UNIT 2 AGRICULTURE AND RURAL ECONOMY

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2.2 Role of Agriculture in Indian Economy
2.3 Trends in Agricultural Growth in India
2.4 Land Reforms and Agriculture Development
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2.1 INTRODUCTION

India is primarily an agrarian economy. Most of its population (72%) stays in rural areas. Agriculture is the major source of their livelihood. Other allied activities like dairy, fishery, goatery, piggery and poultry provide supplemental income to rural households. Development of agriculture is essential not only for promoting rural development but also for overall economic development of the country. Growth of agriculture is the key to eradicate rural poverty and ensure food security.

After studying this unit, you should be able to:

- Discuss the importance of agriculture sector in economic development of India
- Describe the trends in agricultural growth rate in crop yield in India
- Critically examine the objectives, features and effectiveness of various land reform measures undertaken by the Government
- Describe the role of agricultural inputs such as irrigation, seed and fertilizers increasing agricultural productivity and government programmes to enhance their use
- Assess the National Agricultural Policy 2000 highlighting its merits and demerits

2.2 ROLE OF AGRICULTURE IN INDIAN ECONOMY

As you know Agriculture plays an important role in the development of Indian economy. Still the Indian economy particularly the rural economy is pre-dominantly agricultural. Some of the contributions of agriculture to the development of Indian economy are described below:
Agriculture sector forms the backbone of the Indian economy. The contribution of agriculture to national income is nearly 24 per cent. Over the years, the share of agriculture in national income shows a declining trend. It has been decreasing from 56.5% in 1950-51 to 52.1% in 1960-61, 45.7% in 1970-71, 39.6% in 1980-81, 33% in 1990-91, 24.2% in 2000-01.

While the share of agriculture in national income has been substantially declining, the percentage of work force engaged in agriculture has exhibited a marginal decrease. Data furnished by Census of India reveals that in 1961, as high as 75.9% of main workers were engaged in agriculture, which declined to 69% in 1981 and 59.9% in 2001 (Table 2.1). In advanced countries like United Kingdom and United States, only 2 to 3 per cent of working population is engaged in agriculture. In France, the proportion is about 7% and in Australia about 6%. Only in backward and less developed countries, agriculture is the major source of livelihood for a significant proportion of working population. However, the agricultural labour force in India is gradually declining. It has been declined by 30.57 million from the year 2004-05 to 2011-12 (Table-2.1).

### Table 2.1: Employment of Main Workers in Agriculture

<table>
<thead>
<tr>
<th></th>
<th>1951</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>Percentage</td>
</tr>
<tr>
<td>Total Population</td>
<td>361</td>
<td>100</td>
</tr>
<tr>
<td>Rural Population</td>
<td>299</td>
<td>83</td>
</tr>
<tr>
<td>Cultivators</td>
<td>70</td>
<td>50</td>
</tr>
<tr>
<td>Agricultural Labourers</td>
<td>27</td>
<td>20</td>
</tr>
<tr>
<td>Other Workers</td>
<td>43</td>
<td>30</td>
</tr>
<tr>
<td>Total Working Population</td>
<td>140</td>
<td>100</td>
</tr>
</tbody>
</table>

### Table 2.2: Agriculture Labour (Million)

<table>
<thead>
<tr>
<th>State</th>
<th>Agricultural labour (Million)</th>
<th>Reduction(Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2004-05</td>
<td>2011-12</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>43.30</td>
<td>34.83</td>
</tr>
<tr>
<td>Karnataka</td>
<td>17.60</td>
<td>12.91</td>
</tr>
<tr>
<td>West Bengal</td>
<td>15.50</td>
<td>11.79</td>
</tr>
<tr>
<td>Bihar</td>
<td>21.30</td>
<td>17.67</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>17.40</td>
<td>13.83</td>
</tr>
<tr>
<td>Others</td>
<td>143.83</td>
<td>137.31</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>258.93</strong></td>
<td><strong>228.36</strong></td>
</tr>
</tbody>
</table>

iii) Role in Industrial Development

The linkage between industrial and agricultural sector is well recognized by the economists. The role of agriculture is highlighted as (i) supplier of wage goods to the industrial sector, (ii) provider of raw materials to agro-based industries like sugar, textiles, jute etc., and (iii) generator of agricultural income that creates demand for industrial products.

Many of our small scale and cottage industries like handloom weaving, oil crushing, rice husking etc. depend upon agriculture for their raw materials. Together, these industries account for 50% income generated in the manufacturing sector in India. In recent years, the importance of food processing industries is being increasingly recognized both for generation of income and creation of employment.

Empirical findings by researchers indicate that a unit increase in agricultural output would have a positive effect on both industrial production and national income. Estimate by Rangarajan (1982) shows that a one per cent increase in agricultural output tends to raise industrial production by 0.5 per cent and augment national income by 0.7 per cent.

iv) Role of Agriculture in International Trade

Agriculture plays a very important role in Indian exports. Agricultural products like tea, sugar, oilseeds, tobacco, spices etc. constitute the main items of exports of India. The tenth plan estimates that agriculture contributes 14.7% of total export earnings. This has great significance for economic development as increased exports help the country to pay for the increased imports of machinery and raw materials.

v) Other Contributions

Importance of agriculture in the national economy is ascertained by its various roles in economic activities. Agriculture is the main support for India’s road and railway transport. Railways and roadways secure bulk of their business from movement of agricultural goods. Internal trade is mostly in agricultural products. Agricultural growth and rising farm income has direct impact on poverty eradication, employment creation, and containing inflation.

Thus, agricultural development is central to the rapid economic development of India. Without agricultural development, Indian economy cannot prosper. Agricultural development should either precede or go hand in hand with industrial development to attain overall economic development of the country.

2.3 TRENDS IN AGRICULTURAL GROWTH IN INDIA

With the introduction of economic planning in 1950-51 and with the special emphasis on agricultural development, particularly after 1965:

i) There was steady increase in area under cultivation;

ii) There was a steady rise in average yield per hectare;
iii) There was increase in production of food grains

However, agricultural production is vulnerable to several climatic factors like occurrence of drought, flood, storm, cyclone etc. As nearly sixty per cent cropped area is rainfed, agricultural production is still a gamble in monsoon. Variability in quantum and timing of rainfall makes agricultural production uncertain. There are wide variations in agricultural production from year to year. For analysing the trend in agricultural growth, the post-independence period can conveniently be divided into pre green revolution and post green revolution period. In India Green Revolution refers to a distinct rise in agricultural production achieved since 1965 due to adoption of new agricultural strategy including use of irrigation, high yielding varieties of seeds and chemical fertilisers.

Table 2.3: Annual Growth Rate in Yield of Principal Crops since Independence

<table>
<thead>
<tr>
<th>Crops</th>
<th>Yield Rate per Hectare</th>
<th>1949-50</th>
<th>1964-65</th>
<th>2000-01</th>
<th>Annual Growth Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All Food grains</td>
<td></td>
<td></td>
<td></td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Rice (Quintals)</td>
<td>7.1</td>
<td>10.8</td>
<td>20.9</td>
<td>2.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Wheat (Quintals)</td>
<td>6.6</td>
<td>9.1</td>
<td>27.7</td>
<td>1.3</td>
<td>3.2</td>
</tr>
<tr>
<td>Coarse Cereals (Qtls)</td>
<td>4.3</td>
<td>5.1</td>
<td>10.8</td>
<td>1.3</td>
<td>2.2</td>
</tr>
<tr>
<td>Pulses (Qtls)</td>
<td>5.1</td>
<td>5.2</td>
<td>6.1</td>
<td>0.2</td>
<td>0.1</td>
</tr>
<tr>
<td>2. All Non-food grains</td>
<td></td>
<td></td>
<td></td>
<td>0.9</td>
<td></td>
</tr>
<tr>
<td>Oilseeds (Qtls)</td>
<td>5.2</td>
<td>5.6</td>
<td>8.6</td>
<td>0.1</td>
<td>1.2</td>
</tr>
<tr>
<td>Sugarcane (Tonnes)</td>
<td>34</td>
<td>47</td>
<td>67</td>
<td>1.0</td>
<td>1.2</td>
</tr>
<tr>
<td>Cotton (Kgs)</td>
<td>95</td>
<td>122</td>
<td>189</td>
<td>2.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Potato (Qtls)</td>
<td>66</td>
<td>84</td>
<td>180</td>
<td>1.6</td>
<td>3.1</td>
</tr>
</tbody>
</table>

Source: Economic Survey, 2002-03

During the pre-green revolution period, rice recorded the most impressive increase in yield rate from 7 quintals per hectare in 1949-50 to nearly 11 quintals by 1964-65. The annual rate of growth was 2.1 per cent. The growth rate of yield in case of wheat was 1.3 per cent per year, which was modest as compared to rice. Among the non-foodgrains, cotton and sugarcane recorded modest growth rate during this period.

During the post-green revolution period, wheat exhibited the most spectacular growth rate in yield (3.2% per annum). Potato too recorded an impressive growth rate of 3.1 per cent per year. Yield rate of wheat increased from 6.6 quintals in 1949-50 to as high as 27.7 quintals in 2000-01. On the other hand pulses recorded a growth rate of as low as 0.1 per cent per year and oilseeds a mere 1.2 per cent per year. This shows that the green revolution or the new agricultural strategy was effective in the case of cereal crops only mainly rice and wheat but not in other crops.
It is seen that gradually over the period of time, the contribution of agriculture to GDP has been declining. It has declined from 23.2 percent to 13.9 from the year 1999-00 to 2013-14.

2.4 LAND REFORMS AND AGRICULTURE DEVELOPMENT

Productivity of agriculture mainly depends on two types of factors: institutional and technological. Institutional factors refer to the land ownership and operation pattern that affect the incentive structure for agricultural production. These include size of land holding, extent of tenancy, terms and conditions of tenancy etc. The technological factors refer to the use of yield increasing agricultural inputs and methods of production such as irrigation, high yielding varieties of seeds, chemical fertiliser, improved agricultural implements like tractors, harvester, transplanter etc. To enhance agricultural productivity institutional as well as technological changes are necessary. The institutional changes that have been brought about in land ownership and operation pattern by various government measures are popularly known as land reforms.

2.4.1 Objectives of Land Reforms

Land reforms constitute an integral part of the scheme of agricultural development and rural reconstruction since the inception of economic planning in the country. As envisaged in the second five year plan, the objective of land reform was to create conditions for evolving as speedily as possible the agrarian economy with high levels of efficiency and productivity and to establish an egalitarian society and eliminate social inequalities. There are two major objectives of land reforms; (i) social justice (ii) economic efficiency. Social justice objective aims at eliminating all elements of exploitation and social injustice within the agrarian system so as to ensure equality of tenurial status and opportunity to all sections of rural population. Economic efficiency relates to organisational restructuring that optimise agricultural production. To achieve the twin objectives of efficiency
and equity in land use, the following land reform measures were undertaken by the Government:

i) abolition of intermediaries
ii) tenancy reforms, i.e. regulation of rent, security of tenure for tenants and conferment of ownership on them
iii) ceiling and floor on land holdings
iv) agrarian reorganisation including consolidation of holdings and prevention of sub-division and fragmentation
v) organisation of cooperative farms

Basically land reform measures aim at alleviating rural poverty in the following manner:

i) By distributing land among the landless by taking possession of surplus land from large land holders;
ii) By providing security of tenure and ownership rights to tenants and sharecroppers and by regulating rent payable by them to landlords;
iii) By protecting the interest of tribals in land and preventing non-tribals to encroach upon tribal lands;
iv) By promoting consolidation of holding to improve the size of operational holdings thereby paving the way to raise productivity;
v) By development of public lands thereby providing better access to the rural poor to obtain fuel wood and fodder;
vi) By providing access to women to land and other productive assets;
vii) By protecting homestead rights of the rural poor on lands owned by them and providing them with house sites to enable them to construct residential houses.

2.4.2 The Abolition of Intermediaries

Before independence the different types of land tenure systems prevalent in India can be grouped under three broad heads: Zamindari, Mahalwari and Ryotwari.

i) Zamindari Land Tenure

Under the zamindari system, which was introduced by Lord Cornwallis in 1793 in Bengal, the revenue collectors, who were the intermediaries between the actual cultivators and the government were conferred ownership rights on land. The actual cultivators became tenants, cultivating land on rent from the zamindars. The system was introduced by the East India Company to create a privileged and loyal class and avoid the hassle of collecting revenue from numerous small farmers. The zamindari system prevailed in Bengal, North Madras, Banaras, Orissa etc. The British Government explained that the zamindars represented the most enlightened section of the rural population and the conferment of tenurial rights could result in improvements on land and better agriculture. But these expectations were not fulfilled. With growing population and decaying village industries
under the British rule, the demand for land increased and the landlords charged excessive rents from the tenants. Thus, between the state and the actual tiller there grew an intermediary who was interested in land only to the extent of extraction of exorbitant rent. The landlords did not take any interest in improvement in agriculture and most of them were absentee landlords. The zamindars are known for their extravagance and conspicuous consumption. Thus, the rent extracted from the cultivators by the parasite landlords did not result in capital formation and there was stagnation in agriculture.

ii) Mahalwari Tenure

Under the mahalwari land tenure system, the village lands were held jointly by the village communities, the members of which were jointly and severally responsible for payment of land revenue. The system was first introduced in Agra and Oudh and later on in Punjab. The system is the product of Muslim tradition and development, particularly in Punjab. A certain sum is assessed as land revenue for the whole village for which the entire body of co-sharers are jointly and severally responsible. The village lumberdar collected revenue for which he received panchortra, i.e., 5 per cent as commission.

iii) Ryotwari Tenure

Under the Ryotwari tenure, land may be held in single independent holdings. The individual holders were directly responsible to the state for the payment of land revenue. The first ryotwari settlement was made in Madras in 1972. It was the product of Hindu tradition. This form of tenure was prevalent in Bombay, Berar and Central India. The ryot is at liberty to sub-let his land and enjoys a permanent right of tenancy so long as he pays the assessment of land revenue. Some elements of zamindari tenure appeared in this system, as the peasants could sublet their land.

The co-existence of zamindari, mahalwari and ryotwari land tenure systems led to an intermixing of characteristics. The three systems gravitated towards the tendencies of the zamindari system. Sub-letting, rack renting became a common characteristic even in ryotwari areas. Thus, on the eve of independence, on the one extreme there were landless labourers and tenants-at-will and on the other, were big landlords owning huge estates.

2.4.3 Abolition of Intermediaries Measures

The zamindari system was the product of British rule and proved harmful to agricultural development. Immediately, after attaining freedom, a strong voice was raised against the exploitative zamindari land tenure system. The system was considered economically inefficient, politically inexpedient and socially undesirable. The abolition of intermediaries started in 1948 with the enactment of legislation in Madras. Legislation was passed in all the states. As a result of conferment of rights, about 30 lakh tenants and sharecroppers acquired ownership rights over a total cultivated area of 62 lakh acres throughout the country.

2.4.4 Tenancy Reforms

Under the zamindari and ryotwari systems tenancy cultivation has been quite common in India. The small land holders or landless labourers having insufficient
land lease in land from zamindars to earn their livelihood. Sometimes tenants holding land from an intermediary may sub-let land. Broadly speaking, the tenants are grouped under three categories (i) Occupancy or permanent tenants, (ii) Tenants-at-will, and (iii) Sub-tenants. The rights of the occupancy tenants are permanent and heritable. They enjoy fixity of tenure which makes them the virtual owners of land. The only difference between the occupancy tenant and peasant proprietor is that the former is required to pay rent to the landlord and the latter to pay land revenue to the state.

The position of tenants-at-will and that of sub-tenants was extremely weak. They were subject to ruthless exploitation. Frequent enhancement of rent, eviction of tenants on minor pretexts, extractions and beggar were some of the popular ways of exploitation. Rents were extremely high. Fifty percent of the produce was the normal rent under sharecropping, which could be increased to two thirds on several occasions. This situation of exorbitant rent coupled with insecurity of tenure necessitated tenancy reforms. **Tenancy Reform Measures**

Under the tenancy system, the land-poor tenants were exploited in several ways by the landlord class. Exorbitant rent and insecurity of tenure were the two major problems. The tenants took no interest to improve agriculture. Arthur Young rightly pointed out ‘Give a man the secure possession of black rock, and he will turn it into a garden, give him a nine years lease of a garden, he will convert it into a desert’. In order to increase efficiency in agricultural production and reduce exploitation of tenants, tenancy reforms became inevitable in different parts of the country. The main tenancy reform measures are as follows:

i) **Regulation of Rent**

Before independence the rent for the use of land was as high as 50% to 70% of the gross produce. Besides, the tenant used to render certain free unpaid services to the landlord (begar). In most cases rent was paid in kind and not in cash. In the first Five Year Plan, it was laid down that rent should not exceed 20% to 25% of the produce of land. As a result most of the state governments enacted legislation regulating the rent payment by the tenant. In Gujarat, Maharashtra and Rajasthan, the rent was fixed 1/6 of the total produce, while in states like Orissa and Assam the rate varies from 20% to 25%. In Punjab and Haryana it is 1/3 of the gross produce. In Tamil Nadu it varies from 33.3% to 40%.

Owing to the weak position of tenants and the prevalence of widespread land hunger, the laws regulating rents are observed more in its breach than its compliance. As most of the tenants are poor, it is difficult for them to take the protection of law. The legal process is a costly affair and the tenant does not have the resources to go to court of law for redressal of his grievances.

ii) **Security of Tenure**

Without security of tenure, the tenant does not take any interest in any land improvement measures and fixed investment in land. Therefore, there is a need to grant security of tenure for providing incentives to the tenant to optimise production. The states have enacted legislation in the following manner.
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a) All tenants have been given full security of tenure, without giving the owners the right of personal cultivation. Uttar Pradesh, West Bengal and Delhi belong to this category.

b) Owners have been given the right to resume a limited area (not more than a family holding in any case) subject, however, to the condition that a minimum area is left with the tenant. Gujarat, Kerala, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, Himachal Pradesh, Assam and Punjab have enacted this type of legislation.

c) A limit has been fixed on the extent of land which a land-owner may resume, but the tenant is not entitled to retain minimum area for cultivation in all cases. Jammu and Kashmir, Manipur, Tripura and West Bengal belong to this category.

iii) Conferment of Ownership Rights to Tenants

In order to give practical shape to the slogan ‘land to the tiller’, many states enacted laws to give the tenants cultivating the non-resumable land, a right to purchase the land that they cultivated. The provisions for purchase of land differed from state to state. In some states e.g., in erstwhile Bombay, Madhya Pradesh, Rajasthan, U.P., West Bengal, Delhi, Andhra Pradesh, ownership of non-resumable land was straightaway transferred to the tenants and they were asked to pay the compensation to the land owners. In some other states like Punjab and Bihar, however, it was left to the discretion of the tenant to purchase the land.

There is considerable inter-state variation in the compensation scheme as well. In some states like Assam, Bombay, Madhya Pradesh, Manipur and Tripura, compensation was fixed as a multiple of land revenue. In a few other states, e.g., Andhra, Kerala, Rajasthan and Karnataka, the compensation was fixed as a multiple of rent. In states like Orissa and Punjab, it was based on the average market price of the land. In West Bengal and U.P. it was computed based on net income derived from the use of land.

The implementation of tenancy reform measures is quite disappointing due to several loopholes in the tenancy laws. The shortcomings of tenancy reform measures are as follows:

i) The tenancy reform laws have not been implemented in full spirit. Many officials themselves were land owners and they misinterpreted the laws in favour of the land owners.

ii) The legal processes to enable cultivators to become owners were rigid and complex. The poor tenants did not have the resources to move to the court of law.

iii) To get ownership right on tenanted land, the tenant was required to prove his continuous use of land for cultivation purpose. The tenants found it difficult to prove this claim.

iv) The landowners evicted the tenants on the ground of resumption of land for self cultivation.
2.4.5 Ceiling on Land Holdings

Land reform measures in India stipulated that beyond a certain specified limit, excess land belonging to the landlords would be taken over by the state and allotted to small farmers to make their land holdings economically viable or to landless labourers to provide them means of livelihood. D.R. Gadgil justifying a ceiling on land owned by an individual observed that:

“Among all resources, the supply of land is the most limited and the claimants for its possession are extremely numerous. It is, therefore, obviously unjust to allow the exploitation of any large surface of land by single individual unless other overwhelming reasons make this highly desirable. Moreover, in the context of the current socio-political climate, redistribution of land would rather appear to be imperative”.

Objectives of Ceiling:
1) To reduce inequality in land ownership
2) To create self-employment
3) To transfer land to the tiller
4) To eliminate exploitation and create opportunities for all

Exemption from Ceiling

The following types of land have been exempted from the purview of ceiling legislation:
1) Tea, coffee and rubber plantation
2) Sugarcane farms operated by sugar factories
3) Orchards and specialised farms engaged in cattle breeding, dairying and wool raising etc.
4) Efficiently managed farms on which heavy investment had been made and whose break up was likely to lead to a fall in production.

Policy on Ceiling on Holdings

In July 1972, in the conference of Chief Ministers, the following guidelines were issued for implementation of ceiling on land:
1) Unit of application should be the family as a whole for determining land holding.
2) In case the family size exceeds five, additional land may be allowed for each member in a way that in no case, it may exceed twice the ceiling limit.
3) The ceiling for a family of five may be fixed within the range of 10 to 18 acres of irrigated land and 54 acres of dry unirrigated land.
4) Each major child is to be treated as a separate unit.
5) Exemption in favour of mechanised and well managed farms should be withdrawn.
6) Ceiling may be fixed according to crops grown in the area.
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The progress of the implementation of ceiling on land holdings is very poor. In early sixties, out of 30 lakh acres of land, only 21 lakh acres have been distributed among the tenants and landless labourers. In 1972, 60 lakh acres have been declared surplus under the revised land ceiling and 20.05 lakh acres has been distributed among 14.5 lakh eligible families of landless agricultural workers.

In spite of the above achievement, the progress is not satisfactory for the following reasons:

1) Delay in adoption of legislation and malafide transfers and resumption for personal cultivation.
2) Vague and ambiguous definition of a family.
3) Time lag between passing an act and its implementation.
4) Range of ceiling varied from state to state.
5) Lack of political will.
6) Law of exemption and compensation has been highly abused and lacks universal applicability.

2.4.6 Consolidation of Land Holdings

Sub-division and fragmentation of land holdings are major reasons for low agricultural productivity in India. Sub-division of land takes place when ancestral land is divided among the heirs according to Hindu law of inheritance. Fragmentation refers to scattering of land of a household in different places. Consolidation of holding aims at bringing together the landholding of a household in a compact block. In India, consolidation of holding has been adopted to restrict sub-division and fragmentation. It promotes efficiency and economy in cultivation. To get the benefits of large scale farming, it was essential to consolidate the scattered plots in compact block. In pre-independence period, legislation for consolidation of holding was made in 1905 for consolidation on voluntary basis. Later on, similar measures were enacted in Punjab under the Co-operative Societies Act 1912 and United Provinces in 1925-26. During the period 1920-40, many provinces like Central Province, Bihar, Jammu and Kashmir also made efforts to consolidate holdings. After independence, compulsory consolidation was replaced by voluntary consolidation in almost all states. The National Commission on Agriculture also recommended that consolidation of ownership land holding should be made compulsory in all areas of the country. Consolidation of land holding enables proper supervision of crops, enlargement of size of holding, better irrigation facility and increases agricultural production. By the end of the 6th five-year plan, laws for consolidation of holding had been passed in many of the states.

Consolidation has been completed in Punjab, Haryana, Bihar, Gujarat, Himachal Pradesh and Jammu and Kashmir. Work is in progress in states like Madhya Pradesh, Orissa and Maharashtra. Only 35% of the total cultivated area in India is consolidated. The consolidation work has not made much headway in many states due to lack of cooperation of farmers. The small farmers fear that they may not get a fair deal at the hands of the authorities responsible for consolidation of holding. Sometimes fragmentation of holdings saves the farmer from complete ruin due to flood, storm and other natural calamities by spreading risk.
2.4.7 Co-operative Farming

Co-operative farming refers to an organisation of cultivators of land on the basis of common efforts for common interests. According to Nijalingappa Committee, it is a voluntary organisation of the farmers in which the manpower, land and other means of production are pooled in order to put them into a better and fuller utilisation. Planning Commission of India considers co-operative farming as unification of land and joint management. The following are the important features of co-operative farming:

**Features of Co-operative Farming**

1) The land is cultivated as one single unit.
2) The holdings of all member farmers are pooled.
3) Each member remains the owner of the land but the right of cultivation is surrendered by him to society.
4) Supervision and control over management of the farm strictly remains in the hands of the society.
5) The society is responsible for the sale of total produce.
6) Each member gets share of profit in accordance to his land.

2.4.8 Problems in Implementation of Land Reform Programmes

The principal reasons for slow progress in implementation of land reform measures are (i) lack of political will, (ii) absence of pressure from below as the poor peasants are passive, unorganised and inarticulate, (iii) apathetic attitude of the bureaucracy, (iv) absence of up-to-date land records, (v) legal hurdles in the way of implementation.

Giving an overall assessment of the land reform measures, the Sixth Plan (1980-85) mentions ‘If the progress of land reforms has been less than satisfactory, it has not been due to flaws in policy but to indifferent implementation. Often the necessary determination has been lacking to effectively undertaking action, particularly in the matter of implementation of ceiling laws, consolidation of holdings and in not so vigorously pursuing concealed tenancies and having them vested with tenancy/occupancy rights as enjoined under the law.”

2.4.9 Suggestions for Improvement

The following suggestions are made for improving the implementation of land reform programmes.

1) Distribution of Ceiling Surplus Land

Excess land taken over from big landholders should be distributed expeditiously to marginal farmers and landless labourers. To assist the land reform beneficiaries, there is a strong need to link them to various employment and poverty alleviation programmes for timely supply of inputs and investments.

2) Computerisation of Land Records

Priority should be given to preparation, maintenance and computerisation of
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land records. All tenants including sharecroppers should be identified and their rights should be recorded and permanent heritable rights should be conferred on them on the lines of “Operation Barga” implemented by the West Bengal Government in a mission mode. Certified extract of the record should be issued in the form of updated ‘Farmers’ Passbook’.

3) Redefinition of Personal Cultivation

The definition of personal cultivation should give stress on the following points that the person claiming to be in cultivation; (a) He must cultivate his own land by his own labour or by the labour of any member of his family; (b) He or member of his family should reside for the greater part of the year in the locality where the land is located; and (c) Cultivation should be the main source of his income.

4) Restriction on Conversion of Agricultural Land

There should be restriction on transfer of agricultural to a non-agriculturist.

5) Liberalising Leasing of Land

Leasing of land should not be banned. Cultivation of land on lease provided source of livelihood to the land-poor households. The terms and conditions of tenancy should be regulated and tenancy contracts should be recorded.

6) Awareness Creation about Land Acts

In order to popularise the laws relating to land reforms, there should be comprehensive publicity of such laws among the rural people. These laws should be published in regional languages and be distributed to rural people by Block Development Officials. This sort of publicity would arouse consciousness of the farmers about their rights and duties related to land reform measures.

7) Legal Support

The poor peasants may be provided legal aid up to the level of Supreme Court. The Lok Adalats should be empowered to dispose of land reform litigations along with prompt disposal of cases by rural courts i.e. Nyaya Panchayat/Rural Nyayalaya.

In these sessions you read about the role of agriculture in development, and the land reform in India and now answer the questions given in Check Your Progress-1

Check Your Progress 1

Note:  
a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Discuss the importance of agriculture in economic development of India.

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2) Give a critical assessment of tenancy reform measures in India.

2.5 AGRICULTURAL INPUTS- WATER, SEED AND FERTILIZER

Agricultural productivity can be increased by institutional restructuring and use of improved inputs or methods of production. The green revolution that took place in India during mid 1960s was primarily due to use of irrigation, chemical fertilisers and high yielding varieties of seeds. Therefore, this strategy was popularly known as seed-water-fertiliser technology. Various aspects with respect to use of yield enhancing inputs like irrigation, better seeds and fertilisers are discussed in the following sections.

2.5.1 Irrigation

Water is a critical input required for agricultural production. In areas where rainfall is abundant and well-distributed over the years, there is no problem of water. But in arid and semi-arid areas where rainfall is scantly and uncertain, irrigation is highly essential for crop production. As Indian agriculture is dependent on monsoon, the quantum and timing of rainfall is quite uncertain. There are large spatial and temporal variations in rainfall. Uncertainty and deficient rainfall calls for irrigation for cultivation of crops. Irrigation is nothing but artificial application of water for plant growth. Use of irrigation enables the use of other yield stimulating inputs like high yielding varieties of seeds, chemical fertiliser and farm yard manure. Irrigation enhances agricultural production by increasing yield rate, raising the number of crops raised in a year and diversifying the cropping pattern in favour of cash and remunerative crops. These three effects are otherwise called as (i) Pure yield effect, (ii) Intensity effect (iii) Cropping pattern effect.

i) Investment in Irrigation

From the very inception of planning and during subsequent Five Year Plans, huge investments have been made in irrigation projects to increase agricultural production and to make India self sufficient in food grain production. During the 50 years since independence, the Government of India had invested nearly Rs.231, 400 crore (at 1996-97 prices) on major, medium and minor irrigation projects. As a result, the country’s irrigation potential has increased from 22.6 million hectares in the pre-plan period during 1950-51 to 89 million hectares at the end of 1996-97. India has the largest irrigated area in the world. This has significantly contributed to enhance agricultural production from 51 million tonnes in 1950-51 to 203 million tonnes in 2001-02.
ii) **Sources of Irrigation**

Irrigation water is provided from varied sources such as canal, well, tube well, tanks etc. Since the inception of first five year plan in 1951, considerable emphasis has been placed on development of canal irrigation. Canal irrigated area has increased from 8.3 million hectares in 1950-51 to 17.1 million hectares in 1996-97. However, its relative importance has decreased from 40% to 32% (Table 2.3).

Area irrigated by well and tube well has increased from 6 million hectares to 31 million hectares during 1950-51 to 1996-97. During this period, the percentage of well irrigated area has increased substantially from 29% to 56%. The growth of well irrigation has been at the expense of tank irrigation and irrigation from other sources. The share of tanks in total irrigated area has declined from 17% in 1950-51 to 6% in 1996-97 (Refer to Table 2.3).

As a consequence of irrigation development the percentage of cropped area under irrigation has increased from 17% to 39% during 1950-51 to 1999-2000.

<table>
<thead>
<tr>
<th>Table 2.3: Area Irrigated by Source in India</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sources of Irrigation</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Canals</td>
</tr>
<tr>
<td>Wells &amp; tube wells</td>
</tr>
<tr>
<td>Tanks</td>
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<tr>
<td>Other sources</td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>

*Source: Statistical outline of India, 2000-01*

iii) **Irrigation Potential**

The planning commission of India has adopted the following classification of irrigation schemes on the basis of area irrigated:

a) Major Irrigation Schemes: Those with culturable command area (CCA) more than 10,000 hectares.

b) Medium Schemes: Those with culturable command area (CCA) between 2000 and 10,000 hectares.

c) Minor Schemes: Those with culturable command area (CCA) upto 2000 hectares.

During the initial year of first five year plan i.e. 1951, the irrigation potential created through major and medium schemes was about 10 million hectares and from minor irrigation works was 13 million hectares. By 1999-2000, the total irrigation potential created increased to 94 million ha. Recently the Ministry of Water Resources has estimated that India’s ultimate irrigation potential from major and medium schemes would be 59 million ha and minor works would contribute 81 million ha adding up to a total of 140 million ha.
Unfortunately, the irrigation potential created over the years has not been fully utilised. The gap between the potential created and actually utilised has widened over the years. Nearly 10 per cent of potential created has been remaining unutilised. The reasons for non-utilisation of created irrigation potential are: (i) delay in the construction of field channels, drains, land levelling/shaping, (ii) cultivation of water intensive crops by farmers, (iii) excess use of water by the farmers in the head reach of canal, (iv) conveyance loss of water due to seepage (v) siltation (vi) lack of proper operation and maintenance of irrigation physical structures.

In order to narrow the gap between potential created and its utilisation, the Government of India started the Command Area Development (CAD) Programme during 1970s. The basic objective of CAD programme is to maximise productivity in the irrigation command area through an integrated approach through on farm development (OFD) works. OFD works include construction of field channels and field drains, land levelling, land shaping, introduction of rotational water supply to ensure equitable and assured distribution of water to individual land holdings. CAD programme also aims at promoting farmers participation in irrigation management. The CAD programme has not been successful in achieving equity and efficiency in irrigation use.

For optimal utilisation of irrigation, recently emphasis is laid on minor irrigation schemes using ground water sources. Minor irrigation works are relatively less capital intensive and do not take long period to complete construction. Controlled irrigation is possible in case of minor irrigation. Minor irrigations works are usually taken up by private individuals. Thus expansion of minor irrigation depends on farmer’s perception of profitability, easy and cheap availability of facilities such as electricity, diesel, construction material, credit etc. Government is required to provide necessary support for promotion of minor irrigation schemes on private initiative.

iv) Irrigation Development Programmes

The Government of India has taken up irrigation potential creation through public funding and is assisting farmers to create potential on their own farms. Substantial irrigation potential has been created through major and medium irrigation schemes. The total irrigation potential in the country has increased from 81.1 million ha in 1991-92 to 102.77 million ha by 2007. Important government programmes under implementation are as follows:

a) Accelerated Irrigation Benefit Scheme

The Central Government initiated the Accelerated Irrigation Benefit Programme (AIBP) from 1996-97 for extending assistance for the completion of incomplete irrigation schemes. Under this programme, projects approved by the Planning Commission are eligible for assistance. Further, the assistance, which was entirely a loan from the Centre in the beginning, was modified by inclusion of a grant component with effect from 2004-05. AIBP guidelines were further modified in December 2006 to provide enhanced assistance at 90 per cent of the project cost as grant to special category States, Drought Prone Area
Rural Development in India

Programme (DPAP) States/tribal areas/flood-prone areas and Koraput-Balangir-Kalahandi (KBK) districts of Orissa. Under the AIBP, Rs 34,784 crore of Central Loan Assistance (CLA)/grant has been released up to 2009. An additional irrigation potential of 56 lakh ha has been created under the AIBP up to 2009. As on March 31, 2009, 268 projects have been covered under the AIBP and 109 completed.

b) Rural Infrastructure Development Fund

National Bank for Agriculture and Rural Development (NABARD) has set up Rural Infrastructure Development Fund (RIDF) under which loans are granted to states for speedy completion of minor irrigation projects.

c) Participatory Irrigation Management Programme

During the last two decades India has undertaken path breaking reform measures in irrigation sector to ensure efficiency in water use, equity in water distribution and sustainability of the irrigation systems. Until 1990s major and medium irrigation projects in India had remained state owned, state funded managed by a government department by a hierarchical bureaucracy in a top down manner without any participation of farmers. Recently emphasis has been laid on participation of farmers in all aspects of planning, development and management of water resources. Many states in India have implemented Participatory Irrigation Management (PIM) mostly under economic restructuring programme with financial assistance from international development organisations like World Bank, Department for International Development (DFID), UK, Asian Development Bank, and European Commission. Farmers have been organised to form Water Users’ Associations (WUAs) to take over the responsibility of operation and maintenance, distribution of water among water users and collection of water charges. Though thousands of WUAs have been formed across India, their functional efficiency is questionable. The implementation of PIM in India has been observed to be beset with many difficulties due to heterogeneity of farmers, capture of power by rural elites, political interference, half-hearted support of irrigation bureaucracy, physical system inefficiency, inadequate capacity building and lack of enough incentives.

2.5.2 Seeds

Seeds are considered as the carriers of new technology for crop production and higher crop yields. Improved seeds are a critical input for sustained growth of agriculture. In India, more than four-fifths of the farmers rely on farm-saved seeds leading to a low seed replacement rate. Production of quality seeds and distribution of new improved plant varieties constitute an important component of Government’s agricultural policy.

A number of high yielding varieties (HYV) of rice and wheat, hybrids of maize, jowar and bajra have been introduced. The HYV programme was started in 1966. By 1997-98 a total of 70 million ha of land was covered by HYV.

The organised seed sector particularly for food crops and cereals is dominated by the public sector. The Government is putting emphasis on (i) research in
evolving better seeds suitable to Indian condition, (ii) larger production and better distribution of quality seeds, (iii) provision of adequate credit facilities to enable even the poorest farmers to purchase and use quality seeds, and (iv) expansion of irrigation, fertiliser and pesticides which are necessary for efficient use of quality seeds.

With the introduction of HYV programme, the need for increasing production of quality seeds has increased considerably. The Government set up National Seeds Corporation (NSC) in 1963 and the State Farms Corporation of India (SFCI) in 1969, to produce and supply quality seeds. There are also private firms who multiply foundation seeds and certify quality seeds under the prescribed quality control arrangements.

**Government Seed Policy and Programme**

The Indian Seed Programme includes the participation of Central and State Governments, the Indian Council of Agricultural Research (ICAR), the State Agricultural Universities, the cooperative and private sectors. There are 15 State Seed Corporations besides two national-level corporations, namely National Seeds Corporation and State Farms Corporation of India. The Ministry of Agriculture is implementing the Central-sector Development and Strengthening of Infrastructure Facilities for Production and Distribution of Quality Seeds scheme. The aim of the scheme is to make quality seeds of various crops available to farmers timely and at affordable price. Under this scheme, the seed component of the Prime Minister’s Relief Package is being implemented in 31 suicide-affected districts of Maharashtra, Andhra Pradesh, Karnataka and Kerala, to supply certified seeds at 50 per cent of seed cost. During the year 2008-09, Rs. 445.81 crore was released under the Prime Minister’s Relief Package. The scheme is being implemented on all-India basis from the year 2005-06. The major thrusts under the scheme are improving quality of farm saved seeds through Seed Village Programmes to enhance seed replacement rate, boosting seed production in the private sector and helping public sector seed companies to contribute to enhancing seed production. Some of the remarkable achievements under the scheme during 2008-09 were that more than 25,000 seed villages were organized across the country; certified/quality seed production increased from 194.31 lakh quintals during 2006-07 to 250.35 lakh quintals during 2008-09; 52 seed infrastructure development proposals were sanctioned for boosting seed production in the private sector; and financial sanctions were given for establishing tissue culture facilities in Orissa (banana) and Maharashtra (pomegranate). Further, Biotech Consortium of India Limited (BCIL) was engaged as an expert agency to undertake public awareness programmes in nine BT cotton-growing States at State capital, district and tehsil levels. The BCIL has been provided financial assistance of Rs. 26.65 lakh during the year 2008-09. The Protection of Plant Varieties and Farmers’ Rights (PPV&FR) Authority was established in November 2005 at the National Agricultural Science Complex (NASC), New Delhi. NASC has been mandated to implement provisions of the PPV&FR Act 2001. Fourteen crops, namely rice, wheat, maize, sorghum, pearl millet, chick pea, pigeon pea, green gram, black gram, lentil, field pea, kidney bean, cotton and jute were notified for the purpose of registration under the Act. There are plans to extend its operations and coverage to forestry and aromatic and medicinal plants.
Considering the vital importance of the seeds sector in promoting agricultural growth, it is proposed to replace the existing Seeds Act 1966 by suitable legislation. The new Act is expected to (i) create a facilitative climate for growth of the seed industry, (ii) enhance seed replacement rates for various crops, (iii) boost the export of seeds and encourage import of useful germ plasm and (iv) create a conducive atmosphere for application of frontier sciences in varietal development and for enhanced investment in research and development (R&D).

2.5.3 Fertilisers

Chemical fertilisers have played a significant role in the development of the agricultural sector. With fast growing population and limited land resources, the use of fertilisers will play the key role in increasing agricultural productivity. The new agricultural strategy that was adopted during 1966 to boost agricultural production was based on increased use of fertilisers. The per hectare consumption of fertilizers in nutrients terms increased from 105.5 kg in 2005-06 to 128.6 kg in 2008-09. However, improving the marginal productivity of soil still remains a challenge. This requires increased NPK application and application of proper nutrients, based on soil analysis. The application of quantum of fertiliser is quite low in comparison to international figures. The reasons for low use of fertilisers are as follows:

i) Absence of assured supply of water in many parts of India acts as a hindrance to increase use of fertilisers. Availability of water is a pre-condition for use of chemical fertilisers.

ii) As a majority of cropped area in India is rainfed, consumption in these areas is low.

iii) Government provides a lot of subsidy on fertilisers, which is a drain on national resources. Most of the subsidy on fertiliser is cornered by the large farmers. Government is gradually reducing subsidy, which has resulted in significant increase in price of fertilisers.

iv) Government imports fertilisers to meet domestic demand. As there has been a sharp increase in international prices of fertilisers, Government is encouraging use of organic manure, which is environment friendly.

Government Measures

The Government has taken a number of measures to improve fertilizer application in the country. A new scheme, the National Project on Management of Soil Health & Fertility (NPMSF), has been introduced in 2008-09 with a view to setting up of 500 new Soil Testing Laboratories (STLs) and 250 Mobile Soil Testing Laboratories (MSTLs) and strengthening of the existing State STLs for micronutrient analysis. In order to ensure adequate availability of fertilizers of standard quality to farmers and to regulate trade, quality and distribution in the country, fertilizers have been declared an essential commodity as per the Fertilizer Control Order (FCO) 1985 promulgated under Section 3 of the Essential Commodity Act 1955. The procedure for incorporation of new products has been liberalised and simplified to encourage manufacture and use of fortified fertilizers. Eight fertilisers have been specified as fortified fertilisers in FCO 1985. To encourage balanced use of fertilisers, a new concept of customized fertilisers has been introduced. These fertilisers are soil specific and crop specific. Organic
fertilisers, namely city-based compost and vermin compost, and bio-fertilisers, namely rhizobium, azotobacter, azospirillum and phosphate solubilising bacteria, have been recognized and incorporated in FCO 1985. In spite of several measures undertaken by the Government, the use of fertiliser is considered very low in India. It is necessary to promote increased use of proper fertilisers in accordance with soil characteristics through improved delivery services to increase agricultural yield.

In these sessions you read about the role of agricultural input in agriculture development and now answer the questions given in Check Your Progress-2

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Describe the government measures to develop irrigation in India.

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2.6 NATIONAL AGRICULTURAL POLICY (2000)

In the post liberalisation period especially during the nineties the growth rate of agriculture was very low hovering around only 2% per annum. This became a matter of great concern to the Government of India. The Government declared the National Agricultural Policy in 2000 to accelerate agricultural growth. The Policy aims to achieve the following objectives:

i) A growth rate of 4 per cent per annum in the agriculture sector;

ii) Growth that is based on efficient use of resources and conservation of our soil, water and bio-diversity;

iii) Growth with equity i.e. growth which is widespread across regions and farmers;

(iv) Growth that is demand driven and caters to domestic markets and maximises benefits from exports of agricultural products in the face of challenges from economic liberalisation and globalisation;

v) Growth that is sustainable technologically, environmentally and economically.

2.6.1 Sustainable Agriculture

The policy supports technically sound, economically viable, environmentally non-degrading, and socially acceptable use of country’s natural resources to promote sustainable agriculture. For this purpose the following measures are suggested:
Rural Development in India

i) To contain biotic pressures on land and to control indiscriminate diversion of agricultural lands for non-agricultural uses

ii) To use unutilised wastelands for agriculture and afforestation

iii) To increase cropping intensity through multi-cropping and inter-cropping

iv) To vigorously pursue a long-term perspective plan for sustainable rainfed agriculture through watershed approach for development of two-third of India’s cropped area, which is dependent on rains.

v) To emphasise rational use of surface and ground water, so that the receding ground water levels in certain areas due to over-exploitation of available water resources can be checked. To use better technologies like drip and sprinkler irrigation system so as to make more economic and efficient use of water.

vi) Involvement of farmers and landless labourers will be sought in the development of pastures/forestry programmes on public wasteland by giving financial incentives and entitlement of trees and pastures.

2.6.2 Food and Nutritional Security

Special efforts will be made to enhance the productivity and production of crops to meet the increasing demand for food generated by growing population and raw materials for expanding agro-based industries. Special attention will be given to development of new crop varieties, particularly food crops, with high nutritional value.

A major thrust will be given to development of rainfed agriculture, horticulture, floriculture, roots and tubers plantation crops, aromatic and medicinal plants, bee-keeping and sericulture for augmenting food supply, exports and generating employment in rural areas.

Development of animal husbandry, poultry, dairy and aquaculture will receive high priority for diversifying agriculture, increasing animal protein availability in food basket and for generating exportable surpluses.

Cultivation of fodder crops and fodder trees will be encouraged to meet the growing need for feed and fodder requirements. The involvement of cooperatives and the private sector will be encouraged for the development of animal husbandry, poultry and dairy.

2.6.3 Generation and Transfer of Technology

The Government will encourage application of biotechnology, remote sensing technologies, pre and post harvest technologies, energy saving technologies and technology for environmental protection.

The Government will endeavour to move towards a regime of financial sustainability of extension services in a phased manner, a more realistic cost recovery of extension services and inputs, while simultaneously safeguarding the interests of the poor and vulnerable groups.

The Government will take measures to empower women and build their capabilities and improve their access to inputs, technology and other farming resources.
2.6.4 Incentives for Agriculture

The Government will take steps to improve the terms of trade for agriculture with manufacturing sector.

Consequent upon removal of quantitative restrictions on trade in inputs as per WTO Agreement on Agriculture, in order to protect the interest of farmers, continuous monitoring of international prices will be undertaken and appropriate tariff protection will be provided.

The structure of taxes on food grains, other commercial crops and excise duty on farm machinery and implements, fertiliser etc. will be reviewed and rationalised.

2.6.5 Investments in Agriculture

The policy admits that there has been a decline in public sector investment in the agriculture sector. Public investment for narrowing regional imbalances and accelerating development of supportive infrastructure will be stepped up.

Besides this, private sector investment in agriculture will also be encouraged, more particularly in areas like agricultural research, human resource development, post-harvest management and marketing.

For setting up agro-processing units, collaboration between the producer cooperatives and corporate sector will be encouraged.

2.6.6 Institutional Structure

The approach to rural development and land reforms will focus on the following areas:

i) Consolidation of holdings all over the country on the pattern of north western states

ii) Redistribution of ceiling surplus lands and wastelands among the landless farmers and unemployed youth

iii) Tenancy reforms to recognise the rights of the tenants and sharecroppers

iv) Development of lease markets for increasing the size of holdings by making legal provisions for giving private land on lease for cultivation and agri-business

v) Updating and improvement of land records, computerisation and issue of land pass-books to farmers.

vi) Recognition of women’s rights in land.

Private participation will be promoted through contract farming and land leasing arrangements to allow accelerated technology transfer, capital inflow and assured markets for crop production, especially of oilseeds, cotton and horticultural crops.

2.6.7 Risk Management

The National Agriculture Policy envisages National Agriculture Insurance scheme covering all farmers and all crops throughout the country. Efforts are being made to provide a package insurance policy for the farmers, right from sowing of the crops to post-harvest operations, including marketing fluctuations in the prices of agricultural produce.
2.6.8 Critical Review of the New Agricultural Policy

The New Agricultural Policy promises Green Revolution, White Revolution (milk and dairy products) and Blue Revolution (aquaculture). It has, therefore, been described as a policy of promising Rainbow Revolution.

Firstly, the new agricultural policy has fixed up unrealistic targets of agricultural growth rate. During the nineties, the growth rate of agricultural production averaged 2.1 per cent and that of food grains production averaged 1.8 per cent per annum, which was just equal to the growth rate of population. The goal of attaining 4 per cent growth in agriculture seems a distant dream. Attainment of food security is also difficult to achieve. The New Policy does not specify the targets in input use, public investment, so that the objectives can be achieved.

Secondly, the New Agricultural Policy talks of widespread development of agriculture. But it does not identify the agriculturally backward states, which are lagging behind in utilising their potential. It would have been better had the policy recommended special package for investment in infrastructure in those areas to achieve balanced regional agricultural development.

Thirdly, the policy emphasises on private investment to increase production. The large farmers can make investment in the form of tube well, agricultural implements, land improvement. But the small farmers who constitute the major segment of Indian farmers are not able to make private investment and depend on public investment for agricultural production. Moreover, in backward underdeveloped areas, a big push in the form of public investment in rural infrastructures is necessary to accelerate agricultural growth. The new policy lacks such focus on public investment and does not commit any thing on this matter.

Fourthly, the policy intends to encourage commercialised or capitalist farming by promoting contract farming. The policy does not specify any regulating mechanism to control adverse effects of contract farming on eco-system and employment.

Fifthly, in India agriculture is a state subject. The national agricultural policy only gives the guidelines which may not be binding on states. It would have been better, had the Centre specifically mentioned its contribution in different programmes it intends the states to undertake to promote agriculture. Central contribution in rural development programmes will provide incentives to states to take up such programmes.

In these sessions you read about the measures to be taken for the improvement of agriculture and National Agriculture Policy now answer the questions given in Check Your Progress-3

Check Your Progress 1

Note:  a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Describe the measures undertaken by Government of India to increase use of quality seeds.

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2.7 LET US SUM UP

The role of agriculture in the development of rural economy is immensely important. It contributes to the national income, serves as a source of livelihood and forms a positive linkage with the growth of industrial sector and international trade. The trend of agricultural growth in India has been an upward graph in terms of steady increase in area under cultivation; average yield per hectare and production of food grains. Productivity of agriculture mainly depends on two types of factors: institutional and technological. Institutional factors refer to the land ownership and operation pattern that affect the incentive structure for agricultural production. These include size of land holding, extent of tenancy, terms and conditions of tenancy etc. The technological factors refer to the use of yield increasing agricultural inputs and methods of production such as irrigation, high yielding varieties of seeds, chemical fertiliser, improved agricultural implements like tractors, harvester, transplanter etc. To enhance agricultural productivity institutional as well as technological changes are necessary. Further on, the agricultural productivity can be increased by institutional restructuring and use of improved inputs or methods of production. The green revolution that took place in India during mid 1960s was primarily due to use of irrigation, chemical fertilisers and high yielding varieties of seeds. Therefore, this strategy was popularly known as seed-water-fertiliser technology. Eventually, the Government of India announced National Agricultural Policy in 2000 to accelerate agricultural growth.

2.8 REFERENCES AND SELECTED READINGS

Check Your Progress 1

1) Discuss the importance of agriculture in economic development of India.

**Answer.** The importance of agriculture in economic development in India can be assessed in the following ways:

i) Contribution to National Income

ii) Source of Livelihood

iii) Role in Industrial Development

iv) Role of Agriculture in International Trade

v) Other Contributions

2) Give a critical assessment of tenancy reform measures in India.

**Answer.** The shortcomings of tenancy reform measures are as follows:

i) The tenancy reform laws have not been implemented in full spirit. Many officials themselves were land owners and they misinterpreted the laws in favour of the land owners.
ii) The legal processes to enable cultivators to become owners were rigid and complex. The poor tenants did not have the resources to move to the court of law.

iii) To get ownership right on tenanted land, the tenant was required to prove his continuous use of land for cultivation purpose. The tenants found it difficult to prove this claim.

iv) The landowners evicted the tenants on the ground of resumption of land for self cultivation.

3) The main tenancy reform measures are as follows:
   i) Regulation of Rent
   ii) Security of Tenure
   iii) Conferment of Ownership Rights to Tenants

Check Your Progress 2

1) Describe the government measures to develop irrigation in India.

Answer. Important government programmes under implementation are as follows.

a) Accelerated Irrigation Benefit Scheme

The Central Government initiated the Accelerated Irrigation Benefit Programme (AIBP) from 1996-97 for extending assistance for the completion of incomplete irrigation schemes. Under this programme, projects approved by the Planning Commission are eligible for assistance. Further, the assistance, which was entirely a loan from the Centre in the beginning, was modified by inclusion of a grant component with effect from 2004-05. AIBP guidelines were further modified in December 2006 to provide enhanced assistance at 90 per cent of the project cost as grant to special category States, Drought Prone Area Programme (DPAP) States/tribal areas/flood-prone areas and Koraput-Balangir-Kalahandi (KBK) districts of Orissa.

b) Rural Infrastructure Development Fund

National Bank for Agriculture and Rural Development (NABARD) has set up Rural Infrastructure Development Fund (RIDF) under which loans are granted to states for speedy completion of minor irrigation projects.

c) Participatory Irrigation Management Programme

During the last two decades India has undertaken path breaking reform measures in irrigation sector to ensure efficiency in water use, equity in water distribution and sustainability of the irrigation systems. Until 1990s major and medium irrigation projects in India had remained state owned, state funded managed by a government department by a hierarchical bureaucracy in a top down manner without any participation of farmers. Recently emphasis has been laid on participation of farmers in all aspects of planning, development and management of water resources.
1) Describe the measures undertaken by Government of India to increase use of quality seeds.

**Answer.** The Various measures undertaken by Government of India to increase use of quality seeds are as follows:

The Indian Seed Programme includes the participation of Central and State Governments, the Indian Council of Agricultural Research (ICAR), the State Agricultural Universities, the cooperative and private sectors. There are 15 State Seed Corporations besides two national-level corporations, namely National Seeds Corporation and State Farms Corporation of India. The Ministry of Agriculture is implementing the Central-sector Development and Strengthening of Infrastructure Facilities for Production and Distribution of Quality Seeds scheme. The Protection of Plant Varieties and Farmers’ Rights (PPV&FR) Authority was established in November 2005 at the National Agricultural Science Complex (NASC), New Delhi. NASC has been mandated to implement provisions of the PPV&FR Act 2001. Fourteen crops, namely rice, wheat, maize, sorghum, pearl millet, chick pea, pigeon pea, green gram, black gram, lentil, field pea, kidney bean, cotton and jute were notified for the purpose of registration under the Act. There are plans to extend its operations and coverage to forestry and aromatic and medicinal plants.

Considering the vital importance of the seeds sector in promoting agricultural growth, it is proposed to replace the existing Seeds Act 1966 by suitable legislation. The new Act is expected to (i) create a facilitative climate for growth of the seed industry, (ii) enhance seed replacement rates for various crops, (iii) boost the export of seeds and encourage import of useful germ plasm and (iv) create a conducive atmosphere for application of frontier sciences in varietal development and for enhanced investment in research and development (R&D).

2) Critically examine the National Agricultural Policy, 2000

The New Agricultural Policy promises Green Revolution, White Revolution (milk and dairy products) and Blue Revolution (aquaculture). It has, therefore, been described as a policy of promising Rainbow Revolution.

Firstly, the new agricultural policy has fixed up unrealistic targets of agricultural growth rate. During the nineties, the growth rate of agricultural production averaged 2.1 per cent and that of food grains production averaged 1.8 per cent per annum, which was just equal to the growth rate of population. The goal of attaining 4 per cent growth in agriculture seems a distant dream.

Secondly, the New Agricultural Policy talks of widespread development of agriculture. But it does not identify the agriculturally backward states, which are lagging behind in utilising their potential.

Thirdly, the policy emphasises on private investment to increase production. The large farmers can make investment in the form of tube well, agricultural implements, land improvement. But the small farmers who constitute the major
segment of Indian farmers are not able to make private investment and depend on public investment for agricultural production.

Fourthly, the policy intends to encourage commercialised or capitalist farming by promoting contract farming. The policy does not specify any regulating mechanism to control adverse effects of contract farming on eco-system and employment.

Fifthly, in India agriculture is a state subject. The national agricultural policy only gives the guidelines which may not be binding on states. It would have been better, had the Centre specifically mentioned its contribution in different programmes it intends the states to undertake to promote agriculture.