

# INTERDEPENDENCE OF AGRICULTURE AND INDUSTRY

## 28.1 INTRODUCTION

Industry and agriculture are the lifeline of an economy. Agriculture meets people's demand for food. Industry meets people's demand for other goods like clothes, houses, electricity, shoes, books, transport vehicles etc. Both food and non-food items are essential for living of human beings. As such both industry and agriculture are must for any society. Industry and agriculture are complementary as far as satisfaction of wants of people are concerned. Both must grow simultaneously. Industry alone cannot progress without progress of agriculture. Similarly, agriculture cannot progress without progress of industry. They are dependent on each other in respect of demand and supply. The population engaged in agriculture needs industrial products. The population engaged in industry needs agricultural products. Agricultural production needs producers goods from industry. Industrial production needs raw materials produced by the agricultural sector. There is therefore, a clearcut interdependence between agriculture and industry. This lesson aims at elaborating this interdependence.

## 28.2 OBJECTIVES

After going through this lesson you will be able to :

- explain the dependence of industries on agriculture;
  - explain the dependence of agriculture on industries;
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### 28.3 HOW IS INDUSTRY DEPENDENT ON AGRICULTURE?

Agriculture helps industry in the following ways :

#### 1. Industrial sector receives raw materials from the agricultural sector

Agriculture provides raw materials to various industries. In the table 28.1 we have listed some industries and raw materials that are provided to these industries by the agricultural sector.

Table 28.1

	Industry	Raw Materials
1.	Cotton textile	Raw cotton
2.	Oil	Oilseeds, coconut etc.
3.	Sugar	Sugarcane
4.	Jute products	Jute
5.	Tea	Tea leaves
6.	Coffee	Coffee beans
7.	Tyres and tubes	Natural rubber

As more and more enterprises are set up or existing enterprises are expanded, the demand for raw materials increases. This increasing demand can be fulfilled only by increasing agricultural production.

#### 2. Population engaged in agriculture is source of demand for industrial goods

Food is the primary and basic need of all human beings. Once this need for food is fulfilled, we try to satisfy our needs for other goods such as clothes, shoes, houses, cycles, tubewells, tractors, sewing machines, gas stoves, radio, fridge, T.V., washing machines, etc. which are produced by the industrial sector.

About 2/3rd of the Indian population approximately 60 crores is engaged in agriculture and allied activities. These people also need goods other than food. They also need clothes, houses, shoes, furniture, electricity, vehicles, etc. which are all produced by the industrial sector. Imagine how much dependent industrial sector is on agricultural sector for demand of their products. If income of the agricultural population is low, their demand for industrial products will also be low. The growth of industrial sector is therefore linked with the growth of agricultural sector. For industrial sector to grow agricultural sector must grow. For the income of the people engaged in industrial sector to rise the income of those engaged in the agriculture sector must rise.

### 3. Agricultural sector is a source of labour for the industrial sector

When a country is underdeveloped, it is primarily an agricultural economy. As development takes place the comparative need for labour in agriculture declines. It is because of two reasons. First, as incomes rise the demand for food items rises but at a slow rate. Man consumes food in limited quantity. At the most he starts consuming better quality of food. On the whole the demand for food rises at a very slow rate.

Second, per hectare productivity in agriculture increases due to the use of better quality seeds, fertilizers, pesticides, proper irrigation facilities. As a result lesser number of people are now required to produce the same amount of crops from a given piece of land. Consider an example.

Suppose, 10 workers work on a piece of land and use traditional methods of cultivation and equipment such as wooden plough. Further suppose that these workers are given modern machine such as tractor instead of plough. Now instead of 10 only 4-5 people would be required to work on that piece of land. The remaining workers are rendered surplus.

On the other hand as economy develops and incomes increase the demand for industrial goods rises at a faster rate. Industries expand and require more workers. We have seen that in the process of development of agricultural sector the workers are rendered surplus. The expanding need for labour in the industrial sector can be met by the workers spared by the agricultural sector. In this way agricultural sector becomes the source of labour force for the industrial sector.

### 4. Agricultural sector provides food to the population engaged in industrial sector

Agriculture sector satisfies man's basic need which is food. It provides cereals, pulses, vegetables, fruits, spices and beverages etc. The demand of the entire population for food whether they are working in agriculture, industry or the services sectors is fulfilled by agriculture.

The population in the industrial sector is directly dependent on agricultural sector. Any problem in the availability of food in the industrial regions discourages opening of new units in these regions. The worker sensing shortage of food will be discouraged to move to the industrial areas. Thus continuous availability of food items in industrial areas is a pre-condition for industrial development.

### 5. Source of funds for the industrial sector

The people in the rural areas deposit their savings in banks, post offices and other financial institutions in the rural areas. Due to certain limitations the rural population is not able to use these savings for investment in agriculture. These rural funds then find their way to urban industries through banks. In this way rural savings become a source of funds to the industrial sector of the economy. Higher the income of the agricultural sector higher would be their savings and more resources be available for industrial development. Thus the growth of industrial sector is linked with the growth of agricultural sector.

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We have discussed how the growth of industrial sector is dependent on the growth of agricultural sector. But this is not a one-way interdependence. It is a two-way interdependence. The growth of agricultural sector is equally dependent on the growth of the industrial sector. Let us now discuss the ways in which the industries help agriculture to grow.

## **28.4 HOW IS AGRICULTURE DEPENDENT ON INDUSTRY?**

Agriculture is dependent on industries in the following ways :

### **1. The industrial sector provides seeds to agriculture**

Good quality seeds are an essential input in agriculture. Research is going on continuously to develop better quality seeds which have a higher yield, which are resistant to pests and plant diseases and are suited to the local conditions i.e. they are suitable for the type of soil and weather conditions for different areas. What is required for this research? It requires laboratories with sophisticated instruments, airconditioned facilities and many other things. It is evident that the agricultural development depends on industrial sector.

It is the industrial sector which develops new technology and designs and produces the equipment and instruments that are necessary to carry out this research. In this way industrial sector helps in increasing agricultural production.

### **2. It provides fertilizers**

Traditionally, Indian farmers have been using manure (made from plants and animal waste) to make the soil fertile. The ingredients of the manure were available from agricultural sector itself. In agricultural production a need was felt to develop some better alternative to manure. The alternative was found in chemical fertilizers. The fertilizers make up the deficiency of nutrients used up in the growing crops. The demand for these fertilizers is met by the chemical industry. The use of fertilizers in agriculture has significantly raised agricultural productivity in India. The agricultural sector owes the rise in productivity to the industrial sector.

### **3. Industries produce equipment and instruments needed for irrigation**

Without water, no crops can be grown. The main source of irrigation in our country is rainfall. 70% of the total cultivated land in India is dependent on the monsoon for irrigation. But the rains are not a reliable source of irrigation due to two reasons. The first reason relates to the quantity of rainfall. The rain is controlled by the nature and not man. Sometimes, there is either no rainfall or inadequate rainfall. This leads to sharp decline in agricultural output. On the other hand sometimes there is excessive watering of crops damaging them. The second reason relates to the timing of the rainfall. It may not rain when irrigation is required. If there is no rain at the right time, the crops may get damaged. Therefore it is extremely necessary to expand alternative sources of irrigation in the country.

To provide irrigation facilities, there is a need to build or construct tanks, wells, canals, dams, storage reservoirs, tubewells, handpumps and pumpsets, etc. The basic materials required for construction are bricks, cement, iron. Where do these come from? These are manufactured by the industrial sector. Also the machines such as pumpsets etc., are produced by the industrial sector. It also generates electricity which runs machines and produces tools required for their servicing.

Imagine a situation where there is no industrial sector - there would be no production of any metals or any other construction materials such as bricks or cement, no electricity, no machines and tools. As a result the agriculture sector would have to depend on rainfall for irrigation. The development of any alternative irrigation facilities would be impossible.

#### **4. It provides pesticides**

5-10% of our agricultural produce is destroyed by pests and other plant diseases. To save crops from pests and diseases we need various types of pesticides. The research to develop proper pesticides which are not harmful to the plants or human beings is undertaken by industrial sector. The production of pesticides is a gift of industries to the agricultural sector. It had raised agricultural production.

#### **5. It provides modern equipment**

Traditionally, the Indian farmers used to use methods of cultivation involving the use of wooden ploughs, hand tools, bullocks and bullock carts etc. This kept the productivity in Indian agriculture very low. The industry now provides alternative mechanical tools and equipment. New developments in the industrial sector have provided modern types of machines to agriculture such as tractors etc. This has reduced the need for manpower in agriculture and on the other hand raised significantly the agricultural productivity.

#### **6. It provides materials for building infrastructure needed for agricultural marketing and storage**

It is the industrial sector which supplies necessary materials, equipment and technology for building pucca roads. Durable roads are necessary to enable the farmers to take their produce to the markets in time. Industry also helps build storage and warehousing facilities so that farmers can store their produce till they get a fair market price. Now they do not have to immediately sell off their crops for fear of damage. The storage facility has helped the farmers to get a fair price of their produce.

#### **7. It supplies manufactured goods to the population engaged in agricultural sector**

Apart from food, people need many other goods such as clothes, houses, transport vehicles, electricity, T.V., fridge, washing machine, etc. All these goods are produced by the industrial sector. The people engaged in agricultural sector also need these goods. The industrial sector fulfils the need for all these commodities of these people.

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### 8. Source of funds to the agricultural sector

The rate of saving of the people engaged in the industrial sector is generally high as compared to those in the agricultural sector. The people in the industrial sector are now habituated to deposit their savings in banks and other financial institutions. At present there are a large number of branches of nationalised banks in the rural sector. These banks give priority in sanction of loans to the agricultural sector. The agricultural sector generally lacks funds due to low rate of saving. The fund collected in the industrial areas can conveniently be used for giving loans in rural areas. In this way industrial sector is a source of funds for the agricultural sector.

### POINTS TO REMEMBER

Agriculture helps industries in the following ways :

- It provides raw materials for industries.
- It provides a market for manufactured goods.
- It provides labour.
- It provides food for workers working in industries.
- It can be a source of funds for the industrial sector.

Industries help agriculture in the following ways :

- They provide seeds of better quality.
- They provide fertilizers.
- They help in developing irrigation facilities.
- They provide pesticides.
- They supply modern equipment such as tractors.
- They help in the development of marketing and storage facilities.
- They supply manufactured goods to workers in the agriculture sector.
- They are a potential source of funds for the agricultural sector.

### INTEXT QUESTIONS 28.1

Fill in the blanks from the words given in the bracket :

(manure, food, 70%, 66%, natural rubber, fertilizers)

- (i) \_\_\_\_\_ is the raw material provided by agriculture to the tyre industry.
- (ii) \_\_\_\_\_ is the primary need of all human beings.
- (iii) \_\_\_\_\_ of the population in India is engaged in agricultural sector.
- (iv) Traditionally, Indian farmers have been using \_\_\_\_\_ as fertilizer.
- (v) \_\_\_\_\_ % of the total cultivated land is dependent on the monsoon for irrigation.

### **WHAT YOU HAVE LEARNT**

- Agriculture and industries are interdependent i.e. they depend on each other. In other words, they both help each other and without one, the other cannot develop.
- Agriculture helps various industries by providing them raw materials, labour, a market for their goods and also food for workers in the industrial sector. It can also be a source of funds for the industrial sector.
- In turn industries help the agricultural sector by developing and providing better quality seeds, fertilizers, pesticides helping in the development of irrigation and marketing and storage facilities and fulfilling the demands of the people in agriculture for manufactured goods. It can also be a source of funds for the agricultural sector.

### **TERMINAL EXERCISE**

1. How do industries depend on the agricultural sector?
2. What are the ways in which industries help in the development of agriculture?
3. Write short notes on :
  - (i) Raw materials provided by agriculture to industries.
  - (ii) How do industries help in irrigation?

## ANSWERS

### INTEXT QUESTIONS 28.1

- (i) natural rubber (ii) food (iii) 66% (iv) manure (v) 70%

### TERMINAL EXERCISE

1.
    - (i) Receives raw materials from agricultural sector.
    - (ii) Population engaged in agriculture is source of demand for industrial goods.
    - (iii) Source of labour.
    - (iv) Source of food.
    - (v) Source of funds.

(Read section 28.3)
  2.
    - (i) Provide better quality seeds.
    - (ii) Provide fertilizers.
    - (iii) Produce equipment for irrigation.
    - (iv) Provide pesticides.
    - (v) Provide modern equipment.
    - (vi) Provide materials for agriculture, marketing and storage facilities.
    - (vii) Supplies manufactured goods.
    - (viii) Source of funds.

(Read section 28.4)
  3.
    - (i) Read section 28.3
    - (ii) Read section 28.4
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