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# UNIT 13 ROLE OF AGRICULTURE

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## 13.0 OBJECTIVES

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This unit introduces you to the performance of Indian agriculture since independence. This will help you to be familiar with the importance of agriculture in Indian economic development. Growth process of Indian agriculture in various phases and the factors that have influenced productivity growth, are also analysed. After going through this unit, students will be able to:

- describe the role of agriculture in economic development;
- discuss the growth performance of Indian agriculture in the pre and post green revolution period; and
- discuss the sources of growth of Indian agriculture, especially productivity.

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## 13.1 INTRODUCTION

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Agriculture is the major sector of the Indian economy because of its contribution to the national income as well as employment of workforce. It has also contributed to industrialisation by supplying raw materials to the industries and food to the workforce employed in the industrial sector of the Indian economy. Besides contributing towards exports it has helped to substantially cut down on imports of foodgrains. On the eve of independence the state of Indian agriculture can be summed up as stagnant with deficient infrastructure, traditional technology and exploitative institutions. Nevertheless, the growth of agricultural production in India since independence has several distinguishing features. In terms of growth rates, there is a clear break with the colonial period trends in production and yields. Second, the post independence growth has two distinct phases generally termed as pre-green revolution period and post-green revolution period. Post green revolution period is marked by the adoption of new technology in few crops namely wheat and rice operating along with increased use of inputs like fertilizers and irrigation. The post green revolution period can be divided into two phases namely; 1967-68 to 1980-81 the early green revolution phase and 1980-81 to 1998-99 the late green revolution phase.

## **13.2 ROLE OF AGRICULTURE IN ECONOMIC DEVELOPMENT**

According to Simon Kuznets the contribution of agricultural sector to overall national economic growth and development can be divided into four types. First is the product contribution, which leads to expansion of the non-agricultural sector by meeting the food requirements of this sector as well as contributes raw materials used in manufacturing products such as textiles. Secondly, agriculture makes 'market contribution' by creating demand for the products of domestic industry, including the market for producer goods as well as consumer goods. Thirdly it makes 'factor contribution' by supplying capital for investments in the non-agricultural sector. Similarly it also entails the transfer of surplus labour from agricultural sector to non-agricultural sector. Finally agricultural sector can also make foreign exchange contribution. Domestic agriculture is capable of contributing beneficially to the balance of overseas payments either by augmenting the country's export earnings or by expanding the production of agricultural import substitutes.

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

Agriculture is the largest sector of the Indian economy. It provides food and raw materials as well as employment to a very large proportion of the population. Being the dominant sector, the improvement or changes in the national output depend on the output in the agricultural sector. Over the years it has contributed towards capital required for its own development and made available surpluses for national economic development. The exports of primary produce earned valuable foreign exchange, which was used for import of capital goods for the development of industry and infrastructure. In India the vital role of agriculture arises out of the position the agriculture sector occupies in the overall economy of the country. Around three fourth of the total population reside in the rural areas and 64.8 per cent of the workforce according to 1991 census depend on agriculture for their living.

### **13.3.1 Contribution to National Income**

The contribution of agricultural sector to the national income, foreign exchange and employment is a measure of the sector's importance in the overall economy of the country. Official estimates of national income and its components are available on regular basis and annually in the post independence era. However the pre-independence estimates reveal that the proportion of agriculture output to the total output in the economy had undergone a change. It was estimated to be around 57 per cent during the period 1925-29 and 53 per cent for 1931-32. Nevertheless in the post independence era, the share of agriculture in the net domestic product in 1950-51 was 50.2 per cent (table 1) and during the following decade it declined to 41.5 per cent by 1970-1. However towards the 1980's the share of the agriculture was only 36.3 per cent and it further declined by around 6 percentage points by 1990-91 for the agricultural sector. The following seven years i.e. 1990-91 to 1996-97 the decline was only 4.6 per cent points due to sharp rise in agricultural prices. In short agriculture sector's contribution declined from 50.2 per cent in 1950-51 to 30.4 per cent in 1990-91 i.e. by around 20 percentage points in forty years.

Table 1 : Net Domestic Product (Percentage Contribution of Agriculture)

All India

(at 1980-81 Prices)

Year	Percentage share	
	Agricultural Sector to NDP	Primary Sector to NDP
(1)	(2)	(3)
1950-51	50.2	57.2
1960-61	47.4	52.7
1970-71	41.5	46.5
1980-81	36.3	40.0
1990-91	30.4	32.7
1994-95	29.2	31.2
1996-97	25.8	27.6

Source: National Accounts Statistics, Quick Estimates 1998, New Delhi, Central Statistical Organisation, department of Statistics, Ministry of Planning, Govt. of India.

Although the agricultural sector has been the major contributor to net domestic product, its growth rate over the years have been very low. For the first half of the twentieth Century it was around 0.25 per cent per annum. The growth rate since independence has been found to be around 2.7 per cent per annum, which is a little higher than the population growth rate.

Table 2 : Population and Agricultural Workers

Year	Total Population in million	Rural Population in million	Percent Rural Population	As percent of total workers		
				Percent Cultivators	Percent Agri. Workers	Percent Total Workers
1951	361.1	298.6	82.7	49.9	19.5	69.4
1961	439.2	360.3	82.0	52.8	16.7	69.5
1971	548.2	439.1	80.1	43.4	26.3	69.7
1981@	685.2	525.5	76.7	37.8	22.7	60.5
1991*	846.3	628.7	74.3	38.7	26.1	64.8

Source: Various Population Census: Registrar General of India.

@ Figures of total rural population included the estimated population of Assam, whereas in respect of data on 'workers' Assam has been excluded.

\* 1991 Census was not conducted in Jammu & Kashmir. Total/rural population of India includes the estimated figures of J&K. However figures of J&K workers are not included.

### 13.3.2 Contribution to Employment

Agriculture directly as well as indirectly has continued to be the main source of employment for a large part of the Indian Population. The decennial population censuses indicate that the proportion of workers employed in agriculture has been around 70 per cent till 1971. The share declined to 64.8 per cent in 1991, showing

a small shift towards non-agricultural sectors as is depicted by table 2. It also shows that a major section of the agricultural workers are cultivators although their share has declined over the years and that of agricultural labour has increased. Table 2 reveals that the proportion of workers engaged in agriculture has not declined as fast as the decline in the share of Net Domestic Product contributed by the agricultural sector. This implies that the rate and pattern of investment in other economic sectors have not been such as to draw away surplus agriculture labour and relieve the pressure of population on land. Moreover it implies that labour productivity in agriculture sector continues to fall relative to the productivity in other sectors of economy. Since the growth of the agricultural sector continued to be very slow it has failed to create enough opportunities for additional employment. This has resulted in a widespread unemployment and under employment of the agriculture labour force in the country.

### 13.3.3 Contribution to Foreign Exchange Resources

Agricultural commodities and agriculture-based manufactured commodities occupy an important place in India's export trade. In the colonial period, the major agricultural export items were raw cotton and jute, unmanufactured tobacco, oilseeds, spices tea and coffee accounting for around 49 per cent of the total value of exports. The partition of the country in 1947 reduced the agricultural surplus of the country and affected the exports of jute, cotton and hides. Nevertheless agriculture contributed around 41 per cent of the total exports of the country at the time of independence. Growth of the Indian economy resulted in the diversification of India's exports leading to sharp decline in the share of agricultural commodities. The manufacturing goods are now accounting for a larger share.

The export of the agro-based manufacturers has increased. The relevant data is placed in table 3. One may add that the share of agriculture and allied products has continually declined in response to factors like relatively low prices for the agricultural commodities, internal production, demand situation and international market conditions.

Compared with exports, the importance of imports of agricultural products in the total import trade is relatively less. In the beginning i.e. after independence the share of agricultural commodities in the total import was 39 per cent. It declined in the subsequent years. Food (cereals and cereal preparations) constituted the most important item among the agricultural commodities imported, although much of it was obtained on concessional terms and some as gifts. Nevertheless in earlier years of planning, the imports of raw cotton and jute were substantial in order to bridge the gap between demand and internal supplies, which have declined due to partition of the country. In 1950-51 their share in the total imports of the agricultural products was as high as 40 per cent. However as the indigenous production of these commodities was augmented through planned effort, their imports came down heavily and formed around 15 per cent of total imports and thereby highlighting the import-substitution effect of agricultural production. In respect of foodgrains, however there has been a spurt in imports during the decade of sixties. But due to adoption of new technology leading to a substantial increase in foodgrain production caused decline in the imports. Therefore both through exports and import substitution, the agricultural sector has contributed to the earning and conservation of foreign exchange.

**Table 3a : Principal Exports from India (Value in Rs. Crore)**

	1960-61	1970-71	1980-81	1990-91	1996-97
I. Agriculture & allied products	284 (44.24)	487 (31.73)	2057 (30.65)	6317 (19.41)	24239 (19.8)
I.1 Coffee	7	25	214	252	1426
I.2 Tea & mate	134	148	426	1070	1037
I.3 Raw cotton	12	14	165	846	1575
I.4 Rice	-	5	224	462	3172
II. Ores and Minerals (Excl. coal)	52 (8.09)	164 (10.68)	414 (6.17)	1497 (4.60)	3185 (2.88)
III. Manufactured goods	291 (45.33)	771 (50.22)	3747 (55.82)	23736 (72.91)	88258 (75.42)
IV. Mineral fuels and Lub (Incl. coal)	7 (1.09)	13 (0.85)	28 (0.42)	948 (2.91)	1832 (1.65)
V. Others	8 (1.25)	100 (6.52)	466 (6.94)	55 (0.17)	232(0.16)
<b>Total</b>	<b>642</b>	<b>1535</b>	<b>6711</b>	<b>32553</b>	<b>118817</b>

Source: Economic Survey, 2000-2001, Government of India

**Table 3b : Principal Imports of India**

(Value in Rs. crore)

	1960-61	1970-71	1980-81	1990-91	1999-2000
I. Food and live animals	214 (19.07)	3539(14.81)	380(3.03)	N.A.	N.A.
I.1 Cereal and cereal Preparation	181	213	100	182	80
II. Raw material and	527(46.97)	889(54.41)	9760(77.77)	N.A.	N.A.
II.1 Cashew (Unprocessed)	-	29	9	134	760
II.2 Crude rubber (Incl. Synth.)	11	4	32	226	719
II.3 Fibres (Wood, cotton Jute etc.)	101	127	164	259*	1557*
III. Capital goods	356(31.73)	404(24.72)	1910(15.22)	10466(24.23)	28289(23.06)
IV. Others	25(2.23)	99(6.06)	499(3.98)	N.A.	N.A.
<b>Total</b>	<b>1122</b>	<b>1634</b>	<b>12549</b>	<b>43198</b>	<b>122678</b>

Figures in parentheses show percentage of total

\* Sum of wool, cotton, jute and man made synthetic fibres only.

**Check Your Progress 1**

1) Explain the role of agriculture in economic development.

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2) What is the importance of Agriculture in India's economic development?

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3) Tick the relevant word so as to make the statement true.

- i) Contribution of agriculture to the National income has increased/decreased with the growth in national economy.
- ii) Growth of agriculture in the independent India has been lower/ higher than the population growth.
- iii) Share of employment in the agriculture sector has declined fast/slow with agricultural growth.
- iv) Share of agriculture in the exports has declined/increased over the years.
- v) Share of agriculture in the imports has increased/decreased since independence.

### 13.4 AGRICULTURE IN THE PRE- AND POST-INDEPENDENCE PERIOD

Colonial agriculture was characterised as stagnant using primitive technology with exploitative institutions. Table 4 presents the growth rates of Indian agriculture in the pre-independence period from 1891 to 1946. The period of around half a century prior to independence suggests prolonged agriculture stagnation.

Table 4 : Growth Performance of Major Crop groups in Pre-independence and Post independence Period (till 1994-95).

S. No.	Major Crop Groups	Pre-independence Period 1891-1946			Post independence Period (1949-50 to 1994-95)		
		Output	Yield	Area	Output	Yield	Area
1.	Food grains	0.31	0.11	-0.18	0.47	2.52	1.72
2.	Nonfood grains	0.42	1.31	0.86	1.22	2.90	1.32
3.	All crops	0.40	0.37	0.01	0.65	2.65	1.57

Source : Agricultural statistics in Brief

The growth rate of output of all agricultural crops put together for the half century preceding independence was only 0.4 per cent per annum. Most of the growth in the agricultural output was contributed by growth in area under the crops with very little or negligible contribution by the yield per hectare. A break-down of the total agriculture output into food grains and non-food grains show diverse trend. The rate of growth for the foodgrains output was very low at 0.1 per cent per annum as compared to 1.31 per cent per annum for the non-foodgrains output. The increase in foodgrains output was very low despite some increase in the area under foodgrain crops. Obviously yield rates in this crop group was falling during this period. However relatively higher growth rate of non-foodgrains crops was largely due to greater support to commercial crops from the British rulers. This was due to their major concern for the supply of agro-based raw materials to British Industries. Later this was aimed at supporting the indigenous industries.

Thus on the eve of Independence the agriculture sector of India could be characterised as one which was stagnating. Whatever growth was there, was due to the deliberate policy of commercialization pursued by the British. Given the fact that more than half of the domestic product was contributed by agriculture sector, lack of growth in this sector become a major obstacle to the overall economic growth.

In the post independence period agriculture growth received primacy. It was necessary for economic growth that not only agriculture should grow but it should also provide an impetus to industrial growth. This objective was achieved by implementing policies and programmes having bearing on agricultural production. The basic thrust of these policies was to expand and improve the irrigation input base and improve the technologies. Another thrust was providing assurance to agriculture regarding prices and fair marketing conditions. The production performance of agriculture in the post independence period was quite impressive. Over the period 1949-50 to 1994-95 the aggregate output increased at an annual growth rate of 2.7 per cent per annum with yield increases being the major source of growth. Particularly striking, in comparison with the pre-independence period was the record of food grains having an output growth not only noticeably higher than the pre-independence period but also higher than the population growth rate registered in the recent decades. Looking at agricultural growth rate from historical and comparative prospects. It can be noted that the post independence record of Indian agriculture has been remarkable in comparison with the experience of many developed and developing countries in the initial stages of economic development.

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### **13.5 GREEN REVOLUTION AND AGRICULTURAL GROWTH**

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The agriculture sector's impressive growth rate in the post-independence period was primarily due to the higher priority accorded to this sector by the Indian planners. The policy makers adopted a two-fold strategy for regenerating agriculture. The first element of this strategy was to implement land reforms in order to remove the institutional bottlenecks and the second was to undertake massive investment in irrigation and other infrastructure in order to update agricultural technology.

Although the land reforms undertaken during the mid fifties did succeed to a large extent in abolishing intermediaries, however they failed to bring about an equitable distribution in land ownership. Nevertheless this combined with large investments in irrigation and other infrastructure including extension and community development programs, resulted in substantial increases in both net area sown and gross cropped area, thus leading to noticeable increase in crop output. However the growth process of Indian agriculture was not smooth. In spite of positive agriculture policy pursued by the state one find towards the end of the fifties the Indian economy reached a critical stage in relation to food production. It however became increasingly clear that there being obvious limits to the extension of area, steps were needed to increase land yields. Therefore the subsequent decade witnessed the emergency of new production-oriented strategy for agriculture. This strategy sought in the first instance, to achieve quick break through in production in selected favourably endowed areas especially having assured irrigation. By concentrated efforts in the form of intensive use of better methods of production these area will show higher production. This intensive agricultural programme was known as Intensive Agricultural District Programmes (IADP). New institutions were set up to extend support to developmental activities in different fields. To begin with the new strategy failed to make much impact and agricultural situation deteriorated considerably during the early sixties. Consequently the country had to resort to large-scale imports of food grains. The culmination of new strategy in agriculture came about only in the mid sixties, when the high yielding varieties programmes (HYV) were successfully launched.

A major feature of the HYV technology was its package approach. New high yielding varieties seeds, fertilizers, pesticides, controlled water supply and mechanical equipment from seed drills to tractors and combine harvesters— all these agricultural inputs together formed a package. The core of this package was the miracle seed, which was developed through selective breeding to be highly responsive to fertilizer input coupled with use of pesticides and herbicides, while without a controlled supply of water the full potential of the new varieties could not develop. A major feature of the new seeds is their shorter maturing period, thus leading to increase in cropping intensity. Therefore increased yield rates coupled with higher cropping intensity led to higher growth of agricultural production in the post green revolution period.

### 13.5.1 Growth in the Pre-and-Post Green Revolution Period

The new technology (also known as bio-chemical technology) was introduced in India in the mid sixties for stepping up the crop output growth rates. The growth rates for the two periods i.e. 1949-50 to 1964-65, the pre green revolution period and 1967-68 to 1994-95, post green revolution period are presented in Table 5. Agricultural growth during 1949-50 to 1964-65 was as high as 3.15 per cent per annum with food grains growing at 2.82 per cent per annum, which was much below the growth rate of 3.74 per cent per annum registered by the non-food grains. Another noticeable feature of these very high growth rates were that the major foodgrains wheat, jowar, bajra and maize registered higher growth rates due to increase in area rather than yield. On the contrary, in case of rice, growth of yields was substantially higher than that of area growth rate. Even in the case of coarse cereals as a group growth rate of yield rate were higher than the area growth. Inverse was the case of total pulses as a group, which grew as a consequence of area expansion only. In fact there was deceleration in the yield growth in their case. Therefore one finds that growth in food grains production was equally shared by growth of area and yield rates. However, it is clear from the table that in the total agricultural growth major contribution was made by the growth of area as compared to growth of yield. This was more glaring in case of non-foodgrain crops. The table clearly reveals that except for wheat growth rates attained in the pre-green revolution period could not be maintained in the post green revolution period despite the adoption of new technology, in some cases growth rates were considerably lower than the earlier period i.e. pre-green revolution period. This is in spite of the fact that the two drought years 65-66 and 66-67 have been dropped from the data.

### 13.5.2 Food Grains Growth

The impact of the new technology on wheat production is clearly visible. Wheat production growth rate has increased from nearly 4 per cent per annum in the pre green-revolution period to 4.80 per cent per annum in the post green revolution period. However, growth rate of rice production which was over 3.5 per cent in the pre-green revolution period fell to around 2.9 per cent in the post-green revolution period i.e., a decline of approximately 17 per cent in its growth rate. For coarse cereals the decline in the growth rate was quite significant. The output growth rate of coarse cereals fell by more than 70 per cent from the pre-green revolution period of 2.25 per cent to a bare minimum rate of 0.62 per cent. Pulses also registered decline in growth rates from 1.41 per cent to 1.04 per cent. The perceptible decline in the coarse cereal and pulses production is due to the drastic decline in growth of area experienced by these crops in spite of some gains in their yield growth rates. In spite of the fall in growth rates of coarse cereal's production, foodgrains as a whole maintained a growth rate of 2.62 per cent in the post-green revolution period, which was slightly lower as compared to 2.82 per cent in the pre green revolution period. Although the major source of increase in agricultural output in the pre-green revolution period was the increase in area under the crop nevertheless growth of yield rates have also played an important role. However in the post-green revolution



period also one finds a significant contribution made by the yield rates towards the increase in the production of agricultural output. It may be pointed out that the possibility of expansion of net cropped area had almost exhausted by the late sixties i.e. towards the beginning of green revolution. Nevertheless because of irrigation expansion and adoption of HYV seeds of short duration, there has been increase in the gross cropped area due to increase in intensiveness of cropping. In fact, when one compares the early green revolution period and the later green revolution period one finds that agricultural growth has been made possible by the increasing levels in case of food grains as well as non- foodgrains.

Yield rates of foodgrains have registered an average annual growth rate of 1.36 per cent per annum in the pre-green revolution period i.e. 1949-50 to 1964-65. Whereas in the post green revolution period the growth rate of yield of foodgrain crops is much higher at 2.21 per cent. It was the significant contributing factor to agriculture growth. Table shows the yield growth rates experienced by rice wheat, Jowar, Bajra, Maize, coarse cereals, total pulses as well as foodgrains as a whole in comparison to pre-green revolution period and reverse is the case as far as growth of area is concerned. In fact the temporal comparison of two periods reveals growth of area has been quite negligible in the post green revolution period.

The growth rates for the post-green revolution period were lower than the pre-green revolution period in spite of the adoption of improved technology. Even this rate became possible due to impressive growth rate of wheat, which due to its high weight in the overall foodgrain production could compensate the fall experienced by other cereal and pulses crops. In fact some scholars have gone to the extent of describing green revolution as wheat revolution.

### 13.5.3 Non-food Grains Growth

The decline in the growth rates in post-green revolution period as compared to pre-green revolution period was not only limited to food grain crops. It was also experienced in the case of non-foodgrain crops. In case of oil seeds, which have not experienced any significant technological breakthrough, output growth rates have increased from 3.20 to 3.43 per cent per annum although there is a sharp decline in the case of major oilseeds like groundnut. One finds a decline in the non-foodgrains crops as a group from 3.74 to 3.20 per cent per annum.

Even in case of non-food grains growth, rates of yield are considerably higher in the post-green revolution period as compared to pre-green revolution period. One finds that the yield rates are to be significantly higher for sugarcane. Groundnut as well total oilseeds, cotton, jute and total fibers followed by potato and tobacco. It is clear that the average annual growth rate of yield of foodgrain crops was higher than that of non- foodgrain crops.

The characteristics of the growth performance during the two periods, however, differ in two important ways. First area expansion contributed significantly to the pre-green revolution agricultural growth, the post-green revolution output growth rates were realised primarily through gains in productivity because of use of new technology. Second pre-green revolution production base levels for measuring growth were substantially lower than the post-green revolution period. Maintaining the same earlier growth rate from higher base level is not an easy task in an industry marked by diminishing marginal returns.

### 13.5.4 Agricultural Growth in the Early and Late Green Revolution Period

It is usual to compare the performance in the pre-green revolution period with that in the post green revolution period as whole. However, the beginning of eighties makes a definite departure from the trends observed in the early phase of the green revolution period in several respects. There seems to be acceleration in the growth rate of foodgrains as well as non-foodgrains output during the period 1980-81 to 1994-95 as compared to the early green revolution period that is from 1967-68 to 1980-81. Crops such as rice, cereals as a whole, pulses and oilseeds whose growth rates in the first decade on the green revolution period had fallen much below those recorded in the pre-green revolution period are showing higher growth rates. It gives clear indications that the major inter crop imbalances in growth witnessed in the early years of the green revolution period are getting redressed to some extent in the recent period.

The comparisons of these two periods suggest that there is an increase in the growth of output of the foodgrain crops (table 6). Rice has grown at a rate of 3.48 per cent in the late green revolution period as compared 2.22 in the early green revolution period. However there is a perceptible decline in the growth of wheat output from 5.65 per cent in the early green revolution period. Among the coarse cereals there is acceleration in the growth rates of Bajra, Maize and Millets. On the whole one finds increase in growth rates for the total cereals from 2.61 per cent to 3.60 per cent. Growth in case of total pulses as well as total foodgrains has also accelerated in the post green revolution period. There is also increase in growth rates of output for non-food grains as well as all crops in the late green revolution period.

Oilseeds and pulses are generally grown in the rainfed or unirrigated areas. Even for rice 60 per cent of the area is rainfed. The encouraging performance can basically be attributed to the spread of new technology to the crops and regions lagging behind earlier. The special programmes for rice and oilseeds can also be one of the reasons. In addition one finds the increasing attention being given to dry farming and to less developed states have started yielding results. Some location specific technologies like watershed management is having some bearing on the crop yield in the dry areas. Therefore one can infer that the regional disparities in growth between irrigated and dry regions may not be as sharp as in the early years of green revolution. It was the increase in the productivity or yield levels of foodgrains which have helped in enabling the aggregate output to nearly attain the rate of growth recorded in the earlier green revolution period despite the sharp reduction in the rate of increase in aggregate area. Comparison between the early green revolution period and later green revolution period presented in table 5 clearly shows that higher growth rate of output have been achieved as a consequence of higher growth rates of yield. The growth rates of yield in the later period i.e. 1980-81 to 1994-95 are significantly higher than the earlier green revolution period in case of foodgrains crop group in general as well as individual crops barring jowar and ragi which have experienced some decline. Pulses did much better as far as the yield growth is concerned, in the later pulses as a group had experienced deceleration in the early post green-revolution period in output as well as yield rates. However one finds acceleration in their growth of output mainly because of acceleration in the yield rates. There is also acceleration in the yield rates of most of the non-foodgrain crops like sugar cane, groundnut, total oilseeds, cotton and jute. However, the gains in the foodgrain crops as far as yield is concerned continue to be higher than the non-foodgrain crops on an average in the post green revolution period.

Generally a major technological improvement in a crop would be accompanied by an upward trend in both its area and yield. An analysis of area and yield for the post-

green revolution periods suggests that only rice and wheat the two crops using HYV technology have positive rates of growth of area although lower as compared to earlier period. To sum up productivity increases is the major source of impressive growth of output in the later green revolution period.

Table 5 : All India Compound Growth Rate of Area Production and Yield of Principal Crops

Crops	1949-50 TO 1964-65			1967-68 TO 1994-95		
	A	P	Y	A	P	Y
RICE	1.21	3.5	2.25	0.64	2.91	2.34
WHEAT	2.69	3.98	1.27	1.6	4.8	3.14
JOWAR	0.99	2.51	1.49	-1.17	0.79	1.98
BAJRA	1.08	2.34	1.24	-0.88	0.76	1.65
MAIZE	2.67	3.88	1.18	-0.01	1.63	1.64
COARSE CEREALS	0.97	2.25	1.23	-1.25	0.62	1.86
TOTAL CEREALS	1.25	3.21	1.77	0.05	2.93	2.43
TOTAL PULSES	1.72	1.41	-0.18	0.13	1.04	0.9
TOTAL FOODGRAINS	1.35	2.82	1.36	0.06	2.67	2.21
SUGAR-CANE	3.28	4.26	0.95	1.65	2.99	
GROUND-NUT	4.01	4.34	0.31	0.56	1.71	1.14
TOTAL OILSEEDS	2.67	3.2	0.3	1.25	3.43	1.65
COTTON	2.47	4.55	2.04	-0.16	2.64	2.81
JUTE	3	3.5	0.49	0.17	2.19	2.02
TOTAL FIBRS	2.71	4.56	1.88	-0.23	2.49	2.69
NON-FOODGRAINS	2.44	3.74	0.89	1.3	3.2	1.72
ALL CROPS	1.58	3.15	1.21	0.36	2.87	2.02

TABLE 6 : All India Compound Growth-Rate of Area, Production and Yield of Principal Crops

CROPS	1967-68 to 1980-81			1980-81 to 1994-95		
	A	P	Y	A	P	Y
RICE	0.77	2.22	1.45	0.49	3.48	2.98
WHEAT	2.94	5.65	2.62	0.68	3.7	3.01
JOWAR	-1.15	2.04	3.22	-2.3	-0.44	1.9
BAJRA	-1.15	-0.38	0.77	-1.21	1.53	2.78
MAIZE	0.01	0.02	0	0.11	2.49	2.38
COARSE CEREALS	-1.03	0.67	1.64	-1.9	0.54	2.31
TOTAL CEREALS	0.37	2.61	1.7	-0.34	3.06	2.9
TOTAL PULSES	0.44	-0.4	-0.67	-0.31	1.67	1.85
TOTAL FOOD-GRAINS	0.38	2.15	1.33	-0.34	2.89	2.77
SUGAR-CANE	1.78	2.6	0.8	1.87	3.86	1.36
GROUND-NUT	-0.31	0.64	0.96	1.43	3	1.55
TOTAL OILSEADS	0.26	0.98	0.68	2.37	5.89	2.52
COTTON	0.07	2.61	2.54	-0.22	3.88	4.1
JUTE	1.23	2.06	0.81	-1.24	1.56	2.83
TOTAL FIBRES	0.94	2.26	1.19	1.88	4.31	2.27
NON FOOD GRAINS	0.51	2.19	1.28	0.23	3.48	2.54

### 13.6 FACTORS INFLUENCING PRODUCTIVITY

The gains in foodgrains output in the post-green revolution period have come essentially from the improved utilization of the available infrastructure and from the resulting increase in yield per hectare. Already, during the early post-green revolution period, the increase in yield accounted for as much as 62 per cent of the foodgrains output and 58 per cent of the total agricultural output. The contribution of yield growth rate to output growth rate in the late green revolution period for foodgrain was to the tune of 96 per cent and 13 per cent of the total agricultural output. It only means that growth of foodgrains output in particular and total agricultural output in general is predominantly dependent on increasing yields rather than area. This underscores the growing importance of yield increasing technology. Clearly, current inputs like fertilizer and irrigation have become more important as a source of growth in the recent period. Although the spread of fertilizer to the new areas where the existing level of application is relatively low would have contributed to the rise in productivity per unit of fertilizer. There may well be considerable scope for further improvement in the productivity as well as for ensuring more equitable distribution of benefits. Clearly Current inputs like fertilizers have emerged as an increasingly

important source of growth. The encouraging performance of agricultural output as well as agricultural productivity can be attributed to the spread of new technology to the crops and regions lagging behind earlier.

The use of HYVs of crops has been extended under well-controlled irrigated conditions. Assured water supply is a pre-requisite for intensive agriculture based on HYVs of seeds and high levels of fertilisation. Around 64 per cent of the gross cropped area still depend on rainfall, which is concentrated in the few months of year.

The area under HYVs of foodgrains has risen from 2 million hectares in 1966-67 to 65 million hectares by 1990-91 and 75 million hectares by 1995-96. About 92 per cent of the area under wheat and 77 per cent of area under rice is covered by the high yielding varieties. The consumption of fertilizers has also recorded substantial increases with increase in the area under HYV's because large quantities of fertilizers are required for realizing the high yield potential of HYV's. The consumption of fertilizers, which have risen from negligible of 0.07 million tonnes in 1950-51 to 2.2 million tonnes in 1970-71 reached a level of 13.6 million tonnes in 1994-95. That is in per hectare terms it has risen from a negligible level in 1950-51 to 13.13 kgs. in 1970-71 and 75.68 kgs. in 1994-95.

The gross cropped area irrigated in the country was only 22.56 million hectares accounting for only 17 per cent of the total gross cropped area of the country. Due to consistent efforts of the state coupled with huge investments in major and minor irrigation works increased to 66.14 million hectares in the year 1992-93 accounting for 2.2 per cent of the total gross cropped area of the country. That is to say in around four decades the addition to gross irrigated area was only 5 per cent points. Even this small addition to irrigation had resulted in the expansion of gross cropped area by increasing intensity of cropping on the one hand and expansion of agricultural output on the other.

**Check Your Progress 2**

1) Describe the situation of agriculture at the time of independence in 50 words.

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2) Write in 50 words the comparison of pre-green revolution and post-green revolution period.

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3) What factors were responsible for growth of yield of crops?

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- 4) State whether the following statement are true or false.
- 1) British policy was conducive towards food grain production. ( )
  - 2) Foodgrains growth rate were higher than the non-food grains in the colonial period. ( )
  - 3) In the post-independence period growth of food grains was higher than the non-food grains. ( )
  - 4) Food grains growth in the green revolution period was mainly due to the area expansion. ( )
  - 5) In the part of the green revolution period agriculture growth was mainly because of growth in yield levels. ( )

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### 13.7 LET US SUM UP

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Agriculture plays an important role in the development of an economy. It makes four types of contributions to the national economic growth. Firstly it makes product contribution' by supplying food and raw material to the non-agricultural sector. Secondly it makes market contribution by creating demand for the domestic industry and thirdly it contributes capital and surplus labour to the non-agricultural sector and finally agriculture can also make foreign exchange contribution. Agriculture is an important and biggest sector of the Indian economy, which has contributed significantly towards the national income. It continues to be the major source of employment for the majority of the population and has successfully provided food and raw material to the industrial sector. Thus it has influenced the overall growth of the Indian economy positively. It continues to be major source of earning foreign exchange. Besides its growth has helped in saving the costly foreign exchange.

On the eve of independence, the agricultural sector was described to be stagnant with deficient infrastructure and outmoded technology coupled with exploitative institutions. The comparison of pre and post independence period brings out that the growth of agricultural output has been almost negligible with stagnant yield levels: Non-foodgrains have grown at a comparatively higher rate of growth because of the policies pursued by the British. However the post independence period have shown an impressive growth of agricultural output with major contribution by the yield growth rate. Food grains have grown at a higher growth rate than the population thus increasing the per capita availability of foodgrains in the post independence period. The major growth of foodgrains is due to the adoption of new technology and use of improved inputs like irrigation and fertilizers.

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### 13.8 KEY WORDS

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**Colonial Agriculture:** Agriculture during the period of British rule. In this period, agriculture was characterised as stagnant using primitive technology with exploitative institutions.

**Green Revolution:** The culmination of new strategy in agriculture came about in the mid-sixties when the high yielding varieties (HYV) brought increase in productivity in agriculture. A major feature of the HYV technology was its packet approach i.e. HYVs, fertilisers, pesticides, controlled water supply, mechanical equipment and provision of non-farm services.

**New Strategy in Agriculture:** Same as technological change in agriculture which came about in the mid sixties.

**Technological Change:** Also known as green revolution of bio-chemical technology in agriculture. This change brought yield rates towards the increasing the production of agricultural output.

### 13.9 SOME USEFUL BOOKS

- Bhatia, B.M. (1988): *Indian Agriculture : A Policy Perspective*.
- Brahmananda, P.K. & V.R. Panchmukhi (ed) (1986): *The Development Process of the Indian Economy*.
- Dantwala, M.L. and others (ed) (1986): *Indian Agricultural Development since Independence*. The Indian Society of Agricultural Economics, Bombay.
- Dhingra, I.C. (2001): *The Indian Economy-Environment and Policy*, Sultan Chand & Sons, New Delhi.
- Government of India (1976) : *National Commission on Agriculture*, Ministry of Agriculture and Irrigation, Report, Part 1- Review and Press.
- Government of India (1976): *National Commission on Agriculture*, Ministry of Agriculture and Irrigation, Report, Part-II, Policy and Strategy.
- Sharma, R.K. (1992): *Technical Change, Income Distribution and Rural Poverty: A Case Study of Haryana*.

### 13.10 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

- 1) Agriculture makes contribution to (a) Product contribution, which leads to expansion of non-agricultural sector by supplying food requirements. (b) Contributes raw materials used in manufacturing products such as textiles and sugar (c) Market Contribution by creating demand for the product of domestic industry (d) Factor contribution by supplying capital for investments in the non-agricultural sector. (e) Foreign exchange contribution through export earnings.
- 2) Agriculture provides food, raw materials, employments capital required for its own development and also for broader economic developments, earned valuable foreign exchange.
- 3) (1) decreased (2) higher (3) slow (4) declined (5) decreased

#### Check Your Progress 2

- 1) See Section 12.4 and attempt your answer.
- 2) See Section 12.5 for your answer.
- 3) See Section 12.6 for your answer.
- 4) a) false b) false c) false d) false e) true

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# UNIT 14 INSTITUTIONAL AND TECHNOLOGICAL FACTORS

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## Structure

- 14.0 Objectives
- 14.1 Introduction
- 14.2 Pre-Land Reform Agrarian Scenario
- 14.3 Post Independence Agrarian Reforms, Legislation and Implementation
  - 14.3.1 Abolition of Intermediaries
  - 14.3.2 Tenancy Reforms
  - 14.3.3 Ceiling Legislation
  - 14.3.4 Implementation
- 14.4 Role of Technological factors in Agricultural Growth
  - 14.4.1 High Yielding Varieties of Seeds
  - 14.4.2 Irrigation and Water
  - 14.4.3 Fertilizers
  - 14.4.4 Mechanisation
- 14.5 Let Us Sum Up
- 14.6 Key Words
- 14.7 Some Useful Books
- 14.8 Answers/Hints Check Your Progress Exercises

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## 14.0 OBJECTIVES

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This unit introduces you to the agrarian structure on the eve of independence. It critically evaluates the various land reform measures implemented in India after independence. The role the technical factors have played in the growth of agricultural development. After going through this unit you would be able to :

- identify the reasons for initiating land reforms;
- discuss the reasons for success and failure of the various land reforms; and
- describe the role various technological factors can play towards agricultural growth.

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## 14.1 INTRODUCTION

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Although increased investments and enlarged markets are basic requirements for agricultural development, it also involves complex processes and procedures of institutional change, redistribution of economic and political power and concerted deliberate public policy efforts for redistributing the gains of economic growth. Land reforms in narrow sense refer to measures to redistribute land in favour of peasants and small farmers. Land reform is obviously not a modern phenomenon. In its traditional sense, it has taken place over the years primarily in response to demand for greater equality or social justice.

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## 14.2 PRE-LAND REFORM AGRARIAN SCENARIO

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The pre-independence or precisely pre-land reform Indian agriculture was dominated by a large class of poor peasants and landless labourers, the two groups together formed the majority within the agricultural sector. Substantial area was owned by a small percentage of rich peasants and landlord-cum-money lenders. The modes of production were primitive and intensity of land use was less than that on the small farms. Nearly a fifth of the area was under tenants and more than a third of this being



under shared tenancy, and most of it being under informal arrangements. It was obvious that the structure was inequitable. It lacked also the potential for growth. The poor peasants and landless labour was a deficit section in all respects. Rental incomes and consumption loans to impoverished peasants were more rewarding for the landlord than cultivation. Both equity and growth demanded changes in agrarian structure.

### **14.3 POST INDEPENDENTS AGRARIAN REFORMS, LEGISLATION AND IMPLEMENTATION**

Therefore immediately after attaining independence, the first task to be initiated was agrarian reforms to accomplish the desired objectives. The term agrarian reforms in the present context would be interpreted to mean the reforms relating to the abolition of intermediaries, re-distribution of land through imposition of land ceiling, security of tenure and consolidation of holdings. There are no dearth of documents prepared in the process of agrarian reforms by various committees panels and commissions beginning with the congress Agrarian Reforms Committee showing concerns about the situation and providing radical solutions. Nevertheless these documents were the outcome of the good intentions. There seems to be big gap between intentions and practices. So various legislative laws enacted and implemented to give practical shape to the diverse aspects of agrarian reforms policy.

In short rural India was characterised by feudal and semi-feudal agrarian relations. The peasantry was exploited in terms of rack renting, in security of tenure, forced labour, usually and so on. This resulted in the impoverishment of the peasantry on the one hand and the stagnation of agricultural production on the other. This called for an immediate restructuring of the agrarian relations in order to emancipate the peasantry from the semi-feudal production relations and foster the agricultural growth.

#### **14.3.1 Abolition of Intermediaries**

Since Land reforms change the base of economic and political power the policy content and implementation cannot but be influenced by the class alignments in the power structure. The earliest of the programmes of land reforms to be implemented with some success in India was the abolition of intermediaries. Abolition of intermediaries was initiated soon after independence. The anti nationalist character of the intermediaries, the prolonged struggle of the peasantry against zamindars as a part of nationalist struggle, the alienation of zamindars for political power in rural areas, the character of reform under which the interests of the upper class in the rural areas were little affected - all these contributed to the success of these reforms. As a result of this measure, by the middle of fifties the state assumed direct responsibility for revenue administration in the whole of the country. It meant better records of land ownership and the basis for transferability of land for mortgage or sale was placed on a much firmer footing as in the Rayatwari areas. There was also a better basis for administration of agricultural development.

These measures were criticized on two major grounds. Firstly, the high rates of compensation was wasted in luxurious consumption or spent on buying urban property and only a very small percentage of it was invested to step up agricultural production. Secondly, the exclusion of sir, Khudkasht and Khas lands from the purview of the Acts as personal property of the intermediaries under self-cultivation constituted a damaging loophole in the law and was utilised with deadly effect by the intermediaries. These loopholes helped to keep alive the social and economic base of feudal vested interests in the country and denied the benefits to the tenants. On the contrary the bigger landowners carved out their own sir and Khudkasht lands, and resorted to large-scale eviction of tenants and sharecroppers. The mass evictions exercised adverse

effect materially and morally on village life and foiled largely the new hopes and aspirations generated among the rural poor by land reform.

In fact abolition of intermediaries left inequalities of land ownership and the position of the sharecroppers and labourers unchanged though it helped to confer permanent, heritable and transferable rights on occupants. However the abolition of statutory landlordism covering a variety of intermediary tenures has now more or less been accomplished bringing nearly 20 million cultivators into direct contact with the state. Yet by skimming off the top layer of great absentee landlords it brought about spectacular improvement in the pre-reform situation.

### 14.3.2 Tenancy Reform

The specific features of tenancy legislation arise from the basic framework of land reforms policy, which favoured neither the wholesale expropriation of landlordism nor the wholesale expropriation of tenant cultivators. The middle course was adopted. During the first phase of the then existing tenancy laws were carried out, along with legislation for abolition of intermediaries, extending the scope of protection to the tenants of ex-intermediaries particularly in areas of statutory landlordism. The provision of larger measure of protection to tenants, however, set into motion a contradictory social process, namely that of mass eviction of tenants and sharecroppers. So powerful was the eviction drive, the old tenancy arrangements broke down and it took years for new arrangements to take shape.

Most of the States, however, tried to enact or amend tenancy laws in the subsequent years and tried to plug certain glaring loopholes in the existing enactments to enlarge the area of protection to the tenants. The major aspects incorporated in tenancy legislation in different states during the last two and a half decades can be identified as (i) security of tenure; (ii) termination of tenancy; (iii) resumption for personal cultivation; (iv) surrenders; and (v) regulation of rent. Tenancy reforms in different States exhibited considerable variations though maintaining a broad similarity of pattern.

While considerable progress has been made in the field of tenancy reform many deficiencies still persist in the laws. The definition of the term 'tenant' generally excludes the sharecroppers who form the great bulk of the tenant cultivators. Exclusion of sharecroppers from the scope of protection deprives the real tillers of the soil of the protection and rights provided for the tenants.

Ejection of tenants from their holdings is still permissible on flimsy grounds like non-payment of rent, failure of payment within a given period, failure to deliver share of the produce within specified time, to execute agreement to cultivate land properly etc. Total eviction from land is one of the besetting evils of the existing reforms.

Voluntary surrenders, as provided in the laws, are hardly ever voluntary, and have become the biggest instrument in depriving the tenants of their due protection. In fact the Fourth Plan suggestion that the landowners should not be allowed to regain possession of the surrendered land has not been acted upon by most of the States.

The right of resumption was sought to be justified as it would help to convert non-working rent-receiving landowners into owner cultivators who could step up agricultural production, the accent being on 'personal cultivation'. The term 'personal cultivation' has been so defined as to cover cultivation through hired labourers paid in cash or kind. Even personal by the landowner or his family is not an essential requisite of personal cultivation. With such a definition, the right of resumption has become an instrument in the hands of the unscrupulous landowners for land grabbing,

more so when the factor of personal labour does not find any place in the definition. This provision resulted in concealed tenancies which the actual tenant is characterised as a farm servant or an 'agricultural partner'.

The major drawback of tenancy reforms has been not to be able to regulate rents as recommended in the Plans. Fair rents have not been defined uniformly in the State laws. Besides, it is extremely difficult to implement the provisions of fair rents in the case of sharecroppers and tenants who are not enjoying any security of tenure.

One of the principal aims of tenancy reforms was to convert tenants into owners of land they cultivated. This object of conferring occupancy rights on as large a body of tenants as possible did not materialise because of high rates of compensation to be paid by the tenants. Besides, the purchase of ownership was made optional in certain states.

The provision of acquiring occupancy right by tenants on producing proof of continuous possession for twelve consecutive years totally negates the spirit of the principle of 'land to the tiller; because under the peculiar character of landlord-tenant nexus in India, it is virtually impossible for an ordinary tenant to prove it. It should have been provided that once a tenant puts forward his claim to occupancy right or any right under the tenancy law, the burden of proof to the contrary should be on the landlord in order to protect the mass of tenants.

### 14.3.3 Ceiling Legislation

In the pre-independence era, the principal of limiting private landholding was advanced by the All India Kisan Sabha. The existing landholders, both in Zamindari and Rayatwari area, shall be allowed to possess land for self cultivation only upto the maximum limit of 25 acres per land holder.' The problem of imposition of a ceiling on landholdings was also treated in the programme documents of the Indian National Congress. Nevertheless the question of a ceiling on landholdings gave rise to far greater disagreement in the ruling circles, firstly, because a ceiling directly affected the entire landlord class and not only the zamindars; secondly this measure applied not only to feudal and semi-feudal landed properties, but to big landholders in general and thirdly, with considerable concentration of lands in the hands of upper stratum of the peasantry, there was genuine fear among the latter that their interests, too, might be affected. The basic aims to be attained by fixing a ceiling on land holdings were (i) to meet the widespread desire of the tillers to possess land, (ii) reducing glaring inequalities in ownership and use of land; (iii) reducing inequalities in agricultural incomes; and (iv) enlarging the sphere of self-employment. However the third five-year plan document distinctly declared that one of the principal aims of the agrarian policy, and particularly of the imposition of a ceiling on land holdings, is to eliminate all elements of exploitation and social injustice within agrarian system. Nevertheless the declared policy of the government on the ceiling does not give a clear picture of the future of the landlord class.

The imposition of ceiling on agricultural holdings is pre-eminently a redistribute measure. The almost compelling case of land ceiling arises from the absolute and permanent shortage of land in relation to the population dependent on it, the limited prospect of transfer of population to non-agriculture and the need to step up production along with increase in employment. But this necessity was not effectively transformed into spearheaded action. Thus, for nearly fifty years after attainment of freedom, ceiling on big holdings remained a nebulous item in the scheme of agrarian reforms. It remained a vague politico-economic concept lurking in the background. It was justified on consideration of social justice but not on grounds of increasing production and developing agriculture.

Ceiling laws were enacted and enforced in two distinct phases, the earlier phase covering the period upto 1972, and the later from 1972 after the adoption of 'National guidelines'. As ceiling legislation is a State subject; each State enacted its own ceiling law, which obviously gave room for variations. There were two units of application, namely, the individual landholder and the family. Again, the definition of the term 'family' as also the classes of land, which were exempted from the operation of ceiling laws, also varied widely in the States. These legislative measures were also full of loopholes and the big landowners took full advantage of them to circumvent the laws. They resorted to partition of their holdings and fictitiously transferred them to other individuals through what is called 'beamy' transfers on a very large scale in anticipation of ceiling laws with the result that very little surplus land became available for redistribution. Besides, implementation was extremely unsatisfactory. The absence of any penal measure to restrict or control such breaches of law accelerated such evasion.

The major loopholes that existed in the ceiling laws were the high ceiling limits, scope for manipulations and clandestine transfers and exemption of various types of land from the ceiling laws were more serious. These loopholes provided an object lesson for today. It is now generally recognised that if redistribution of land was the main objective of the ceiling laws, this was not realized at all. The ineffectiveness of the ceiling laws of the earlier phase, the exigencies of agricultural production, agrarian unrest in the country, all these factors called for immediate review. The National Guidelines formulated on basis of this review provided the basis of ceiling legislation in the post 1972 phase.

The ceiling legislation in the post 1972 phase has been improved, rationalised and put on a more or less uniform basis throughout the country. This represents a national consensus on the question. The ceiling limits have been appreciably reduced, the long list of the exempted categories of land has been considerably cut and measures to control clandestine transfers have been provided for. There, however, still remain some variations in the amending legislation from State to State relating to the level of ceiling on lands with assured irrigation, outer limits of ceiling, rates of compensation and the date of retrospective effect. The main problem now is that of effective implementation of the amending legislation.

#### 14.3.4 Implementation

The agrarian reforms not only failed to solve the land question through abolition of land lordism and redistribution of the land to the tillers of the soil; they did not even completely eliminate the semi-feudal exploitation of the peasantry. According to the 8th round of NSS, in 1953-54, 20.34 per cent of the cultivated land was held under leases. It also showed that the principal lessors were big landholders while for India as a whole only 12.03 per cent of total rural households owning land leased it out. It was found that households owning above 50 acres of land were leasing 36.26 per cent of the area and those owning 30-50 acres of land leasing out 28.07 per cent. These households together constitute 3.31 per cent of rural households leasing out land, accounted for 40.15 per cent of the leased out area. This was the position after the occupancy tenants in the zamindari area were declared owners.

The ruling circles depended primarily on legislation as the instrument of agrarian reforms to the serious neglect of implementation. They believed that once legislation has been enacted the required socio-economic results would follow automatically. In fact, implementation lag in the field of land reforms is still colossal and has been almost chronic.

The lack of political will has been a key factor behind ineffective implementation. The enforcement of land reforms has been treated as the sole responsibility of certain

administrative agencies without a time-bound programme and without any obligation on their part to associate the peasants with the process of implementation. Implementation is in a large measure a function of the degree of consciousness and organisation of the potential beneficiaries. The absence of links between the State and the potential beneficiaries through local popular organs has perpetuated the drift in the process of land reforms. The up-to-date records of rights, so crucial for effective implementation, were also wanting. Besides, the influential landowners made use of the existing laws and certain implementation procedures to get the land reform measures invalidated or stalled through judicial pronouncements and decrees. So, with all the moderate stance of land reform legislation in India, the performance, by and large, has been disappointing. Since land reforms involve certain basic structural changes in rural society affecting property rights in land, the officials cannot on their own function as a change agency in this field. In fact, the official machinery has not been conditioned to act as such, and without a powerful will of the State, explicitly defined and forcefully asserted from above, land reform programmes in the hands of officials alone would continue to fail. In this situation participation of the potential beneficiaries in the practical process of implementation assumes even greater significance.

**Check Your Progress 1**

1) Describe the Agrarian Scenario in the pre-land reform period.

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2) Explain what you understand by Agrarian reforms.

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3) Explain the reasons behind 'Abolition of Intermediaries' having some success among various land reform measures.

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4) Mark "T" for True and "F" for False.

- i) Land reforms broadly refer to measures to redistribute land in favour of peasants. ( )
- ii) Self-cultivation constituted a damaging loophole in the law and was used by the intermediaries for denying the benefits to the tenants. ( )
- iii) Tenancy laws were broadly used for mass eviction of the tenants. ( )
- iv) The definition of the term 'tenant' included the sharecroppers. ( )
- v) The imposition of ceiling on agricultural holdings was primarily a re-distributive measure. ( )

## 14.4 ROLE OF TECHNOLOGICAL FACTORS IN AGRICULTURAL GROWTH

The food situation in India on the eve of the introduction of new high yielding varieties was alarming. Poverty, malnutrition and starvation were quite widespread. Unemployment has increased out of proportion because of stagnation in the industrial sector. There was serious risk of breaking down of the socio-political order if the situation did not improve. The food imports were continuously rising. The possibility of importing further were declining due to the uncertainty in world supply of foodgrains in the face of increasing demand from the food deficit regions of the world. Moreover, food prices in the world market were high and increasing, where as the economies capacity to import was limited. The possibility of increasing production by bringing more land under cultivation through land reclamation measures and cultivation of cultivable wasteland was not much. For the future, an overwhelming part of the increased production had to come by way of increased land productivity. Therefore in 1965 a 'new strategy' for agriculture for the fourth plan was outlined with the following objectives:

- i) to apply scientific techniques and knowledge of agriculture production at all stages, particularly in the fields;
- ii) to select a few areas with assessed rainfall and irrigation for concentrated application of a package of inputs based on improved varieties of seed responsive to heavy doses of fertilizers and on other modern inputs.
- iii) to achieve higher production of subsidiary foods both through intensive production programmes and overall development.

The above strategy was independent of the new HYV of seeds and would have been put in operation even if the former were not available.

### 14.4.1 High Yielding Varieties (HYV) of Seeds

However it was a sheer coincidence that, by this time, after years of international research and experimentation, the new high yielding short duration, short stem, fertilizer responsive varieties of seeds (HYV's) of wheat and rice became available for commercial cultivation in India. With this agricultural development strategy went under a dramatic change. The change was from traditional to modern agriculture based on the use of non-farm purchased inputs like fertilizers, pesticides, electric and diesel pumpsets, tractors and later on harvester combines. The adoption of the HYV technology yielded such spectacular results that it was termed as 'Green revolution'. It led to significant increases in the production of foodgrains in the five years (1967-68 to 1971-72) to average of 100 million tonnes compared to the average of 83 million tonnes of the pre-green revolution period of five years (i.e.1960-61 to 1964-65). In spite of the fact that it was limited to some cereal crops only and that too in the regions with good irrigation potential. As such its success depended on the availability of assured irrigation use of fertilizers and the HYV seeds.

Progress of HYV is indicated in the table 1. The area under High yielding varieties of paddy, wheat, maize, jawar and bazra increased from 0.88, 0.54, 0.21, 0.19 and 0.06 million hectares in 1966-67 to 28.71, 22.12, 3.02, 6.76 and 5.20 million hectares respectively by 1993-94. The total area under HYV crops increased from 1.88 million hectares to 66.99 million hectare over the same period. In 1966-67 it constituted only 2.5 per cent, 4.2 per cent, 4.1 per cent, 1.05 per cent and 0.5 per cent to the total area under the respective crops. However in 1993-94 share of HYV area to total area under these respective crops is 67.5 per cent, 88 per cent, 50 per cent, 53.2 per cent

and 54.5 per cent. However total HYV area as a proportion of total foodgrains area has increased from 1.63 per cent in 1966-67 to 54.3 per cent in the year 1993-94.

Table 1: Area under HYVs and Progress in Use of Agricultural Inputs

Area under HYV	1960-61	1970-71 (in unit million Hact.)	1980-81	1990-91	1994-95
Paddy	0.89@	5.59	18.23	27.39	31.02
Wheat	0.54@	6.48	16.10	20.97	23.25
Jowar	0.16@	0.80	3.50	7.06	7.08
Bajra	0.06@	2.05	3.64	5.70	5.39
Maize	0.21@	0.46	1.60	2.61	3.38
<b>Total:</b>	<b>1.89@</b>	<b>15.38</b>	<b>43.08</b>	<b>64.98</b>	<b>71.27</b>
Consumption of Chemical- Fertilizers: (in Lakh Tonnes)					
Total (N+P+K)	2.92	21.77	55.16	125.46	185.64
Per Hact (Kg.)	1.90	18.18	31.83	67.49	75.68

@ relates to 1966-67.

Source: Agricultural Statistics at a Glance DE&S, Ministry of Agriculture, Govt. of India, 1996.

Impressive success of this programme has resulted in phenomenal increases in the production of these cereals as well as total foodgrains during this period. Productivity of rice increased from mere 863 kgs per hectare in 1966-67 to 1888 in 1993-94 i.e. more than doubled, wheat productivity from mere 887 kgs per hectare to 2380 kgs per hectare i.e., by around 2.7 times in the same period. However the overall production of rice and wheat has risen much faster by 2.6 and 5.3 times respectively during this period because increases in area under these crops due to relatively higher yield rates. The remaining crops like maize, jawar and bajra did not show much improvement. That is to say the success story of HYV programme is limited to the major two foodgrain crops i.e. rice and wheat. Besides this it was also localized to the few states of the Indian Union and it was equally true about wheat rather than rice. It was a spectacular success in case of wheat in Punjab, Haryana and UP to be precise western U.P. where water was available in plenty. To an extent incentive price support policy of the government also played a crucial role in the increased use of new seeds.

In fact the increase in wheat output has become an important stabilizing factor in foodgrains production in the country of late wheat cultivation is spreading in the non-traditional areas such as West Bengal, Maharashtra, Assam, eastern Bihar and Orissa. In case of cultivation of HYVs of paddy there is a visible significant progress made although the pace of development is not as fast as in the case of wheat. This is due to the fact that the bulk of the crop is grown in the Kharif season, which suffers from the vagaries of the monsoon, characterised by drought or floods, and its vulnerability to attack by pests and diseases is very high. However in the rabi season (or winter) when rainfall is low and water management is easier the HYVs of paddy have shown much better results. As a result of the introduction of HYVs, paddy production has increased at a faster rate in the non-traditional rice growing states like the Punjab, Haryana and Western Uttar Pradesh, which are therefore contributing a significant

proportion of the total procurement for the central pool because of limited local consumption.

#### 14.4.2 Irrigation and Water

Water is a crucial input for plant growth. Annual precipitation is a major source of water in India. Average annual rainfall is about 1200 mm but it is seasonal and highly uneven in its geographical distribution over the country. In some areas of the country e.g. West Rajasthan, the annual rainfall is less than 200 mm; in others e.g. Southwest India and parts of Assam it is as high as 4000 mm. Nearly 75 per cent of the rainfall in many regions of India is contributed by the Southwest monsoon and it is therefore confined to four months of the rainy season i.e. from June to September. Very few regions in India receive rainfall during the winter and summer season. As much as 34 per cent of the net sown area lies in low rainfall regions i.e. with annual precipitation of less than 750 mm. Another 36 per cent of the area receives 750 mm to 1150 mm. Only the remaining 30 per cent of the net sown area enjoy benefit of more than 1150 mm i.e. high rainfall. Besides, prolonged dry spells during the rainy season and/or late commencement or early withdrawal of monsoon further aggravates the uncertainty of crop prospects. In view of such uncertainties in rainfall irrigation is a critical requirement not only in low and medium rainfall regions but is necessary in even high rainfall regions as a supplementary source of water in the Kharif season.

The importance of irrigation to India's agriculture cannot be over stated. Apart from its vital importance for healthy crop growth, irrigation has attained crucial significance in view of the country's expanding needs of food production. The availability of water all the year round through irrigation networks facilitates double cropping as well as reduces the impact of vagaries of nature. Given the limited opportunities for bringing the additional acreage under cultivation in future, irrigation is capable of playing a useful 'land augmenting' role in India. In other words increase in agricultural production in general and foodgrains production in particular for the growing population would have to come largely through higher intensity of cropping and increased productivity per unit of land.

Most of the successful 'green revolution' areas of India and elsewhere in south Asia were known for their developed canal irrigation systems during the pre-HYV period. Irrigation is a pre-condition for the successful introduction of the new varieties even in areas known for heavy rainfall, such as the rice producing deltas of south India. The dwarf-sized new varieties can not be cultivated in flooded low lying areas which have traditionally been planted with taller varieties adapted to growing with water in the fields. Although attempts are presently being made to breed high yielding varieties, which can cope with deep-water conditions.

According to the Irrigation Commission, 1972, net area irrigated went up from 17.1 Mha (Million hectares) during the quinquennium ending 1934-35 to 19.4 Million hectares during the quinquennium ending 1949-50 i.e. by 18.5 per cent. Area irrigated from government canals went up during the same period by 28.0 per cent compared to wells, which increased by only 10.4 per cent.

With the advent of planning greater emphasis was placed on increasing area under irrigation to enhance the foodgrains as well as agricultural output. By 1990-91 net irrigated area moved up to 47.78 Million hectares as compared to 20.85 Million hectares in 1950-51 and 26.34 Million hectares in 1965-66 i.e. before the advent of the green revolution (table 2). That is it has grown at a faster rate of 2.41 per cent per annum in the post-green revolution period as compared to 1.57 per cent in the



pre-green revolution period. Even the growth rate of gross irrigated area in the post-green revolution period is higher than the pre-green revolution period. It only shows that the available irrigation facilities are being more intensively used in the post green revolution period. Alternatively one finds that the net irrigated area as a proportion of net sown area and gross irrigated area as a proportion of gross cropped area increased from 17.56 and 17.11 per cent to 19.34 per cent and 19.90 per cent respectively during the period 1950-51 to 1965-66 i.e. pre-green revolution period. This is also reflected in the increase in the cropping intensity, which have increased from 111.1 in 1950-51 to 129.9 in 1990-91 (table 2). In the initial stages increase in net irrigated area were brought about mainly through canals and wells. According to table 3, the percentage area irrigated by these two sources of irrigation in 1950-51 was 68.5 per cent, which increased 71.1 per cent by 1960-61. However after the mid sixties a much faster growth was registered by tube well irrigation, which is assured irrigation a prerequisite for the successful adoption of HYV technology. By 1990-91 the proportion of net irrigated area to net sown area increased to 33.59 per cent and that of gross irrigated area to gross cropped area to 33.60 per cent. Over and above the quality of irrigation has improved that is it has become more assured as compared to pre-green resolution period.

Table 2 : Selected Categories of Land use Classification

Year	NSA	NIA	PSAI	GSA	GIA	PGAI	CI
1950-51	118.75	20.85	17.56	181.89	22.56	17.11	111.1
1955-56	129.16	22.76	17.62	147.31	25.64	17.41	114.1
1960-61	183.20	24.66	18.51	152.77	27.98	18.32	114.7
1965-66	186.20	26.34	19.34	155.28	30.90	19.90	114.0
1970-71	140.27	31.10	22.17	165.79	38.19	23.04	118.2
1975-76	141.65	34.59	24.42	171.29	43.36	25.31	120.9
1980-81	140.00	38.72	27.66	172.63	49.78	28.84	129.9
1985-86	140.90	41.86	29.71	178.46	54.28	30.42	126.7
1990-91	143.00	47.78	33.41	185.74	62.47	33.60	180.7
1994-95	142.82	53.00	37.11	188.15	70.64	37.54	181.7

NSA : Net Sown Area, NIA : Net Irrigated Area, PSAI: Percentage of Net Sown Area Irrigated

GSA : Gross Sown Area, GIA : Gross Irrigated Area, PGAI : Percentage of Gross Area Irrigated

CI : Cropping Intensity

\* Source : Indian Agriculture in Brief.

Table 3 : Area Irrigated by Sources

(Area in thousand hectares)

Sources	Year				
	1950-51	1960-61	1970-71	1980-81	1990-91
Canals	8,295 (39.8)	10,370 (42.1)	12,838 (41.3)	15,292 (39.5)	16,900 (35.7)
Tanks	3,618 (17.3)	4,561 (18.5)	4,112 (18.2)	3,182 (8.2)	3,245 (6.2)
Tubewells	(a)	185 (0.6)	4,461 (14.3)	9,531 (24.6)	14,211 (29.9)
Other wells	5,978 (28.7)	7,155 (29.0)	7,426 (23.9)	8,164 (21.1)	9,999 (21.1)
Other Sources	2,967 (14.2)	2,440 (9.8)	2,266 (7.3)	2,551 (6.6)	3,079 (6.5)
Total	20,853	24,661	31,103	38,720	47,434
Net Irrigated Area	(100.00)	(100.00)	(100.00)	(100.00)	(100.00)

(figures in the brackets are percentages)

a) included under "other wells" as separate figures were not collected during this year.

Source: Indian Agriculture in Brief 25th ed., Ministry of Agriculture, Government of India.

#### 14.4.3 Fertilizers

Rapid population increases coupled with increasing demand for land for non-agricultural purposes has led to increasing pressure on land. Therefore the major emphasis has to be on raising the yield per acre of cropped land and on increasing cropping intensity of land used for cultivation. The net sown area is inelastic and has not increased much since 1970-71 to 1992-93. It was 140.27 million hectares in 1970-71 and increased to only 142.51 million hectares by 1992-93 i.e. has grown at paltry rate of 0.07 per cent per annum. It has already been pointed out that the new varieties are responsive to fertilizer intake. Therefore with increasing dosages of fertilizer, the output from traditional varieties grows only to a limited extent, whereas the new varieties show increasing yields up to a very high level of fertilizer input. The adequacy of the fertilizer supply, is for this reason, considered by many as a major pre-condition for the success of the technology associated with the new varieties.

Traditionally the level of consumption of fertilizer in India has been very low at less than a kg per hectare. However it increased to 1.90 kgs per hectare of cropped area in 1960-61 to increase to 9.40 kg per hectare at the time of introduction of HYVs in India. It rose to around 31.83 kgs per hectare of cropped area and touched a all time high figure of around 66.5 kgs per hectare in the year 1992-93 (table 1). In comparison other Asian countries like DPR Korea and Japan per hectare application of fertilizers is as high as 399.7 kg and 345.3 kgs respectively. Total consumption rapidly increased with the introduction of HYV's. The domestic production of nitrogenous fertilizer increased from 98 thousand tonnes in 1960-61 to 10438 thousand tonnes in 1994-95,

but for a large part of the consumption the Indian farmers are still heavily dependent on imports. Fertilizer imports have increased over the years and they are at a level of 2.965 million tonnes i.e. around 22 per cent of the total consumption.

The phenomenal increase in production and productivity in agriculture since the mid sixties have been achieved through exploitation of the potential of HYVs with the help of increased use of fertilizers. Fertilizers along with better seeds and irrigation hold the key to the expected achievements. Thus although the importance of increase in the use of fertilizers was known from the beginning of the planning, the major break through in the consumption of fertilizers came with the introduction of new farm technology, which underlined the need for increased availability and use of non-conventional scientific inputs.

The annual growth rate in the use of fertilizers since 1968-69 is presented on the accompanying table. The annual rate of growth in the first four years from 1968-69 to 1971-72 was in the range 18 to 18 per cent. The pace of growth slowed down considerably during the period 1972-74 culminating in 1974-75. That was the period of energy crisis; the availability of fertilizers in the world market had shrunk; the prices had skyrocketed; ocean freight costs had galloped and profitability of fertilizer use had reached a low point. The steep rise in the price of chemical fertilizers had a dampening effect on the use of fertilizers. In northern India where selling fertilizers was never a problem, sales met with resistance from the peasants. The situation changed due to corrective action taken by the government, and supported by the industry and facilitated by the distinct improvement in the world situation.

Massive increase in fertilizer consumption would require a matching effort to strengthen the production and marketing infrastructure so as to make the right type of fertilizer available to the farmer at right place, at the right time and at the right price. It would also need a matching effort in providing strong extension support and making available other inputs such as irrigation water, credit and quality seeds to the farmers.

#### 14.4.4 Mechanisation

Mechanisation is induced by the secular tendency for the biological sources of energy to become costlier as compared to mechanical sources. This is due in part to the labour saving bias of the technological change as well as increasing ease with which capital can be substituted for labour in agriculture. Further with the rise in incomes of farmers, the desire to reduce the drudgery of manual work asserts itself. Farm Mechanisation can give the farmers greater leisure apart from making work more agreeable. It may even raise the participation rate among those who could afford to abstain from the drudgery of manual work. Further, as Hanumantha Rao has argued labour in the sense of effective energy or efficiency units cannot be abundant when food is in short supply and the cost of labour can rise despite the growth of population. Besides these economic compulsions, the presence of mechanical sources of energy particularly tractors adds to the prestige (status) of farmers.

Many agricultural economists would dispute the inclusion of an indivisible factor of production like a tractor as a component of the new technology alongside divisible inputs like new seeds, fertilizer, pesticides and irrigation. Their opposition follows from their narrow definition of the new technology as scale-neutral, which can be introduced by both the large and smallholdings alike, whereas the inclusion of tractors is likely to give it the appearance of being biased towards the large farmers. However in most of the cases where the new technology has been successful, it is difficult to

assess its impact independent of the influence of tractorisation. The general experience is that the areas which were having a high degree of agricultural mechanisation in the past, such as Punjab, Haryana or west Godavary in A.P. were among the first to respond favourably to the new high yielding varieties of seeds.

Many factors have contributed to the growth of tractor use in the country with the introduction of the new varieties. On the supply side, the HYV seeds have been launched with an accompanying generous credit policy , which has made the purchase of agricultural machinery easier. However, easy financing cannot by itself explain the shift to tractor ownership, since according to available estimates, until 1970 only 10 per cent of the tractors were purchased with the institutional loans. Most of the money for their purchase came from private sources, part of it from the increased profits accruing to the large farmers from the cultivation of new varieties. Another important factor was the governments decision of liberalizing import of tractors and to encourage their domestic production. The number of tractors in the country grew in the first twenty years after the Green Revolution from 54 thousand in 1966 to 738 thousand by 1987 i.e. it has increased fourteen times. On the demand side, the tractor is used mainly for three kind of operations - ploughing, threshing and transport and in all these operations the tractor replaces both bullock power and human labour. Although bullocks serve many functions in a typical rural households in India besides their use as a source of energy for ploughing, harvesting, transport and water lifting, they are a source of farmyard manure also. However an advantage of the tractor is that it saves time and enables a particular agricultural operation to be completed within a given time limit. The need for timely ploughing is greater with the new seeds and in this tractors are more reliable than bullocks, which takes much longer. The tractor is also extensively used as a means of transport for carrying fertilizers, seed, crops output and even people.

**Check Your Progress 2**

- 1) Describe the food situation in India on the eve of introduction of HYV in fifty words.  
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.....  
.....
  
- 2) What was the new strategy chalked out in the fourth plan to increase production explain in three sentences.  
.....  
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.....
  
- 3) Describe the major characteristics of new technology in three lines.  
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.....  
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- 4) Mark 'T' for True or 'F' for false.
- i) Possibility of increasing production by expansion of area had exhausted by mid sixties ( )
  - ii) Mechanisation of agriculture was the major plank of the HYV technology ( )
  - iii) Success story of HYV programme is limited to rice and wheat only. ( )
  - iv) Fertilizer input per hectare in India is higher than DPR Korea & Japan. ( )
  - v) Irrigation is a pre-condition for the successful introduction of HYV technology ( )

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## 14.5 LET US SUM UP

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At the time of independence, Indian agriculture was dominated by a large class of poor peasants and landless laborers. A large percentage of the cultivated area was owned by small percentage of rich peasants and landlord-cum-money lenders. The modes of production were primitive. The agrarian relations could be characterised as feudal and semi-feudal. The peasantry was exploited in terms of rack renting, insecurity of tenure, forced labour, usuary and so on. This had led to the impoverishment of the peasantry and stagnation of agricultural production. Therefore immediately after independence agrarian reforms were initiated. The reforms were related to the abolition of intermediaries, redistribution of land through land ceiling, Security of tenure and consolidation of holdings. The agrarian reforms failed to solve the land question through abolition of landlordism. Abolition of intermediaries left inequalities of land ownership and the position of the sharecroppers landless laborers unchanged. Nevertheless it helped to confer permanent, heritable and transferable rights on the occupants. The principal objective of tenancy reforms to convert tenants into owners of the land they cultivated could not be achieved. It is now well recognised that if redistribution of land was the main objective of the ceiling laws, this was not realized at all.

The food situation in India on the eve of introduction of HYV was alarming. Even the possibility of importing foodgrains had exhausted due to the uncertainty in world supply of foodgrains especially in the face of increasing demand from food deficit regions of the world. On the other end possibility of increasing production by expansion of area had exhausted and the only option left was to increase productivity. Exactly at that time an improved varieties of seeds of wheat and rice, which were more responsive to fertilizer and irrigation, became available. This led to impressive growth of production of wheat and rice output by a spectacular increase in the productivities of these crops. Expansion of area under high yield varieties of seeds was matched by the increasing application of technical inputs. The adequacy of the fertilizer supply was a major pre-condition for the success of this technology. Another crucial input was the assured irrigation. The availability of water all the year round through the irrigation networks initially and tubewell irrigation later on not only helped in increasing the productivities of the HYV crops but also resulted in increasing cropping intensity to increase the per unit productivity of land. Although mechanization especially tractors and combine harvesters were instrumental in replacing both bullock power and human labour nevertheless they had an advantage in saving time by enabling certain agricultural operations to be completed within given time, thus leading to higher intensity of cropping on the one hand and increasing productivity by minimising losses on the other.

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## 14.6 KEY WORDS

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**Agrarian Reforms:** mean the reforms relating to the abolition to intermediaries, redistribution of land through imposition as land ceiling, security of tenure and consolidation of holdings.

**Federal Agrarian Relations:** Exploitation of formers in terms of lack renting insurity of tenure, forced labour usuary etc. which led to the impoverishment of the peasantry on the one hand and the stagnation of agricultural product on the other.

**Abolition of Intermediaries :** Removal of intermediaries (zamindar) because they exploited the farmers with abolition of intermediaries. A direct relationship had been established between the state and the farmer.

**Tenancy Reforms :** Means improvement in land tenure system. This reform includes (a) security of tenure, (b) regulation of rent, (c) providing ownership.

**Fixation of Ceiling on Land Holding:** This is a re-distributive measure, which includes redistribution of land among landless agricultural labourers and marginal farmers.

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## 14.7 SOME USEFUL BOOKS

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Khusro, A.M. (1973), *Economics of Land Reform and Farm Size in India*, Macmillan, Delhi.

Joshi, P.C. (1976) *Land Reforms in India, Trends and Perspectives* Allied Delhi.

Rao C.H.H. (1975), *Technological Change and the Distribution of Gains in India Agriculture*, Macmillan Delhi.

Rao C.H.H. (1994), *Agricultural Growth, Rural Poverty and Environmental Degradation in India*, Oxford University Press Delhi.

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## 14.8 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

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### Check Your Progress 1

- 1) See Section 14.2 and attempt your answer.
- 2) Agrarian reforms means the reforms relating to the abolition of intermediaries, redistribution of land through fixation of land ceiling, security of tenure and consolidation of holdings.
- 3) Reasons for some success of abolition of intermediaries are : (a) Anti-nationalist character of the intermediaries, (b) Prolonged struggle of the peasantry against Zamindars, (c) removal of Zamindars for political power in rural areas, (d) providing better basis for admission of agricultural developments.
- 4) (a) T (b) T (c) T (d) T (e) T

### Check Your Progress 2

- 1) See Section 14.4 and attempt your answer.
- 2) See Section 14.4 for your answer.
- 3) (1) T (2) T (3) T (4) T

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## UNIT 15 NON-FARM SERVICES

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### Structure

- 15.0 Objectives
- 15.1 Introduction
- 15.2 Role of Credit in the Development of Agriculture
  - 15.2.1 The Importance of Credit
  - 15.2.2 Role of Credit in Traditional Agriculture
  - 15.2.3 Role of Credit in Modern Agriculture
- 15.3 Role of Marketing in Agricultural Development
  - 15.3.1 Marketing Efficiency
  - 15.3.2 Warehousing and Storage
- 15.4 Agricultural Price Policy
  - 15.4.1 Functions of Agricultural Prices
  - 15.4.2 Evolution of Agricultural Price Policy in India
  - 15.4.3 Public Distribution System
  - 15.4.4 Trends in Public Distribution
- 15.5 Let Us Sum Up
- 15.6 Key Words
- 15.7 Some Useful Books
- 15.8 Answers/Hints to Check Your Progress Exercises

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### 15.0 OBJECTIVES

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This unit introduces you to the role that non-farm services like agricultural credit, marketing and warehousing, and agricultural price policy along with public distribution system have played in increasing the food grains production and distribution. This unit will help you to:

- discuss the role institutional credit can play in increasing agricultural output;
- describe the functioning of the market in the production and distribution of agricultural products;
- analyse price policy and its impact on the growth of food grains production; and
- evaluate the success of the public distribution system in making food grains available to the poor.

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### 15.1 INTRODUCTION

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In the previous two units, you have been introduced to the broad contours of the Indian agricultural scenario. We saw that Indian agriculture has made rapid strides in the last several decades, particularly since the mid-sixties. The two units before this dealt with the technological aspects as well as some non-institutional factors such as land reforms. This unit will consider, as it were, different factors of production. Credit, marketing and pricing are three crucial areas in agriculture.

The New Technology requires considerable amounts of purchased inputs. This necessitates credit for the farmers to obtain those units. Moreover, farmers must be assured that what they produce will get a remunerative price, and that they will have an incentive to produce further. Thus, price is an important policy variable, and the unit has a detailed discussion of agricultural pricing. However, if the price of foodgrains is very high so that producers in the agricultural sector have incentive, this high price often makes it difficult for the poor to afford food. Hence the government has a

responsibility to provide foodgrains at subsidized prices. This brings in the issue of Public Distribution System, which gets considerable attention in the unit. The unit also has a discussion about the marketing of agricultural production, including aspects of storage and transport.

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## **15.2 ROLE OF CREDIT IN THE DEVELOPMENT OF AGRICULTURE**

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### **15.2.1 The Importance of Credit**

It is a recognised fact that agriculture, like any other industry, needs credit for its sustenance, the amount and duration of it depending on the time involved in the process of production. The inability of the agriculturist to carry on his operations without credit is a fact proved by history and evidenced by the poverty and indebtedness of the persons engaged in agriculture. Credit temporarily transfers purchasing power from one individual or organisation to another. It ideally brings together substantial financial resources with farm management skills to benefit both giver and the receiver. But unfortunately, it may be used in a way, which is damaging to one or both parties.

The role of credit in augmenting agricultural production has been a subject of controversy. The limited role of credit in the development of agriculture has been attributed to the extreme uncertainties associated with agricultural production and the marketing of its produce.

### **15.2.2 Role of Credit in Traditional Agriculture**

The nature of agriculture found in India at the time of independence may be termed as traditional agriculture. Traditional agriculture is characterised by subsistence farming in which the extended agricultural family provides as much as possible for its own direct needs of food. Since the entire energy of the farming community is diverted for the production of food grains, it is logical that farmers are less market oriented and are reluctant to raise cash crops.

Those who attribute under development in agriculture to socio-cultural factors are of the opinion that in a traditional society the expansion of agricultural credit does not always bring about an adequate increase in agriculture production. In the initial stages of agricultural development, credit to farmers will have a predominantly consumptive character. Many factors are responsible for this including the subsistence nature of the farming, poverty reflected in lack of the food reserves, improvidence, crop failures and other calamities, a rapid increase in population, the traditional customs of rural life which often involve heavy expenditure for religious and social ceremonies.

In traditional agriculture, the dividing line between household and farm expenditure is very thin; and it is impossible to draw a clear borderline between credit for consumptive and credit for productive purposes. Thus, the incentives and possibilities of using capital for stepping up of agricultural production are very limited in the early stages of development.

However, it will be a folly to underestimate the need for credit in traditional Indian agriculture. The farmers try their best to finance these investments out of their own resources. Due to acute poverty and cultural constraints, their saving is inadequate



which makes it inevitable for them to depend on outside finances. In the absence of institutional provisions, they fall an easy prey to the trap of the moneylenders who provide them credit at an exorbitant rate of interest knowing fully well that farmers, cannot pay back the amount in any circumstances. To quote the All-India Rural Credit Survey, "If credit is sometimes fatal, it is often indispensable to the cultivators. The agricultural credit is usually the least institutional and most dispersed of all types of finance".

There is nothing wrong or peculiar in Indian cultivators borrowing, but the over-dependence of the farmers on landlords-cum-moneylenders-cum-traders and diversion of credit for consumption purposes aggravates the poverty of the farmers and the state of Indian agriculture to a large extent. The evils associated with the credit from these moneylenders prompted the government to introduce legislation to drive them out of business and free the agriculturists from their clutches. It was realised that these non-institutional agencies should be replaced by the institutional agencies to provide credit to the agricultural sector.

### 15.2.3 Role of Credit in Modern Agriculture

In modern agriculture, the farmer assumes the role of an entrepreneur whose approach to production does not essentially differ from that of the industrialist. Agriculture becomes fully commercialised and the farmer produces for the market, being guided by the profit motive.

The 'new technology' often called the Green revolution, about which you read in Unit 13, may be divided into two categories: one depending on biological sources of energy and the other on mechanical sources of energy. Biochemical technology is 'land-augmenting' and 'labour absorbing' in nature. It continues to employ the traditional implements along with the human and animal labour but makes sufficient use of irrigation, fertiliser and high yielding varieties of seeds.

Mechanical technology displaces human and animal labour and makes use of machines, like tractors, threshers, harvest combines etc. to carry out agricultural production. This type of technology is 'labour displacing' in nature.

In the event of such a situation, the credit institutions have to enter the field and play dynamic role in modernising agriculture and increasing productivity.

Agricultural credit demonstrates a clearly dynamic character when a major portion of it is utilised for financing the new 'technology package'. Agricultural development is a complex and inter-related problem. One should not overlook the fact that agricultural credit is only one of the many factors playing a part in the complicated process of stepping up agricultural production. The FAO study team rightly observed that far from being a panacea, credit was not even the harmless patent medicine, which it was often thought to be. Nevertheless credit from institutional agencies have a positive role to play especially in the context of new technology and because of relatively less burden it puts on the farmers can make it a good source for augmenting land productivity. Besides credit from institutional agencies is not exploitative in nature like that from money lender-cum-traders.

The term 'institutional agencies' includes those institutions which are under the official control of the government in laying down the terms and conditions associated with the provision of agricultural credit. These institutions come under the direct control of the government in directing the flow of rural credit in a broad policy framework, which is consistent with the process of national planning and development.

With these technological changes the importance of capital in agricultural production in India has been rising remarkably especially where HYV and the intensive development programmes have been in progress. As a consequence the demand curves for purchased inputs, e.g., seeds fertilisers, pesticides, irrigational infrastructures, agricultural machinery and equipment, etc. have shifted upwards leading to increased outlays by farmers on various inputs. The marginal value productivity of capital in agriculture having increased, the farmers have come to depend more and more on borrowed capital or external finances (table 1). This has given new dimensions to the problems of agricultural credit.

The institutional agencies are in a better position than the non-institutional agencies to appreciate these social needs and act accordingly. Among the institutional agencies, the co-operative credit societies keep a place of pride providing agricultural credit after being re-organised from time to time to suit to the requirements of the Indian agriculture. The All India Rural Credit Review Committee made the assessment of requirements of agricultural credit and the possibilities of the co-operatives fulfilling this requirement. Keeping in view the gap between the total resources of the co-operatives on the one hand and the growing demand for credit in the agricultural field on the other, the committee considered it necessary to bring agencies such as commercial Banks, including the State Bank of India and its subsidiaries, in the field of agriculture credit. Thus the 'multi-agency' approach to rural credit was initiated.

With the nationalization of 14 major commercial banks in July 1969 and the six others in 1980, the commercial banks have, no doubt, become more responsive to the needs of agriculture. After nationalisation, the banks opened a large number of branches in rural areas and have increased their advances to these areas considerably. However, the introduction of commercial banks into the rural sector could not fully meet the requirements of agricultural credit in a satisfactory manner. As a result a new agency, RRBs, (Regional Rural Banks) was created with the purpose of filling up the gaps in Rural Credit Structure.

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### **15.3 ROLE OF MARKETING IN AGRICULTURAL DEVELOPMENT**

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Traditional agrarian societies are highly self-sufficient at the village level and even at the level of individual households. Hence in societies at this stage of development, the demand for commercial marketing services such as the transport, processing and storage of food, is extremely limited. But as a consequence of economic growth and development, the volume of economic resources devoted to marketing of agricultural products inevitably grows.

Marketing and production are interdependent. Producers must be convinced that a remunerative market exists for their products, particularly 'new' products, before they can be induced to produce commercially. An attractive market prospect combines a 'good' price with an assured sales outlet. This simple self-evident truth has some times been overlooked in agricultural development planning.

Development of agricultural marketing on proper lines is imperative for sustaining the growth of agricultural production. An efficient marketing system must ensure best possible returns for the produce to the farmer, minimum incidental costs and reasonable prices to the consumer. The system must be capable of mopping up the increasing marketable surplus, developing a systematic mechanism for price determination and fostering competition. It is generally believed that the indigenous and traditional modes of private marketing system for agricultural products in India

is exploitative, economically inefficient and operates with high profit margins. However, recent research has confirmed that the private food grains marketing in India operates quite efficiently by standard economic criteria of a perfect market.

Unlike the rapid increase in production in the post green revolution period, the distribution system has not developed adequately to cope with the increased production. The perusal of history of economic development reveals that the investment in the development of market structure lagged behind the development of production technology and in most cases adversely affected the production trends. Thus, enough resources have not gone into the improvement of market structure, which was needed to provide incentives for increasing agricultural production. Ruttan and Hayami stressed that market structure reforms are an important pre-requisite for successful agricultural development. Increased agricultural productivity, however, will not translate into a proportionate increase in the level of real income in an economy with an inefficient distribution system. Hence, the economic need for an efficient marketing set up is imperative.

Agricultural planners should realise that unless there is an efficient marketing system, the economic incentives cannot reach the producers. The basic aim of an orderly marketing system should be to ensure that the producer realises a reasonable price for his produce. Secondly he should not be subjected to traditional malpractices and should pay as little as possible for the services of marketing of his produce. Unless these basic criteria of marketing are met and an orderly marketing environment is built, the majority of agricultural producers, who are mainly small and marginal farmers, will remain deprived of the just price of their produce.

Production and marketing of produce are interdependent in the sense that products in the field have no value unless they are converted into a consumable form and reach the ultimate consumer at his convenience. Since the greater part of farm output in many countries is not consumed by the people who produce it, it must, like industrial products, be sold to satisfy the consumers' demand. There is an increasing awareness that it is not enough to produce a crop; it must be marketed. Marketing of agricultural products is a process, which starts with a decision to produce a saleable farm commodity. It involves an integrated market system, both functional and institutional.

### 15.3.1 Marketing Efficiency

Agricultural marketing should not be misunderstood merely as an exchange process between sellers and buyers whereby the prices of commodities (agricultural commodities in this case) by the forces of demand and supply. Marketing is a process that takes place on the supply side of the market. It is a process whereby, given the prices of agricultural commodities, these commodities are sought to be made available to consumers through various means, and consumers are sought to be persuaded to consume these. Since the demand for agricultural commodities is generally inelastic, the marketing process usually involves assembling, grading, storage, and transportation and distribution activities apart from the pre and post-harvest operations. In some cases, packaging is gaining in importance. With development, marketing gradually becomes more complex than a simple producer-consumer relationship. Various intermediaries come in between these two extremes to facilitate marketing. Producers are the people who feed the marketing system and as such they are the people most affected by its inefficiency. From the producers' viewpoint an efficient marketing system is one, which gives maximum returns from products sold after deduction of minimum market charges so as to induce further production of these products.

It would be useful to distinguish between 'technical efficiency' and 'economic efficiency'. Technical efficiency relates to such matters as mechanisation and rationalisation of individual work processes. To be technically efficient, a marketing structure would have to utilise the best method available for every marketing job and to use these methods with maximum effectiveness. Economic efficiency, on the other hand, reflects the efficiency of the functioning of the marketing system. An economically efficient marketing system will ensure that the physical savings realized in improvements in the handling of the product are transmitted to producers as well as consumers in the form of reduction in money costs. It involves the elimination of wastes, high costs and exploitative profits. The principal means of ensuring this elimination is the pressure of competition. The more nearly perfect a market is, the closer it is to an economically efficient one and the stronger would be the possibility for minimising waste and exploitation. An economically efficient marketing system therefore must ensure highest possible returns for the produce to the farmer, minimum incidental costs and reasonable prices to the consumers.

In general, economic efficiency implies operational and pricing efficiency. Operational efficiency refers to the input-output ratio and focuses on reducing costs in the performance of physical marketing functions, e.g., storage, transportation, etc. The pricing efficiency refers to the situation where the sellers get the value of their produce and the consumers receive the value of their money. Pricing efficiency improves the buying, selling and pricing aspects of the marketing process so that it remains responsive to consumer directives. Uniform pricing over the entire market area is an important attribute of pricing efficiency. Over the years, the policy-makers have emphasised more on the pricing efficiency to protect both the producers and consumers from the exploitation of the middlemen.

In India, agricultural markets being viewed as imperfect, exploitative and unhelpful to the development of agriculture, has been gradually changing over the years. However, the general belief that traders in these markets manipulate prices through malpractices and reap excessive profits, has not much changed. However, some researchers recently have found that most agricultural markets are benefiting farmers and contribute substantially to the economic development process. It has been observed that agricultural commodity market, though, appears to be competitive, but is restrained by recurring uncertainties. These uncertainties are related to supply and demand of agricultural commodities, especially in seasonal periods when supplies are not sufficiently available to carry out necessary adjustments after demand changes are recognised. As a result the short run prices may be above or below the expected levels, which cannot be achieved under pure competition. It is imperative that arrangements should exist for efficient movements of the farmers' produce to the consumers and for adequately and timely supply of superior inputs to the farmers.

In terms of farmers' economic benefits from the operations of the marketing system, it is essential that an efficient marketing system is brought about by regulation of the marketing system through rules and norms formulated by society. Where society itself is unable to ensure the operation of these norms, government attention has been focussed on agricultural marketing reforms since 1879. However, creation of an orderly and efficient marketing system will go a long way in benefiting the producers as well as consumers.

A major breakthrough in agriculture marketing reforms took place after the creation of regulated markets in most of the states. These regulated markets function with clear-cut rules and regulations with regard to open auctioning and fixed marketing charges including those for various operations. These markets generally provided

adequate infrastructure in terms of marketing yards and succeeded in reducing many illegal exaction earlier charged by the traders.

### 15.3.2 Warehousing and Storage

For efficient management of food economy, the government set up in 1965 the Food Corporation of India. It undertakes procurement, storage, imports, transport and distribution operations. Storage function is equally important for managing the India's food economy. However there is a lack of information on who stores how much grain and for how long is not available for most of the commodities. It is well known that large farmers all over the country also possess storage facilities to certain extent, but it is not possible to ascertain the quantitative magnitude of the stored commodities at the farm level and the duration of storage. The behaviour of wheat market arrivals confirms that medium and large farmers in the Punjab and Haryana stored considerable quantities of wheat. Rice millers arrange for storage facilities as a part of the lay out of; mill, but for various reasons data on the quantities stored by them are not available.

Private traders are the most prominent as far as storing is concerned. However there are no estimates available of the magnitude of storage by them. Some researchers have tried to estimate the length of storage for different commodities and also the extent of storage losses sustained. Besides farmers and traders considerable quantities of grain are stored by central and state governments in their warehouses as also in storage space hired from other private and public agencies. The major government agency storing food grains is the Food Corporation of India, while the prominent government agencies renting out storage space are the central and state warehousing corporations.

There is an urgent need for developing on-farm storage facilities in the surplus areas. The government has already formulated a scheme for this purpose, which should help in promoting orderly marketing of agricultural produce. There is, however, another dimension to this problem. The deficit states need to be assured they could get all the grain they want all the year round for feeding their public distribution system. This can best be done by strengthening storage facilities in the deficit area to form an integral part of the National Food Security System. Storage facilities should be further expanded in the cooperative sector. The cooperative storage programme is an integrated one and aims at providing facilities for distributing agricultural production requisites, marketing of agricultural produce and supplying essential consumer goods.

#### Check Your Progress 1

1) Explain the role institutional credit can play in modern agriculture in fifty words.

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2) Explain the role the efficient market can play in agricultural progress in fifty words.

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## 15.4 AGRICULTURAL PRICE POLICY

Agricultural prices have shown a tendency for wide fluctuations in inter and intra-year. The three main factors responsible for these fluctuations are :

- a) relatively low price elasticity of demand for agriculture commodities.
- b) biological nature of agricultural production.
- c) seasonal nature of the agricultural industry i.e. the output becomes available at particular time/times in a year.

The price elasticity of demand for agricultural commodities is not only lower than that of most industrial products but also even less than unity in most cases. As most of the agricultural commodities are essential for survival therefore their demand is inelastic, although it is less inelastic in developing economies than in developed economies. Therefore in a drought year, there is decline in production, the rise in prices will be more than proportionate to change in production. Similarly in a year of bumper harvest, prices will decline more than proportionately to increase in production. It means that 1 percent increase in supply would result in more than 1 percent decline in price and vice versa.

Apart from the constraints that the biological nature of production imposes on achieving the desired level of output, production in the agricultural sector cannot be adjusted as rapidly as is possible in the case of factories. The time lag between the changes in agricultural production capacity and the resultant output makes the matching of supplies with demand all the more difficult, particularly over the short periods.

This is particularly true about those developing economies that have a low price elasticity of supply. It is this inelastic nature of supply and demand that causes severe fluctuations in agricultural prices in developing economies. This is because of the fact that there are millions of producers big as well as small in the agricultural sector, scattered all over the country, each believing that the demand for his product is perfectly inelastic, without releasing that the demand for aggregate agricultural products is highly elastic. Agricultural production experiences year-to-year variations due to weather conditions. Secondly the production of most of the agricultural commodities is seasonal ; that is the output arrives in particular period which over swamps the market where as consumption is evenly spread over the whole year. In such a situation the prices of agricultural commodities would naturally be depressed during the post harvest period and would tend to rise during the period of lean supply when the farmers have sold out most of their produce.

### 15.4.1 Functions of Agricultural Prices

Agricultural prices have three important functions (a) to allocate resources (b) to distribute incomes and (c) to induce capital formation.

- a) Agricultural prices give signals to producers as well as consumers regarding the level of production and consumption changes in the relative prices of the various agricultural commodities affect the allocation of resources among agricultural commodities by the producers and allocation of expenditure on consumption of these goods by the consumers just to elaborate if the price of a given commodity increases relatively to all other agricultural commodities, then the producers would be allocating more resources, i.e. land and other inputs, for the production of that commodity. So the extent substitution is possible, consumers would try to substitute high-priced commodities by cheaper commodities.

Agricultural prices, on the one hand determine the income of the farmers and on the other, affect the level of living of the people living in other sectors of the economy as agricultural commodities form part of the wage goods. changes in agricultural prices thus affect the transfer of income between agricultural and non-agricultural sectors of the economy.

### 15.4.2 Evolution of Agricultural Price Policy in India

Agricultural price policy in India had evolved through two distinct phases. Policy upto 1965. The price policies originated during the war to deal with the problems of inflation and acute food shortages. These policies were consumer oriented and attempted to stabilize prices at relatively low levels so as to keep down the cost of living as well as to control inflation. These policies included (i) procurement by the government of locally available surpluses of food grains at procurement prices which were lower than market prices; (ii) imports of food grains; and (iii) equitable distribution of available supplies to consumers at least in the statutory or partial rationing. these policies were continued till June 1952 when a policy of gradual relaxation of controls and a shift to free trade was undertaken. This change in the policy was mainly due to the realisation that the continuing food crises was likely to be perpetuated in an artificial manner as a result of the high commitments undertaken by the Government on the one hand and the difficulties of procurement on the other hand. The real solution is not imports or controls on procurement and distribution but substantial increase of production within the earliest possible time that can solve the Indian food problem. It may be pointed out that import of food grains during the period 1951-52 to 1964-65 and their distribution at prices substantially below the open market prices. this helped in stabilizing the prices even in the wake of shortages nevertheless it killed the incentive to produce more thus leading to stagnation of production. Therefore the third plan initiated a price policy keeping in view the interests of consumers as well as producers so as to give a boost to the production.

In recognition of the importance of assessing reasonable output prices to the farmers, in order to motivate them to adopt improved technology and to promote investment by them in the farm enterprises The agricultural prices commission was established in 1965 for advising the government on agricultural price policy on continuing basis. The thrust of the policy in 1965 was to evolve a balanced and integrated structure to meet the overall needs of the economy and with due regard to the interests of the producer and the consumer. The Commission was required to keep in view.

- a) the need to provide incentive to the producer for adopting technology and for maximising production;
- b) the need to ensure national utilization of land and other production resources; and
- c) the likely effect offspring on the rest of the economy particularly on the cost of living, level of wages, industrial cost structure, etc.

In 1965, the highest priority was to maximise production since the country was passing through a critical shortage of food grains. When an overall balance between demand and supply was in sight in 1980, the criteria for Commission were modified; and the Commission was called upon to consider;

- a) the need to provide incentive to the producer for adopting improved technology and for developing production pattern broadly in the light of national requirements;
- b) the need to ensure national utilization of land, water and other production resources;

- c) the likely effect of the price policy on the rest of the economy particularly on the cost of living, level of wages, industrial cost structure, etc.
- d) terms of trade between agricultural sector and non-agricultural sector.

### 15.4.3 Public Distribution System

It is common for governments in many countries, developed or developing, to provide in some form or the other, food grains, and other essential items of consumption, to the vulnerable sections of population, variously defined, at subsidised prices. In India, public distribution has been an important instrument in the management of food economy since 1939 when public distribution was initiated.

The broad objectives of PDS in India have been three fold:

- a) to provide minimum quantities of food grains to vulnerable consumers (with high income elasticity and low price elasticity) on a year-to-year basis so as to maintain per capita food availability and stabilise consumption in the face of variations in food production;
- b) to stabilise prices by supplying food grains through PDS at prices, which are below market prices and thus act as an anchor to inflation;
- c) to transfer income to the low-income consumers to raise their nutritional standards and thus act as an anti-poverty measure.

One can view PDS either as a tool of macro-economic management or as an anti-poverty device. In the former, the main concern of the policy-makers is management of shortages and droughts, rationing, imports, ensuring availability in the face of fluctuations in output, checking food-inflation and keeping wage bills low.

As an anti-poverty device, PDS aims at transferring incomes to low-income persons and the programme becomes more targeted towards poor persons/areas. It aims at raising nutritional standards of vulnerable groups of persons and ensuring household level food security.

The PDS has evolved through three distinct phases. In the first phase (since its inception to the beginning of the green-revolution), it was mainly concerned with ensuring adequate supplies to urban consumers and with overall management of shortages through rationing and imports. In the second phase (till end seventies), supplies became comfortable and the PDS was seen as the consumer counterpart of public procurement programmes. In the third phase (eighties), government launched wage employment programmes to ensure economic access to food. Income transfer through these programmes became the main feature of PDS in the 1980s with renewed emphasis on backward (such as tribal) areas. the anti-poverty stance of PDS has become more sharply focussed in recent years.

### 15.4.4 Trends in Public Distribution

The average quantity of rice and wheat distributed through fair price shops during 1965-67 was about 9 million tonnes, which went up to 15.8 million tonnes during 1988-90. At this level, it amounted to 18.6 per cent and 15 per cent of net combined availability of the two commodities. Wheat distribution accounted for as much as 42.5 per cent of its availability in 1965-67 and rice 11.2 per cent. During 1988-90, the share of wheat distribution in availability was 17.3 per cent and that of rice 14.5 per cent. Total public distribution has recorded significant increases since 1980. this is largely contributed by rice, which experienced technological breakthrough and registered quantum jump in production. ; The share of wheat in total distribution,



which was as high as 66 per cent in 1965-67, declined to 45 per cent in favour of rice in 1988-90.

Statewide distribution shows that Kerala, Maharashtra, Tamil Nadu, West Bengal and Delhi are significant recipients of food grains. Their combined share in rice and wheat distribution was about 48 per cent in 1990 through their share in the population below the poverty line was only 26 per cent in 1987-88. In contrast, shares of Bihar, Madhya Pradesh, Rajasthan, Orissa and Uttar Pradesh are relatively small. Together they shared less than 16 per cent of rice and wheat though their share in the poor population was about 52 per cent.

Per capita distribution of cereals (rice and wheat) increased from 17.22 k.g. in 1973-74 (average of calendar years 1973-74) to 21.74 kg in 1988-89. Distribution of wheat registered a decline from 11.16 kg. to 10.14 kg. but was more than compensated by increase in distribution of rice from 6.06 kg. to 11.6 kg over the same period. However, there are state-level differences.

For some states, share of PDS supplies in per capita consumption is high reflecting high degree of dependence on centre for food supplies. We have estimated this degree of dependency at two points of time, 1973-74 and 1988-89. It is defined as per capita distribution as a percentage to per capita consumption of rice and wheat. There are vast inter-state differences in the degree of dependence. Nearly half of consumption in Kerala and Maharashtra in 1973-74 was contributed by public distribution. Between the two points of time, some states show sharp increase in the shares (most notably Tamil Nadu) while others show a decline (sharpest being in Maharashtra).

**Check Your Progress 2**

1) What role do you envisage for warehousing and storage in agricultural development in fifty words?

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2) What are the functions of agricultural prices in an Economy. Explain in fifty words.

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3) What role the Public Distribution System has been playing in making food available to the poor? Explain in fifty words.

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- 4) Briefly give an account of the operation of the Public Distribution system in India.

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## 15.5 LET US SUM UP

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This unit was the third and last one on the agricultural sector in India. The unit looked at non-farm services in agriculture. These were institutional services, such as marketing and credit. The unit also looked at two non-farm services that are important components of the government's policy in agriculture. These are the price policy about agriculture and the public distribution system which aims at providing essential food-grains to the poor at subsidised prices.

The unit discussed the importance of credit for agriculture and described the major sources of credit-both institutional and non-institutional. Then the unit went on to describe the scenario regarding marketing of agricultural goods. After this we talked about the importance of price policy for agriculture and examined how the government uses price policy as an incentive for the farmers to produce more and to increase the marketed surplus. The other set of prices that are important is the price that the poor are required to pay for the goods they purchase. The poor are often unable to pay the market price and the government subsidises the price. This imposes a cost on the government and the government has to have a suitable policy regarding the public distribution system. The unit described the working of the public distribution system in India.

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## 15.6 KEY WORDS

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**Agricultural Price Policy:** a policy package by the government to assure farmers of minimum, or support price and procurement price to induce them to enhance production.

**Issue Price:** the price at which ration shops are to sell food-grains under the public distribution system.

**Non-institutional Credit:** credit provided by moneylenders, nidhis etc which are outside the formal credit providing agencies such as banks, cooperatives, RRBs, NABARD, etc.

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## 15.7 SOME USEFUL BOOKS

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Dantwala M.L. et al(ed) 1986, *Indian Agricultural Development Since Independence*, Oxford & IBH Publishing Co. Pvt. Ltd. New Delhi.

Government of India 1976, *National Commission on Agriculture*, Ministry of Agriculture and Irrigation.

Kabra K.N. and Ittyerah A.C. 1992, *The Public Distribution System in India*, Eastern Books, N. Delhi.

Tyagi D.S. and Kahlon A.S. 1983, *Agricultural Price Policy in India*.

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## 15.8 ANSWERS/HINTS TO CHECK YOUR PROGRESS EXERCISES

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### Check Your Progress 1

- 1) See Sub-section 15.2.3 and answer.
- 2) Read Sub-section 15.3.1 and answer.

### Check Your Progress 2

- 1) See Sub-section 15.3.2 and answer
- 2) See Sub-section 15.4.1 and answer
- 3) See Sub-section 15.4.3 and answer.



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