention to improve nutritional levels among population.

Table 12.4: Programmes, Plans, Schemes and Missions implemented to improve the food security and nutritional levels in population.

Programmes, Plans, Schemes and Missions	Year
Mid-day Meal Programme,	1962–1963
Goiter Control Programme, 1962 (now known as National Iodine Deficiency Disorders Control Programme)	1962
Special Nutrition Programme, 1970–1971	1970-71
Balwadi Nutrition Programme, 1970–1971	1970-71
Nutritional Anaemia Prophylaxis Programme, 1970	1970
Prophylaxis Programme against Blindness due to Vitamin A Deficiency, 1970	1970
Integrated Child Development Services (ICDS), 1975	1975
National Diarrhoeal Diseases Control Programme, 1981	1981

Wheat-based Supplementary Nutrition Programme, 1986	1986
National Plan of Action on Nutrition, 1995	1995
Public Distribution System, 1997	1997
The National Population Policy (NPP) 2000	2000
The National Health Policy 2002	2002
National Nutrition Mission, 2003	2003
National Health Mission (NRHM—2005–2017)	2005-17
National Health Mission, 2013 (subsumes former Rural and Urban Health Missions) National Iron+ Initiative, 2013	2013
Promotion of Infant and Young Child Feeding Practices Guidelines, 2013	2013
Weekly Iron and Folic Acid Supplementation, 2015	2015
National Deworming Day, 2015	2015
Sustainable Development Goals (2016–2030)	2016-30
New National Health Policy, 2017	2017

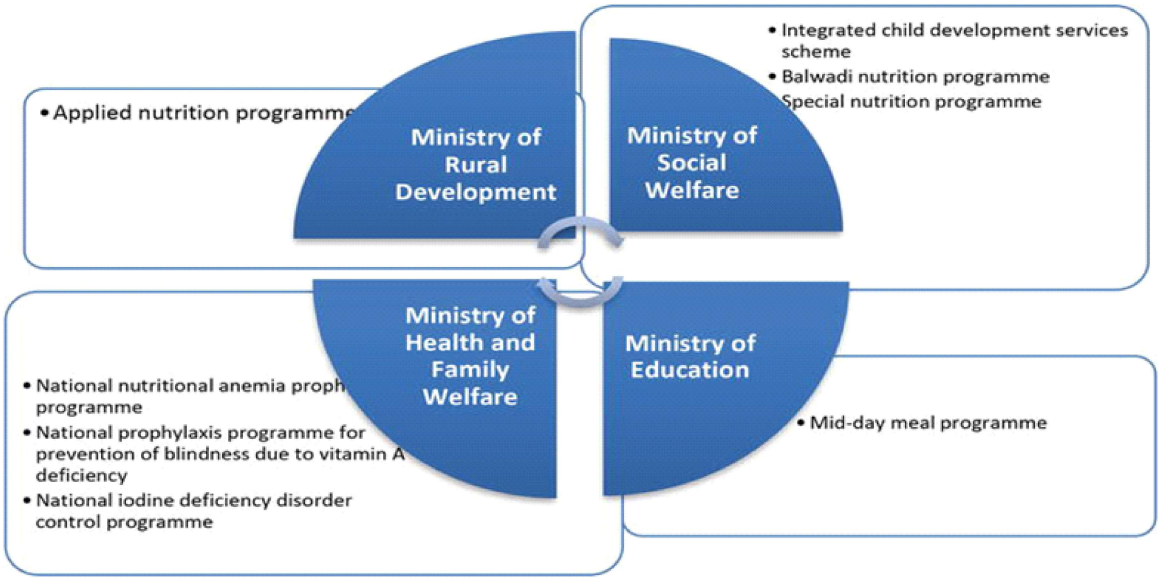
It is apparent from the table above that food and nutritional security in India has been a prime priority of the government since 1960s itself. Different schemes and programmes have been launched to curb the menace of poverty and provide food and nutrition security in the country. The decades aim to address all forms of malnutrition and ensure all people have access to healthier and sustainable diets. The results are evident from the declining patterns of poverty status in India over the years. However, the state of malnutrition in India is still alarming, despite a lot of work is done and progress has been made but the pace of improvement is too sluggish.

13.6 MINISTERIAL LEVEL EFFORTS TO COMBAT MALNUTRITION PROBLEM

Due to continuing food and nutritional insecurity, an alternative strategy of development became a national priority, which gave the rise to a number of interventions and strategies to improve the conditions of the most vulnerable sections in the country. The strategic combat to malnutrition was further consolidated by decentralising the efforts at ministry as well as community levels. Different ministries have been directed to implement programmes and schemes which help in alleviating

the food and nutritional insecurity in country. Figure 4 presents the interventions adopted by different ministries to combat malnutrition in India.

Figure 13.4: Multi-Ministerial Interventions showing Political Commitment and Inter-sectoral Approach to Combat Malnutrition



13.7 SOME STRATEGIC COMMUNITY LEVEL NUTRITION RELATED INTERVENTIONS ROLLED OUT BY THE GOVERNMENT OF INDIA

Community based nutritional programmes could be more effective in combating the malnutrition problem because these progammes are often based on strategic nutrition related interventions. A few of them are discussed below.

- **Promotion of Infant and Youth Child Feeding Practices :**

  This programme promotes the exclusive breastfeeding of children for first six months, thereafter complementary feeding commences at six months. Mother's Absolute Affection (MAA) programme was launched in 2016 to promote breastfeeding and infant feeding practices.

- **Establishment of Nutritionals Rehabilitation Centre :**

  The nutritional rehabilitation centres are established to provide

medical and nutritional care to severe acute malnourished children under five years of age. In addition to this, these centres also impart skills to mothers on child care and feeding practices which ensure adequate child care at home.

- **Anemia Mukt Bharat :**

  This campaign has been launched to intensify Iron Plus Initiative, aimed to strengthen the existing programmes and fostering the newer strategies to tackle anemia. This paved the path to the targets under the POSHAN Abhiyaan programme through focus on six target beneficiary groups with six interventions and six institutional mechanisms.

13.8 IMPACT ANALYSIS OF PRODUCTION ORIENTED POLICIES

India as a country has an enormous diversity- geographic, economic and ethnic; it is the second most populous and seventh largest country by land area in the world. While the socio-economic conditions of the country were not favorable at the time of independence, the sustained reforms have contributed much to the macroeconomic environment. Remarkable social and economic progress has been made since the start of liberalisation reforms; the strong economic performance since the mid-1990s has raised the country's GDP per capita by over 5% per year and has contributed in uplifting millions of people out of the extreme poverty, from 45% in 1993 to 22% in 2011 (OECD, 2018). Among the three sectors of the Indian economy it is the service sector which contributes the maximum to the total India's GVA (gross value added) that is 54.77% and then the secondary sector i.e., industry which contributes 27.47% to the country's GDP and the primary sector which consists of agriculture, forestry and fishing contributes 17.76% at current prices to the GDP in India (MOSPI, 2019). Although the primary sector of the economy contributes lesser than the other two sector yet it is still this sector which provides employment to the most workforce, that is, 42.39% in the country. Also the share of agriculture sector in GDP has increased

to 20 per cent for the first time in the last 17 years during 2020-2021. The total grain production of 296.65 million tonnes in 2019-20 has been estimated, which was higher by 11.44 million tonnes than 2018-19; continuous supply of different agricultural commodities ensures food security in the country. The adequate agricultural production boosts the sufficient supply of foodgrains under the National Food Security Act through PDS. The food grain production of 69.3 million tonnes in the year 1960-61 to production of 264.35 million tonnes in 2013-14, indicates significant progress in Indian agriculture over the years. The agricultural progress and reforms of the country can be categorised into different periods as follows:

- **The Period of Stagnation in Agriculture (1950s)**
  This period of Indian agriculture was marked by limited/insignificant growth in crop and grain production. The period witnessed foodgrain production of 59.2 MT (1952-53), with a yield of 579.8 kg/ha.
- **The Period of Green Revolution (1960-80s)**
  This period was characterised by a transition from stagnancy to high agriculture production in the country. The pioneering effort of agricultural scientists and the farmers led a successful Green revolution. Use of High Yield Variety (HVY) seeds, fertilisers and irrigation resulted in sharp spike in agricultural production.
- **The Period of Surplus Production and Exports (1980-2000s)**
  During this period India achieved food security by surplus production of foodgrains. This period was characterised by expanding cereal production, encouragement to exports, surplus production over domestic demand, increase in population and strong income growth.
- **The Period of Economic Reforms, Technological Advancements and Disruptive Transformation (2000 Onwards)**
  This period of Indian Agriculture witnessed introduction of new policies and adoption of technology. More emphasis were given on technology driven production, rise in agricultural credit for agriculture and NFSM to increase the production. Introduction of schemes like National Horticulture Mission and Bringing Green Revolution in Eastern India (BREI) was adopted that resulted achieve record production.

- **Horticulture Mission for North East and Himalayan States (2001-02)**

  This mission was aimed to increase the production and productivity of horticulture crops, special emphasis was given on “Low Volume, High Value, and Less Perishable Crops”. The mission was facilitated to provide employment opportunities to women by developing horticulture farming.

- **Agriculture Technology Management Agency ATMA (2005)**

  This scheme aims at making extension system farmer-driven and farmer accountable technology dissemination in the form of ATMA at district level to operationalise the extension reforms. The scheme facilitates the retrival of data from internet web portals offline by using a mobile phone. It has active participation from NGOs, Farmers/ farmer-groups, Panchayati Raj Instituions, Krishi Vigyan Kendras and other stakeholders operating at the district level or below.

- **National e-governance Plan Agriculture (2006)**

  This scheme was introduced during 11th Plan to ensure timely access to agriculture related information to the farmers and other stakeholders. The services provides important information related to pesticides, fertilisers, seeds, farm, soil health, crops, machinery, weather, productive agricultural practices, prices, arrivals, procurement, irrigation, infrastructure, reliefs and more.

- **National Food Security Mission (NFSM) and Rashtriya Krishi Vikas Yojana (RKVY) (2007)**

  NFSM was launched during the 11th five year plan. The main objective of this mission was to increase the production of rice, wheat and pulses by 10 MT, 8MT and 2MT respectively by the financial year 2012. RKVY was also launched during the 11th five-year plan and was aimed at incentivising the states to increase outlays for agriculture and allied activities and encourage the growth opportunities.

- **National Crop Insurance Programme NCIP (2013-14)**

  This scheme was introduced to ensure the food security, crop diversification and improve the growth of the sector. The scheme

provided weather-based crop insurance to minimise the financial loss of the farmers.

- **Pradhan Mantri Krishi Sinchai Yojana (2015)**

  This scheme was launched to develop the micro-irrigation and watershed facilities to increase agriculture production. An allocation of USD 830 million was provided and the states were directed to fund agriculture sector and take appropriate measures to achieve the targeted growth and address farmers' issues.

- **Pradhan Mantri Fasal Bima Yojana (PMFBY) and eNAM (2016)**

  This scheme was the replacement of existing two schemes National Agricultural Insurance Scheme and Modified National Agricultural Insurance Scheme. The central government under PMFBY provided crop insurance and financial support to the farmers for covering their crop losses. National Agriculture Market (eNAM) on the other side was a pan-India electronic trading portal network to create a unified national market for agricultural goods. It aimed to promote uniformity in the agricultural marketing by removing information asymmetry and based on demand and supply promotes real-time price discovery.

- **Contract Farming Law and Tax Incentives (2017)**

  In 2017, the government in an effort to protect the farmers' interest against price vitality came up with a law on contract farming. The committee of State Ministers on Agricultural reforms was formed which recommended that contract farming should not come under the ambit of Agricultural Product Market Committee (APMCs), because market fees and other levies are paid to the APMC when no market facilities and infrastructure are rendered to undertake contract farming. Besides this, for 100 percent export-oriented units, import duty on capital goods and raw materials was abolished. Also, no excise duty was provided for goods that are used in the installation of cold storage facilities. Services like ripening, waxing, packing, pre-conditioning, labeling of fruits and vegetables were exempted from service tax.

- **Agriculture Export Policy (2018)**

  The Government of India framed the agriculture export policy to

focus on export-oriented production, export promotion, and better farmer realisation. The policy lifted all restrictions on organic and processed food in an effort to double the farmers' income by 2022. Besides this policy the government of India in 2018 launched Pradhan Mantri Annadata Aay SanraksHan Abhiyan as procurement policy, which enabled the States to compensate and partner with private agencies to ensure fair prices for farmers.

- **Pradhan Mantri Kisan Maan-Dhan Yojana (2019)**

  This scheme was aimed to cover around 3 crore beneficiaries from small and marginal farmers to be provided a minimum fixed pension of Rs 3000 on attaining the age of 60 years. In 2019-20, government of India made a budgetary provision of Rs 900 crore for this scheme; the beneficiary is required to make a monthly contribution of Rs 55 to Rs 200 to the pension fund. The other financial push to farmers that the government of India launched in 2019 was Pradhan Mantri Kisan Samman Nidhi Yojana, under which the Prime Ministry transferred Rs 2.21 crore to bank accounts of more than 10 million beneficiaries of which the farmers received Rs 6,000 in three installments.

- **Agricultural Reforms of 2020**

  The Government of India with the aim of transforming the agriculture production and farmers income has passed three important legislations from parliament in 2020. The aim of these legislations was to bring reforms in the agriculture marketing system in the country.

  - **The Farmers' Produce Trade and Commerce (Promotion and Facilitation) Act, 2020**

    This act facilitates the farmers with freedom of choice related to the sale and purchase of their produce. It also provides the farmers' liberation from the Cess or levy for the sale of their produce. The act is believed to promote barrier-free inter-state and intra-state trade and commerce and will open more choices for the farmers and help them in getting better prices.

  - **The Farmers Agreement of Price Assurance and Farm**

Services (Empowerment and Protection) Act, 2020

This act is aimed to provide a national framework on farming agreements which will protect and empower farmers while engaging with agri-business firms, wholesalers, processors, exporters for farm services. It is believed to empower famers and will transfer the risk of market volatility from the farmers to the sponsor. It will further enable farmers to access the modern technology and attract private sector investment for building supply chain to national and global markets. Farmers will engage in direct marketing thereby eliminating the intermediaries.

- **Essential Commodities (Amendment) Act, 2020**

The amendment to essential commodities act (ECA)1955, aims to help the local farmers get better prices for their produce and more discretion over whom and where to sell. The amendment enables farmers to sell their products to anyone outside the APMC mandis and allows the market forces to determine the prices of essential agriculture produce. Any limit under the act (ECA) will be imposed only in exceptional circumstances such as famine, war, extraordinary price volatility and natural calamity.



CHECK YOUR PROGRESS

Q 4: What is 'Asian Enigma?'

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.....

Q 5: When and why was Mother's Absolute Affection (MAA) programme Launched?

.....

.....

Q 6: In which policy all restrictions on organic and processed food are lifted in an effort to double the farmers' income by 2022 ?

.....

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13.9 LET US SUM UP

- Food security is the foundation of economic security and economic security leads to national security and other forms of social security to nationals.
- Productivity gains are key to food security in countries with foreign exchange shortage or limited infrastructure to import food. India is facing twin challenges viz. a rapid rise in population, declining farm productivity and a lack of employment opportunities that translates into livelihood insecurity.
- From time to time India tried its best to increase agricultural production for providing food security to the people. Food availability depends upon production and distribution; access to food guided by purchasing power and effective use of food translates food security into nutrition security. In addition to it, food must not only be available and accessible but also be of right quality in terms of energy and micronutrients.
- The government has been implementing a wide range of nutrition intervention programmes for achieving food security at the household and individual levels.



13.10 FURTHER READING

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3) Steyn, N. (2014) Malnutrition. In: Michalos A.C. (eds) *Encyclopedia of Quality of Life and Well-Being Research*. *Springer*, Dordrecht. https://doi.org/10.1007/978-94-007-0753-5_1719

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13.11 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: availability, accessibility, utilisation and sustainability

Ans to Q No 2: Chronic and Transitory.

Ans to Q No 3: True.

Ans to Q No 4: A phenomenon of consistent and usually high prevalence of undernourishment among children in South Asia as compared to other countries across the globe.

Ans to Q No 5: Launched in 2016 to promote breastfeeding and infant feeding practices.

Ans to Q No 6: Agricultural Export Policy (2018).



13.12 MODEL QUESTIONS

Short Questions (Answer each question in about 150 words)

Q 1: Give an overview of food and nutritional status in India.

Q 2: Define malnutrition. How can the term malnutrition be grouped?

Q 3: Explain briefly the different types of food insecurity.

Long Questions (Answer each question in about 300-500 words)

Q 1: Describe in details about the Government efforts at community level to combat malnutrition in India.

Q 2: Write in details about Agriculture Reforms, 2020.

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UNIT14: THE PUBLIC DISTRIBUTION SYSTEM IN INDIA

UNIT STRUCTURE

14.1 Learning Objectives

14.2 Public Distribution System in India

14.3 Functioning of Targeted Public Distribution System and Food Price Policies in India

14.4 Food Subsidies

14.5 Food Safety Nets and Food for Work Programme

14.6 Let Us Sum Up

14.7 Further Reading

14.8 Answers to Check Your Progress

14.9 Model Questions

14.1 LEARNING OBJECTIVES

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

- explain the Public Distribution System in India
- discribe the Targeted Public Distribution System (TPDS)
- analyse the food price policies in India
- explain the concept of food subsidies
- describe the food for work programmes.

14.2 PUBLIC DISTRIBUTION SYSTEM IN INDIA

The Public Distribution System in India was established under the Ministry of Consumer Affairs, Food, and Public Distribution to manage the scarcity of foodgrains through the distribution of food grains at subsidised prices to the poor section of the society. Public Distribution System (PDS) works under the combined responsibility of the central government and the state governments. Central government through Food Corporation of India (FCI) assures the responsibility of procurement, storage, transportation and bulk allocation of foodgrains to the states and

the later ascertains the operational responsibility of proper allocation within the State. The states have been entrusted with the main responsibilities to identify the eligible families, issue the Ration Cards and prudently supervising the functioning of Fair Price Shops (FPSs). The major commodities distributed under the PDS are wheat, rice, sugar and kerosene but some states supplement additional items such as, edible oil, iodized salt, pulses, spices etc of mass consumption through PDS.

The evolution of PDS in India dates back to 1940s; it was introduced at that time as a war-time rationing measure. However, the distribution through PDS was generally based on imports of foodgrains and during the 1950s the system was almost dysfunctional due to growth in agriculture produce but in the early 1960s, PDS was revived in the wake of acute food shortage. It was during this time the government established the FCI and Agriculture Price Commission to manage the domestic procurement and storage of foodgrains for PDS and by the 1970s, Public Distribution System in India evolved into a universal scheme for the distribution of highly subsidised foodgrains. Till 1992, the PDS scheme without any specific target operated as a general entitlement food scheme for all consumers in the country but in 1990s, the experts and even political executives strongly recommended the reforms in PDS and advocated to orient it to targeting only poor and needy people in the country. In 1992 the government reviewed the loopholes in the universal distribution of PDS foodgrains and subsequently with a view to strengthen and streamline the PDS, they reformed the universal PDS into Revamped Public Distribution System (RPDS). It was reported that people in vulnerable, remote, hilly and far-flung areas were not getting the desired benefits of PDS due to malfunctioning of the scheme. So the positive trend that emerged after the reforms was that PDS was predominantly targeting the traditionally deficit areas and the off-take against allocation which was only 73% in other areas now it was 91% in RPDS areas. However, in June, 1997, the government launched the Targeted Public Distribution System (TPDS) with a focus on the poor. Thus TPDS not only targeted the poor families in the remote areas but also improved its reach to poor

families in the urban areas. Under the TPDS initially around 6 crore poor families were targeted for whom annually a quantity of about 72 lakh tonnes of food grains was earmarked which later showed an increase. The scheme divided the beneficiaries into two categories viz. families below the poverty line (BPL) and families above the poverty line (APL). This categorisation of BPL and APL was done by the states as per state-wise poverty estimates of the planning commission. However, in December, 2000, another category Antyodaya Anna Yojana (AAY) was included in TPDS after the National Sample Survey (NSS) reported that about 5% of the total population does not have access to two square meals a day. Thus AAY category includes poorest of the poor families which are more focused and targeted by the TPDS. Upon conceiving the importance of staple food for poor people the government of India in September 2013, enacted the National Food Security Act, 2013 to deliver foodgrains as legal entitlement to poor families. The act relies largely on the TPDS and made access and availability of food a legal right for every TPDS beneficiary.

14.3 FUNCTIONING OF TARGETED PUBLIC DISTRIBUTION SYSTEM AND FOOD PRICE POLICIES IN INDIA

Both central and state governments share the responsibilities of providing foodgrains to the identified PDS beneficiaries. The Central government procures foodgrains from the farmers at a Minimum Support Price (MSP) and sells it to states at central issue prices. Then it is the responsibility of the state government to transport these foodgrains from godowns to each Fair Price Shop (FPS) and then distribute among beneficiaries at the lower central issue price. The primary objective of public distribution is to ensure food security and to have check on market prices of foodgrains. However, post independence India witnessed the highest inflation in September 1974, when overall inflation crossed 33.3 per cent and from November 1973 to December 1974 the inflation in India did not fall below 20 per cent. In 2007-08 the food prices around the

world spiked up by 20-40 per cent, India witnessed lower food price due to immediate food policy interventions, however, in 2009 due to severe drought the food prices had a rapid spike. India succeeded to mute the transmission effect of international price hike by adopting the anti export policy in rice and wheat in 2007-08. The robust policy interventions, like export controls, rise in fertilizer subsidy bill, imposition of minimum support prices and varying tariffs helped India to mitigate the abnormal high international price transmission. But in 2009 when the world food price were getting normal India had an inflationary pressure due to drought, the global price on rice moved between 2.6 per cent in April 2008 to 4.7 per cent in March 2009, India witnessed inflation on rice from 8.7 per cent to 17.1 per cent in the same period. The set back in agriculture due to drought in 2009 is called the worst drought after 1972. The food inflation during this period has been driven by both demand and supply factors. In addressing the food inflationary pressure the government of India has been adopting different policy intervention to tackle it, some of them are discussed below-

- **Minimum Support Prices (MSPs):** MSPs work as a safety net for the farmers, it ensures the price and market for their produce. It plays a pivotal role in the demand and supply market of foodgrains, this procurement based system on the one side keeps check on food inflation and other side saves the farmers from market exploitation. This system also incentivises the production at the time of rising cost of production of crops. During 2007-08, when the global food prices were flaring up, MSPs in India was increased to more than 30 per cent for wheat and MSPs of pulses, rice and maize was increased from 30 to 50 per cent in 2008-09, to catch up with the spike in global prices as well as to compensate the farmers for increasing production costs.
- **Trade policies:** Trade policies include the export bans, import tariffs and exchange rate policies. These policies help in keeping check on inflationary pressure on domestic prices. During 2007 recession, the prices of food items across the world were rapidly flaring up

and India at the same time banned the export of wheat and non-basmati rice to avoid the inflationary volatility in food items. Which although proved a prudent policy intervention in avoiding the transmission of global inflationary pressure into Indian economy. These export restrictions remained in place till early 2011 and during the financial year 2011-12, India exported 6.75 million tonnes of rice and around 1 million tonnes of wheat to foreign markets.

- **Agriculture boosting policies:** The agriculture sector of the Indian economy accommodates the large section of population and provides staple foodgrains to the local population. The sustained growth in this sector remains the priority of the government, which largely are imparted through input and output subsidies, investment and enhanced extension. From 1995-96 the aggregate subsidies which include food, fertilizer, power and irrigation increased from 7.8 per cent to 15.1 per cent in 2009-10 and during the 2007-08 rising prices of food items across world the food and fertilizer subsidies peaked to 74.3 per cent in 2008-09, all this was done to boost domestic production and sustain the supply of foodgrains in domestic markets in order to shun the food inflation.
- **Procurement, stocking and marketing policies:** The procurement of foodgrains from the farmers ascertains the demand of their produce even at the times of buffer stock. The responsibility to procure the grains from the farmers lies on the Food Corporation of India (FCI), which procures the grains from the farmer at the government fixed rates. The procurement levels have witnessed an unprecedented increase from 11.2 million tonnes to wheat and rice in 1980-81 to 56.5 million tonnes in 2010-11, and in June 2012 the grains stock reached a record high of 82 million tonnes. However, managing the stocks of abundant foodgrains incur huge financial burden to the government and there have been reports of grain damage due to improper handling and inadequate storage facilities. In a fairly move government have directed the states to lift the restrictions on the movement of certain fruits and vegetables in

order to reduce the wastage but still the foodgrains which form the staple diets are continue to be the mainstay of food security in India.



CHECK YOUR PROGRESS

Q 1: What are the major commodities distributed under PDS ?

.....

.....

Q 2: State whether True (T) or False (F):

TPDS targets only poor families in remote areas (T/F)

.....

.....

Q 3: Fill in the blanks

……..works as a safety net for the farmers, it ensures the price and market for their produce

14.4 FOOD SUBSIDIES

Food as well as other subsidies plays a vital role in the process of fighting poverty and food insecurity in India. Government with the help of providing subsidies to both consumers and producers, on one side maintain the balance between supply and demand and on the other side encourage the production of foodgrains and food security in the country. The major shares of subsidies which boosts the growth of agriculture and helps in tackling the problem of food insecurity goes to grains, fertilizer, irrigation and power (Producers subsidy). However, when we compare the percentage of subsidies to agriculture sector across different countries, India falls far behind than many developed and developing countries. The following table provides a brief comparison of subsides to agriculture sector across different countries-

Table 14.1 Comparison of Subsidies to Agriculture Sector in Different Countries

Country	Subsidy per hectare	subsidies in %	Population depend on agriculture
EEC	$82	37%	8%
USA	$32	26%	5%
Japan	$35	72%	4%
China	$30	34%	24%
South Africa	$24	60.67%	18%
India	$14	2.33%	60%

Source: *Salunkhe H.A & Deshmush B. B (2012)*

Table 1 reveals that though majority of population in India depend on agriculture sector but the country spends relatively little percentage of subsidies on agricultural sector than other developing countries. However, India spends a huge amount of subsidy on consumers i.e., on food which covers 75% of population in rural areas and 50% in urban areas (NFSA, 2013). Under food subsidy FCI receives the subsidy for procuring and storage purposes however, the states would also receive the share of subsidies if they choose to undertake the operations of procurement, storage and distribution on behalf of FCI and the share of food subsidy also goes for sugar which the Antyodaya Anna Yojana category is entitled monthly one kg. The expenditure on food subsidy in India increased from Rs 63,844 crore in 2010-11 to Rs 1,39,419 crore in 2015-16. Table 2 provides the scenario of food subsidy in India over the years.

Table 14.2: Expenditure on food subsidy during the period 2010-11 to 2020-21 (in Rs crore)

Year	Food subsidy	% increase over the previous year	% of allocation utilised
2010-11	63,844	9%	115%
2011-12	72,822	14%	120%
2012-13	85,000	17%	113%
2013-14	92,000	8%	102%
2014-15	1,17,671	28%	102%

2015-16	1,39,419	18%	112%
2016-17	1,10,173	- 21%	82%
2017-18	1,00,282	- 9%	69%
2018-19	1,01,327	1%	60%
2019-20	1,08,688	7%	59%
2020-21	1,15,570	6%	-

Source: *Demand for Grants 2020-2021 Analysis: Food and Public Distribution (PRS) Give proper source asking the writer*

Note: Figures for the years 2019-20 and 2020-21 are estimates.

Table14.3: Break-up of food subsidy (in Rs crore)

Subsidy	2018-19 Actuals	2019-20 Revised	2020-21 Budgeted	% change in 2020-21 over 2019-20
Subsidy to FCI	70,098	75,000	77,983	4.0%
Subsidy to states (decentralised procurement)	31,029	33,508	37,337	11.4%
Sugar subsidy	200	180	250	38.9%
Total	**1,01,327**	**1,08,688**	**1,15,570**	**6.3%**

Source: *Demand For Grants 2020-2021 Analysis: Food and Public Distribution (PRS) Give proper source asking the writer*

It can be observed from Table 2 that there has been persistent increase in the percentage of subsidy between 2010 and 2015 but since 2016-17, spending on food subsidy has comparatively decreased and one of the reasons for this was that a major part of the funds allocated for subsidy remained unspent. Table 3 shows that the major proportion of food subsidy goes to Food Corporation of India (FCI).

14.5 FOOD SAFETY NETS AND FOOD FOR WORK PROGRAMME

Although India has a bequest of social safety net programmes to improve the socio-economic conditions of poor and vulnerable section of the population, it has been observed that these programmes have not been fully successful in improving the socio-economic and health

outcomes. There have been a lot of criticism on the functioning, design, targeting and corruption in social safety net programmes and India has been struggling to reform these programmes to improve its functioning. The safety net programmes are designed with three main objectives, protection, insurance and poverty alleviation but the current safety net programmes do not seriously address the health risk. The five main programmes which provide appearance to the social security in India include, PDS, Integrated Child Development Scheme, Mahatma Ghandhi National Rural Employment Guarantee Scheme, Mid-Day-Meal Scheme and Pension for widows and elderly. An overview of these major programmes are presented in Table 4 below-

Table 14.4: Description of major safety net programmes in India

	Targeted population	Nature of the program	Objectives
PDS	Poor	In-kind food transfers	Hunger reduction
ICDS	Children and mothers	Supplemental food assistance	Nutritional assistance
MDMS	School going children	Hot cooked meals	Classroom hunger mitigation
MGNREGS	Universal rural population	Public works program	Rural livelihoods
Pensions	Widows and elderly	Income transfer	Poverty among elderly
RSBY	Poor	Health insurance	Safeguard against health shocks induced poverty

Source: *Reimagining Safety Net Programs (Pingali P et al, 2019)*

- **Give proper source asking the writer :**

  The main concern in India regarding the safety nets is grappling with the debates like, should the scheme be universally applicable or targeted towards poor?, should it be in the form of in-kind transfer or direct cash transfers?, should these schemes be replaced with an unconditional universal basic income?. One can categorise the safety nets into food safety nets and non food safety nets, and under food based safety net programmes safety of life is provided through , PDS, ICDS and MDMS and all these programmes are aimed at providding the nutritional improvement and food security to the under privileged section of the population. However, the major concern with these programmes are identification of the beneficiary, design or implementation and India has failed abysmally in targeting when it comes to the welfare programs. The recent estimates of 2017-18, Economic Survey reported that targeting errors continuously prevail in welfare programmes in India (Government of India, 2018). Only 28% in the bottom 40% of the households have an access to PDS, while 36% of the benefits accrue to the non-poor (Table 5). The major criticisms on ICDS were made for poor design and implementation and for MDMS which was designed to address the issue of children development and maternal nutrition supplement were heavily criticised for poor infrastructure and issues with maintaining hygiene.

Table14.5: Targeting of PDS and MGNREGS (in %)

	PDS	**MGNREGA**
Non-beneficiaries	40	65
Among the beneficiaries		
Leakages	36	20
Benefits to non-poor	36	43
Benefits to the bottom 40%	28	37

Source: *Economic Survey 2017–18*

Under non-food based safety net, MGNREGS provides the basic architecture to social welfare regime in India. Before MGNREGS there was the National Food for Work Programme (NFWP), which was launched

of bamboo in India. Besides these, pulses, potatoes, jute oilseeds, cotton are also produced in the state of Assam. Along with rice, maize, ginger and oilseeds are produced in Arunachal Pradesh. In Nagaland, sugarcane and potato are the main cash crops. However, Meghalaya is known for its fibre crops like cotton, jute and mesta. In Garo Hills of Meghalaya, cotton is produced more. Similarly jute and various fruits like jackfruit, orange pineapple and mangoes are the main cash crops which are grown in the state of Tripura. In Lunglei town of Mizoram state, coffee and rubber are produced to some extent. Spice crops like bird's eye chilli, ginger, turmeric, etc. are the mainly cultivated spice crops of Mizoram state. In Manipur, vegetables like cabbage, pumpkins, peas, gourds are produced more. In the slope of the low hills and hillocks of Manipur, pineapples are cultivated which is the main cash crop of the state. Sikkim has become the first organic cash crop producing state of the North East region and these crops have a large demand in domestic as well as in international markets. Sikkim produces orange, large cardamom, pepper, baby corn, buckwheat, Ginger, turmeric, etc. organically.

15.2.1 Characteristics of Agricultural Sector of North East Region

The main characteristics of agricultural sector of North East region are-

- Almost 70% people of north east India depend on the agricultural sector directly or indirectly.
- The land man ratio of the North East region is not sufficient because of high growth rate of population, lack of cultivated land, etc.
- The North East region practices the shifting cultivation which is popularly known as jhum cultivation.
- Rice is the main staple crop in all the states of North East India.
- Agricultural sector contributes 19% to 37% to different states in their State Domestic Product (SDP).

15.2.2 Importance Of Agricultural Sector In North East Region

Agriculture is considered the backbone and engine of the North East region. As a source of livelihood, employment and as a source of raw material for different sectors of an economy, agriculture has great importance in North East India. This can be discussed with the help of the following points

- **Source of Livelihood:** In each and every state of North East India, more than 70% people occupy their livelihood from the agricultural sector. Agriculture is regarded as one of the most important employers of the labour force of the North East region.
- **Supply of Raw Material:** Agriculture sectors plays a crucial role for industrial growth and expansion as it is the source of many raw materials for a number of industries. For example, the textile industries of the North East region are basically based on agricultural crops such as cotton.
- **Supplier of Food and Shelter:** Without food both human and animal cannot survive even a single day. Most of the food of human beings comes from the agricultural sector. Similarly, herbivorous animals live on agricultural products. Moreover, the people of North East India build their houses by using various agricultural products such as bamboo, hay, wood, etc. So in North East India, agriculture acts as a supplier of food and fodder.
- **Source of Employment:** Agriculture plays an important role as a source of employment in the North East region. Moreover due to Agricultural Development people find jobs in irrigation construction process, drainage system as well as in building farmhouses. So agriculture becomes a source of employment in the North East region.
- **Provision for New Industries:** More or less, industries of the North East region depend on its agricultural sector. Many industries collect their raw materials from the agricultural sector. The development of the Agricultural sector provides raw

material at lower price. This provides incentives to establish new agro based industries. This will help in industrial development or in the process of industrialisation.

- **Increase Trade Relation:** North East region's exportable products basically come from the agricultural sector. For example, tea and bamboo are the main exportable products of Assam. Similarly, Sikkim exports organic buckwheat, turmeric, large cardamom etc. to many other countries. Therefore, agricultural development leads to agricultural commercialisation which again helps in enhancing trade relationships among countries.
- **Source of Foreign Exchange:** Agriculture plays a vital role in earning foreign exchange reserves in northeast India. Nowadays, due to agricultural development all the North East states can increase their amount of export to a some extent. Therefore, export of agricultural products can provide capital inflow to the North East region of Indian economy.
- **Boost Food Security:** Food security can be obtained by the practice of agricultural activity in any economy. High yielding or higher productivity agricultural sectors can ensure food security in the North East region also. So in North East India, agriculture is very important to attain food security in an efficient manner.
- **Contribution to SDP:** Statistical data reveals that the agricultural sector contributes a lot to the GDP in India. Similarly, in North East states also, the agricultural sector contributes approximately 19% to 37% in their SDP.
- **Economic Development:** In northeast India, agriculture plays a crucial role in economic development. As a source of food, shelter, employment, foreign exchange, etc. agriculture has become more important for the economic development of the Northeast region of Indian economy. Without the development of the agricultural sector, this region cannot pave the way for economic development.



CHECK YOUR PROGRESS

Q 1: What are the main features of the agricultural sector in the North East region? (Answer in about 40 words)

.....

.....

.....

.....

Q 2: Which is the 100% organic state of North East India?

.....

.....

15.3 STATUS OF AGRICULTURAL DEVELOPMENT IN NORTH EAST REGION

15.3.1 Overview of North East India

To improve a sector, first of all we have to analyse what is the rate of growth of that sector. To understand the development process of agricultural sector in North East region, we have to study statistics data. For this purpose we shall refer to the following tables-

Table 15.1

States	1990-91			2000-01			2010-11				
	Area (Lakh ha.)	Prod (lakh MT)	Yield (Kg/ ha)	Area (Lakh ha.)	Prod (lakh MT)	Yield (Kg/ha)	Area (Lakh ha.)	Prod (lakh MT)	Yield (Kg/ ha)	% increase/ decrease of production in 2000-01 over 1990-91	% increase/ decrease of production in 2010-11 over 2000-01
Arunachal	1.83	2.14	1173	1.84	2.03	1103	2.01	3.33	1663	-5.14	55
Assam	27.19	34.42	1226	28.88	41.67	1443	27.67	48.76	1763	21.06	17.04
Manipur	1.62	2.85	1763	1.64	3.78	2305	2.64	5.92	2244	32.63	49.75
Meghalaya	1.33	1.53	1147	1.31	2.03	1550	1.32	2.39	1802	32.68	10.64
Mizoram	0.59	0.77	1296	0.61	1.24	2033	0.53	0.66	1246	61.04	-47
Nagaland	1.70	1.97	1161	2.11	2.77	1313	2.98	5.68	1902	40.61	76.10
Sikkim	0.81	1.06	13.13	0.76	1.03	1355	0.76	1.10	1447	30.86	6.87
Tripura	2.89	5.15	1783	2.54	5.23	2059	2.75	7.12	2587	1.55	36.1
NER	37.14	48.83	1315	39.69	59.78	1506	40.67	74.99	1832	22.42	23.62

Source: *(www.researchgate.net)*

In the table, it is seen that the amount of production has increased in almost all the Northeast states during the period 1990-91 to 2010-11 except Arunachal Pradesh. However, the production levels showed an increasing rate in 2010-11 over 2000-01. Compared to 2001, in 2010 the area of performance has increased a little bit in some states. Probably that is the reason why the production level increased in the year 2010-11. But unfortunately the table reveals an opposite situation as in Assam and Mizoram, the amount of area has decreased in 2010-11 compared to the period 2000-01. The practices of a joint family system, increasing rate of urbanisation may reduce the area of performance in these two states. Though all the Northeast States have shown increasing growth rates, the growth rate is very low compared to other regions of the economy. This may happen due to lack of use of modern techniques, investible funds, proper credit and marketing system, etc.

Table 15.2

	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura
Share of Agriculture* in SDP (%)	31.2	37.5	27.1	32.0	18.9	32.5	24.7
Rural poverty (%)	33.5	36.0	28.5	33.9	19.5	32.7	34.4
Cultivated area (%)	2	35	6	10	4	13	27
Annual compound growth rate (%, 1993-2003)							
SDP	2.4	2.3	6.2	7.1	NA	7.5	10.0
Agriculture	1.3	0.4	3.5	6.0	NA	14.4	4.4
Population	2.01	1.44	2.15	2.66	NA	5.22	1.10
Per capita income	1.3	1.5	3.1	4.0	NA	1.9	7.9
Total cropped area ('000 ha)	239	3860	347	174	116	216	303

* *include crops, livesstock, fisheries, forestry and mining, Source : www.mospi.nic.in, NA* : not available

The share of agriculture in the State Domestic Product is higher in Assam, Nagaland, Arunachal Pradesh as compared to other North East states. More or less, this sector contributes to SDP in all the states of the North East in spite of having so many problems. So, we cannot ignore the role of the agricultural sector in economic development. Proper steps should be taken to identify and solve the problems of the sector to increase the rate of economic development in the North East region.

15.4 PROBLEMS AND CHALLENGES FACED BY THE AGRICULTURAL SECTOR IN NORTH EAST REGION

The North East region has potential for tremendous agricultural growth as it has fertile soil, agriculture friendly climate, sufficient amount of water and other natural resources. But it has not been able to grow at an efficient rate. This is because, the agricultural sector of North East region faces various problems and challenges which are explained below-

- **Overcrowding in Agricultural Sector :** Northeast agricultural sector is very much overcrowded. Due to improper improvement of industrial and service sector as well as the high growth rate of population, the agricultural sector is overcrowded in northeast India. Hence, the agricultural growth rate is very low in Northeast region.
- **Inefficient Land-Man Ratio:** Northeast India had a large population growth rate during the period 1951 to 2011 creating a pressure on land. For example almost 81% of Meghalaya's population are agrarian but individual land holding everising half an acre only. This brings adverse effect on agricultural sector. Therefore, insufficient land labour ratio creates hurdale in the agricultural development of North East region.
- **Lack of Modern Technology:** The farmers in northeast India has been adopting traditional, inefficient technique of cultivation. They do not use modern technology such as use of HYV seed, proper irrigation system, proper use of fertiliser, ect. which can increase productivity.
- **Lack of Productive Investment:** Another problem of agricultural growth in northeast India is the lack of productive investment in agricultural sector in northeast. Due to less investment agricultural sector can not earn sufficient income.
- **Lack of Adequate Finance:** Northeast agriculture still remains backward due to its inadequate financial provision. They still depends much on the village money lenders who do not encourage the farmers to cultivate more. Moreover there is a lack of a proper Credit System

as well as proper insurance system for damages in the North East region. Therefore the growth rate is very low in this region.

- **Regional Disparities:** The Green Revolution process creates regional disparities in Indian agricultural sector as it grows inter and intra regional disparity in the development process. Only a few states are benefited from the Green Revolution Technology. States like Punjab, Haryana, Uttar Pradesh are benefited from this technology. But this technology did not touch much the Northeast states like Assam Meghalaya, Tripura, etc.
- **Lack of Proper Marketing System:** Agricultural marketing refers to those activities which are mainly related with proper grading, storing, transporting and selling system of agricultural products. There is a lack of proper agricultural marketing system in the Northeast region. Because of this, farmers cannot sell their agricultural product at fair and reasonable price. Moreover, they cannot sell their surplus product at a fair price due to lack of proper storage and transport facilities.
- **Adverse Effect of Shifting Cultivation:** Shifting cultivation is one of the main economic activities of the tribal people of the Northeast India. This cultivation which is also known as jhum cultivation is an agricultural practice adopted in the hilly areas where the trees and plants are cut and burnt down first to clear the area. But due to jhum cultivation, the amount of fertility of soil has reduced and soil erosion and landslide has increased. Because of this also, the amount of cultivated land has been decreasing gradually in Northeast region.
- **Natural Factors:** Another problem of agricultural growth in Northeast region is the problem of natural calamities. Landslide, earthquake, etc. creates destruction on the agricultural sector of North East region.
- **Improper Implementation of Various Schemes and Policies:** The schemes and policies which are launched for the development of the agricultural sector of North East region are not implemented properly. Therefore, they can not achieve their targeted goals. Moreover most of the policies have not touched the Northeast region yet.

15.5 AGRICULTURAL POLICIES IN NORTH EAST REGION

Since agriculture is the backbone as well as the engine of North East economy, the government has shown awareness of the problems of its agricultural sector and suggested various schemes and measures to improve the situation. Some of the main policy measures adopted under the various plans can be briefly mentioned as:

- **Rashtriya Krishi Vikas Yojana (RKVY):** Rashtriya Krishi Vikas Yojana was launched during the eleventh five year planning system in 2007. This was implemented during the eleventh and twelfth plan. Later on Cabinet Committee on Economic Affairs agreed the continuation of this scheme for the period 2017-2018 to 2019-2020 (now for 2021 to 2022) and now renamed it as Rashtriya Krishi Vikas Yojana - Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFAAR). As an umbrella scheme it mainly focus on the development of Agricultural sector as well as the allied sector of the economy. This scheme allows all the states to choose their own important agriculture and allied sector development activities according to their agricultural plan. This is a central government assistance scheme first hour since 2015 to 2016 the funding has changed in the ratio of 60:40 between central and state government. This scheme was implemented in all the states of Northeast India. But the funding system of this policy in northeast states is 90:10 by the central and state government respectively.
- **Pradhan Mantri Fasal Bima Yojana (PMFBY) :** Combining two schemes namely National Agricultural Insurance Scheme (NAIS) and Modified National Agricultural Insurance Scheme (MNAIS), Ministry of Agriculture and Farmer's Welfare, launched Pradhan Mantri Fasal Bima Yojana on 18th February, 2016 by Prime Minister Narendra Modi. This scheme mainly tries to increase the yield or productivity of agricultural products of the farmers by reducing the premium burden of insurance. Thus, the main objective of the scheme is to ensure

financial help to the farmers who are suffering crop loss due to unforeseen factors. It covers oilseeds, food crops, horticultural crops, etc. Under the new scheme, the farmers' premium has been kept at a maximum of 2% of food grains as well as of oilseeds and up to 5% for horticulture and cotton crops. It is important to mention here that this scheme covers only Assam, Meghalaya, Tripura and Sikkim. Other 4 North East states viz Arunachal Pradesh, Nagaland, Manipur and Mizoram are not covered yet.

- **Mission Organic Value Chain Development For North Eastern Region (MOVCDNER):** During the 12 plan period, Mission Organic Value Chain Development For North Eastern Region (MOVCDNER) was launched by the Ministry of Agriculture and Farmer's Welfare, Government of India in 2015. This is a sub scheme of the National Mission for Sustainable Agriculture. This was a centrally sponsored scheme. Based on the quality of soil, climatic situation of Northeast region; the ministry realises the importance of organic farming in Northeast region and launched this scheme. The main objective of the scheme was to developed an organic production system with a value chain mode for sustainable development to link growers with consumers of agricultural products. Ensure safe and healthy food is the prime motive of this scheme. The demand for organic farming is more in North East region because of its rain fed hilly areas, fertile soil, favourable climate, etc. That is why, it is implemented in all the states of North East.
- **Paramparagat Krishi Vikas Yojana(PKVY) :** An extended version of Soil Health Management Scheme, Paramparagat Krishi Vikas Yojana was launched in 2015. This is a centrally sponsored scheme where funding ratio between central and state is 60:40. In case of Northeast States, the ratio is 90:10 by the central and state government respectively. The main aim of this scheme is to maximise the utilisation of natural resources by adopting eco-friendly cultivation process to keep the soil alive and healthy. Produced agricultural product free from pesticides, chemicals and by using organic wastages and other

biological materials with beneficial microbes in an eco friendly environment, is the main objective of this scheme. So this policy focuses on organic farming in the rural areas.

- **Other Schemes:** Along with the above mentioned schemes, some other schemes have also launched by the govt. of India to develop the agricultural sector of North East region. Some of them are Kisan Credit Card, MUDRA Bank, Pradhan Mantri Kisan Samman Nidhi, etc. State govt. of North East region also introduced some important schemes for the development of their agricultural sector. For example, in Arunachal Pradesh CM launched Chief Minister's Sashakt Kisan Yojana (CMSKY) and Chief Minister's Krishi Samuh Yojana (CMKSY). Assam govt also announced various schemes such as - Assam Farmers' Credit Subsidy Scheme (AFCSS), Assam Farmers' Interest Relief Scheme (AFIRS), Assam Farmers' Incentive Scheme (AFIS), etc.

15.5.1 Suggestions

For the betterment of the agricultural sector of North East region of Indian Economy, following suggestions can be made-

- Agricultural sector should be modernised.
- Working conditions should be improved by educating or training farmers so that they feel motived to do improvement.
- Credit should be given at cheaper rates of interest on easy terms of payment to the farmers.
- Steps should be undertaken for proper training for improving the skill of farm labourers.
- Initiative should be taken for improving proper irrigation system in the region.
- Alternative agricultural practices should be implemented instead of shifting cultivation or jhum cultivation as this system has many more adverse effects.



CHECK YOUR PROGRESS

Q 3: What do you mean by Jhum cultivation? (Answer in about 20-30 words)

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Q 4: What is the main aim of the Rashtriya Krishi Vikas Yojana ? (Answer in about 20 words)

.....

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Q 5: What is the full form of MOVCDNER? (Answer in about 20 words)

.....

.....



15.6 LET US SUM UP

- As a primary sector, agriculture plays an important role in the North East region's economy. According to the 2011 census, almost 70% of the region's population earn their livelihood from the agricultural sector. This sector provides food, shelter, employment opportunities in the economy.
- No doubt, the agricultural sector of North East region has developed to some entent but it has tailed to grow at an efficient rate and therefore unable to provide prosperity to its people in spite of having potential.
- Agriculture is the backbone of NE region because of its importance. It is important because -
  - ➢ It supplies food and fodder.
  - ➢ It supplies raw materials to the industries.
  - ➢ It helps in earning foreign exchange reserve.
  - ➢ It provides employment opportunities.
  - ➢ It contributes in the SDP.

- It helps in the economic development of the region.

- In spite of having favourable conditions, the agricultural sector of North East region faces various problems and challenges such as-
  - Lack of modern technology.
  - Lack of productive investment.
  - Insufficient land-man ratio.
  - Lack of proper marking facilities.
  - Lack of proper credit facilities.
  - Natural disasters.
- Indian and state governments have adopted some policy measures under various five years planning period. Some of them are-
  - Rashtriya Krishi Vikas Yojana - Remunerative Approaches for Agriculture and Allied Sector Rejuvenation (RKVY-RAFAAR).
  - Pradhan Mantri Fasal Bima Yojana (PMFBY)
  - Mission Organic Value Chain Development For North Eastern Region (MOVCDNER)
  - Paramparagat Krishi Vikas Yojana (PKVY).



15.7 FURTHER READING

1) Dhar, P. K.(2020). *Indian Economy- Its Growing Dimension*. Kalyani Publisher

2) Puri ,V. K., & Misra, S. K. (2016) *Indian Economy (34th ed)*. Himalayan Publishing House.

3) Barah ,B. C. (2007). *Agricultural Development in North East India-Challenges and Opportunities*. (www.ncap.res.in)

4) Pal,B. N. (1959). *Principles of Agricultural Economics*. Kitab Ghar, Allahabad



15.8 ANSWERS TO CHECK YOUR PROGRESS

Ans to Q No 1: The main features of agricultural sector of North East region

are

- Almost 70% people of north east India depend on the agricultural sector directly or indirectly.
- The land man ratio of the North East region is not sufficient because of high growth rate of population, lack of cultivated land etc.

Ans to Q No 2: Sikkim is the 100% organic state of North East India.

Ans to Q No 3: Jhum cultivation is an agricultural practice adopted in the hill areas where the trees and plants are cut and burnt down first to clear the area and then produce various products.

Ans to Q No 4: The main aim of the Rashtriya Krishi Vikas Yojana is the development of agricultural sector as well as the allied sector of the economy.

Ans to Q No 5: The full form of MOVCDNER is Mission Organic Value Chain Development For North Eastern Region.



15.9 MODEL QUESTIONS

Q 1: Why is agricultural sector important for the economic development of the North East region ?

Q 2: Explain the problems of agricultural sector of North East India.

Q 3: Write a short note on:

- Pradhan Mantri Fasal Bima Yojana
- Shifting Cultivation

Q 4: Give some suggestions to improve the situation of agricultural activities of North East region.

Q 5: Discuss the policy measures which are taken by the goverment of India to improve the North East region's agricultural sector.

*** ***** ***

Name of the Paper: Course Code:

Centre for Internal Quality Assurance (CIQA)
Krishna Kanta Handiqui State Open University
City Office, Housefed Complex, Guwahati- 06

Learner's Feedback on Course

Dear Learner,

Regarding the course as mentioned above, we would like to know your opinions and comments so as to improve the quality of self learning materials in future. Please respond to the following statements by ticking the number you feel most reflect your opinion. After completion of the additional comments, please detach the page and send/mail the same to us at the address given below.

The Director, Centre for Internal Quality Assurance, KKHandiqui State Open University
Housefed Complex, Dispur, Guwahati- 781006
(E-mail id: ciqa@kkhsou.in)

1. Approximately how many hours did you spend for studying the units in the course?
2. Please give your opinions (by √ mark) to the following items based on your reading of the block:

Sl. No.	Statements	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
I.	The SLMs of the course fulfil the learning objectives set out in the beginning of each unit					
II.	The units of the SLM could satisfy my academic needs and expectations					
III.	The Unit writers have excellent knowledge about the course contents					
IV.	Language and contents of the units were presented at a level which I could readily understand					
V.	Ample opportunity for participation in the activities provided in the units					
VI.	Used enough Illustrations (Diagrams, tables etc.) for conceptual clarity					
VII.	Quality of content is engaging, relevant, and up-to-date					
VIII.	The self check questions are very helpful					
IX.	The Possible/model questions and the answers to check my progress have benefited me a lot					

Additional Comments: *(Please feel free to provide your open comments)*

1. Which aspects of the SLM, according to you, worked well?

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2. What sort of changes/improvements do you feel KKHSOU could implement to improve the overall quality of the SLM?

Thank you for taking the time to complete this form.

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