CHAPTER V

ROLE OF AGRICULTURE IN ECONOMIC DEVELOPMENT
5.1 The Place of Agriculture in the National Economy

Agriculture forms the backbone of the Indian economy and despite concerted industrialization in the last five decades agriculture occupies a the prime role in the national Income of the country. Being the largest industry in the country it provides employment to around 65 percent of the total work force in the country. The significance of agriculture in the national economy can best be explained by considering the role of agriculture under different heads given below:

5.1.1 Share of Agriculture in the National Income

Table-5.1: Share of Agricultural Sector in Total Gross Domestic Product at factor Cost. (At 1993-94 prices) Rs. Crores

<table>
<thead>
<tr>
<th>Year</th>
<th>GDP at Factor Cost</th>
<th>Agriculture</th>
<th>2 as % of 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>14,04,470</td>
<td>83,150</td>
<td>55.4</td>
</tr>
<tr>
<td>1970-71</td>
<td>2,96,280</td>
<td>1,42,580</td>
<td>44.5</td>
</tr>
<tr>
<td>1990-91</td>
<td>6,92,870</td>
<td>2,42,010</td>
<td>30.9</td>
</tr>
<tr>
<td>2000-01</td>
<td>11,93,920</td>
<td>3,16,690</td>
<td>26.5</td>
</tr>
</tbody>
</table>

Note: Agriculture includes agriculture, forestry and fishing *At 1993-94 prices
Source: Compiled from the Economic Survey of, 2000-01, Government of India.

The information provided by the Central Statistical Organisation is shown in the table 5.1. According to the data from 1950-51 to 2000-01, the share of agriculture in GDP has been in the range of 55 to 26 percent. As the process of instrialisation and economic growth gathered momentum, the share of agriculture indicated a fast decline and reached to the level of 26 percent by 2000-01.
Two important aspects of will be observed here:

(a) Agriculture contributes even now a major share of the national income in India.

(b) The share of agriculture in national income, however, has been decreasing continuously and the share of the manufacturing and service sectors are increasing.

i. Comparison can be made between the position of agriculture in India to that of the other countries as regards the share of agriculture in national income. In the United Kingdom, agriculture contributes only 2 percent of the National income; in U.S.A it is 3 percent; in Canada it is 4 percent; in Australia it is 5 percent; and so on. The more developed a country, the lesser is the share of agriculture in national output. India, having not yet reached the stage of an advanced economy, has an agricultural sector which is still the dominant one in the country.

5.1.2. Indian Agriculture and Pattern of Employment of the Country

Agriculture dominates the economy to such an extent that a very high proportion on working population in India is engaged in agriculture.

Data provided by the Census of India reveals that in 1951, about 70 percent of the total main workers were engaged in agriculture and allied activities whereas by 2001, the share of agriculture in total employment declined to 59 percent.
Table -5.2 : Employment of the Main Workers in Agriculture in India

<table>
<thead>
<tr>
<th>Category</th>
<th>1951</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Population</td>
<td>361</td>
<td>1027</td>
</tr>
<tr>
<td>Rural Population</td>
<td>299.9(8.3)</td>
<td>742 (72)</td>
</tr>
<tr>
<td>Cultivators</td>
<td>70 (50)</td>
<td>128 (32)</td>
</tr>
<tr>
<td>Agricultural Labourers</td>
<td>27 (20)</td>
<td>107 (27)</td>
</tr>
<tr>
<td>Other workers</td>
<td>43 (30)</td>
<td>167 (41)</td>
</tr>
<tr>
<td>Total working Population</td>
<td>140 (100)</td>
<td>402 (100)</td>
</tr>
</tbody>
</table>

Note: Figures in brackets are percentages


In absolute terms, agriculture provided employment to 97 million persons in 1995, the number of people working on land (cultivators and agricultural labourers) increased to 235 million. In terms of percentage however, people working on land came down from 70 to 59. It is really disturbing that the proportion of agricultural labourers has increased from 20 to 27 percent between 1951 and 2001 but that of cultivators has indicated a decline. (from 50 percent to 32 percent.)

In the United Kingdom and United States, only 2 to 3 percent of the working population is engaged in agriculture; in France, the proportion is about 7 percent; and in Australia, this is about 6 percent. It is only in backward and less developed countries that the working population engaged in agriculture is quite high. For instance, it is 35 per cent in Egypt, 59 percent in Bangladesh, 50 percent in Indonesia and 68 percent in China in 1997, according to the data providing by 2000-01 FAO production year book (1997).
5.1.3 Importance of Agriculture for Industrial Development

Indian Agriculture has been the source of supply of raw materials to our leading industries. Cotton and Jute textile industries, sugar, vanaspati and plantations all these depend on agriculture directly. There are many other industries which depend on agriculture in an indirect manner. Many of our small scale and cottage industries like handloom weaving, oil crushing, rice husking, etc., depend upon agriculture for their raw materials — together they account for 50 percent of income generated in the manufacturing sector in India.

But in recent years, the contribution of agriculture to industrial development is going down as many more industries have come up which are not dependent on agriculture. Under the Five-Year Plans, Iron and Steel Industry, Chemicals, machine tools and other engineering industries, Aircraft etc., have been started. However, in recent years, the importance of food processing industries is being increasingly recognised both for generation of income and employment.

5.1.4 Role of Agriculture in the Field of International trade

Importance of Indian agriculture also arises from the role it play in India’s trade. Agricultural products i.e., tea, sugar, oilseeds, tobacco, spices, etc., constitute the main items of exports from India. Broadly speaking, the proportion of agriculture goods which are exported may account for 50 percent of our exports, and manufactures with agricultural content (such as manufactured jute, cloth and sugar) contribute another 20 percent and the total comes to 70 percent. This has great significance for economic development. For, increased exports help the country to pay for the increased imports of machinery and raw materials.
5.1.5 Role of Agricultural Sector in Economic Planning

Importance of agriculture in the national economy is indicated by many factors. For example, agriculture is the main support for India's transport system, since railways and roadways secure bulk of their business from the movement of agricultural goods. Internal trade is mostly in agricultural products. Further, good crops implying large purchasing power with the farmers leading to greater demand for manufactures and, therefore, better prices. In other words, prosperity of the farmers is also the prosperity of industries. Likewise, bad crops leading to depression in business. Generally, it is the failure in the agricultural front that has led to failure of economic planning in particular periods. Agricultural growth has direct impact on poverty eradication. Agricultural growth is also an important factor in containing inflation, raising agricultural wages and for employment generation.

It is clear, therefore, that agriculture is the back bone of the Indian economy and prosperity of agriculture can also largely stand for the prosperity of the Indian economy. At the same time, it is true that per capita productivity in agriculture is less than in industry. Naturally, most scholars of developing economies observe that this dominance of agriculture in India's economy is responsible for the low per capita income in the country. In their opinion, so long as the Indian economy is dominated by agricultural activity, per capita income will not rise to an extent which is necessary and desirable.

5.2 Agricultural Development Essential for Economic Growth

The significance of agriculture in India arises also from the fact that the development of agriculture is an essential condition for the development of the national economy. Ragnar Nurkse's argues that the surplus population
in agriculture should be shifted to the nearly started industries. Thesis is that agricultural productivity will be increased on the one hand and on the other new industrial units would be set up with the use of surplus labour available locally.

The Nurksian thesis, though widely welcomed at one time, has been questioned recently, firstly, industrialisation does not consist only of transference of workers from agriculture to industries, industrialisation requires a particular set of motives and values which an agricultural economy can not supply. A change in agriculture itself is essential before such motivations and values are evolved. Secondly, the marketed surplus will have to be increased considerably to feed the growing urban population and to provide raw materials to industries. Thirdly, the new industries, however, fast they may develop, will not be able to provide adequate employment for the ever-growing millions in India. There is a limit to the capacity of employment in industries, in a short period. Necessarily, therefore, increased employment will have to be found, or not in the new industries, but in agriculture itself or in rural industries. This will then necessitate improvement in agriculture.

In other words, general economic development will require rapid agricultural development either to precede or to go hand with it. Indian planners learnt a bitter lesson during the Second and Third Five Year Plan Periods when failure of the agricultural sector spelt disaster to the entire planning process. Accordingly, agricultural development should be given greater emphasis in India due to the following reasons.

(a) The Capital output ratio is not very high in agriculture. Hence, a small input of capital will bring in a large output of agricultural goods. To achieve a rapid increase in incomes, a greater proportion of investment should be made in agriculture.
(b) The rate of saving and investment can be high for the country only if the rate of saving and investment is high in agriculture too.

c) Foreign exchange requirements are not so necessary for agricultural development as is the case with industrial development.

d) Till the Seventh Five Year Plan, the focus regarding the issue of backwardness and regional balance in India was on industrialisation. The Indian Planning Commission is now of the opinion that reduction in regional disparities should be achieved in a better manner through greater focus on agriculture and rural activities.

5.3 Agricultural Growth Since 1950-51.

5.3.1 Agricultural Situation before Independence

Available agricultural statistics for pre-independence period are though sketchy and defective, indicate that during the first half of this century, agricultural production rose marginally, as compared to the growth of population. For instance, according to J.P. Bhattacharjee, India’s population rose by 38 percent between 1901 and 1946, but the area of cultivated land rose only by 18 percent and the average productivity of all crops rose by 13 percent and food crops by 1 per cent. The increase in population had thus over taken increase in food production by a considerable extent. The common belief held at that time was that there was deterioration in fertility of land and a general decline in efficiency of agricultural practices. This belief was clearly reflected in the conclusions/ findings of the Indian Council of Agricultural Research (ICAR) and the Grow More Food Enquiry Committee.

5.3.2 Agricultural Growth Since Independence

With the introduction of economic planning in 1950-51 and with the special emphasis on agricultural development, particularly after 1965
(a) There was steady increase in the area under cultivation:

(b) There was a steady rise in average yield per hectare or rise in agricultural productivity; and

(c) As a result of the increase in area as well as increase in yield per hectare, production of all agricultural crops recorded a rising trend.

5.4 Role of Agriculture in Indian Economy

Indian agriculture had reached the stage of development and maturity much before the now advanced countries of the world embarked on the path of progress. At that time, there was a proper balance between agriculture and industry and both flourished hand in hand. This situation continued till the middle of the eighteenth century. The interference from the alien British government and its deliberate policy of throttling the village handicrafts and cottage industries destroyed the fibre of balance and the economy of the country was badly shattered. Britishers pursued a typical colonial policy in India and did nothing to develop (or restore) agriculture. Instead, they created a class of intermediaries known as zamindars who sucked the very blood out of the rural poor. A substantial part of the produce was taken away by this parasitic class and the actual cultivator was left only with subsistence income. The cultivators had neither the resources nor the incentive to invest in agriculture. Therefore, Indian agriculture in the pre-independence period can be correctly described as a 'subsistence' occupation. It was only after the advent of planning (and more precisely after the advent of green revolution in 1966) that some farmers started adopting agriculture on a commercial basis.

5.4.1 Largest Employment Providing Sector

In 1951, 69.5 percent of the working population was engaged in agriculture. This percentage fell somewhat to 60 percent in 1999. However,
with rapid increase in population the absolute number of people engaged in agriculture has become exceedingly large. Development of the other sectors of the economy has not been sufficient to provide employment to the increasing additions to working population who are, therefore, forced to fall back upon agriculture even if their marginal productivity on land is zero or nearly so. This gives rise to the familiar problem of underemployment and disguised unemployment.

Most of the underdeveloped countries exhibit this heavy dependence of working population on agriculture. For example, 57 percent of the economically active population in Bangladesh was engaged in agriculture in 1999. This percentage was 68 in China and 48 in Pakistan in the same year. As against this, the percentage of economically active population engaged in agriculture is very much less in developed countries. For example, in Japan and France 4 percent, and in USA and UK only 2 percent of the economically active population was engaged in agriculture in 1999.

5.4.2 Provision of Food Surplus to the Expanding Population

Because of the heavy pressure of population in labour-surplus economies like India and its rapid increase, the demand for food increases at a faster rate. The existing levels of food consumption in these countries are very low and with a little increase in per capita income, the demand for food rises steeply (in other words, it can be stated that the income elasticity of demand for food is very high in developing countries). Therefore, unless agriculture is able to continuously increase its marketed surplus of food grains, a crisis is likely to emerge. Many developing countries are passing through this phase and, in a bid to meet the increasing food requirements, have been compelled to import large quantities of food grains.
The Ninth Five Year Plan set a target of increasing the food grains production from a level of 199.4 million tonnes in 1996-97 to 300 million tonnes by 2007-08 to meet the consumption requirement of India’s estimated population of more than a billion and to make the country ‘hunger free’. For this purpose, food grains production will have to rise at an annual rate of 4.5 percent during the ten year period 1997-98 to 2007-08.

5.4.3 Contribution to Capital Formation

There is general agreement on the importance of capital formation in economic development. Unless the rate of capital formation increases to a sufficiently high degree, economic development cannot be achieved. Since agriculture happens to be the largest industry in developing countries like India, it can, and must play an important role in pushing up the rate of capital formation. If it fails to do so, the whole process of economic development will suffer a setback. To extract surplus from agriculture, the policies advocated are:

(i) Transfer of labour and capital from farm to non-farm activities;
(ii) Taxation of agriculture in such a way that the burden on agriculture is greater than the governmental services provided to agriculture; and
(iii) Turning the terms of trade against agriculture by imposing price controls on agricultural products, taxation or the use of multiple exchange rates that discriminate against agriculture. The implementation of these policy measures in the developing countries is, however, a difficult task. Therefore, generation of surplus from agriculture will ultimately depend on increasing the agricultural productivity considerably.
5.4.4 Providing raw Materials to Industries

Agriculture provides raw materials to various industries of national importance. Sugar industry, jute industry, Cotton textile industry, Vanaspati industry are the examples of some such industries are depending on agriculture. Therefore, unless agriculture develops, the development of the above industries will become difficult.

5.4.5 Market for Industrial Products

Since more than two thirds of the population of Developing Countries like India lives in rural areas and increased rural purchasing power is a valuable stimulus to industrial development. Ragnar Nurkse emphatically stated, "The trouble is this if there is not a sufficient market for manufactured goods in a country where peasants, farm labourers and their families, comprising typically two-thirds to four-fifths of the population are too poor to buy any factory products, or anything in addition to the little they already buy. There is lack of real purchasing power, reflecting the low productivity in agriculture". Therefore, if steps are taken to expand agricultural output and productivity, the income of the rural sector will increase causing, in turn, an increased demand for industrial products and the process of industrial development will also receive a boost up.

5.5 Nature of India's Agriculture

At the time of Independence, India's agriculture was in a state of backwardness. Productivity per hectare and per worker was extremely low. The techniques employed were age-old and traditional. Because of low productivity, agriculture merely provided 'subsistence' to the farmers and had not become 'commercialized'.
Indian agriculture is backward and qualitatively traditional in nature on the eve of the First Five Year Plan. However, it is not sufficient to call Indian agriculture backward, traditional and stagnant and leave the discussion there. We must examine the causes responsible for this state of affairs. This exercise can be carried out by examining the land relations, size of holdings, agricultural techniques, irrigation facilities, widespread rural indebtedness, role of money lenders in rural economy, etc.

5.6 Cropping Pattern in India

By crop pattern we mean the proportion of area under different crops at a point of time, changes in this distribution over a period of time, and factors determining this change in distribution. Cropping pattern in India is determined mainly by natural factors like rainfall, climate and soil conditions. However technological factors have also played an important part.

(i) Food crops including cereals, millets, pulses, vegetables and fruits cover nearly three-fourths of total cropped area. Of the total area under food grains, a large proportion is occupied by cereals. For instance in 1950-51, out of total area of 97.3 million hectares under food grains as much as 78.2 million hectares (representing 80.4 percent) was devoted to cereals. Of the total area of 113.13 million hectares under food grains in 2002-03 the share of cereals was 92.0 million hectares (i.e. 81.3 percent). This shows that the area under pulses was only 19.6 percent of the total area under food grains in 1950-51 and 18.7 percent in 2002-03.

(ii) Rice is the most important food grain crop in India. In 1950-51, it was grown on 30.8 million hectares which amounted to 31.6 percent of total area devoted to food grains. In 2002-03, it was grown on 40.4
million hectares which amounted to 35.7 percent of total area under food grains. This shows that rice is grown on more than one third of the total area under food grains.

(iii) The second important food grain crop in India is wheat. In 1950-51, it was sown on 9.8 million hectares (i.e. 10 percent of the area under food grains). However, it has consistently improved its position particularly after the advent of the green revolution during the mid-1960s. In 2002-03, it was grown on 25.2 million hectares which comes to 22.3 percent of the area under food grains i.e., more than one-fifth of the total area under food grains.

(iv) The case of coarse cereals is disappointing. The combined area under jowar, bajra and maize declined percentage from 28.6 in 1950-51 to 23.3 in 2002-03 (expressed as a percentage of total area under food grains).

(v) Area under oilseeds was 10.7 million hectares in 1950-51 and 19 million hectares in 1985-86. To meet the domestic requirements of edible oils, the government had to import considerable quantities of oilseeds in early 1980s. To achieve self-sufficiency in edible oils, the government launched a number of programmes in 1980s – National Oilseeds Development Project (NODP) in 1985-86, Technology Mission on Oilseeds (TMO) in May 1986 and Oilseeds Production Thrust Programme (OPTP) in 1987-88. As a result of these programmes, area under oilseeds increased rapidly from 19 million hectares in 1985-86 to 26.2 million hectares in 1998-99 but fell to 21.5 million hectares in 2002-03. Area under groundnut and soyabean increased considerably in this period.
Coming to commercial crops we find that the area under sugarcane increased from 1.7 million hectares in 1950-51 to 2.8 million hectares in 1995-96 and 4.2 million hectares in 2002-03. Area under cotton rose from 5.9 million hectares in 1950-51 to 7.5 million hectares in 2002-03. The area under jute increased (on all India basis) from 0.6 million hectares in 1950-51 to 1.0 million hectares in 2001-02.

5.6.1 Factors Determining Crop-Pattern

The crop-pattern of any country is due to a number of factors which can be classified into the broad categories of natural, social, historical and economic. In addition, the government of a country can also effect changes in crop-pattern through its agricultural policy. The factors determining crop pattern are natural factors, economic factors, historical factors, social factors etc.

5.7 Trends in Agricultural Production and Productivity

Agricultural production has two components-foodgrains and non-foodgrains. The former contributes approximately two-thirds of total agricultural production. In the Index Number of Agricultural Production (triennium ending 1981-82=100) the weights assigned to foodgrains and non-foodgrains are 62.9 and 37.1 respectively. The most important component in the foodgrains category is rice (weight 29.7) followed by wheat (weight 14.5). In non-foodgrains category, oilseeds constitute the most important group (weight 12.6). Sugarcane carries a weight of 8.1 while cotton carries a weight of 4.4.

5.7.1 Causes of Low Productivity

The causes of low productivity in Indian agriculture can be divided into the following three categories: (i) general, (ii) institutional, and (iii) technical.
(i) **General Causes**

(a) **Social environment:** The social environment of villages is often stated to be an obstacle in agricultural development. It is said that the Indian farmer is illiterate, superstitious, conservative, and unresponsive to new agricultural techniques.

(b) **Pressure of population on land:** There is heavy pressure of population on land. In fact, since the non-agricultural sectors of the economy have not been able to expand at a sufficiently rapid pace over the period of last five decades, this pressure has continuously increased. In 2001, about 228 million workers, or nearly three-quarters of the rural working population (which 310.7 million) was employed in the agricultural sector. Increasing pressure of population on land is partly responsible for the subdivision and fragmentation of holdings. Productivity on small uneconomic holdings is low.

(c) **Land degradation:** Government of India has recently estimated that nearly half of the country’s 329 million hectares of soil could be categorized as degraded. Almost 43 percent of the land suffer from high degradation resulting in 33.67 percent yield loss while 5 percent is so damaged that it has become unusable.

(ii) **Institutional Causes**

(a) **Land tenure system:** Perhaps the most important reason of low agricultural productivity has been the zamindari system. Highly exploitative in character, this system drained out the very capacity, willingness and enthusiasm of the cultivators to increase production and productivity.
(b) **Lack of credit and marketing facilities:** It is often assumed that the decisions of Indian farmers are not affected or modified in response to price incentives. In other words, the Indian farmer continues to produce the same agricultural output even on more attractive prices. However, the facts are different.

(c) **Uneconomic holdings:** According to the National Sample Survey, 52 percent holdings in 1961-62 had a size of less than 2 hectares. In 1995-96, 80 percent of total holdings fell under this category. Most of these holdings are not only extremely small they are also fragmented into a number of tiny plots so that cultivation on them can be carried out only by labour intensive techniques. This results in low productivity. Until the excessive labour employed on agriculture is transferred to alternative jobs and the holdings are consolidated (or cooperative farming initiated) modern techniques of agriculture cannot be adopted and the possibilities of increasing agricultural productivity will remain limited.

(iii) **Technical Causes**

(a) **Outmoded agricultural techniques:** Most of the Indian farmers continue to use outmoded agricultural techniques. Wooden ploughs and bullocks are still used by a majority of farmers. Use of fertilizers and new high-yielding varieties of seeds is also extremely limited. In summary, Indian agriculture is traditional. Therefore productivity is low.

(b) **Inadequate irrigation facilities:** Gross cropped area in India in 1999-2000 was 189.7 million hectares of which 76.3 million hectares had irrigation facilities. Thus, 40.2 percent of gross cropped area had
irrigation facilities in 1999-2000 (data for later years are not available). This shows that even now about 60.0 percent of the gross cropped area continue to depend on rains. Rainfall is often insufficient, uncertain and irregular. Accordingly, productivity is bound to be low in all those areas which lack irrigation facilities, and are totally dependent on rains. Even in areas having irrigation facilities, potential is not wholly utilized because of defective management. The costs of irrigation are also increasing continuously and the small farmer is, therefore, unable to make use of available irrigation facilities.

5.7.2 Measures to Increase Productivity

The causes given above also suggest the measures to increase productivity. As would be clear, such measures would have to attack the problem from technical, institutional, social and economic angles. In particular, attempts will have to be made in the following directions.

(a) Implementation of Land Reforms: Though land reforms have been introduced in India in the post-Independence period with a view to eliminating the intermediary interests in land (especially zamindari), providing security of tenure and ownership rights to tenants, and reorganizing agriculture through land ceiling legislation, cooperative movement and consolidation of holdings, the progress registered is too unsatisfactory. Therefore special attempts will have to be made by the State Governments to implement the land reforms legislation forcefully so that the slogan 'land to the tiller' is translated into practice. Unless this is done, the tiller will have no incentive to invest in land and adopt new agricultural techniques. Therefore land reforms are the first and foremost necessity.
Although the text seems to be discussing a non-existent document, it is still possible to extract the structure and content of the text. Here is a representation of the content as if it were a natural reading:

**Integrated Management of Land and Water Resources**

As stated earlier, almost half of the country's 329 million hectares of soil is degraded. There is huge loss due to waterlogging, salinization, human-induced water erosion, etc. This proves the urgency of an integrated and sufficient management of our land and water resources. With this end in view, the Committee on 25 Years Perspective Plan for the Development of Rainfed Areas constituted by the Planning Commission for the Tenth Plan has suggested treating/development of 75 million hectare arable land and non-arable land by the end of the Thirteenth Plan with a total cost of Rs.20,850 crore. The working group on watershed development, Rainfed Farming and Natural Resources Management for the Tenth Plan has suggested treating 88.5 million hectares of rainfed/degraded land by the end of the Thirteenth Plan with a total Rs.72,750 crore.

**Improved Seeds**

Improved seeds can play an important role in increasing productivity. This has been amply proved by the experience of many countries and by the demonstration of high-yielding varieties of wheat in Punjab, Haryana, and Uttar Pradesh in our own country. Therefore more and more farmers in more and more areas should be encouraged to use improved seeds. After examining the soil conditions and availability of irrigation facilities in different areas, farmers should be advised about what seeds are best in the area. They should also be educated in the methods of sowing, manuring, and irrigating the new high-yielding varieties of seeds.

**Fertilizers**

Improved varieties of seeds require heavy doses of fertilizers. It has been estimated by agricultural scientists that Indian farmers use only one-tenth the amount of manure that is necessary to maintain the productivity of soil. Amount of fertilizers used per hectare...
was merely 105.8 kg in India against 291.7 kgs in China, 149.1 in Bangladesh and 404.3 kgs in Egypt in 1998-99. It has been estimated that use of fertilizers in ample quantity (especially nitrogen, phosphorus and potassium) can push up the productivity manifold.

(e) **Irrigation**: Use of improved seeds and fertilizers proper irrigation facilities. Irrigation can also make multiple cropping possible in a number of areas and hence enhance productivity. Attempts in this field will have to undertaken in the following directions-modernising irrigation systems in a phased manner, better operation of existing systems, efficient water management, adequate maintenance of canals and distribution systems, detailed surveys and investigations for preparation of new projects, developing a National Grid System to ensure water supply from water surplus areas to water deficit areas, etc.

(f) **Plant Protection**: Agricultural Scientists have estimated that approximately 5 percent of the corps are damaged by insects, pests and diseases. Most of the farmers in the countryside are unaware of the medicines and insecticides developed in recent years to face this challenge posed by diseases and insects. Some farmers have started using them to some extent but their efforts cannot be successful unless and until their neighboring farmers also adopt them. Therefore, it is necessary to manage this programme at the government level. The government should maintain its own technical staff to carry out the spraying of pesticides and insecticides at nominal rates.

(g) **Farm Mechanization**: It is generally believed that through farm mechanization agricultural productivity can be increased. Supporters of mechanization argue that it results in increase in productivity of land and labour, reduction of costs, saving of time and increase in economic
surplus. However, it should be borne in mind that all estimates of productivity include the contribution of machines as well as other agricultural inputs like improved seeds, fertilizers, etc. and it is not possible to say how much of increase in productivity is due to mechanization alone. Nonetheless, it cannot be denied that mechanization saves labour time, which can be utilized elsewhere.

(h) **Provision of Credit and Marketing Facilities**: Use of improved varieties of seeds, fertilizers, pesticides, insecticides, agricultural machinery and irrigation facilities all require substantial money resources which small farmers do not usually possess. Therefore, it is necessary to strengthen the credit cooperative sector and free it from the clutches of large landowners so that it can meet the credit requirements of small farmers. The commercial banks should be encouraged to lend more to small farmers. Regional rural banks can play a special role in this regard. The marketing structure also needs a reorientation to serve the small and marginal farmers in a better way. Cooperative marketing societies should be promoted to ensure better prices to small farmers.

(i) **Incentives to the Producer**: Incentives to the agriculturists can go a long way in encouraging them to increase productivity. Incentives can be in the following forms: (a) implementing land reforms rigorously and vigorously, (b) ensuring timely availability of agricultural inputs, (c) guaranteeing remunerative prices of produce to the farmer, (d) implementing crop-insurance scheme to cover the risk of damage to crops and other risks in agriculture, and (e) social recognition and conferment of awards, merit certificates, etc.

(j) **Better Management**: Just as industry needs skilled management for increased productivity, agriculture also requires better management for raising the level of productivity. For this purpose farmers have to be
educated in more efficient use of their resources particularly land, irrigation facilities and agricultural implements. A related problem is the extension of science and technology in agriculture. This can be accomplished only if there is a vast network of managerial staff engaged in disseminating information about new agricultural techniques and methods of production. Other tasks of this extension staff could be to test the suitability of soil and climatic conditions for different crops and advising the farmers accordingly, ensuring proper warehousing and marketing facilities, arranging for timely supply of agricultural inputs, and advising farmers on day-to-day problems confronted by them in carrying out agricultural activities.

Agricultural Research: Agricultural research is presently being conducted by the Indian Council of Agricultural Research, various Agricultural Universities and other institutions for evolving high-yielding varieties of seeds for different crops. Considerable success has been achieved in the case of wheat. However, intensive efforts are required for achieving similar success in other crops. Research should also be conducted on a substantial scale at different regional centres for testing the quality of soil, suggesting measures for soil conservation and reclamation, examining the diseases affecting different crops, improving the quality of agricultural implements, avoiding wastage in agriculture especially damage to crops resulting from pests, insects, rodents, etc.

5.8 Agricultural Labour

5.8.1 Present Position of Agricultural Labour in India

Agricultural labour is provided mostly by economically and socially backward sections; poor sections from the tribes also swell their ranks. It may be divided into four types:
(a) Landless labourers who are attached to the land-lords;
(b) Landless labourers who are personally independent but who work exclusively for others;
(c) Petty farmers with tiny bits of land who devote most of their time working for others; and
(d) Farmers who have economic holdings but who have one or more of their children and dependants working for other prosperous farmers.

The first group of agricultural workers has been more or less in the position of serfs or slaves; they are also known as bonded labour. They do not normally receive wages in cash but are generally paid in kind. They have to work for their masters and cannot shift from one to another. They have to provide begar or forced labour. In some cases, they have to offer cash and also supply fowls and goats to their masters. Among the other groups mentioned above the second and the third are quite important. The problem of landless labourers is the most serious problem in the rural sector.

5.8.2. Magnitude of Agricultural Labour

Accurate figures about the number, income, standard of living, etc.; of rural labour are not available. But some information is available in the form of the reports of committees and commissions. According to the Second Agricultural Labour Enquiry published in 1960, agricultural labour families constituted nearly 25 percent of all rural families. According to this, more than 85 percent of the rural workers are casual, serving any farmer who is willing to engage them and only 15 percent of agricultural labourers are attached to specific landlords. More than half of the workers do not possess any land, and even the rest of them own only very little of land. Agricultural labourers predominantly belong to the scheduled castes, scheduled tribes and other backward classes. According to one estimate, between 75 and 80 percent of all agricultural labourers belong to the scheduled castes.
According to the National Commission on Rural Labour (1991), during 1987-88, out of a total of 108.4 million rural households, 43 million households belonged to rural labour households and among them, agricultural labour households were of the order of 33.3 million. In relative terms, rural labour households accounted for 39.7 percent of total labour households and agricultural labour households were of the order of 30.7 percent. This implies that agricultural labour households constituted about 77 percent of all rural labour households in 1987-88.

Analysis of 1981 census data reveals that agricultural labourers were 64.4 million. As a percentage of total workers (main plus marginal) which were 224.6 million, agricultural labourers constituted 26.3 percent of the total labour force. In 1961, agricultural labourers numbered only 31 million. This indicates that there has been a sharp increase in the number of agricultural labourers.

5.8.3 Wages and Earnings of Agricultural Labourers

Data about the wages paid to agricultural labourers reveals that the agricultural labourers do not receive notified minimum wages except in certain parts of the country like Kerala, Punjab, Haryana and Western U.P. Even in these states, females do not get remuneration as per the notified minimum wages. Growing awareness and organizations of agricultural labour, wherever active, have pushed up wages closer to the minimum wages. Wherever agricultural labourers are unorganized and thus have weak bargaining power, the gap between actual wage paid and the minimum wage fixed by the state is large.

Two more tendencies have also become evident. Firstly, there has been a decline in regional disparities in real wages. Secondly, the disparity between
the wages paid to male and female agricultural labourers has also shown a distinct decline over the years. NCRL explaining the decline in the disparity of male-female wages of agricultural labour mentions.

5.8.4 Causes of the Poor Economic Condition of farm Labour

The following important reasons explain low wages and poor economic conditions of agricultural labour:

(i) **Low Social Status:** Most agricultural workers belong to the depressed classes which have been neglected for ages. The low caste and the depressed classes have been socially handicapped and they had never the courage to assert themselves. They have been like dumb-driven cattle.

(ii) **Unorganized:** Agricultural workers are illiterate and ignorant. They live in scattered villages. Hence, they cannot easily be organized in unions. In urban areas workers can generally organize themselves and it is convenient for political parties to take interest in trade union activity. This is extremely difficult in case of farm labour. Accordingly, it is difficult for farm workers to bargain with the land owners and secure good wages.

(iii) **Seasonal Employment:** The agricultural workers do not have continuous work. On an average a farm labourer finds employment for about 200 days in a year and for the rest of the year he is idle. Apart from under-employment there is also unemployment rural areas. Unemployment and under-employment are two important factors responsible for low income and consequently low economic position of the agricultural workers in India. But them the nature of work in agriculture is such that a farm labourer cannot get work continuously.
In most cases, work on the farms is seasonal and intermittent. In many cases, there is single cropping which means work only for six to seven months in the year.

(iv) **Paucity of Non-Agricultural Jobs:** Paucity of non-agricultural occupations in village areas is another important factor for the low wages and poor economic condition of the farm labourers. For one thing, the growing pressure of population is increasingly felt in rural areas and the number of landless labourers is steadily increasing. For another, the absence of another occupation in rural areas and lack of inter-regional mobility have been responsible for worsening the pressure of population on land.

(v) **Rural Indebtedness:** Agricultural labour is heavily indebted. Normally, the farm labourers borrow from the landowners under whom they work. Since they have no security to offer, they pledge themselves to the moneylenders and rich landlords and become bonded labourers in many areas. Naturally, they are forced to accept lower wages.

Thus, partly because of factors beyond their control and partly because of their inherent bargaining weakness, the farm labourers have been getting very low wages and have, therefore, to live a miserable sub-human life.

5.8.5 **Improving the condition of agricultural labour**

The following suggestions have been made for the improvement of agricultural labour:

(i) **Removal of Serfdom:** Agricultural serfdom which exists in many parts of the country should go. In fact, according to the Constitution of India, the practice of slavery in any form is prohibited. But agrarian serfdom which has been in vogue for centuries cannot disappear so easily. This is so because the labourers are helpless, ignorant and
illiterate. Education of the rural masses and better opportunities are some of the remedies for the removal of the system of slavery.

(ii) **Better Implementation of Minimum Wages in Agriculture**: Agricultural workers have been getting very low wages except in Punjab and Kerala. Measures should be taken to raise the wages of farm workers. Unless this is done it is impossible to raise the economic condition of the agricultural workers. Minimum wage legislation alone is not sufficient but steps should be taken to enforce it. In the Indian context with unchecked growth of population, it is almost impossible to enforce such legislation.

(iii) **Rehabilitation of Landless Agricultural Workers**: In order to improve the conditions of agricultural labour, the landless workers should be provided with land. This can be done in many ways. One way is that the new reclaimed land may be allotted only to them. The Bhoodan movement is another method through which those who have land contribute voluntarily for those who have not.

(iv) **Improvements in Agriculture**: The agricultural labourers do not have full-time employment because of seasonal character of Indian agriculture. Both intensive cultivation and extension of irrigation are very much needed to increase agricultural work. By these methods, there will be double/multiple cropping and employment will be available for the whole year round. Besides, there will be increase in the productivity of labour which will also increase the wage of workers.

(v) **Peasant Unions for Agricultural Labour**: Wherever labour unions have been organized for agricultural workers, their wages have been protected and their exploitation by powerful landlords and moneylenders can be eliminated.
5.8.6 Government Measures pertaining to agricultural labour

Since Independence, the Centre as well as the State Governments have taken some measures to improve the economic condition of agricultural labour. They include the passing of legislation to fix minimum wages for agricultural labour, the removal of disabilities, the ceilings on holdings and the redistribution of land among the landless labourers, etc.

(i) Indian Constitution: The Indian constitution has declared the practice of serfdom an offence. It has abolished agrarian slavery including forced labour by law but it will take some time before it is removed in practice.

(ii) Minimum Wages: The Minimum Wages Act was passed in 1948, according to which every State Government was asked to fix minimum wages for agricultural labour within three years. The minimum wages are fixed keeping in view the total costs and standard of living. Since conditions in various parts of the country are different and even within a state the law allows different rates of wages to be fixed. In many states, the rates are fixed even below the current rates of wages. In practice, it has failed to increase the wages and earnings of agricultural labour.

(iii) Other Legislative Measures: The zamindari system has been abolished by law in all the States and with that all the exploitation associated with the system has been removed. Besides, tenancy laws have been passed in most of the states protecting the interests of the tenants and labourers, and enabling them to acquire the lands they cultivate.

(iv) Organization of labour Co-Operatives: During the Social Five-year Plan, efforts were made to encourage the formation of labour co-
operatives. These cooperatives whose members are workers undertake the contract of government projects, such as, construction of roads, digging of canals and tanks, afforestation, etc. They provide employment to agricultural workers during off-season and also eliminate the possible exploitation of workers by the private contractors. The basic idea of the movement is commendable. The movement has yet to gain movementum in the rural areas.

(v) **Employment Guarantee Scheme:** The Government of Maharashtra introduced in 1977 the Employment Guarantee Scheme under which any able bodied person in rural areas can apply for a job to the Collector of his District or to his authorized subordinate officials and the latter will provide him employment within 5 kilometers of his place of residence. For this purpose, the Government has to prepare and keep in readiness various public works, such as irrigation works, road construction, etc. The rate of wages will not be such as to attract agricultural workers from their normal employment in agricultural operations. This was a pioneering scheme which the Government has been trying to improve upon with the experience gained. Under the scheme, the State assumes the responsibility to provide work on demand. If work is not provided in a fortnight from the date of demand, a payment of allowance at the rate of Re.1 per day is to be made. The Maharashtra Employment Guarantee Scheme is being adopted by other states as well Jawahar Rozgar Yojana launched by the Central Government in 1989 is a further step in this direction.

(vi) **20-Point Programme:** In July, 1975, the Government introduced the 20-point economic programme which included a number of measures to improve the economic condition of the landless workers and other
weaker sections of the community in our villages. These measures were:

(a) Speedy implementation of ceiling legislation and distribution of surplus land among landless labourers and small peasants;
(b) Provision of house sites for landless labourers and conferment of ownership right of the houses if they have been occupying them for a certain period;
(c) Abolition of bonded labour;
(d) Liquidation of rural indebtedness and moratorium on recovery of debts from landless labourers, artisans and small peasants;

5.8.7 Agricultural Labour and Minimum Wages

There are considerable disparities in wages between regions, between different crops as well as between wages paid to men, women and children. The National Commission on Labour and sufficient evidence before it to conclude that between 1956 and 1963 the incomes of agricultural labour increased faster than the wages of industrial workers. This was mainly due to the fact that the average wage in rural areas was increasing significantly. This was especially true in the case of Punjab and in some selected areas of Tamil Nadu.

5.9 Irrigation

Water is indispensable to agricultural production. In areas where rainfall is plentiful and well distributed over the year, there is no problem of water. But rainfall in certain areas is very scanty as well as uncertain. This is so in Deccan and Central India, Punjab and Rajasthan. In these areas, artificial irrigation is absolutely essential, for without it cultivation is almost impossible. In certain regions, rainfall may be abundant but it may be
concentrated in a short period of the year, the rest of the year being dry. As a result cultivation may not be possible for the whole year. In these regions, provision of irrigation will facilitate growing of more than one crop in the year. Finally, there are certain food and cash crops such as rice and sugarcane which require abundant, regular and continuous supply of water. In short, water is a vital input to increase agricultural output to keep pace with the food requirements of the ever-increasing population.

During the 50 years since independence, the Government had spent about Rs.231,400 (at 1996-97 priced) on major, medium and minor irrigation works. As a result, the country’s irrigation potential has increased from 22.6 million hectares in the pre-plan period (i.e. 1950-51) to 89 million hectares at the end of 1996-97. With this, India has the largest irrigated area among all the countries in the world. This has greatly contributed to the increase in foodgrains production from 51 million tonnes in 1950-51 to 203 million tonnes in 2001-02.

5.9.1 Sources of Irrigation in India

Since 1950-51, considerable importance was attached to the provision of canal irrigation. Canal irrigated area had increased from 8.3 million hectares to 17.1 million hectares during 1950-51 and 1996-97. Even then, its relative importance has come down from 40 percent to 32 percent.

Well-irrigated area has increased from 6 million hectares to 31 million hectares during the last 47 years well irrigation in 1996-97 accounted for 56 percent of the total irrigated areas as compared to only 29 percent in 1950-51.
Table 5.3: Area Irrigated by sources in India

<table>
<thead>
<tr>
<th>Sources of irrigation</th>
<th>1950-51</th>
<th>1996-97</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Area (million hectares)</td>
<td>Percentage</td>
</tr>
<tr>
<td>Canals</td>
<td>8.3</td>
<td>40</td>
</tr>
<tr>
<td>Wells and tube wells</td>
<td>6.0</td>
<td>29</td>
</tr>
<tr>
<td>Tanks</td>
<td>3.6</td>
<td>17</td>
</tr>
<tr>
<td>Other sources</td>
<td>3.0</td>
<td>14</td>
</tr>
<tr>
<td>Total</td>
<td>20.9</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: Tata Services Ltd., Statistical Outline of India (2000-01)

The growth of well irrigation has been at the expense of irrigation from tanks and other sources. During this period, it is well irrigation, particularly tube well irrigation which has made the most spectacular progress. In 1960-61, only 0.1 million hectares were irrigated by tubewells, but in 1992-93, over 14 million hectares were served by tubewell irrigation. Tube wells account for 30 percent of total irrigated area.

In India, irrigation works are classified into major and minor irrigation works. Since 1951, the “major” irrigation projects were defined as those costing more than Rs.5 crores, “medium” products as those costing between Rs.25 lakhs and Rs.5 crores and “minor” irrigation works costing less than Rs.25 lakhs each. Since 1978-79, the Planning Commission has adopted the following classification of irrigation schemes:

(a) Major Irrigation Scheme – Those with culturable command areas (CCA) more than 10,000 hectares.

(b) Medium Schemes – Those with culturable command areas (CCA) between 2,000 and 10,000 hectares.

(c) Minor Schemes – Those with culturable command areas (CCA) up to 2,000 hectares.
5.9.2 *Gross and Net Irrigated Area in India*

Table 5.4: Gross and Net Irrigated Area in India

<table>
<thead>
<tr>
<th>Year</th>
<th>Net irrigated area</th>
<th>Gross irrigated area</th>
<th>Total cropped area</th>
<th>Gross irrigated area as percent of sown area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>20.9</td>
<td>22.6</td>
<td>133.2</td>
<td>17.4</td>
</tr>
<tr>
<td>1970-71</td>
<td>31.1</td>
<td>38.2</td>
<td>165.8</td>
<td>23.0</td>
</tr>
<tr>
<td>1990-91</td>
<td>47.8</td>
<td>62.5</td>
<td>185.7</td>
<td>33.7</td>
</tr>
<tr>
<td>1999-00</td>
<td>57.0</td>
<td>75.6</td>
<td>192.6</td>
<td>39.3</td>
</tr>
</tbody>
</table>

*Source: Agricultural Statistics at a Glance (2002).*

As a consequence of irrigation, about 17.4 percent of cropped area was irrigated in 1950-51; this has increased to 39.3 percent in 1998-99. Further, there has been a gradual improvement in area irrigated more than once. In 1950-51, area irrigated more than once was 1.7 million hectares or 8.1 percent of net irrigated area; in 1988-89 this had increased to 18.6 million hectares or 33 percent of the net irrigated area. Area irrigated more than once is a kind of land augmentation and is therefore, very crucial in raising agricultural output.

5.10 Policies for Agricultural and Rural Development

The first and second plans placed great emphasis on expanding irrigation facilities by developing major and medium irrigation projects.

The New Agricultural Strategy (NAS) was introduced in selected (better endowed and high-productivity) regions of the country in a bid to push up agricultural production. The focus now shifted to minor irrigation from major and medium irrigation.

Rural employment programmes were also introduced for poverty alleviation.
5.11 National Agricultural Policy (2000)

The National Agricultural Policy (2000) was presented in the Parliament on July 28, 2000. The policy has been necessitated due to the relatively poor growth of agriculture during the nineties. The Policy document stated; “capital inadequacy, lack of infrastructural support and demand side constraints such as controls on movement, storage and sale of agricultural products, etc., have continued to affect the economic viability of agricultural sector. Consequently, growth has also tended to slacken during the nineties.

The establishment of an agrarian economy which ensures food and nutrition to India’s billion people, raw materials for its expanding industrial base and surplus for exports and a fast and equitable reward system for the farming community for the services they provide to the society, will be the mainstay of reforms in the agricultural sector. Thus, the National Agricultural Policy aims to attain the following objectives:

1. A growth rate of over 4 percent per annum in the agriculture sector.
2. Growth that is based on efficient use of resources and conserves our soil, water and bio-diversity;
3. Growth with equity i.e., growth which is widespread across regions and farmers;
4. Growth that is demand-driven and caters to domestic markers and maximises benefits from exports of agricultural products in the face of challenges from economic liberalisation and globalisation;
5. Growth that is sustainable technologically, environmentally and economically.
Sustainable Agriculture

The policy will seek to promote 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:

1. To contain biotic pressures on land and to control indiscriminate division of agricultural lands for non-agricultural uses.

2. To use unutilised waste lands for agriculture and afforestation.

3. To increase cropping intensity through multi-cropping and intercropping.

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

5. To emphasise national 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 water.

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.

5.12 Priorities in Agriculture: Approach of the Tenth Plan

The Tenth Five Year Plan (2002-07) is critical of the policy approach to agriculture adopted during the 1990s which focused on providing subsidies to agricultural inputs (power, water, electricity etc.) on the one hand, and
providing remunerative prices to the farmers on the other hand. The Tenth Plan calls for the adoption of a new approach to agriculture policy which can ensure a better use of our land and water resources. The Tenth Plan targets to achieve a growth rate in excess of 4 percent per annum in the agricultural sector. The strategy to achieve this growth rate would be a regionally differentiated one based on agro-climatic conditions and land and water resources of different regions.