BLOCK 2
AGRICULTURAL SECTOR

BLOCK 2 AGRICULTURAL SECTOR

Block 2 of this course is on 'Agricultural Sector' in India. It deals with four broad areas viz. (i) Performance of Agricultural Sector, (ii) Agrarian Relations and Market Linkages, (iii) Capital Formation and Productivity and (iv) Agricultural Policy. The four areas are distributed over Units 5 to 8.

Unit 5 is on '**Performance of Agricultural Sector**'. It begins with a brief review of the 'performance in agricultural sector in India' with a thrust on 'post-reform years'. Impact of 'green revolution' and the problems of the Indian agricultural sector are explained. The inter-dependence between agriculture and industry is discussed.

Unit 6 is on '**Agrarian Relations and Market Linkages**'. It covers various issues like: (i) changes in agrarian relations over time, (ii) tenancy status and (iii) types of markets. The various 'constraints and linkages' of the different types of markets is explained.

Unit 7 is on '**Capital Formation and Productivity**'. The unit begins with the concepts of productivity like COR and ICOR. Determinants of 'private investment' is then explained. Measures required to increase 'agricultural productivity' is discussed. Critical issues continuing to hinder the growth of agricultural sector are finally outlined.

Unit 8 is on '**Agricultural Policy**'. The unit begins with an outline of the 'objectives of agricultural policy'. Various 'instruments of agricultural policy' are then explained. Recent agricultural policy reforms are also discussed.

UNIT 5 PERFORMANCE OF AGRICULTURAL SECTOR*

Structure

5.0 OBJECTIVES

After reading this unit, you will be able to:

- state the importance of agriculture sector in stimulating the overall economic growth of an economy in general;
- outline the performance of Indian agriculture in terms of its overall growth;
- explain the transformation of Indian agriculture from its traditional to the modern phase during the 1960s to 1990s;
- identify the problems of Indian agriculture which have continued to hamper its performance;
- describe the theoretical rationale for the relationship between agriculture and industries; and
- indicate the inter-dependence of agriculture with industry along with the intricate inter-relationship between the three major sectors of the economy.

5.1 INTRODUCTION

The importance of agriculture sector in the Indian context can be understood from the fact that it continues to be the key for poverty alleviation, employment

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generation and an important source of foreign exchange earnings. Being the main source of employment and livelihood for close to 50 percent of the Indian labour force, agriculture continues to be the backbone of Indian economy. Although the contribution of agricultural sector to total GDP of India is declining over time, it continues to occupy its important place in the economy because of its linkage with the economic activities in the secondary and tertiary sectors of the economy. It also plays an important role in the determination of growth rate of economy as it affects the overall aggregate demand. There is a close linkage between aggregate demand and aggregate output i.e. if agriculture generates more income for rural population, their demand will go up for the products of other sectors and thus contribute to the total demand in the economy going up. There is thus an interdependency between the agriculture, industry and the services sectors, which will ultimately determine the overall GDP growth rate. The importance of agriculture in India can also be gauged from the fact that as per the Census report of 2011, around 68 percent of total population live in rural areas and agriculture is the main source of livelihood for most of them (i.e. for about 62 percent of rural population as per Agricultural Census, 2011). However, the agricultural sector continues to be plagued by innumerable number of problems hampering its growth potential from being realised. This has in turn kept the potentials of the industry and services sectors also stifled from being realised.

5.2 AGRICULTURAL SECTOR IN INDIA

There has been a consistent decline in the share of agricultural sector's GDP of India from the 53 percent in 1951 to about 14 percent in 2014. As a consequence, the share of industries and services sectors has increased from 17 percent to 26 percent and from 30 percent to 60 percent (over the period of 1951 to 2014) respectively. The main reasons behind the decline in the share of agricultural sector in total GDP are: (i) traditional means of cultivation, (ii) dependence on monsoon, (iii) small land holdings, (iv) low productivity, (v) reduced subsidy in the post-reform years of 1990s, (vi) low skill levels of farmers, (vii) inadequate investment in infrastructure necessary for better performance of agricultural sector, (viii) price volatility, etc. Another means of looking at the relative performance of the three different sectors is to consider the growth rates in GDP measured at constant prices. Figures in this respect shows that over the period 1951-2011, the primary sector grew at an annual average of 2.8 percent while the secondary and the tertiary sectors have both grown at an annual average of 6 percent (Sen & Dreze, 2013). Thus, the decline in the share of agricultural sector to GDP is not only due to the slow growth of agricultural sector itself but also due to the relative faster growth of secondary and tertiary sectors.

Although there has been a decline in the share of agriculture to total GDP of India, the production of food has increased by close to 6 times over the period 1951-2018. Specifically, it increased from 51 million tonnes (MT) in

1951 to about 285 MT in 2017-18 (Table 5.1). Production of milk has increased by more than 10 times (from 17 MT to 176 MT) over 1951-2018 and of fish by more than 10 times (from 0.8 MT to 8 MT) over the period 1951-2012. Production of eggs has also increased steeply from about 2 billion in 1951 to 95 billion in 2018. Due to these developments, India has transformed itself from a food importing country to a food self-sufficient country in spite of a huge increase in its population (more than 3 times over the period 1951-2018). The credit for attaining self-sufficiency in food production goes to different phases of the Green revolution in India which started in the mid-1960s. By the early 1970s, India had achieved a huge jump in the production of wheat and rice due to the adoption of High Yielding Variety (HYV) seeds and shift to scientific cultivation from traditional cultivation. The 'operation flood' (production of milk) and Blue Revolution (production of fish) have also contributed in attaining self-sufficiency in production of food in India.

Table 5.1: Increase in Food Production and Population in India:1951-2012

Items/Years	1950-51	1970-71	1990-91	2011-12	2017-18
Food Grains (MT)	51	108	176	259	285
Milk (MT)	17	23	54	127	176
Fruits & Vegetables MT)	-	-	85	221	-
Fish (MT)	0.8	1.8	3.8	8	-
Eggs (billion)	2	8 (1973-74)	21	60	95
Population (millions)	361	548	846	1210	1316

Source: Agricultural Statistics at a Glance, Government of India, different years.

5.2.1 Post-Reform Years

High fiscal deficit was one of the factors which forced the Indian government to forgo the inward looking policies of import substitution and adopt an outward looking policy of export promotion for economic advancement. Reduction in fiscal deficit was one of the conditions imposed by the IMF (International Monetary Fund) while extending the bailout package in the early 1990s. There are mainly three ways through which any government can reduce its fiscal deficit. These are: (a) increase in tax revenue by either levying higher taxes or by bringing more people into the tax net, (b) reduce government expenditure and (c) reduce transfer payment like subsidies. Out of these three measures, the government relied more on squeezing transfer payment by reducing subsidy to agriculture sector as the first two measures were feared to hamper economic growth by reducing the aggregate demand in the economy. There was adverse impact of reduction in subsidy to agriculture since it resulted in increase in cost of production of food grains on

the one hand, and a proportionate increase in the prices of food and non-food items on the other, in the post reform period. In other words, on the one hand there was increase in cost of production, while on the other, the return on agricultural produce became uncertain due to volatility in international price of agricultural products after the globalisation of Indian economy. Thus, the already uncertain situation in the Indian agriculture sector due to its dependence on monsoon was compounded by its exposure to the forces of international price pressures, raising the level of uncertainty faced by the sector further more.

As a result, the growth of agricultural sector witnessed steep decline in the post reform period. The Eleventh Plan (2007-12) reported that the growth of agricultural sector declined from an average of 3.5 percent per year during 1982-97 to 2 percent for the period 1998-2005. This decline was in almost all the states and its effect spilled over to include the allied sectors like fisheries, horticulture and livestock. Although, growth rate of agriculture sector in India between 2004-05 to 2010-11 was 3.5 percent, it was much below the targeted growth rate of 4 percent in most of the five year plans (i.e. 9^{th}, 10^{th} and 11^{th}) in the post-reform period. The growth rate of agriculture in more recent years is estimated at just about 1.1 percent in 2015-16 mainly because of two consecutive droughts in the years 2014 and 2015 but also because of other problems (i.e. volatility of prices and reduction of subsidy and public expenditure).

5.3 TRADITIONAL CULTIVATION TO MODERN CULTIVATION

In mid-1960s, the Government of India realised that she should attain self-sufficiency in food production because of its geo-political compulsion. During this time, India devoted lot of resources in fighting a war with China (in 1962), Pakistan (in 1965) and faced two consecutive droughts (in 1965 and 1966). Apart from these, USA threatened India to stop its wheat export (under the scheme PL480) because of India's stand on the Vietnam War which was against the USA. PL480 was an agreement between India and USA under which India was receiving wheat from USA at subsidised rate in the form of food aid. All these events compelled India to resolve for avoiding a situation of food crisis as a matter of extreme priority. The government took the decision to import the HYV (High Yielding Variety) seeds from Mexico which had been developed by the Mexican scientist Norman Borlog. It was modified to suit the climatic conditions of India. As a result of this initiative, India attained self-sufficiency in production of wheat in the first phase of its implementation (1966-72) which has since come to be recognised as a period of 'Green Revolution' in India. In the successive phases of its implementation, India also attained self-sufficiency in the production of Rice (the second phase, 1973-80) and in Milk, Fish, Eggs, etc. (the third phase, 1981-90).

5.3.1 Impact of Green Revolution

Although India attained the much needed goal of producing enough food grains for its population, it also resulted in the widening of income inequalities, particularly in rural inequality, causing regional imbalances in India. Big landlords and farmers benefited a lot from the Green Revolution by virtue of their large land ownership which was required for the capital intensive cultivation of the HYV seeds. While this yielded high income for them, small famers and landless labourers in rural areas did not benefit in any way which caused steep income inequality in the rural areas of some states. The Green Revolution in India was mainly concentrated in the states of Punjab, Haryana, western UP and some parts of Tamil Nadu. Therefore, all these regions benefited much from the Green revolution while the rest of India remained untouched and hence caused regional imbalances in growth and income. In sum, therefore, the impact of green revolution on India can be stated to have resulted in the attainment of: (i) self-sufficiency in production of food; (ii) shift from traditional means of cultivation to scientific cultivation; (iii) increase in productivity of crops; and (iv) increase in income of farmers; but at the cost of increase in income inequality and regional imbalances.

5.3.2 Problems of Indian Agriculture

The foregoing sections reveal that even though we achieved self-sufficiency in food grains, and have now become food exporters, it is a fact that in terms of productivity levels we have much lagged behind. This is mainly because the Indian agriculture has continued to suffer from certain problems. These are as follows.

Irrigation: Indian agriculture is still dependent on monsoon because of inadequate availability of irrigation facilities like tube wells, canals, etc. which are very much required for controlled irrigation of crops. In the absence of such facilities, there have been loss of crops either because of floods or drought. There is no arrangement which channelise excess water from one area to the other which is water deficit and hence it ultimately results in the loss of agricultural produce at local and national level.

Inadequate Investment: Investment by government and corporate sector in Indian agriculture is very low due to which there is inadequate infrastructure much required for better performance of the sector. In the absence of adequate storage and cold storage facilities, there have been much loss of harvested crops. If harvested crops are not properly stored, it would be eaten by pests or it can perish by rain or moisture causing loss to the economy. Investment by corporate sector in agriculture is negligible due to factors of uncertainty on the return on investment. Of late, the return on investment in agriculture have become uncertain not only because of yield but also because of price volatility in international market in the post-reform period. This

factor of uncertain returns could dissuade private investors contributing to the low investment levels in the sector.

Low Investment in Agricultural Research: In spite of huge significance of agriculture for our economy, there is very low increase in investment in agricultural research over the years (it has increased from 0.25 percent of GDP during 1981-83 to 0.4 percent of GDP during 2012-14). Low expenditure on R & D in India is one of important factors because of which there is low productivity of crops in India. In the absence of proper research based inputs, farmers are not aware of soil suitability for production of specific crops. They also do not know the appropriate proportion in which inputs like fertilisers, pesticides, weedicides, etc. should be used for achieving higher agricultural output without the accompanying environmental damage. Further, because of low investment in agricultural research, there is almost negligible innovation in the Indian agricultural sector. In the absence of scientific cultivation, there is lower output as the potential of inputs cannot be fully realised.

Fragmented Landholdings: The ownership of land in India is highly skewed in favour of few households who are big landlords. Most of the rural households in India are either landless or own less than two acres of land. With division of family, over a period of time, the successive size of landholdings have become smaller, even for medium and large land holding families, thus making them unsuitable for scientific cultivation. According to the Agricultural Census 2011, 67 percent of landholdings in India were with marginal (less than one hectare) landholdings and 18 percent were with small (one-two hectare) landholdings. Large holdings (more than ten hectares) were only 0.7 percent.

Absence of Proper Training and Finance: Most of the farmers are illiterate and are without the required training for scientific methods of cultivation. This results in low productivity of crops. Further, although Government has made it compulsory for bank to lend 40 percent of their total credit to the primary sector and institutional credit has increased during last one decade, with the Kisan Credit Card (KCC) scheme providing short term loan to farmers at 4 percent rate of interest, many farmers in India are unable to benefit from it. This is because bulk of the small and marginal farmers' community are illiterate and cannot fulfil the requirements for availing bank loans who generally prefer to lend against some collateral. Hence, most of the small farmers in India avail loan from local money lenders because of convenience. They end of paying huge interest on loans taken and in case of crop failure, it results in huge pressure on such poor farmers who get caught in debt trap.

Marketing: Although Government announces Minimum Support Price (MSP) for some agricultural products and there is also some organised Mandis for selling food grains, most of the small and marginal farmers are unable to sell their produce in these APMC (agriculture produce marketing

committee) Mandis. They end up selling their produce in local market without knowing the actual price of their produce in the market. Sometimes, there are 'distress sale' in which farmers' harvest are sold at a price lower than even their cost.

Soil Erosion: Indian agriculture suffers from the problem of soil erosion by flood and wind because of deforestation which reduces availability of fertile land for cultivation of crops. This can be prevented by scientific deforestation and afforestation practices.

Excessive Use of Fertilisers and Pesticides: Farmers use fertilisers and pesticides for growing crops without caring about degradation of soil fertility. This has resulted in depletion of soil fertility levels and reduction in productivity of crops. Productivity of almost all Indian crops is less than world average. Such problems can be solved by promoting the use of organic manures both for enhancing and preserving productivity of soil and crops.

Check Your Progress 1 [answer within the space given in about 50-100 words]

1) State the importance of agricultural sector in determining the overall growth rate of the economy. What has been the trend in the contribution of agricultural sector to the overall GDP of India?

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2) Relative to the secondary and the tertiary sectors, what has been the growth rate in the Indian agricultural sector over the recent years of 1999-2014? What has agricultural sector lagged behind in this regard?

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3) What was the effect of reducing subsidies to agriculture in the post-reform years?

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4) What was the extent of decline in agricultural growth consequent to the reduction of subsidies in the post-reform years?

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5) How would you summarise the impact of Green Revolution on India?

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6) What are the problems from which Indian agriculture continues to suffer even now despite our having achieved self-sufficiency in food and having emerged as food exporter?

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5.4 RELATIONSHIP BETWEEN AGRICULTURE AND INDUSTRY

Early phase of economic development is characterised by large section of population who are poor, less educated and live in rural areas for their survival. The significance of agricultural sector in economic development was first emphasised by 'Physiocrats' (the group of French economists prior to Adam Smith), before the emergence of classical economists. The physiocrats believed that only the agricultural sector can produce economic surplus over and above the cost of production. Later, the classical economists also acknowledged the significance of agriculture development in overall development by linking its development to other sectors of economy. However, the classical economists did not make any difference between growth and development i.e. they assumed that if there is growth there will naturally be development. But since it is important to enhance the income level of households in rural areas to create demand for industrial produce for overall economic development, there was a need to synthesise the development of both the agricultural and the industrial sector simultaneously.

The 'big push' theory propounded by Rosenstein Rodan (1943) talked about the simultaneous expansion of production, employment and consumption in all sectors of the economy for removing the obstacles in the process of economic development. Such a strategy required the attainment of 'balanced growth' of all interrelated sub-sectors within agriculture and industry. The 'big push' approach will help in solving the problem of poverty in rural areas and also increase the ability of agricultural sector to supply capital for industrial expansion through savings of households in rural areas.

Lewis (1954) propounded that there is a huge reservoir of labour in developing countries and most of these labour are employed in agricultural sector where their marginal productivity is close zero. Therefore, low paid labour employed in agriculture sector will migrate to modern (industrial) sector because of wage differential. Marginal productivity of labour in industrial sector will be high because of higher investment and technological innovation which will further lead to capital formation due to increase in savings and capital surplus. This will enhance the capacity of industrial sector to hire more labour. The process of hiring labour by industrial sector will stop at a point when the supply of labour becomes wage-inelastic i.e. where the wages in agriculture and industry nearly equal each other. This theory was criticised on the ground that there will be reduction in agricultural output as and when there is migration of labour from the agricultural sector on a large scale. This view was countered by the alternative view that at the developing stage of an economy, there is large scale migration of labour from rural areas to urban areas due to distressed labour condition and migrants to urban areas end up with jobs in the urban informal sector due to the limited capacity of industrial sector to absorb the surplus labour released from agricultural sector in large numbers.

Strengthening the argument of Lewis, Fei and Ranis (1961) explained a three phase linkage between agriculture and industries. In the first phase of development, migration of surplus labour from agriculture sector to industrial sector will not cause any adverse impact on agricultural output. In the second phase, when the labour migration from agriculture sector reaches a point where there is negligible surplus labour, the marginal productivity of labour in agriculture sector would start rising, and if the labour migration continues beyond this point, there would be a decline in the output of agriculture sector. Such a point was called as the Lewis's turning point. However, even at this stage, there will be continued migration of labour from agriculture sector to industries because of higher wage in industrial sector. When the wage in the industrial sector becomes equal to that in the agricultural sector (a stage of third phase of development), further labour transfer and the resulting growth of the economy will depend on technological progress and development of infrastructure in the economy i.e. the latter becomes the necessary conditions for the continued absorption of labour released from the agricultural sector by the industry. Thus, migration of labour from agriculture to industries will result in reduction of output in the agricultural sector only when the marginal

product of labour in agriculture sector is either zero or negative and not before (Schultz, 1964).

Schultz also maintained that the total output in an economy can be increased by utilising the surplus labour of agricultural sector in the industrial sector under certain conditions. These are: (i) a situation in which there is migration of labour from agriculture sector to industrial sector without reduction of output in the agriculture sector; and (ii) a situation in which the labour requirement of both the sectors is simultaneously met as a result of the complementary forces working to mutually support both the sectors of the economy. Schultz advanced the theory of 'human capital' by studying the age-earning profile of migrants to indicate that education would transform unskilled labour to skilled labour to face the challenges of exploitation of labour by the capitalist class. Jorgenson (1961) pointed out that if there is no rapid change in technology employed in agriculture, it cannot produce surplus food, or release its surplus labour, in a fruitful manner. Therefore, the message of Schultz and Jorgenson is that to achieve sustainable growth of both the sectors, simultaneous growth in both the sectors are required. The argument put forward by Schultz and Jorgensen provides an important link between the Lewis's and the Fei and Ranis interpretations validating the 'big push and the balanced growth approach' suggested by Rosenstein-Rodan for a harmonised development strategy that needs the focus on both the agriculture and industry. Therefore, government should give priority to agriculture development by strengthening linkages between agriculture and the rest of the economy. In other words, the 'technological cycle' i.e. infusion of technological advances gained during the phase of industrialisation must be ploughed back to agriculture to complement the process of development in a perpetuating manner. In fact, the current focus of developed countries to direct their efforts towards a renewed technological infusion to their agricultural sector bears testimony for the need to infuse technological developments of industry and services sectors back to the agricultural sector in this regard.

5.4.1 Interdependence between Agriculture and Industry

Kuznets summarised the contribution of agricultural sector to economic development in the following words:

- produces food and raw materials;
- creates market for goods and services produced by the secondary and tertiary sector;
- supplies labour and capital to the manufacturing and services sectors; and
- earns foreign exchange through trade.

There is thus a very close relationship between agriculture, industries and the services sectors (Fig. 5.1) with the performance of the agricultural sector

playing an important role in providing food, raw materials, fibre and labour for the development of industries and services (Rosenstein-Rodan, 1943). This reinforces the interdependency of agricultural sector with the industrial and services sectors. For instance, agriculture provides the raw materials to industries and uses the finished products of industries like tractors, threshers, pump set, fertilisers, pesticides, etc. for production of food grains and raw materials. Industries use the raw materials supplied by agriculture for the production of several kinds of goods sold in the market. Likewise, the agricultural sector uses services like banking, insurance, marketing, etc. provided by the tertiary services sector which, in turn, creates demand for agricultural produce. The important aspect of such an interdependence is that the finished product of one sector is used as input by the other sector with the growth of one sector mutually influencing positively the economic activities of the other sectors.

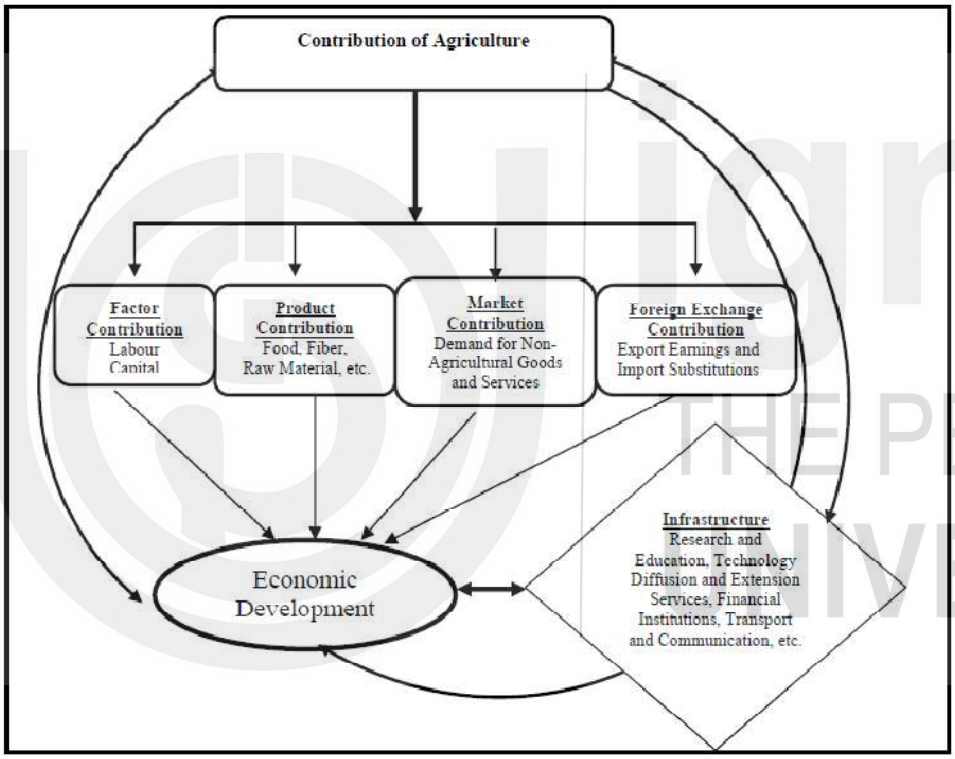

Fig. 5.1: Inter-linkages between Agriculture and the Rest of the Economy

Check Your Progress 2 [answer within the space given in about 50-100 words]

1) How was the inter-linkage of the different sectors of the economy envisaged by early economic thinkers with that of agricultural sector?

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2) What was the common ground to which the views on 'labour transfer' from agriculture to industries converges from the theoretical insights provided by the prominent contributors to the theme?

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3) Under what conditions, did Schultz proclaim that the trend in the total output level in the economy can be maintaining to be increasing by using the surplus labour?

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4) What was the contribution of Jorgenson to the theoretical understanding on 'sectoral labour transfer' and how do you relate his findings to the present situation in Indian agricultural sector?

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5.5 LET US SUM UP

The unit discusses the performance of agriculture sector in terms of its contribution to the GDP of India, production of food grains and non-food grains and employment generation. While analysing the performance of agriculture in terms of its contribution to total GDP of India is steadily declining to a corresponding increase by the secondary and the tertiary sectors of the economy. However, agricultural sector is still very important as it continues to support the livelihood of maximum households living in the rural areas. The role of the Green Revolution marks for a landmark achievement despite its adverse impact on inequality and regional imbalance.

The agricultural sector in India suffers from various problems like – inadequate investment in creation of infrastructure and agricultural research, uncontrolled irrigation, illiteracy of farmers, fragmented landholdings, soil erosion, etc. which are all obstacles in the realisation of its full potential. There is a very close relationship between agriculture and industry because both sectors are so heavily interdependent that the development of one sector is closely linked to the growth of other sector. The government's efforts should therefore be to formulate policies to foster the growth of all the three sectors in a mutually complementing manner.

5.6 KEY WORDS

Gross Domestic Product (GDP) : Refers to the monetary value of all goods and services produced in domestic territory of a country during one financial year.

Green Revolution : Refers to the huge jump in production of food grains (wheat) because of adoption of scientific cultivation and use of high yielding variety of seeds, fertilisers, pesticides, etc. during the mid-1960s in India.

Migration of Labour : Movement of labour from one place to another for livelihood. If current place of residence is different from the place of birth, then it is called migration (Census).

5.7 SOME USEFUL BOOKS AND REFERENCES

1) Ashok Gulati and Tim Kelley (2003). *Trade Liberalisation and Indian Agriculture*, Oxford, New Delhi.

2) G.S. Bhalla (2007). *Indian Agriculture Since Independence,* NBT, New Delhi.

3) Uma Kapila (ed), *Indian Economic Development since 1947*, Academic Foundation, New Delhi, 2016-17

4) Ranis, Gustav (2004). *Arthure Lewis's Contribution to Development Thinking and Policy,* The Manchester School, Volume 72, No. 6, December, 2004, pp 712-723.

5.8 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) Growth in agriculture feeds into the requirement of raw material to agro industries. By generating demand for the products of the industrial and tertiary sectors, growth in agricultural sector acts as an important stimulant to the overall growth rate of an agrarian economy like that of

India. In terms of its GDP share, its relative share has fallen from 53 percent in 1951 to 14 percent in 2014.

2) Agricultural sector has grown by an average of 1.2 percent compared to the 6.4 percent in the manufacturing sector and the 8.3 percent in the services sector during the recent period of 1999-2014. The low rate of growth in agriculture is due to factors like: traditional means of cultivation, small land holdings, low productivity levels, reduced subsidy, etc.

3) There was increase in cost of production and the return on agricultural produce became uncertain. The latter was partially due to uncertain production due to dependency on monsoon compounded by volatility in international price of agricultural products.

4) Growth reduced from an average of 3.5 percent over 1982-97 to 2 percent for the period 1998-2005. The decline was across states and allied sector of agriculture.

5) It resulted in the attainment of: (i) self-sufficiency in production of food; (ii) shift from traditional means of cultivation to scientific cultivation; (iii) increase in productivity of crops; and (iv) increase in income of farmers. But all these happened at the cost of increase in income inequality and regional imbalances.

6) The problems are: uncontrolled irrigation, inadequate investment both public and private, poor investment in agricultural research, fragmented landholdings, absence of proper training and finance, poor marketing facilities, soil erosion, excessive use of fertilisers and pesticides, etc.

Check Your Progress 2

1) The inter-linkage between the agricultural sector and the industry and services sectors was envisaged as needed for a ‘balanced economic growth’. The surplus in agriculture was expected to provide not only the supply of labour but also capital. The ‘big push’ was considered to play a very important role in this.

2) The convergence is determined by an interplay of factors like rising marginal productivity of labour in agriculture, stabilisation of wage levels across sectors and the level/pace of new technology development and its absorption. With level of skill playing a crucial role, ‘technological development and absorption’ has to continually happen, in a perpetual cycle, to result in optimum levels of employment and wages in all the sectors.

3) Under conditions of: (i) transfer of surplus labour from agriculture to industry without reduction in the output level of agriculture; and (ii) the labour requirement of both the sectors should be simultaneously met with the complementary forces (e.g. technology, skill development, etc.)

working favourably to mutually support the growth of agricultural and the industrial sectors.

4) Jorgenson drew the attention to the fact of 'rapid technological absorption in agriculture' is a necessary condition to both produce the required levels of food for the economy and also to release the surplus labour fruitfully. What we find in Indian condition today is that the agricultural sector is having surplus labour without yielding the matching productivity levels in its output i.e. low labour productivity when compared to international levels. This is reflective of the violation of the conditions pointed out by both Schultz and Jorgenson.

UNIT 6 AGRARIAN RELATIONS AND MARKET LINKAGES*

Structure

6.0 OBJECTIVES

After reading this unit, you will be able to:

- state the determinants of 'agrarian relations' outlining the connotations of its two constituents viz. land tenure and agrarian structure;
- indicate the consequences of changing 'agrarian relations' in India;

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- explain the changes in the agrarian structure of India;
- enumerate the major reforms initiated in the 'land tenure system' in India;
- discuss the features of 'agrarian relations';
- describe the concept of share cropping with its advantages and disadvantages;
- analyse the trends in the 'tenancy status' of India;
- differentiate between the various types of agricultural markets; and
- delineate the issues behind 'market constraints' and 'market linkages'.

6.1 INTRODUCTION

Agrarian relations in India have undergone significant changes since independence. Feudalistic system of agriculture was abolished by bringing the Land Abolition Act (1956). This Act made provision for giving the ownership rights to the cultivators. It was an important step towards agrarian reform as it ensured right to the tillers and facilitated private investment in agriculture to boost production and productivity. Since then, a number of changes in agrarian relations have occurred. Some of them are due to government initiatives and some others are due to market forces (e.g. land ceiling, share cropping, land tenancy, contractualisation of agriculture labour, etc.). The present unit describes the main features of agrarian relations in India and examines the market linkages (both goods market and factors market).

6.2 AGRARIAN RELATIONS

Agrarian relations are largely determined by: (i) the land tenure and (ii) agrarian structure. Land tenure refers to relationship of people with respect to land. The relationship can be: (i) either legal or customary and (ii) either for individuals or for groups. It decides how the land is owned, used and transferred. The term 'agrarian structure' denotes a framework of social relationships in which all agricultural activities like production, marketing and consumption are carried out. Both these aspects (i.e. agrarian relations and agrarian structure) are inter-related. The agrarian relations prevailing at a point of time in any country reflects the influence of historical, political, social and economic factors. These relations determine: (i) how and by whom land is cultivated, (ii) what kind of crops can be produced and for what purpose, (iii) how food and agricultural incomes are distributed and (iv) in what way or in what terms agriculture is linked to the rest of the economy. We can understand agrarian relations in terms of how land is linked to labour and capital markets. These relations can change over time due to change in mode of production and agrarian structure.

6.2.1 Land

The term 'land relations' refer to the relationship of people to land. In an agrarian society, access of a person to land resources is not only critical for his livelihood but also for his socio-economic status. The most important form of land relation is ownership of land, which can be in the form of individual or community ownership. Individual ownership means that the land owning person has exclusive right on its use, control and transfer. Community ownership implies that individual members of the community have access to use the land as per the norms and rules set by the community (e.g. common grassland). Apart from ownership, land can also be acquired by a person on rent through the institution of tenancy. Tenancy gives rise to a set of land relations different from ownership. Another form of land relations is with the landless labour who may either not be capable of or willing to be a tenant cultivator. He can work as a labour on other's farm for wage employment. He may be attached labour (regular) or casual labour.

6.2.2 Labour

The term 'agricultural labour' refers to a person who works on another person's land for wages paid in money, kind or share of produce. In case of wages paid in money or wages paid in kind, the agricultural labour does not face any risk of cultivation. However, if the labour is paid wages in the form of share in the produce, he faces the production risk i.e. if farm production declines, his wages will also decline. In India, a majority of agricultural labourers come from the socially deprived groups such as scheduled castes and scheduled tribes. Agricultural labour can be classified into two categories: permanent labour (attached) and casual/contract labour. The attached labour generally works on annual or seasonal basis and gets his wages in cash or kind as per the existing norms. Casual labour is hired on the market-driven wage rates, as and when required, especially during the peak agricultural activities.

Labour relations in agriculture has been changing over a period of time due to various factors like: (i) farm mechanisation and technological change, (ii) farm diversification, (iii) out-migration, (iv) socio-economic transformation and (v) public employment programmes (e.g. MGNREGA, affirmative policies). Rural non-farm employment is expanding and agriculture is undergoing rapid structural changes with the adoption of new technologies. All these changes have also affected the labour relations in agriculture. New form of labour relations has emerged. Earlier attached agricultural labour was the dominant class of agricultural workers. This got gradually shifted first to casualisation and still later to contractualisation of agricultural labour. Now, particularly in agriculturally developed regions, landless labourers prefer to work as contract labour on piece rate basis rather than on causal labour or on time wage basis.

6.2.3 Capital

Capital is one of the key factors of production. Capital relations in agriculture are largely determined by land ownership and tenancy changes. Under the feudal system, cultivators were mere tenants and did not have ownership right on the land they cultivated. However, with the development of money as the medium of payment for labour services, the traditional and customary relations between the landlord and the cultivators changed to pure money relations. Still later, after the abolition of *Zamindari* system, the tenant cultivators got the ownership right to land. This created the capitalist mode of farming under which capital relations in agriculture underwent a significant change. Money lenders emerged as a new class replacing landlords. Cultivators got an incentive to invest in agriculture (in the form of irrigation, modern technology, land development and farm machinery) to increase production, productivity and profit.

In the capitalist mode of farming, demand for external inputs like hired labour, energy and credit increases. Consequently, there is more flow of capital to agriculture. Such relations also make for changes in the relationships of men in production (i.e. transformation in social conditions). For instance, the cultivator does not grow food only to feed himself and the small community but starts producing for the market. He thus gets to face market conditions/risks and technology besides the nature's risks. Emergence of modern agribusiness and changes in labour relations like sharecropping, small-scale capitalist farming, petty commodity producers and contractualisation of wage labour has made significant changes in the agrarian relations in India. Rising share of external inputs and energy intensified production practices has led to declining share of human and animal energy. Investment in labour saving technology has reduced demand for labour in agriculture and increased the outflow of rural workforce to urban areas.

Check Your Progress 1 [answer within the space given in about 50-100 words]

1) What are the two determinants of 'agrarian relations'? What do they connote?

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2) How is the term 'agricultural labour' defined?

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3) What are the factors due to which changes in 'labour relations' in agriculture are noticed to come about over a period of time?

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6.3 CHANGES IN AGRARIAN RELATIONS IN INDIA

Since independence, a number of changes have taken place in the agrarian structure of India. Prominent among them are: (i) abolition of intermediaries (zamindars and jagirdars) and conferring ownership on actual cultivators (i.e. land to the tillers; (ii) ceiling on land holdings and distribution of surplus land among small farmers and landless labourers; (iii) protection of the rights of tenants and regulation of rents; (iv) assignment of government waste land (*Bhoodan*) to the poor; and (v) prohibition on alienating land allotted to the poor and the land belonging to tribals. One of the effects of these changes was a shift in the rural power structure from the elite *zamidars* to middle class rich peasants (who earlier used to be tenants of these zamindars). In the post-independence period, new developments like green revolution (GR), commercialisation of agriculture, land reforms, spread of literacy and general awareness, emergence of powerful farm lobbies (in the parliament and state legislatures), etc. contributed to result in a new direction in the agrarian relations of India. The scale-neutral and resource-intensive 'green revolution' (GR) technology has made remarkable success in the regions endowed with assured irrigation facilities like Punjab, Haryana and Western Uttar Pradesh.

6.3.1 Land Tenure System

At the time of independence, there were three types of land tenure: (i) landlord tenure (Zamindari system), (ii) independent single owner tenure (Ryotwari system) and (iii) joint village tenure (Mahalwari System). Under the Zamindari system, the intermediary 'Zamindars' were granted ownership right over land and actual cultivation was done by tenant farmers. It was an inefficient system which did not provide any incentive to the peasants to improve land productivity. There was a long chain of intermediaries between zamindars and cultivators who exploited tenant cultivators and made them impoverished.

Under the Ryotwari system, the actual land tillers were given formal property rights over land. The Ryot was a tenant of the state, responsible for paying revenue directly to the state treasury. Under this system, cultivators had an incentive to make investment in land to improve productivity as they had ownership right. Under the Mahalwari (or joint village tenure system), the village was identified as a unit of assessment. Though an individual cultivator in a village was made owner of the land, the villagers were asked to pay the revenue collectively.

After independence, the land tenure system was reformed with the twin objectives of achieving social justice and economic efficiency. The major changes made in the land tenure system were: (i) abolition of intermediaries; (ii) land ceilings; (iii) consolidation of land holdings; (iv) abolition of forced labour; (v) tenancy legislation; and (vi) cooperative farming. During the 1950s, all the Indian states abolished zamindari system. Those, who possessed cultivable land at that time (including tenants and sub-tenants), were given *riyati* (owner-cultivator) status. These measures brought about major changes in the agrarian structure towards commercialisation of agriculture and commodification of land.

Commercialisation of agriculture means a shift in the agrarian economy from production for consumption (food crops) to production for market (cash crops). Agriculture, which was largely supply-driven during the green revolution period, gradually became demand-driven and diversified more towards horticulture and dairy products. After abolition of intermediaries and assigning land ownership to the peasant-cultivators, land also began to acquire a commodity status. The moneylender, who until then lent keeping a peasant's crops in mind, began to see his land as a mortgageable asset against which he could lend money.

6.4 FEATURES OF AGRARIAN RELATIONS

An understanding of the concept of tenancy system is essential to have an idea of the main features of agrarian relations. Tenancy and its terms and conditions reflect the 'demand and supply' position of agricultural land availability. In a country where land market is rigid and distorted, tenancy arrangements can be made to augment the size of operational holdings rather than owning the land. Therefore, land-leasing can be a viable option for those who have labour and/or capital but do not have land to fully use these resources, and for those who have land but do not want to do farming because of lack of labour or capital, or no interest in agriculture. In this section, we discuss the main features of agrarian relations in India.

6.4.1 Contractual License Arrangements

Contractual license is an arrangement which involves the landowner contracting out all or some farming activities. It may be practiced when the

land owner faces shortage of resources such as capital or skilled management for performing farming activities.

6.4.2 Labour Tenancy

In the labour tenancy arrangement, land owner bears all the production cost except for labour cost, which is borne by tenant labour. The share of labour tenant in the produce may range from 20 to 30 percent. This form of tenancy is quite beneficial to those cultivators who do not have adequate family labour to do farming.

6.4.3 Sharecropping

Sharecropping is a form of land tenancy where a tenant farmer cultivates the land for the landlord and the output is shared on some pre-determined basis. It is quite a old practice which runs on trust, patronage and kinship relations. The share is decided mutually by both the parties as per the prevailing norm. It can vary depending upon the sharing arrangement in the cost of cultivation. It is argued that share-cropping provides a better incentive to efficient allocation of labour time since unlike the feudalistic system, it enables the sharecroppers to bargain for a larger share in the produce resulting from an increased application of labour. However, it discourages the share croppers to make investment in agriculture development and productivity-enhancing measures. This is because the land-sharing arrangement being informal, the landlord can withdraw from the agreement any time and the tenant would not be able to recover his return on farm investment. The classical economists postulate that both the sharecropper and the land-owner would shy away from investment resulting in sub-optimal level of output in agriculture. J.S. Mill argues that sharecropping, in due course, would prove to be a big disincentive for investment, as the contractual agreements enable landlords to appropriate the surplus generated by the tenant by employing additional labour inputs on the land.

The sharecropping form of tenancy has several advantages and disadvantages. One of its advantage is that it makes sharing of production risks equal for both the parties providing incentives to the land-owner in a situation when monitoring of labour supply is costly. However, being usually an informal arrangement without a fixed tenure, it discourages both the parties to make farm investment to improve productivity. But with a cost-sharing arrangement, it can encourage the tenant to use modern inputs such as fertilisers, HYVs and irrigation to raise output. This explains why the landlord might bear a fraction of the cost of inputs. The moot point however is that if sharecropping is not an efficient form of cultivation, why has it continued to exist? The most common explanation is that it allows the landlord and the tenant to share the production risk which is quite high in regions where agriculture still depends on the vagaries of monsoon. But with increasing facilities for irrigation and modernisation of agriculture with the introduction of new technologies, and simultaneous reduction in the inherent

risk through crop insurance and greater availability of credit, land leasing on fixed rent has become a better option than sharecropping.

6.4.4 Land Leasing

In this arrangement, land owner leases out his land on fixed rent to the tenant for a fixed or variable time period. This is generally preferred by absentee landlords. There is a perception that lease-in is done by land-poor farmers who wants to enhance their farm-size while lease-out is done by the land-rich farmers. Hence, literature on tenancy arrangements generally highlights the exploitation of poor tenants. However, in recent years, reverse tenancy is being practiced in some regions, where small and marginal farmers lease-out their land to the relatively big farmers. Unlike sharecropping in which production risk is shared equally by the owner and tenant, in case of land leasing, entire production risk is shifted to the lessee. Land leasing, especially on fixed term, encourages the lessee to adopt modern technology and farm practices to enhance production and productivity. Households having a limited number of family workers (and/or have fewer assets) are likely to lease-out their land, while those having more assets and higher numbers of farm workers tend to lease-in to get the benefit of economies of scale. Marginal/small farms may find other employment more remunerative than farming and hence may also lease-out their land. There are many advantages of a secured tenancy. They are: (i) it incentivises the lessee to make farm investment; (ii) it removes insecurity from the mind of land owner; and (iii) it helps to develop the land-lease market. It is generally perceived that the power balance under the land leasing system remains in favour of the landowner. However, this is not always true. In fact, in a number of cases, the reverse occurs. It particularly happens where the landowner holds little land and/or capital, while the tenant is a big farmer with access to sufficient capital.

Check Your Progress 2 [answer within the given space in about 50-100 words]

1) What are the three types of land tenure system which were prevalent at the time of independence?

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2) What were the major changes that were introduced in the land tenure system after independence in India?

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3) What were the two measures introduced in the years after independence which helped turn the agrarian structure in India towards commercialisation?

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4) What does the terms commercialisation and commodification of agriculture mean?

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5) In what way sharecropping is better? What are its disadvantages?

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6) What is reverse tenancy?

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7) State the advantages of ‘secured tenancy’.

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6.5 TENANCY STATUS IN INDIA

The tenancy status in India has changed during the last four decades. The share of tenant holdings (in the total operational holdings) has declined from 25.7 percent in 1970-71 to 9.9 percent in 2002-03. Since then it has increased to 13.7 percent in 2012-13 (Table 6.1). This share has increased across all categories of farms over the period 2003 to 2013. But its increase is more in the categories of medium (7 percent), semi-medium (7.7 percent) and large size holdings (8 percent) as compared to small size holdings (2.9 percent) and marginal size holdings (3.4 percent). The trend indicates that the capitalist relations in the Indian agriculture have become dominant in recent years. Increase in the non-institutional credit and financialisation of agriculture are pointers to this mode of agriculture in India. The increase in the shares of operational holdings of small, marginal, medium and semi-medium classes (over the period 2003-13) shows that 'reverse tenancy' has become a noticeable phenomenon in India in recent years. Some marginal and small farmers may be better off by leasing out their land while seeking wage employment within or outside agriculture to maximise their incomes by way of rentals as well as wage incomes.

Table 6.1: Tenant Holdings (%) by Category of Operational Holdings

Land Size (in ha)	1970-71	1981-82	1991-92	2002-03	2012-13
Landless (≤ 0.002	-	-	-	-	2.6
Marginal (0.002-1.00)	27.0	14.4	9.3	9.8	13.2
Small (1.00-2.00)	27.8	17.9	14.9	10.7	13.6
Semi-medium (2.00-4.00)	24.8	15.9	12.2	10.3	18.0
Medium (4.00-10.00)	20	14.5	13.1	7.8	14.8
Large (> 10.00)	15.9	11.5	16.7	13.8	21.8
All	**25.7**	**15.2**	**11**	**9.9**	**13.7**

Source: 70th NSSO Round

Over the period 1971-2013, the proportion of sharecropping in the total lease-in operated area has declined from 48 percent in 1970-71 to 29 percent in 2012-13 while the corresponding area under fixed money has increased from 15 percent to 41 percent (Table 6.2). This has increased the risks of tenant farmers as the landowners do not have any risk of crop failure. Fixed money form of lease-in land is preferred where there exists a significant scope for entrepreneurship. This is because it permits the tenants to capture the returns expected from their own decision-making while protecting the land owners against the possible risks arising from the production decisions of the tenants.

Table 6.2: Distribution (%) of Lease-in Operated Areas by Terms of Lease

Terms of lease	1970-71	1981-82	1991-92	2002-03	2012-13
Fixed money	15.4	10.9	19.0	29.5	41.1
Fixed produce	11.6	6.3	14.5	20.3	17.0
Share of produce	47.9	41.9	34.4	40.3	28.7
others	25.1	40.9	32.1	9.9	12.9
All terms	**100**	**100**	**100**	**100**	**100**

Source: 70th NSSO Round

6.5.1 Legalisation of Land Leasing System

Restrictive land leasing laws usually make land leasing informal, insecure and inefficient, and as due to absence of legal sanctity, tenants would not have access to institutional credit, insurance and other support services. The restrictive land leasing laws would reduce occupational mobility of the landowners who may want to shift to non-farm employment but would be forced to remain in agriculture due to the fear of losing land if they lease-out and migrate. Therefore, legalisation of land leasing can promote production efficiency, equity, occupational mobility and rural transformation. It would benefit the agriculture in several ways. It would: (i) promote transparent and secured land leasing, (ii) create an incentive for tenant farmers to make investment in land improvement for productivity enhancement; (iii) make possible for the tenant farmers to have access to institutional credit, insurance and other inputs; (iv) encourage the absentee landlords who prefer to keep their lands fallow (due to the fear of losing land right by leasing out their land); (v) result in the better utilisation of available land and labour resources; and (vi) make possible to transfer land from less-efficient farmers to more efficient farmers and thus improve production, productivity and income through crop intensification and diversification. Keeping all these aspects in view, the government has enacted a Model Land Leasing Act *aimed at* liberalising the process of legalising the land leasing system in India.

6.5.2 Landless Agricultural Labour

Landless agricultural labourers are the most precarious and vulnerable workforce in rural India. In general, they suffer from seasonal unemployment, job insecurity, poverty, indebtedness, bondage, inability to get statutory minimum wages, illiteracy, mal-nourishment, lack of access to productive assets, discrimination, lack of social security and inability to form organisation. Although they are covered under the Minimum Wages Act 1948, its implementation is very arduous. Their demand is driven by factors like agricultural productivity, wage rate, crop-season, cropping pattern, cropping intensity, irrigation facilities, size of operational holdings, farm mechanisation, etc. If other things remain constant, their demand is inversely

related to minimum wages (MWs). If MWs are raised, the demand for labour may decline, which in turn pushes the market wages down. Market wages would be higher/lower than the MWs depending on whether there is increase/decrease in income (i.e. value added to agriculture or GVA) from agriculture. The increase in income from agriculture would depend upon farm mechanisation, expansion of rural non-farm employment, allocation of government funds to wage employment programmes, unionisation of farm labourers, expansion of economic activities in urban informal sector, cost of living in urban areas, etc. Keeping in view the persistence of poverty, widespread unemployment, lack of access to productive assets and un-sustainability of jobs for landless agricultural labour due to natural shocks, agricultural labourers need effective social security provisions.

6.6 TYPES OF MARKETS: CONSTRAINTS AND LINKAGES

Market is a comprehensive term, which covers many functions such as: (i) procurement, transportation, grading and standardisation; (ii) storing, processing, packing, and (iii) supply of commodities to the end-users. All these activities require integration to reduce the marketing cost, particularly for small and marginal farmers who have less marketable surplus. Production of most crops is localised and harvested in specific season in a limited time period while consumers' demand is widespread across time and space. Agricultural commodities, in particular, are required to be quickly procured, processed and distributed to the end-users so that price stability may be maintained and commodity losses may be reduced. In this context, effective linkage of farmers to the market through promotion of several institutions such as Farmer Producer Organisations (FPOs), contract farming and group marketing is quite essential. There are different types of markets as outlined below.

6.6.1 Goods and Factor Markets

On the basis of agricultural outputs and inputs, markets can be classified into two categories: goods markets and factor markets. Goods markets are those markets in which agricultural products are sold and purchased whereas in factor markets, farm inputs are traded. Farmers need various kinds of inputs to do farming such as seeds, chemical fertilisers, pesticides, farm machines, labour and other services. Effective linkage of farmers with these markets is essential to make agriculture a remunerative venture. For instance, in the absence of effective linkage of farmers to the formal credit market, they are forced to pay a very high rate of interest on the loans taken by them from the informal credit market. One of the reasons for indebtedness among the farmers is due to lack of formal credit to the farmers. Similarly, agricultural goods markets are controlled by a number of intermediaries who artificially create huge gap in what the farmers get and what the consumers pay for the agricultural commodities.

6.6.2 Formal and Informal Markets

Agricultural market can further be classified into formal and informal markets. Informal markets have few regulations and often no taxation. Formal markets, on the other hand, operate using standard weights and measures with transactions which are agreed upon. Further, transaction are based on clearly defined legal frameworks. A majority of small and marginal farmers in India with less quantity of marketable surplus, sell their produce in the informal markets. These are transactions made at the farm gate, roadside sales, village markets and sales made in the urban wholesale and retail markets. Sometimes, petty traders purchase from farmers from their home or farm and then supply it to the urban markets, including regulated mandies. Informal markets require modernisation through legal enforcement of grades and standards. They need information and knowledge network to enable access information related to product quality, price and supply and demand conditions.

Formal markets are characterised by modern value chain system. Through such markets, farmers can get proper signals to allocate their cultivable land for production of various commodities and access support services. To work within the formal markets, they should meet the quality standards. Formal markets consist of both public and private mandies and can be electronically inter-connected. Government has created an electronic trading portal (e-NAM) to integrate various mandies. This is expected to improve market competitiveness and efficiency by: (i) eliminating traders' cartels and price manipulations and (ii) minimising price gaps between what the producers get and what the consumers pay. In such markets, buyers and sellers do not need to interact physically. Trust is reinforced through clearly defined standards and the market transactions are supported by the legal system.

6.6.3 Primary, Secondary and Terminal Markets

On the basis of location, markets are categorised into primary, secondary, and terminal markets. Primary markets include periodic markets or hats and fairs held in rural areas. Many of these markets are now within the purview of the government regulations. The government charges a small fee from each participant for which the markets provide some basic infrastructure for smooth trading. Farmers having little quantity of marketable surplus generally supply their produce in such markets rather than to the big mandies. Secondary markets serve as collection centres and as a place for the assembly of produce by traders who come from distant places. They are usually situated in urban centres (town and cities) well-connected with road and rail transport.

Terminal markets are those where sale of goods to retailers takes place. In these markets, agricultural commodities are finally disposed of to the end consumers/processing units/exports. They are of two types: primary wholesale markets and secondary wholesale markets. Primary wholesale

markets are larger in area and attract many retailers. They also serve as transit points to distant small town markets. They are located in important towns near production centres where the producer-farmers bring their produce for sale. Secondary wholesale markets are located at points nearer to resident population.

6.6.4 Market Constraints

Agricultural markets are constrained by: (i) inadequate warehouses, (ii) lack of grading and standardisation, (iii) inadequate transport facilities, (iv) presence of large number of intermediaries, (v) malpractices in unregulated markets, (vi) inadequate market information, (vii) poor access to credit facilities, etc. To improve marketing conditions, the government has enacted a model APMC Act. It is aimed at facilitating direct marketing of agricultural commodities, reducing the multi-layers of intermediates between the producers and the consumers.

6.6.5 Market Linkages

Activities to link farmers to markets adopt either the 'top-down' approach (which involves identifying market demand and then seeking a group of farmers to satisfy it) or the 'bottom-up' approach (i.e. of identifying farmers to work with and then finding markets to which they could supply). There may be several kinds of linkage of farmers to markets like: farmer to domestic trader, farmer to retailer, linkage through a leading farmer, linkage through cooperatives, farmer to agro-processor, farmer to exporter, contract farming, etc. These categories do not however represent the whole range of market opportunities available to farmers. In India, purchases by government institutions is an important constituent of the formal market. The above stated categories are not always mutually exclusive (exporters can also be agro-processors, agro-processors can also run contract farming operations, retailers may buy from farmers through traders, etc.).

Farmer's linkages to factor markets may also be in different forms. In case of credit market, most of the credit needs (productive or non-productive) are met through informal sources (e.g. money lenders, input dealers, fellow farmers, friends and relatives). Farmers also have access to institutional credit provided by commercial banks, cooperative banks, regional rural banks (RRBs), etc. Kisan Credit Card (KCC) scheme is one of the most beneficial schemes for farmers for meeting their short-term credit needs at a low interest rate. Effective linkage of farmers, particularly small and marginal ones, to the formal credit markets is essential to provide affordable credit for enhancing private investment in agriculture and to check exploitation of farmers by the unscrupulous money lenders.

6.6.6 Group Formation

To establish effective market linkage, new forms of institutions, such as Farmer Producer Organisations (FPOs), Contract Farming and Group Marketing need to be promoted. Development of farmers groups enables them to make their produce market-orientated. Through FPOs and group farming, they can have: (i) better access to farm inputs, technology and extension services, (ii) reduce transition cost and achieve economies of scale in both production and marketing and (iii) improve their bargaining power in the market. In case of contract farming, both farmers and contracting companies can reduce their market risk by mutually agreeing to sell and purchase the contracted quantity of produce at pre-determined prices. In addition, farmers may get from the contract companies new technology, farm inputs and working capital and expert advice on their usage.

Check Your Progress 3 [answer within the space given in about 50-100 words]

1) State the trends noticeable for its recent setting-in in Indian agriculture.

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2) Distinguish between goods market and factor market.

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3) Enumerate the market constraints faced by farmers in India.

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6.7 LET US SUM UP

Agrarian relations are determined by the land tenure (ownership, tenancy and labour relations) and agrarian structure (production, livelihood and social conditions in agriculture). Agrarian relations in India have undergone significant change since independence. Abolition of Zamindari system, land ceiling, tenancy reforms and protection of rights of tenants are vital agrarian

changes that have impacted the agrarian relations in agriculture. Land reforms, green revolution, commodification of land, application of scale-neutral and resource-intensive farm technologies, contractualisation of labour, development of rural non-farm activities and public investment on social sector schemes along with 'affirmative public policies' have given new dimensions to the agrarian relations in India. Tenancy pattern has been gradually shifting from sharecropping to fixed rent leasing system justifying the need for legalisation of tenancy system. Effective linkage of farmers with formal agricultural markets is essential to make agriculture a remunerative and profitable activity. Farmers must get proper market signals for making efficient allocation of land and other resources for production of various agricultural commodities. New forms of institutions such as FPOs, contract farming, group marketing and e-NAM are critical for establishing effective market linkages.

6.8 KEY WORDS

Agrarian Relations : Relates to relationship between farmers and landlords on the terms on which land would be used for agricultural activities and how the wages or sharecropping practices would be paid/shared.

Affirmative Action : These are policies of the government aimed at helping the marginalised by special schemes to bring them to the mainstream. MGNREGA is an example of this.

6.9 SOME USEFUL BOOKS AND REFERENCES

1) Shepherd A.W. (2007). Approaches to Linking Producers to Markets, Agricultural Management, Marketing and Finance Service, Rural Infrastructure and Agro-Industries Division, FOA Rome.

2) Singh, J.P. (2006). Changing Agrarian Relationships in Rural India, *Ind. Jn. of Agri. Econ. Vol. 61, No. 1, Jan.-March.*

6.10 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) The two determinants of agrarian relations are: land tenure and agrarian structure. The term 'land tenure' relates to relationship of people with land. The relationship can be legal or customary. The relationship decides how the land is used, owned or transferred. The term 'agrarian structure' denotes a system of social relationships in which all agricultural activities like production, marketing and consumption are subsumed.

2) The term 'agricultural labour' refers to a person who works on another person's land for wages paid in money, kind or share of produce.

3) The factors are: (i) farm mechanisation and technological change, (ii) farm diversification, (iii) out-migration, (iv) socio-economic transformation and (v) public employment programmes.

Check Your Progress 2

1) Landlord tenure (Zamindari system), independent single owner tenure (Ryotwari system) and joint village tenure (Mahalwari system).

2) (i) abolition of intermediaries; (ii) land ceilings; (iii) consolidation of land holdings; (iv) abolition of forced labour; (v) tenancy legislation; and (vi) cooperative farming.

3) Abolition of Zamindari system and granting of owner-cultivator status to all those who possessed cultivable land including tenants and sub-tenants.

4) Commercialisation of agriculture means shift in production from food crops to cash crops i.e. production for consumption (i.e. food crops) to production for market. With the granting of titles to land tilled, the tenant now becomes empowered to mortgage it for taking loan/credit. The latter process is referred to as commodification.

5) Sharecropping is considered good since it gives a bargaining option for the tenant. But the arrangement being informal, there is the risk that the landlord may appropriate much of the surplus or renege on his informal agreement. It allows the landlord and the tenant to share the production risks.

6) The concept of tenancy was originally construed as the landlord giving his land on lease to tenant. But in recent times, small farmers are leasing out their land to big farmers. This has come to be recognised as reverse tenancy.

7) It incentivises the lessee to make farm investment. It removes insecurity from the mind of land owner. It helps to develop the land-lease market.

Check Your Progress 3

1) Capitalist relations and reverse tenancy. Fixed money terms of lease has increased and sharecropping has decreased.

2) In goods market, agricultural products are traded. In the factor market, agricultural inputs are traded.

3) Inadequate warehouses, transport facilities, etc. (see Sub-section 6.6.4).

UNIT 7 CAPITAL FORMATION AND PRODUCTIVITY*

Structure

7.0 OBJECTIVES

After reading this unit, you will be able to:

- define the term productivity in agriculture with a distinction on the concepts of 'partial factor productivity' and 'total factor productivity';
- differentiate between the concepts of 'capital output ratio' and 'incremental capital output ratio';
- distinguish between 'public investment' and 'private investment';
- state how both public and private investment in agriculture helps in technical progress;

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- discuss the factors responsible for low productivity in agriculture; and
- describe the issues related to agricultural reforms in India.

7.1 INTRODUCTION

Although the farm sector is relatively more labour intensive than the non-farm sectors and requires less capital per unit of output produced, it also requires substantial amount of physical and human capital to perform various farm operations timely and efficiently. In Indian agriculture, capital formation has made significant contribution during the green and post-green revolution periods. Public investments in agricultural infrastructure (i.e. R&D, extension services, development of markets and storage facilities, etc.), have increased the agricultural growth and induced private investment in land development, groundwater irrigation, farm mechanisation, HYV seeds and chemical fertilisers. More recently, diversification of agriculture towards fruits and vegetables, livestock and other high value crops (HVCs) and increasing marketable surplus of various crops have encouraged the private agri-business companies to invest in agricultural R&D, extension, markets and logistics, contract farming and other farm services. These investments have supplemented the public investment. Against this background, the present unit discusses various issues related to capital formation and agricultural productivity.

7.2 CONCEPTS OF PRODUCTIVITY

Productivity is defined as the ratio of a measure of output to one or more of inputs used in its production. There are two concepts of productivity: partial (single) factor productivity and total (multiple) factor productivity. Partial factor productivity (PFP) is a ratio of the quantity of total output to the total quantity of a single input. For instance, labour productivity measured by dividing the total production of a farm by the number of total workers (or total hours of work) of that farm is a PFP. Since various inputs are used in agriculture (e.g. labour, land, capital, irrigation water, seeds, chemical fertilisers, etc.), PFP can be estimated for any farm input. Most commonly, PFPs measured in agriculture are 'with respect to' (w.r.t.) land and labour productivities. Per hectare yield of a crop is known as land productivity which is computed by dividing the total crop production from the total cultivated area under the crop. Similarly, labour productivity is measured by dividing the total crop production from the total number of workers used to produce the output. Keeping the land constant, land productivity can be increased by improving the efficiency which can be achieved by intensive use of other inputs like chemical fertiliser, labour, HYV seeds, etc. It can also be increased by changing the cropping pattern from low value crops to HVCs. Similarly, labour productivity can be increased by improving the human capital and by using modern farm inputs and technologies. Thus, an increase in output, achieved by keeping the input constant or by a reduction in the

input used by keeping the output constant, implies an increase in the PFP. PFP can be calculated in terms of physical output or monetary value. For instance, per worker productivity (i.e. average productivity of labour: APL) is given by: APL = Q/ L; where Q = total physical output and L = number of workers. If we multiply Q with the farm harvest price and divide it with number of workers used, we get per worker productivity in monetary value. However, to compare the value of productivity over a period of time, we need to convert nominal values into real values (i.e. express the values at constant prices) using appropriate price deflator. Such a conversion neutralises the effect of price changes. Generally, wholesale price index (WPI) is used to deflate the value of output and the consumer price index (CPI) is used to deflate the value of wages and salaries paid to workers.

An estimate of PFP cannot provide true performance of a resource. For instance, per worker productivity in agriculture can be raised either by improving the quality of human resource (by training and retraining) or simply by reducing labour and using more capital and technology. Total factor productivity (TFP) is therefore a more comprehensive measure of productivity. Various methods have been developed to compute TFP. Before the mid-1990s, most studies estimated TFP growth by growth accounting approach (GAA). The GAA is based on assumptions of perfect competition and constant returns to scale. It also assumes that a decision-making unit (production entity) operates on its production frontier implying that it has 100 percent technical efficiency. Thus, TFP growth measured by the GAA approach is due to technical change and not due to technical efficiency. Parametric and non-parametric approaches, using panel data estimation of TFP, relaxes the assumption of production units operating at 100 percent technical efficiency made by the GAA.

7.2.1 Capital Output Ratio (COR)

Capital-output ratio (COR) refers to the amount of capital required to produce one unit of output. Suppose the rate of investment in an economy is 36 percent of GDP and GDP growth rate is 8 percent. Then, COR is 36/8 or 4.5. It implies that to produce one unit of output, 4.5 additional units of capital is required. We must note that the capital investment created in a year lasts for several years depending upon the expected life of machines. COR may vary from country to country and sector to sector depending upon factors like availability of capital, cost of capital, cost of other inputs such as labour, etc. COR tends to increase as capital becomes cheaper than other inputs over a period of time. COR is determined by a number of factors such as innovation, technical progression, mode of production, types of activities, etc. An increasing trend in COR in a sector implies that the sector has become more capital intensive over a period of time.

7.2.2 Incremental Capital Output Ratio (ICOR)

Another variant of COR is Incremental Capital-Output Ratio (ICOR) which is defined as the ratio between investment in period 't' and the growth in output between periods 't' and 't–1'. It is estimated (for agriculture) as:

$$ICOR = \frac{I_t}{Y_t - Y_{t-1}}$$

where I_t = agricultural investment in period 't', Y_t = agri-GDP in period 't' and Y_{t-1} = agri-GDP in period (t-1). Higher the ICOR, lower would be the capital productivity. Analysis of ICOR is useful to estimate level of investment required to attain a specified output level which in turn determines the achievement of the targeted growth rate of economy. Efficient use of capital reduces ICOR and lowers investment requirements for achieving a higher growth rate. Higher ICOR implies not only higher cost of production but also lower profitability and lower marginal efficiency of capital. Agricultural sector growth, among others, depends upon the level of investment, ICOR and the marginal efficiency of the invested capital. Value of ICOR may vary across states and time period. ICOR can be estimated separately for private and public investment in agriculture.

If we look at the trends in ICOR in agriculture over the plan periods from 1982-2014 (i.e. 6th to 12th plan period years), we observe that in case of private investment, ICOR has ranged between 0.8 during 6th/7th plans to 1.3 during the 9th plan and 0.7 during the successive years. The average ICOR of public investment had been 1.2 during the 1980s, 0.8 during 1992-97, 2.5 during 1997-2002 and about 2 during the period 2002-12. For the period 2007-14 ICOR has been estimated as 2.8. During the last several years, gross capital formation (GCF) as percentage of agri-GDP (at 2011-12 prices) has ranged between 17 to 18 percent, while the agricultural growth rate has ranged between 3 to 4 percent. This implies that either the ICOR in agriculture has increased over this period due to either increasing mechanisation or the composition of agricultural investment has changed or agricultural growth is constrained due to demand and supply side factors.

7.3 INVESTMENT IN AGRICULTURE

Agricultural investment can be classified into two groups – public and private investment. Public investment refers to the investment made by the government for the development of agriculture. This comprises investment in infrastructure, education, R&D, extension, irrigation, etc. It can further be classified into – investment 'in' agriculture and investment 'for' agriculture. Investment 'for' agriculture comprises the public investment in power, roads, rural industry, marketing, railways, storage, communications, banking, insurance, health, education, etc. Public investment 'in' agriculture includes all investments which directly benefit the agriculture (such as investment in irrigation projects or agricultural R&D, extension, fertiliser, pesticides, farm

machines, etc.). Thus, investment 'in' agriculture directly influences agriculture through increase in land productivity. Investment 'for' agriculture may have an indirect impact through improvement in overall infrastructure. Public investment is not only critical for enhancing the productive growth but is also important for attracting private investment in the sector. This is described as public investment in irrigation resulting in a 'crowding in' effect on private investment in agriculture.

Private investment in irrigation, farm machinery and technology, HYVs, chemical fertilisers, livestock, etc. directly contributes to agricultural production and productivity growth. The elasticity of private gross capital formation in agriculture, with respect to public investment in irrigation and power is estimated to be 0.16 and 0.15 respectively. This implies that a Rs.100 investment by the government in irrigation and power increases the private investment in agriculture by Rs. 16 and Rs. 15 respectively. Studies have shown that private investment in agriculture is influenced by public investment in irrigation, institutional credit, terms of trade, infrastructural variables like road density and electricity consumption, etc. Since agriculture is a state subject, compared to private investment, public investment is determined by the income of the respective states.

Public and private investment in agriculture is both complementary as well as substitutive. For instance, if basic agricultural infrastructure is created by the government, farmers would be incentivised to invest in tractors, pump-sets, tube-wells, etc. On the other hand, public investment can also be a substitute for private investment because if government installs deep tube wells in canal command areas for supplementing the surface irrigation and ensuring assured supply of irrigation water for agriculture, farmers would not need to make their own investment in groundwater irrigation. In general public investment should be made for the larger purpose of development of new seeds, technology, agricultural services, agricultural markets, etc. Although agribusiness firms also provide new technology, seeds and inputs to farmers, there can be no substitute for public investment especially for creating public goods and services that induce agricultural development. Therefore, both public and private investment in agriculture helps to bring about technical progress by shifting the production frontier upward.

7.3.1 Composition of Private and Public Investment

Private investment in agriculture can be classified into fixed capital and working capital. Investments made in machines, tools, farm building, tractor, land levellers, cultivators, harvesters, tube well, irrigation structure, tree-stock, livestock, land development, soil and water conservation harvesting structures, etc. are termed as investment in fixed capital or assets. These assets help to raise farm production, productivity and income. Similarly, working capital helps to purchase various farm inputs such as seeds, fertiliser, pesticides, irrigation water, hiring of agricultural labour, hiring of machines and draught power. Both fixed and working capitals are critical for

the timely performance of various agricultural operations. Public investment in agriculture consists of investment made by central, state and local governments for creating various tangible and intangible assets. These could be by way of land development, minor and major irrigation projects, soil and water conservation and harvesting works, afforestation, rural roads and electrification of villages, agricultural R&D, farmers training and capacity building, etc.

7.3.2 Determinants of Private Investment

There are several factors that determine the private investment in agriculture. Important among them are: (i) terms of trade, (ii) flow of institutional credit, (iii) public sector investment in agricultural infrastructure, (iv) input subsidies, (v) technological change, (vi) increase in size of operational holdings, etc. Favourable terms of trade to agriculture would increase the profitability in agriculture and encourage the farmers to invest more. Public sector investment in irrigation, power, road, markets, soil and water conservation, agricultural R&D, extension, etc. induces private investment in agriculture due to their complementarity with private investment. Although, in general, agricultural subsidies may 'crowd out' real public investment in agriculture, subsidies on tractors, pump sets, fertilisers, electricity, diesel, etc. have positive impact on private investment in agriculture. Technological advancement also affects private investment. New technologies adopted in agriculture during green and post-green revolution periods have been more capital intensive than the traditional technology used in the pre-green revolution period.

Rising number of operational holdings due to division of holdings are likely to increase private investment as division of holdings increases the demand for investment in farm assets and machinery. The availability of institutional credit and subsidies to the farm sector motivates these divided holdings to increase investment in farm machinery. However, investment in farm machines by the divided holdings may increase the production cost due to under-utilisation of such machines. Public investment in agriculture has ranged between 0.3 to 0.6 percent during 2005-2015 whereas private investment has ranged between 1.8-2.7 percent during the same period. Private investment is complementary to public investment which responds better and faster to incentive structures. This means that improved incentives in the form of better returns or better prices (or favourable terms of trade) play a catalytic role in accelerating the private investment in agriculture.

Check Your Progress 1 [answer within the space given in about 70-100 words]

1) Distinguish between labour productivity and land productivity.

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2) Why is it necessary to convert nominal values into real values while comparing the value of productivity over time?

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3) What is TFP? Before 1990s, generally, which method used to be employed for measuring TFP? What are its limitations?

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4) What are the determinants of COR? What does its increasing trend signify?

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5) State some of the areas in which public investment in agriculture should be made.

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6) State the factors which determine the private investment in agriculture.

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7.4 MEASURES TO INCREASE AGRICULTURAL PRODUCTIVITY

Per hectare productivity of various crops in India is quite low when compared to other countries. For instance, per hectare yield of paddy in China is about 1.9 times of the yield in India. It is 1.3 and 1.4 times respectively in Bangladesh and Indonesia. Productivity of wheat in China is over 2.0 times of that in India. Per hectare yield of maize and groundnut in USA is more than 4 times and 3 times respectively of the yield in India. Per hectare yield of pulses in China is more than 2.5 times of that in India.

The uneconomical size of holdings limits the feasibility and capability of farmers for adoption of new farm technology necessary for improving productivity per unit of land and other inputs. Being state subjects, investments (in irrigation, agricultural R&D, extension, transport, storage, market and electricity) are to be made by the state governments although the central government also invests in these areas. Thus, while the development of agriculture largely depends on the ability and willingness of the state governments to investment in agriculture, the role of the central government is crucial in resource transfer to the states and in the formulation of macroeconomic policies that directly or indirectly affect agricultural productivity and growth. A number of factors are responsible for low productivity in Indian agriculture which can be elaborated as follows.

7.4.1 Knowledge Deficit

Knowledge deficit leads to adoption of inappropriate cropping pattern and inefficient use of scarce resources. This in turn raises the cost of production, degrades the soil, water and other environmental resources and makes the agriculture unsustainable– economically, ecologically and socially. There is a wide gap between what the technologist gets in the experimental farm and what a farmer gets on his farm. There is also a wide gap between the 'best practice' farmers and the 'common' farmers. The National Policy on Farmers emphasise: (i) reducing the knowledge deficit in agriculture through effective training and lab-to-land demonstrations in the area of post-harvest technology, agro-processing and value addition; (ii) effective linkages of farms with research institutions, farmer-to-farmer knowledge and technology transfer; and (iii) establishment of Farm Schools.

7.4.2 Institutional Factors

India initiated land reforms and abolished the feudalistic agrarian structure. However, there are still number of institutional bottlenecks which are responsible for low productivity in agriculture. The absentee landowners, lack of security of land tenure, inadequate infrastructural support in terms of institutional credit, transport system, marketing/storage/processing facilities, etc. have continued to be factors of deterrent in raising productivity. While many of the institutional arrangements are already in place, their effective

implementation is lacking. While there is a need to revitalise and reform the existing institutions (such as APMC, farmers organisations, cooperative societies, credit and marketing institutions), there is also a need to develop new institutions like Farmer Producers Organisations (FPOs), group farming and marketing, contract farming, customised hiring of costly farm machines, private agri-clinics, etc. Since Indian agriculture continues to be heavily dominated by small and marginal farmers, appropriate institutional development need to be promoted to improve productivity and profitability of these farmers.

7.4.3 Technological Factors

More than 85 percent of Indian farmers are small and marginal. They do not have access to new technologies due to both demand and supply side constraints. Public extension services have been declining since the introduction of reforms and, as a result, they continue to operate with traditional methods which are low yielding. Farm technologies can be classified into two categories– scale neutral and non-scale neutral. Scale neutral technologies can be applied on any size of farm (e.g. new seeds and fertilisers) including by small and marginal farmers. However, scale-neutral technologies may not be resource-neutral. Thus, resource-poor farmers would find it difficult to adopt costly/patented seeds and chemical fertilisers. Access of these technologies to the poor farmers can be made by subsidising the input costs for such poor farmers. Non-scale neutral farm technologies are those which cannot be economically applied on all size of farms (e.g. tractor, harvest combine, tube-well, etc.). These technologies are more cost-effective on large size of farms. But application of these technologies makes it possible for timely execution of various farm operations thereby improving the productivity and efficiency by saving both pre- and post-harvest losses. However, since there is a lower limit beyond which these capital intensive technologies and farm practices cannot be applied in an economically viable manner, it is necessary to establish institutional mechanisms to help small and marginal farmers to pool their land and other resources to apply them.

Technological changes alter the input structure by replacing the traditional inputs by modern inputs and increasing the agricultural output manifold. As a result of increase in production, there is a corresponding increase in the marketable surplus. Consequently, farmers become more dependent on the market for the purchasing of inputs and selling the farm output. Market also expands with farmer's supply decisions getting influenced by the market signals. Thus, technological progress leads to commercialisation and capitalisation of agriculture and increase productivity.

7.4.4 Water Use Efficiency

Surface and ground water are the two important sources of irrigation. The share of surface irrigation in the total irrigated area has been continuously declining while the corresponding share of groundwater irrigation has been

rising. Groundwater irrigation is preferred on equity, efficiency, productivity and private investment grounds. It facilitates diversification of small and marginal farming from traditional to HVCs as these crops require small doses of water on demand at frequent interval. However, due to the government policies related to agricultural credit, subsidy, inputs, power and lack of effective regulation, groundwater sustainability has become a key issue of concern. Therefore, price policy should be properly integrated with the water policy as an instrument to improve efficiency, productivity and sustainability of groundwater. In other words, a rational power supply and pricing policy for tube-well irrigation could be an effective instrument for water-use efficiency. One viable option is to shift from flat rate to meter-tariff system. Farmers should also be compensated by providing subsidy on procurement of modern water saving technology, especially in those regions where water table has significantly gone down due to over-exploitation of groundwater.

Besides the above, focusing on: (i) public investment in agricultural infrastructure, (ii) developing an appropriate training infrastructure at the block level for improving the human capital base, (iii) integrating Indian agriculture with the global value chain, (iv) develop a market for custom hiring services of farm implements, (v) protecting farmers from technology and market failures and (vi) diversification towards horticulture and livestock products are also important in this context.

7.5 ISSUES RELATED TO AGRICULTURAL REFORMS

Important issues requiring reforms in Indian agriculture can be discussed under the following six heads: (i) diversification; (ii) organic farming; (iii) crop insurance; (iv) contract farming; (v) land lease market; and (vi) agricultural trade.

7.5.1 Diversification

Indian agriculture today is largely market driven. Urbanisation, increase in per capita income and changing consumer tastes and preferences have changed the consumption demand from food grains to livestock and horticulture products. The factors that determine the agricultural diversification may be categorised for their supply, demand and policy dimensions. The development of infrastructure in terms of roads, markets, storage, processing, land availability, technology advancement and increase in human capital are the major supply side factors. Urbanisation, income growth and convergence of food habits are demand side factors. Policy driven factors are input subsidy, reform in tenancy and lease laws, promotion of contract farming and incentives to induce corporate investment in agriculture.

Crop diversification can be classified into horizontal and vertical diversification. Horizontal crop diversification refers to addition of more

crops to the existing cropping systems whereas vertical crop diversification refers to shifting the cropping pattern from low value cereal crops to high value horticulture crops (e.g. fruits, vegetables, floriculture, agro-forestry, medicinal and aromatic plants). An extension of crop diversification to allied activities like animal husbandry, poultry, fisheries, etc. is much needed. While various studies show that farm diversification can ensure productive and remunerative employment, in the absence of adequate marketing infrastructure and institutional arrangement, farmers growing these high valued crops (HVCs) of perishable nature bear the brunt of price and output volatility. Such products require efficient post-harvest logistics, supply chain and processing infrastructure to avoid wastage. Also, the most critical point in the entire chain of 'farm harvest to post-harvest logistics' is the extent to which the farmer is directly involved as a partner in the process. Creation of institutions such as 'Farmers Producers Organisation' (FPOs) in which farmers are partners is extremely crucial for scaling up post-harvest operations directly linking them with markets beyond the local markets.

7.5.2 Organic Farming

High input-intensive farm practices deplete and contaminate the groundwater, increase the external input cost, deteriorate the quality of soil, increase the credit requirement of farmers and consequently increase indebtedness among farmers. Need for organic and sustainable agricultural practices is crucial not only for reducing the adverse consequences of inorganic farming but also for protecting human health, biodiversity and water bodies. Organic farming is more labour and knowledge intensive, depends more on locally available resources, has potential to improve rural livelihood, reduces distress migration, facilitates involvement of SHGs in preparing bio-fertiliser and bio-pesticides and develops local market for these products.

Shifting from conventional to organic farming requires at least three-year transition period. During this period, crop yield declines and farmers do not get premium prices. Therefore, for the promotion of organic farming practices, farmers need state support in terms of farm income protection (through subsidised organic inputs or through direct cash transfer during this period). It could be a viable option if state support is also extended for developing market infrastructure, an institutional arrangement for quality certification and branding, training of farmers, etc. Specifically, the following policy supports are required for its promotion:

- Training and capacity building infrastructure should be created to enhance the knowledge and skills of farmers through effective training programmes related to organic farming, composting techniques, bio-pesticides and bio-fertiliser, value addition techniques, group-forming and organisational skills.
- Assured markets for organic products. This can be developed through contract farming, risk coverage through insurance, consumers' awareness on organic products, development of infrastructure facilities for post-harvest management, processing and marketing, etc.

7.5.3 Crop Insurance

Indian agriculture suffers from three failures: market failure, technology failure and weather failure. Therefore, to protect the farmers from these failures, introduction of an effective agricultural insurance system is needed. In the past, Government has launched several agriculture insurance schemes on pilot basis with limited coverage [e.g. Comprehensive Crop Insurance Scheme (1985) which covered only loanee farmers for food and oilseeds crops, Weather Based Crop Insurance Scheme (WBCIS) (2007) introduced in selected areas on pilot basis]. Taking note of shortcomings of the earlier schemes, the Pradhan Mantri Fasal Bima Yojana (PMFBY) was launched in 2016. The scheme provides a comprehensive insurance cover against failure of the crop. It covers all crops, including horticulture. The scheme is compulsory for loanee farmers and voluntary for other farmers. The loss assessment for crops due to non-preventable natural risks will be on 'area approach'. Majority of insured crops are eligible for indemnity claims up to maximum of 25 percent of the sum-insured. However, losses due to localised perils (hailstorm, landslide and inundation) and post-harvest losses due to specified perils (e.g. cyclone/cyclonic rain and unseasonal rains) would be assessed at the affected insured field of the individual insured farmer. The Government of India has recently designed an insurance portal for farmers, states, insurers and banks. Basic information like notified areas, crops, sum insured, government subsidy, premium to be paid by farmers, etc. have been digitised and put on the web portal so that farmers and other stakeholders get information about crop insurance and premium cut off dates. There is a critical need to integrate all stakeholders on one virtual platform.

7.5.4 Contract Farming

Contract farming is an agreement between farmers and processing and/or marketing companies for the production and supply of farm produce at pre-determined prices and quality. It can also be a tripartite agreement between farmers, company and Government. The farmer is required to grow the contractor's crop on his land and supply the output based on expected yield and contracted acreage. In some cases, the companies also provide inputs and technical advice to the farmers. The use of contracts has become attractive to farmers since the arrangement can offer both an assured market and access to production support. One of its strengths can be transfer of technology and better farm practices to the contracted farmers. Changes in tenancy, lease and land transfer laws would facilitate private companies getting into agribusinesses. In order to facilitate entry of agribusiness firms into production, marketing, agro-processing and allow direct marketing, Government has formulated a Model Agricultural Produce and Livestock Contract Farming (Promotion & Facilitation) Act, 2018.

Contract farming can be a viable option for small and marginal farmers who find themselves unable to participate in the market due to various constraints. It is considered a win-win situation for both farmers and the companies as it

eliminates the middlemen and ensures an assured supply of agro-products to the companies. The failure of public institutions to provide farmers with the essential marketing protection and support also makes a strong case for promotion of contract farming. It is also argued that it would help reduce the burden on the government procurement system and the hidden producers' subsidies. From the employment generation point of view also, contract farming is favoured particularly in horticultural crops where there is a higher labour absorption capacity. However, there are a number of risks associated with contract farming. Common problems include farmers selling to a buyer other than the one with whom they hold a contract or the inputs supplied by the company being used for other purposes. Problems on the other side include: contract farming company sometimes failing to buy products at the agreed price or in the agreed quantities, arbitrarily downgrading the quality-grading of the produce, etc. A good legal framework is therefore crucial for its successful implementation and long-term sustainability.

7.5.5 Land Lease Market

Absence of a sound institutional framework for land leasing is a major constraint in mobilising private investment in agriculture. Well-developed land rental markets are required in order that landowners who have shifted to non-farm activities can rent their land to those who can increase their size of operational holdings and derive the benefits of scale economies. The most important feature of a well-functioning rental market is security of the owner and the tenant. In the absence of effective land tenancy laws, land lease market in India is inefficient and distorted. Hence, new legislations on land tenancy rules are needed to encourage shared-cropping and contract farming. Tenancy in most Indian states is at present (2018) not allowed legally though it exists informally. Legalising tenancy would permit effective consolidation of farming without the need for depriving land ownership. An Expert Committee constituted by NITI Aayog in 2017 on Land Leasing (under the chairmanship of Professor Haque) proposes to set up 'land banks' in which landowners could deposit their land parcels so that cultivators can lease land. The public agency acts as an intermediary and transfers rent from the cultivator to the owner charging a small fee to cover its costs. This is expected to permit the consolidation of operational landholdings in the country.

7.5.6 Agricultural Trade

Infrastructure for trade plays a major role in determining the level of both domestic and international trade which is important for improving the performance of Indian agriculture. Efficient transportation and handling facilities are essential pre-requisites for agricultural trade since most of the agricultural commodities are perishable in nature and hence require quick handling, processing and disposal facilities. Trade in goods and services among different countries are generally based on comparative advantage.

However, in case of Indian agriculture, trade is also required to meet the objectives of food security and achieving price stability. The government should regulate the agricultural trade through policy instruments like increasing/decreasing tariffs within bounded rates. Agriculture is a politically sensitive issue as it is not only an economic activity but also a way of life and livelihood of a majority of rural workforce. Food security is also a major concern because price volatility in international market can jeopardise it. Therefore, all policies for establishing balance between the domestic objectives of food security and market stability in agriculture need to contend with domestic political concerns.

After implementation of WTO regulations, it was envisaged that distortions in agricultural trade would be reduced and scope for exports of products from developing countries would increase. In other words, post-WTO trade regime was expected to help the efficient producers through better prices for their products. However, the experience of two decades of implementation of WTO regulations shows that heavily subsidised large scale mechanised agriculture in developed countries has made the agriculture of developing countries less competitive in the global market. Greater price and output volatility in the global market can be disastrous for Indian farmers. Oilseed and pulses producers have already faced problems due to such price volatility. Therefore, suitable policy actions are to be taken to protect the farmers from the implications of such shocks.

Check Your Progress 2 [answer within the space given in about 70-100 words]

1) State the major factors responsible for low productivity in agriculture in India.

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2) On what lines, new institutional arrangements are needed to be established to promote the productivity levels of Indian agriculture?

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3) In what way 'pooling of land' can help overcome technological constraints in Indian agriculture?

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4) What is meant by vertical 'crop diversification'?

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5) State the disadvantages of high 'input-intensive' inorganic farm practices.

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6) What are the advantages of 'organic farming'?

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7.6 LET US SUM UP

The biggest challenge for policy makers in the present time is to enhance the agricultural productivity and sustain the livelihood of resource-poor marginal and small farmers. State support to farmers, coupled with the right mix of pricing and marketing policies along with the appropriate output-mix and farm diversification towards high value horticulture and livestock products can make agriculture a vibrant and profitable activity. An effective regulatory and rule-based mechanism needs to be put in place to attract private investment in agriculture and to protect the interests of farmers and

consumers from the oligopolistic power of agri-business companies. The present unit examines these aspects along with the key agricultural reforms required for revitalising the Indian agriculture.

7.7 KEY WORDS

Productivity : Ratio of a measure of output to one or more inputs used in production. If only one input is used, the measure is called Partial Factor Productivity. If more than one inputs are considered then the measure is called as TFP.

Capital Output Ratio : Refers to the amount of capital required to produce one unit of output.

ICOR : ICOR is defined as the ratio between investment in time 't' and the growth in output over a period i.e. between time 't' and time 't-1'.

Technical Efficiency and Technical Change : Technical efficiency and technical change are the two sources of TFP. Technical efficiency refers to the ability of a production unit to produce maximum possible output from a given combination of inputs and technology. Technical change refers to shift in the production frontier over a period of time due to application of new technology. Thus, TFP increases either due to improvement in technical efficiency or due to shift in production frontier (technical change) or due to improvement in both.

7.8 SOME USEFUL BOOKS AND REFERENCES

1) Bathla, Seema, Thorat, Joshi and Yu Bingxin (2017). 'Where to Invest to Accelerate Agricultural Growth and Poverty Reduction', *Economic and Political Weekly,* LII (39), Sept.30, pp 36-45.

2) Chand (2017). Doubling Farmers' Income: Rationale, Strategy, Prospects and Action Plan", NITI Policy Paper 01/2017 National Institution for Transforming India, Government of India, New Delhi.

7.9 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) Labour productivity is defined as the ratio of 'total quantity or value of farm production to total number of persons engaged in its production. It is the per person output. Land productivity is the per hectare yield of a crop.

2) This is necessary to neutralise the effect of changes in prices.

3) Unlike PFP, TFP can consider the effect of more than one factor in determining the growth in any one variable. The limitation of GAA is that it assumes perfect competition among production units, constant returns to scale and that each unit is operating on its production frontier i.e. with 100 percent technical efficiency.

4) Its determinants are: innovation, technical progression, mode of production, etc. Its increasing trend implies that the sector is becoming more and more capital intensive.

5) Land development, minor and major irrigation projects, soil and water conservation and harvesting works, afforestation, rural roads and electrification of villages, agricultural R&D, farmers training and capacity building, etc.

6) Terms of trade, flow of institutional credit, public sector investment in agricultural infrastructure, input subsidies, technological change, increase in size of operational holdings, etc.

Check Your Progress 2

1) Knowledge deficit, institutional factors, technological factors and water use efficiency.

2) There is also a need to develop new institutions like Farmer Producers Organisations (FPOs), group farming and marketing, contract farming, etc.

3) By taking advantage of economies of scale for non scale-neutral farm technologies (e.g. tractor, tube well) which can be applied only on large farms.

4) Vertical crop diversification refers to shifting the cropping pattern from low value cereal crops to high value horticulture crops.

5) They deplete and contaminate the groundwater, increase the external input cost, deteriorate the quality of soil, increase the credit requirement of farmers and consequently increase indebtedness among farmers.

6) It is more labour and knowledge intensive, depends more on locally available resources, has potential to improve rural livelihood, reduces distress migration, facilitates involvement of SHGs in preparing bio-fertiliser and bio-pesticides and develops local market for these products.

UNIT 8 AGRICULTURAL POLICY*

Structure

8.0 OBJECTIVES

After reading this unit, you will be able to:

- define the term 'agricultural policy';
- state the objectives of 'agricultural policy';
- indicate the sectoral dimension of agricultural sector and in its light the need for policy integration;
- discuss the instruments of 'agricultural policy';
- outline the salient features of 'National Policy for Farmers';
- review the recent agricultural policy reforms in India; and

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- critique the PMFBY and suggest measures to overcome them.

8.1 INTRODUCTION

Agricultural productivity, prices and risks are the critical issues that need to be addressed by an agricultural policy. As discussed in Unit 7, productivity in Indian agriculture is quite low when compared to other countries. Therefore, how to improve and sustain agricultural production and productivity is one of the key policy issues. Similarly, how to ensure remunerative prices of agricultural commodities and protect the welfare of both farmers and consumers is another issue. As agriculture is subject to the market, technology and weather risks, protection of farmers from these risks becomes one of the important policy issues. Both the supply-side and demand-side policy instruments are needed to deal with these issues. The supply side instruments include land reform, diffusion of new farm technologies, price support, institutional credit, input subsidies, public investment in infrastructure services and crop insurance. The demand-side instruments consist of state intervention in agricultural markets, public procurement of food grains, food subsidies, operation of public distribution system and agricultural trade management. Keeping these aspects in view, the present unit discusses the concept of agricultural policy and its objectives, policy instruments and recent policy reforms.

8.2 OBJECTIVES OF AGRICULTURAL POLICY

Agricultural policy can be defined as an action plan to guide decisions for achieving pre-determined goals related to agricultural development. It is a term collectively used for a bundle of policies related to agriculture such as land policy, price policy, trade policy, credit policy, food policy, etc. It reflects the national approach to agricultural development and a set of activities to implement it.

The terms ‘policy’ and ‘planning’ are inter-linked but are yet different in their meaning. Policy refers to the approach and outlook of the government while planning relates to the execution and implementation of that approach. Thus, it is planning through which the policy outlook of the government can be implemented. An agricultural policy may have a long term or short term outlook and may extend in its implementation beyond the specific time period. A plan, on the other hand, is time-bound during which the government makes efforts by allocating the required physical and financial investments to achieve the intended objectives. Some constituents of agricultural policy do not require any planning or public expenditure to implement (such as market reform, tenancy reform, trade regulations). Such measures do not have any direct cost to government. However, their cost and benefit may occur to different stakeholders. For instance, if tariff is increased on an agricultural commodity, it would increase its domestic prices and consequently put positive/negative effect on the producers/consumers.

Agricultural policy may have different objectives to be achieved. Their relevance may change over time. For instance, food security was the major policy objective during 1970s. Today, how to make agriculture ecologically, socially and economically sustainable has become our primary objective. Broadly, we can identify the following policy objectives in the context of Indian agriculture:

- price protection to farmers and management of price volatility due to global integration of Indian agriculture;
- conservation, management and rational use of land, water and other natural resources;
- developing cost-effective, energy-efficient and resource conserving farm technologies;
- ensuring economic viability of small and marginal land holdings;
- farm diversification towards high value horticulture and livestock products;
- removal of regional inequalities in agricultural development;
- ensuring free flow of agricultural commodities across the country; and
- improving the functioning of agriculture product and factor markets.

8.2.1 Sectoral Dimension and Policy Integration

Agriculture sector is a broad term within which many other related sub-sectors are subsumed. Its major constituents are: crop husbandry, animal husbandry, poultry, fishery and other allied activities. Crop husbandry includes food and non-food crops, horticulture (fruits and vegetables), floriculture, etc. In order to augment farmer's income and make efficient use of available resources, there is a need to have a policy that effectively integrates all these activities. Within the crop sector, policy initiatives may be separate for food crops, feed crops, cash crops and traditional crops. The policy focus in India is largely on wheat, paddy and sugarcane (mainly due to the political lobby in favour of these crops), while horticulture and livestock sectors are yet to receive due policy support. This is despite the several missions that have been launched to promote the horticulture and livestock products. Fruits, vegetables, and livestock provide relatively more income and employment than food crops. The growth of these products is demand driven. However, they are perishable commodities subjected to greater market risks. They therefore require adequate marketing infrastructure and institutional support which are grossly lacking in India. Therefore, knowledge of sectoral perspective on overall farm sector is necessary for evolving a comprehensive policy.

A farmer needs three basic things to do successful farming: (i) adequate incentives to produce (price support); (ii) a secured resource base (land tenure, irrigation, etc.); and (iii) access to well-developed markets (both

product and factor markets). An integration of agricultural policy with policies related to land, water, energy, trade, credit, labour, agro-processing, and environment is therefore very much necessary to ensure agricultural sustainability. Such a policy integration also helps to combine the required interplays and trade-offs. For instance, if the policy objective is to make efficient use of groundwater, it can be achieved by subsidising the cost of modern irrigation technologies such as drip and sprinkler irrigations. However, if the state government provides free or subsidised power for tube-well irrigation, this objective would be difficult to achieve. Agricultural policy has therefore to be comprehensive in dealing with the interrelated aspects. Again to cite examples for this, policy interventions oriented toward improving marketing channels will be effective only if they are linked to the trade and tariff regulations. Likewise, access to institutional credit to farmers should be linked with security of land tenure.

8.3 INSTRUMENTS OF AGRICULTURAL POLICY

Policy instruments are the means by which intended policy objectives are achieved. Effectiveness of an instrument not only depends on the flexibility of the instrument to adopt to changes but also on how it is used in conjunction with other instruments. Policy instruments can be broadly classified into three categories. First is related to public expenditure comprising of investment in agriculture infrastructure, R&D and subsidised inputs. Second consists of controls and regulations, primarily on prices and trade. The third is direct management of production and marketing through State-owned enterprises. In case of agriculture, a number of policy instruments (e.g. price support, public procurement of food grains, input subsidies and public investments in agricultural infrastructure) are applied to pursue the policy objectives. These instruments are complemented with trade policy instruments and exchange rate adjustments to achieve export competiveness which is dynamic in nature. For instance, till recently, quantitative restricts (QRs) were used as an instrument to protect the domestic agriculture from cheap imports. But in the post-WTO period, tariff is the key instrument in managing agricultural imports. Following are some of the main policy instruments used for promoting the agricultural sector in India.

8.3.1 Subsidies

Agricultural subsidies are of two types: investment subsidies and input subsidies. Investment subsidies are provided to encourage private investment in agriculture (e.g. investment in drip irrigation, rain water harvesting, farm machines). Input subsidies are provided through subsidising fertilisers, irrigation, farm power, seeds and pesticides. In addition, interest subsidy is also provided on institutional credit for farmers to meet their short-term and long-term needs. Although food subsidy does not directly benefit farmers (as

it is given to the consumers), it indirectly influences them by raising the demand for subsidised food-grains.

Subsidy given to a farmer per unit of an input is equivalent to a fall in its price by the amount of the subsidy. If other things remain unchanged, a fall in the cost of an input due to subsidy would lead to increased farm production, reduced output price and increased demand for output in final consumption and agro-processing. If subsidy is used as a policy instrument, along with stability in output-price, it would enhance farmer's income. However, if the market price declines due to input subsidy, its benefit would go to consumers and agro-processing companies rather than to farmers.

Agricultural subsidies are questioned on environment, equity and efficiency grounds as they encourage over-utilisation of inputs resulting in soil degradation, soil nutrient imbalance, environmental pollution and groundwater depletion. A steep rise in subsidy can crowd out public investment in agriculture, as governments may find it difficult to increase public investment in the sector. Moreover, due to their inequitable distribution across regions and farm-sizes, their benefits are generally availed by big farmers, especially in the agriculturally developed regions. For instance, a sizable portion of fertiliser subsidy is grabbed by farmers of irrigated regions as fertiliser consumption in rain-fed regions is quite low. Similarly, subsidised flat rate power tariff system causes depletion in groundwater table, distorts cropping pattern and adversely affects the sustainability of agriculture. It benefits more the big farmers as they have relatively lower unit-cost due to their larger farm size.

8.3.2 Price Support

Price of a product is one of the key determinants of its supply. Therefore, price support works as an incentive to increase crop production, productivity and farm income. The government fixes the minimum support price (MSP) for an agricultural output to ensure reasonable income to farmers. If market price of the price-supported crop is below the MSP, the responsibility to procure the produce from farmers (by compensating for the difference between MSP and market price of the crop produce) rests with the government. If the policy objective is to enhance farmers' income, ratio of output prices to input prices must be greater than one. Profitability in agriculture would increase only when the index of output prices grows faster than the index of input prices. When self-consumption is a relevant share of production (as is the case with marginal farmers), price support becomes less effective in improving the farmers' welfare.

In addition to MSP**,** a Market Intervention Scheme (MIS) is implemented (on ad hoc basis) in India for perishable and horticultural commodities not covered under MSP. This is done if either the production increases by at least 10 percent or price decreases by 10 percent over the corresponding figures for the previous normal year. Its objective is to protect the growers from

making distress sale in the event of a bumper crop when prices tend to fall below economic levels. The central and state governments equally share the losses incurred in its implementation.

8.3.3 Direct Payments

Direct payments are used as an instrument to maintain the agricultural output within a pre-defined output quota. Some developed countries like EU and USA use this policy instrument. They are given for enabling the performance of the multi-functionality role of agriculture (e.g. conservation of land and water resources, protection of natural environment and biodiversity, provision of safe and high-quality food, preservation of rural landscapes and heritage and socio-economic and cultural development of rural areas). All these being public goods, market cannot provide them. Therefore, direct payments are given to farmers for performing this role. Unlike price support, this instrument is considered less trade distortive as it is not a link to the output price of any crop. India can use this instrument to promote organic and sustainable agricultural practices. Since organic farming has positive environmental externalities, farmers practicing organic farming may be provided direct payments on a per hectare basis as a 'green bonus'.

The concept of 'Direct Payments' is different from the concept of 'Direct Benefit Transfer' (DBT). DBT is a system through which government transfers subsidy directly to the bank account of the intended beneficiary so that its misdirection and leakage is curtailed. For instance, a subsidy given on purchase of laser land leveller may be transferred to the account of beneficiary farmer after he purchases it from the market. Contrary to this, direct payment is the monetary support to the farmers for achieving the specific objective. For instance, if government wants that small and marginal farmer households should get the minimum income protection, then direct payment can be given to those households whose annual income falls below the minimum level. Such payment improves the economic welfare of intended beneficiaries but does not directly affect farm production and prices.

8.3.4 Institutional Credit

Farmers' credit needs are met by institutional and non-institutional sources. The non-institutional sources are money lenders, input dealers, traders, relatives, etc. Institutional sources are commercial banks, cooperative banks, regional rural banks and cooperative credit societies. Institutional credit is classified into short, medium and long terms on the basis of time-period. Short-term credit is provided for working capital (crop loan) for purchasing seeds, manure, fertiliser and pesticides or for meeting labour charges. They are normally for a period of less than one year. Medium-term loans (given for a period of 1-5 years) are for investment in land development, purchase of livestock, farm machinery and generation of other productive assets. Long term loan (over 5 year period) are given for fixed capital formation such as purchase of tractors, installation of tube-wells, etc. Provision of cheap and

timely credit (with low transaction costs) helps the farmers in applying new farm technologies and practices, diversify farm activities and improve farm income. A major policy issue is how to provide easy and affordable bank credit to tenant farmers, group farmers and small and marginal farmers. Banks are generally disinterested in credit disbursement to these segments due to high transaction and operation costs.

8.3.5 Crop Insurance

Indian agriculture suffers from three types of failures: market failure, technology failure and weather failure. To protect them from these failures, an effective policy instrument is 'crop insurance'. Besides helping in stabilisation of crop production and farm income, it encourages farmers to invest in new farm technologies and adopt risky but more remunerative cropping system. Besides protecting farmers from unforeseen setbacks, it helps in maintaining income stability and minimises the risk of non-payment of outstanding debt. Agriculture is the single most affected sector by droughts, floods and other natural shocks. There should therefore be a group insurance system so that transaction costs are brought down. Further, an in-built mechanism of insurance against the technology failure (such as costly hybrid seeds developed by the private companies) needs to be introduced so that farmers investing in such technologies may be protected against any unforeseen losses.

8.3.6 Public Investment in Infrastructure Services

State investment in irrigation, land improvement, soil and water conservation, roads, electricity, water and pasture land improvement are the major elements of infrastructure services. In addition, general services provided to producers (either free or at subsidised costs) include research, training and extension services, inspection services, and pest and disease control services. All these services help to boost agricultural economy.

8.3.7 Exchange Rate and Trade Interventions

Exchange rate management and trade interventions are used as policy instrument for protecting the interest of both farmers and consumers. Generally, depreciation of domestic currency (vis-à-vis other foreign currencies) would have positive impact on agriculture as it makes agricultural export cheaper (and import costlier) thereby improving the export competitiveness. However, its effectiveness depends on the elasticity of exports (and imports) to change in value of domestic currency relative to foreign currencies.

Trade intervention comprise quotas, import duties and export subsidies. These are used to increase (or decrease) quantity of traded commodities and thus increase/decrease domestic prices. Due to WTO regulations, quantitative restricts (quota) on agriculture trade in India had to be lifted. With this, tariff

(import duty) became the main instrument to regulate agricultural trade. Tariffs for various agricultural commodities are changed from time to time in response to domestic supply and price situation. It is therefore considered a price support and stabilisation instrument. Tariffs are levied on agriculture imports to keep the price of imported products higher than the prevailing MSP of that product. Exports are curtailed or banned if there is an estimated shortfall in domestic production in order to reduce upward pressure on prices. However, the instrument of tariff used in this manner protects the consumers interest rather than the farmers. A stable and pro-farmer trade policy that ensures a strong linkage between domestic and international markets and takes a holistic view (on food security, farm income, livelihood, and agricultural sustainability) is therefore needed.

8.3.8 Warehouse Receipts

Government of India has set up the Warehousing Development and Regulatory Authority (WDRA) to develop and regulate warehousing, including registration and accreditation of warehousing for issuing Negotiable Warehouse Receipt (NWR). A number of agricultural commodities, including horticulture commodities have been notified for the purpose of NWR. This instrument helps the farmers in stopping 'distress sales' of their produce. A farmer can deposit his produce in a WDRA accredited warehouse, which issues him a NWR, which can then be used as collateral for taking loan from a bank.

8.3.9 De Minimis

Agreement on Agriculture (AoA) under WTO classifies domestic support to agriculture into two categories– trade distorting and non-trade distorting. For trade distorting support, it sets the limit beyond which the support is not permissible. The de minimus refers to the trade distorting domestic support (subsidies) that can be given by a member country to its agriculture. It is a significant policy instrument used for promoting agriculture. It comprises the non-product specific subsidies such as given on fertilisers, electricity, irrigation, seeds, credit, etc. In developed countries, de minimus support is allowed up to 5 percent of agricultural GDP while for a developing country like India, it is permitted up to 10 percent of agricultural GDP. These subsides must be paid out of the government budget.

Check Your Progress 1 [answer within the space given in about 80-100 words]

1) Define the term 'agricultural policy' distinguishing between the terms 'policy' and 'planning'?

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2) Is it true that despite the fact that allied agricultural sectors like horticulture and floriculture are more income and employment generating, requisite agricultural policy support to these sectors have not yet come forth in India? Why?

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3) On what grounds, agricultural subsidies are questioned? Are they justified?

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4) Under what circumstances, MSP fails as a policy instrument to ensure farmers' welfare?

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5) How is 'direct payments' an useful policy instrument for developing economies like India?

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6) How is 'public investment in infrastructure services' a policy instrument?

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7) What is de minimus? Is de minimus support trade distorting?

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8.4 RECENT AGRICULTURAL POLICY REFORMS

National Policy for Farmers (NPF) 2007 provides a holistic approach to agriculture development. It focuses on the economic well-being of farmers rather than just on agricultural production. The term 'Farmer' is referred to a person actively engaged in farming activities as cultivator, labourer, sharecropper, tenant, poultry and livestock holder and any other person engaged in allied agricultural activities like fishing, beekeeping, gardening, agro-forestry, sericulture, non-corporate plantation, etc. Thus, its ambit of definition of farmer is kept wide so that no section is left out. The policy aims to: (i) improve economic viability of farming and increase net income of farmers; (ii) provide opportunities of non-farm employment for farm households; (iii) introduce measures for attracting and retaining youths in farming; (iv) develop and introduce a social security system for farmers; (v) provide risk management measures; (vi) protect and improve land, water, bio-diversity and genetic resources; (vii) provide appropriate price and trade policy mechanisms; and (viii) initiate agrarian reforms. In addition to these measures, in order to revitalise agriculture and improve farm productivity, profitability and income, some of the other recent agricultural policy reforms initiated are the following.

8.4.1 Tenancy Reform

In the absence of effective tenancy laws, land lease market in India is inefficient and distorted. Tenancy reform can promote shared-cropping and contract farming. A secured tenancy encourages the tenant farmer to make farm investment by removing insecurity from the mind of land owner and helping to develop the land-lease market. The Haque committee report (2017) has suggested setting up 'land banks' in which landowners can deposit their land parcels which can then be leased out to cultivators. The public agency will act as an intermediary and will transfer rent from the cultivator to the owner charging a small fee to cover its costs. Its implementation would encourage consolidation of operational landholdings and economies of scale.

8.4.2 Market Reform

Organised wholesale agricultural marketing is done in India through a network of regulated markets established under State APMC (Agricultural Produce Market Committee) Acts. However, over time, these markets have become restrictive and monopolistic. The existing regulatory framework of APMC does not support free flow of agricultural trade and direct marketing by farmers. These constraints can be overcome by replacing the APMC framework by a more liberal and progressive law that allows free competition, promotes transparency, facilitates flow of commodities across space and time and encourages operation of multiple marketing channels. Keeping these aspects in view, Government of India has formulated a Model Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act, 2017. The State governments are required to make amendments in their respective AMPC Acts to make them conformative to this Act. The Act focuses on:

i) promotion of direct marketing of agricultural produce;

ii) free-flow of agricultural trade across states;

iii) enhancing transparency in trade operations and price settlement through electronic and other innovative technology;

iv) promotion of multiple channels for competitive marketing, agro-processing and agricultural export;

v) encourage investments in development of markets and marketing infrastructure;

vi) de-intermediate the supply chain by integration of farmers with processors, exporters, bulk retailers and consumers;

vii) create a conducive environment for setting up and operating private wholesale market yards and farmer consumer market yards;

viii) promote direct interface between farmers and processors/exporters/bulk-buyers/end-users so as to reduce the price spread and accrue advantage to both producers and consumers;

ix) promote a national market for agriculture produce through the provisioning of inter-state trading licence and establishment of grading, standardisation and quality certification facilities;

x) rationalise market fee and commission charges; and

xi) provide a level playing field to the licensees of private market yard, private market sub-yard, electronic trading and direct marketing vis-à-vis the APMCs.

Introduction of e-NAM, an e-trading platform under National Agriculture Market (NAM) is an important policy initiative towards creating a unified national agriculture market with digital platform. State governments are taking steps to undertake market reforms and amend their APMC Acts to

permit e-trading of agricultural produces. Government of India has also formulated a Model Agricultural Produce and Livestock Contract Farming (Promotion and Facilitation) Act, 2018 to promote contract farming by putting in place a conducive regulatory and policy framework.

8.4.3 National Mission for Sustainable Agriculture (NMSA)

NMSA is one of the eight missions launched under the National Action Plan on Climate Change. It aims to make agriculture more productive, sustainable, remunerative and climate resilient by using environment friendly and energy-efficient technologies. The mission adopts four interventions to achieve the sustainable agriculture goal. They are: (i) rain-fed area development (RAD); (ii) on-farm water management (OFWM); (iii) soil health management (SHM); and (iv) Climate Change and Sustainable Agriculture: Monitoring, Modelling and Networking (CCSAMMN).

RAD adopts a cluster approach for development and conservation of natural resources through watershed development and soil conservation. It introduces appropriate farming systems by integrating multiple components of agriculture (such as crops, horticulture, livestock, fishery, forestry) with agro based income generating activities by value addition. OFWM focuses on enhancing water use efficiency by promoting efficient on-farm water management technologies and equipment. SHM aims at promoting location and crop specific sustainable soil health management. It includes residue management, organic farm practices by way of creating and linking soil fertility maps with macro-micro nutrient management, appropriate land-use based on land capability, judicious application of fertilisers and minimising soil degradation. CCSAMMN provides for creation of bi-directional (land/farmers to research/scientific establishments and vice versa) dissemination of climate change related information and knowledge suitable to local agro-climatic conditions.

8.4.4 Pradhan Mantri Fasal Bima Yojana (PMFBY)

Agriculture insurance is considered an instrument for safeguarding farmers from the impact of extreme and unseasonal changes due to climate change. For this, the Government of India has launched a comprehensive crop insurance scheme known as the *Pradhan Mantri Fasal Bima Yojana* (PMFBY). Its main objectives are to: (i) provide insurance coverage and financial support to the farmers in the event of failure of any of the notified crop as a result of natural calamities, pests and diseases; (ii) stabilise the income of farmers to ensure their continuance in farming; (iii) encourage farmers to adopt innovative and modern agricultural practices; and (iv) ensure flow of credit to the farm sector. The scheme is compulsory for bank loanee farmer and voluntary for other farmers.

Although the scheme is an improvement over the preceding schemes, it is criticized on grounds like: (i) it fails to cover sharecroppers and tenant

farmers; (ii) there has been no concerted effort by the state governments and insurance companies to build awareness among farmers about the scheme; and (iii) there is no direct link between insurance companies and farmers as insured farmers generally receive no insurance policy document. The scheme therefore needs to focus on: (i) increasing coverage of tenant, sharecropper and non-loanee farmers; (ii) cover the risks and losses inflicted by wild animals; (iii) provide proper information to the farmers and issue insurance policy document; (iv) make available all PMFBY related data in the public domain; (v) make village/individual farm as a unit of assessment for crop loss and damage compensation; and (vi) set up an effective monitoring and grievance redressal mechanism.

8.4.5 Small Holders' Aggregation

Small and marginal holdings constitute about 86 percent of total operational holdings in India. Making them economically viable is a major challenge. One way to address the challenge is aggregation of these holdings by a suitable institutional arrangement. In this context, promotion of Farmer Producer Organisations (FPOs) is an important initiative. FPOs help in aggregation and integration of smallholders within an agricultural value chain and ensure their improved access to investment, technology, inputs and market. Farm producers can form groups and register themselves under the Indian Companies Act. Small Farmers Agribusiness Consortium works as a nodal agency to promote the creation of FPOs. FPOs can be set up as Farmer Producer Companies (FPCs) and are allowed to enter into a partnership with private and public sector companies for purposes of supplying farm produce on more equal term.

Check Your Progress 2 [answer within the space given in about 80-100 words]

1) State a recent important 'tenancy reform'.

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2) State two recently formulated Acts to promote production and marketing of agricultural products in India.

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3) State four major initiatives recently launched under the aegis of NMSA for promotion of sustainable agriculture in India.

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4) In what way FPOs are an important reform in the direction of 'small farmers aggregation'?

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8.5 LET US SUM UP

Agricultural policy, among others, must focus on three aspects: adequate incentives to produce; a secure resource base; and easy market access (both output and factor markets). The policy instruments may accordingly be designed to address these aspects. Price support and subsidies are the two key instruments used to incentivise output of different crops. Using these instruments, stated policy objectives (such as crop diversification) can be achieved. A secured resource base (such as secured land tenure, irrigation and other resources) is critical for development of agriculture. Access to both product and factor markets are equally important. Policy interventions used to improve marketing channels and create uniform single national market with digitalised platform for various market operations are likely to increase farm-gate (harvest) prices and reduce the prices gaps (between what the producers get and the consumers pay) by reducing intermediaries. Policy interventions such as improvement in human capital, crop insurance, trade regulations and controls, contract farming, FPOs, etc. can be used to make agriculture economically viable, ecologically sustainable and socially desirable.

8.6 KEY WORDS

Crop Insurance : An important policy instrument for farmers' welfare, particularly the small farmers, against market failure, technology failure and weather failure.

Price Support : Refers to the policy instrument of MSP fixed by the

government to ensure reasonable income to farmers.

Tenancy Reform : Refers to a reform measure to promote share cropping and contract farming. Under this, a secured tenancy is ensured to the lessee and income to absentee owner is ensured by the government which acts as an intermediary between the two parties.

8.7 SOME USEFUL BOOKS AND REFERENCES

1) Arora V.P.S (2013). *Agricultural Policies in India: Retrospect and Prospect*, Agricultural Economics Research Review, Vol 26 (2).

2) Government of India (2007). *National Policy for Farmers*, Ministry of Agriculture & Cooperation, New Delhi.

3) Norton, Roger D. (2004). *Agricultural Development Policy: Concepts and Experiences*, John Wiley & Sons, Ltd., England.

8.8 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

1) Agricultural policy refers to an action plan to guide decisions for achieving pre-determined goals related to agricultural development. Policy refers to the approach and outlook of the government while planning relates to the execution and implementation of that approach.

2) Firstly, the reason is political as the crop sector in general, and wheat, paddy and sugarcane within it in particular, are heavily protected due to political patronage and interest. Second, being perishable in nature, the required policy support for building up the infrastructural base (like adequate marketing infrastructure, crop insurance against risks, etc.) are yet to take shape. In short, an integrated policy outlook has lacked.

3) Agricultural subsidies are questioned on environment, equity and efficiency grounds. To the extent that they result in encouraging over-utilisation of inputs, cause soil quality degradation, soil nutrient imbalance, environmental pollution and groundwater depletion, the criticism is justified.

4) When self-consumption is a significant share of production of large number of small and marginal farmers.

5) Direct payment are used to conserve nature thereby promoting the multi-functional nature of agriculture. Used for this specific purpose, it is not trade distortive. Countries like India can make use of this instrument to promote organic farming.

6) Besides its direct positive influence, viewed from the consequences of its reduction or outright withdrawal, it has the potential to cause the private investment also to decline. Its combined effect on agricultural sector would be deleterious. On the other hand, it can promote private investment. It thus is an important policy instrument to promote agricultural sector.

7) Under WTO's AoA, de minimus refers to the trade distorting domestic support (subsidies) that can be given by a member country to its agriculture. With the stipulation that it should be paid out of government budget, it is not trade distorting.

Check Your Progress 2

1) Recommendation for the setting up of 'land banks'. This has the potential to encourage consolidation of operational landholdings bringing about economies of scale.

2) Model Agricultural Produce and Livestock Marketing (Promotion and Facilitation) Act, 2017. Model Agricultural Produce and Livestock Contract Farming (Promotion and Facilitation) Act, 2018.

3) RAD, OFWM, SHM and CCSAMMN (Sub-section 8.4.3).

4) They can help in aggregation and integration of small holders within an agricultural value chain and ensure their improved access to investment, technology, inputs and market.

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