CHAPTER - IV

AGRICULTURAL DEVELOPMENT PROGRAMMES IN KARNATAKA

This chapter has been divided into two sections. Section one covers agricultural development programmes in Karnataka before Independence and Section two concentrates on such programmes during the different Five Year Plans of the State of Karnataka.

SECTION - I

Very little record is available about the agricultural activities in the State before Independence. There are however a few publications and authentic sources which throw light on the conditions of State agriculture, viz., (i) census reports, (ii) administrative reports, (iii) statistical abstracts of Mysore, 1923-24 to 1947-48 etc. Apart from these, there are some research studies like, (1) "Economic life in the Bombay Karnataka 1818 to 1839" by R.D. Choksey, (2) "Karnataka Through the Ages" by Diwakar, and (3) "Economic Development of Karnataka" by K.Puttaswamaiah. The above mentioned sources give a fair picture with regard to the various agricultural development programmes implemented by the then rulers and the administrators of Karnataka. Table - 4.1 gives in summary form the measures
taken by the Government for the development of agriculture before Independence.

Table - 4.1

<table>
<thead>
<tr>
<th>Year</th>
<th>Measures and Achievements</th>
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<tbody>
<tr>
<td>1775-1782</td>
<td>a. Fruit gardens were encouraged and supervised by garden superintendent.</td>
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<td></td>
<td>b. Agro-Horticultural society was formed</td>
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<td>c. Irrigation schemes were introduced.</td>
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<td>d. New implements were imported and distributed.</td>
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<td></td>
<td>e. Director of agriculture and agricultural inspectors were appointed in each of the district.</td>
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<tr>
<td>1862-1863</td>
<td>a. For repairs and maintenance of tanks, the sum of Rs. 1,70,359 was spent.</td>
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<tr>
<td>1865-1866</td>
<td>a. Introduced plantation crops and potato seeds and these were imported from America.</td>
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<tr>
<td></td>
<td>b. Introduced Iron Ploughs.</td>
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<tr>
<td>1877-1878</td>
<td>a. Takkavi loans to agriculturist were given for purchasing of seeds, implements, cattle and for sinking irrigation wells.</td>
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1886  
   a. Separate department known as Department of Agriculture and Statistics was established.
   b. Silk industry was encouraged.
   c. Stud-Bulls for breeding purpose were supplied to each province or district.

1888  
   a. Good quality sheep breeds were imported from Australia.

1894-1895  
   a. Agricultural banks were established for financing agriculturists.

1903-1904  
   a. Teaching of agriculture including practicals at school level was started in each taluka.

1904-1905  
   a. Hebbal agricultural farm was set-up for conducting experiments.
   b. Various demonstration farms were established.
   c. An agricultural and industrial exhibition was held at Mysore (for the first time).

1905  
   a. Co-operative Societies Act was passed in June.
   b. Registrar of Co-operatives was appointed in the month of September.
   c. Mavinakere Reservoir Project was completed.

1908-1909  
   a. Disease testing laboratory was established.
1909-1910  a. Seed depot was set up for distributing seeds to farmers.

1911-1912  a. Agricultural schools came into existence with the main aim of giving systematic and scientific education in agriculture.

1914-1920  a. Application of chemical fertilizers on paddy and coconut was tried.

1924-1925  a. Well boring depots were established for the supply of sprayers and spraying materials to coffee planters.
b. Central Land Mortgage Bank was established in November.

1934-1935  a. Irrigation Cell was created for development of irrigation.
b. A Parasite Laboratory was set up which was first of its kind in the country.

1937-1938  a. Demonstrations were conducted on farmers' fields.
b. Use of molasses as a corrective of soil alkalinity was introduced and popularised.

1939-1940  a. Department of Agriculture purchased two tractors for propaganda of mechanised cultivation.
b. Seed farms were established.

1941-1942  a. Grow more Food campaign was launched for raising food production.
b. Mysore Cotton Control Act was passed.

1943-1944 a. In co-operation with ICAR two breeding schemes viz., Breeding small millets and breeding groundnut were set up.

b. Compost Manuring was popularised and preparation of compost was taken up in several municipalities.

1944-1945 a. Production of vegetable scheme was introduced.

1946 a. College of Agriculture was established at Hebbal for providing higher technical education in the field of agriculture.

1947 a. College of Agriculture at Dharwad came into existence.

1948-1949 a. Two Regional Experimental stations were set up.

It is observed from the above table how the chronological development of agriculture is pursued in the changing circumstances of administration in Karnataka. Under the Wodeyar's regime in particular, some important schemes, viz., irrigation, bunding, agriculture research, education and distribution of inputs were introduced for agricultural development. The growth even then, was rather tardy.
Perhaps, it was due to a lack of purposeful planning of agriculture. Of course, as time passed, the dawn of Independence and the great vision of our leaders resulted in the formulation of Five Year Plans for the socio-economic development of the country in general and the States in particular.

SECTION - II

Agricultural Development Programmes in Karnataka Under the Five Year Plans:

One of the objectives of planning in India is an orderly and more balanced progress of the different regions of the country. Such a balanced regional development is necessary for the progress of National economy. Regional planning enables the States to chalk out their own programmes of development, to make the highest possible utilization of locally available resources and redress more effectively the local economic backwardness.

For achieving the above said objective, all the State Governments have adopted plans for the economic development of their respective regions. Karnataka (then Mysore State) was not an exception. It adopted its First Five Year Plan in the year 1951.
First Five Year Plan: (1951-56)

One of the major objectives of the State's First Five Year Plan was to improve agricultural standards with a view to achieving self-sufficiency in food and to raise the standard of living of the agrarian population. For achieving this, highest priority was given to the agricultural sector. Out of the actual developmental expenditure of Rs. 4,052 lakhs during the First Five Year Plan, a sum of Rs. 2,117 lakhs were spent on agriculture. This accounted for about 52.24 per cent of the total plan expenditure indicating well above the national level (i.e., 37 per cent). For realizing maximum crop production, the First Five Year Plan adopted the strategies like: (i) Abolition of intermediaries; (ii) extension of irrigation facilities; (iii) provision of improved seeds; (iv) supply of chemical fertilizers; (v) supply of improved implements; and (vi) bringing new areas under cultivation.¹

During the plan, highest priority was accorded to the development of irrigation in the State. Four major irrigational projects were undertaken during the First Five Year Plan period. Further, 1,820 minor irrigation works were taken up for providing water to the fields and special

¹ Government of Mysore, "First Five Year Plan 1951-1956", Bangalore, Planning Department, 1951, p. 47.
loans were provided for this. The creation of potential and utilization at the end of the plan period were 1.17 lakh acres and 0.41 lakh acres respectively. As a result the net area irrigated increased from 614 thousand hectares in 1950-51 to 661 thousand hectares in 1955-56. In the field of distribution of improved inputs like seeds and fertilizer, the progress was also very appreciable. Under the various distribution schemes, 5,575 tonnes of improved seeds and 63,593 tonnes of fertilizers were distributed during the entire plan period. Rural compost schemes were encouraged and 2,80,300 tonnes of compost manures were distributed. In the field of reclamation, the tractor and bulldozer organisation maintained by the Agricultural Department reclaimed an area of 20,000 acres of land for cultivation. Under the plant protection scheme an area of 1.40 lakh acres was protected. Several nurseries were started to multiply and distribute planting materials of several crops.

As a result of success in these programmes, achievements recorded were very encouraging. The total food grains production increased from 25.11 lakh tonnes in the beginning of the first plan to 32.21 lakh tonnes by the end of the plan. The Government claimed that the performance in the First Five Year Plan was satisfactory.

However, the first plan was succeeded only in increasing food grains production. In the case of commercial
crops, the production decreased. It shows that more attention was paid for food grains production and extensive cultivation. Research, education, training, minor irrigation schemes were neglected during the First Five Year Plan.

Second Five Year Plan (1956-61):

The Second Five Year Plan was launched on 1st April 1956. During this plan period, highest priority was given to the industrial sector. Out of a total actual developmental expenditure of Rs. 14,227 lakhs, a sum of Rs. 5,653 lakhs was invested on agriculture or 39.73 per cent of the total expenditure. The plan aimed at self-sufficiency in food grains production. The specific objectives of agricultural development embodied in the second Five Year Plan was to increase production of essential food grain commodities. For achieving the same, the measures such as: (i) effective implementation of land reform measures; (ii) improved agricultural practices; (iii) distribution of improved seeds; (iv) distribution of fertilizers and manures; (v) agricultural land development; and (vi) development of irrigation, were undertaken in the State.

Substantial provisions were made during the plan period for those schemes which had direct bearing on

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agricultural production. For instance, the total amount of expenditure on agricultural programmes including research, education, training, land reclamation, multiplication and distribution of improved seeds, distribution of fertilizers etc., was Rs. 1,885 lakhs. A sizeable portion was also invested for expansion of irrigation facilities (i.e., Rs. 2,710 lakhs).

The progress in the State's agricultural development programmes during the plan period was much encouraging. All the major irrigation projects of the First Five Year Plan had spilled over to the Second Five Year Plan. Thus, in addition to the various continuing schemes of the First Five Year Plan, three more major irrigation projects were taken up. Besides these major projects, 10 new medium projects were considered during this plan. Again, apart from these projects, a number of minor irrigation projects were planned afresh. At the end of the Second Five Year Plan, 3,944 wells and 13,402 tanks were constructed and 1,632 pump sets were supplied to the farmers. The potential created from all sources of irrigation and the utilization amounted to 1.40 lakh hectares and 1.01 lakh hectares, respectively. As a result, the net area irrigated increased from 661 thousand hectares in 1955-56 to 857 thousand hectares in 1960-61.
In the field of fertilizer development programme, the main policy adopted by the Government was to popularise the chemical fertilizers among the farming community. For this purpose, the Government directed all State Department of Agriculture to give wide publicity on a massive scale. The consumption of fertilizers which was merely 20,242 tonnes during 1956-57 increased to 26,720 tonnes at the end of the Second Five Year Plan period. Various new compost schemes were introduced and popularised for increasing the production of organic manure. As a result, the total production of organic manure increased sharply from 8,10,790 tonnes in 1956-57 to 31,10,739 tonnes in 1960-61. The area covered by green manure increased from 3,602 hectares to 18,616 hectares during the said period.

Another main strategy adopted for increasing agricultural production was multiplication and distribution of improved seeds to the farmers. In this direction, 56 seed farms were set up. According to a sample survey conducted by the State Bureau of Economics and Statistics, it was estimated that during 1960-61, 18.5 per cent of the area under paddy, 12.3 per cent of area under ragi and 17.9 per cent of area under jawar were covered by improved variety of seeds.

For land development, two types of schemes were introduced viz., (i) land reclamation scheme and (ii) soil conservation scheme. The State Department of agriculture provided the tractors and bulldozers to farmers on rental basis for reclamation of land. The total number of these machines increased from 67 in 1956-57 to 84 in 1960-61. The area reclaimed under this scheme was 12,910 hectares during the entire plan period. In addition, the Government supplied 117 tractors to farmers on hire/purchase basis. Soil conservation received highest priority and the area covered under this measure was about 70,820 hectares in the entire plan period.

For avoiding traditional methods and practices of cultivation, the Government adopted several schemes to popularise better methods of cultivation during the Second Five Year Plan period. One such practice was the Japanese method of paddy cultivation for obtaining a higher yield rate in the production of paddy. The area covered under the Japanese method of paddy cultivation increased from 40,469 hectares in 1956-57 to 1,52,971 hectares in 1960-61.

During the First Five Year Plan period, the State experienced acute shortage of technical personnel like agricultural graduates and extension workers. To remedy this dearth of demand for trained personnel, the Government came forward to intensify agriculture science education at
all levels. In all, 972 agricultural graduates, 128 gramsevikas, 1,358 gramsevaks and 6 village artisans were trained during the plan period.

The tempo of agricultural development was accelerated during the Second Five Year Plan period, and food grains production increased from 32.21 lakh tonnes in 1955-56 to 38.50 lakh tonnes in 1960-61. "Inspite of increased agricultural production the State remained deficient in food grains production to the tune of 3 lakh tonnes in 1960-61. The State is not only unable to feed its population adequately with the right quantity of food grains out of its own production, but the bulk of the food grains it provides is relatively inferior in quality."

Another achievement on the agricultural front was a rise in yield per hectare of a majority of the principal crops during the Plan period. The yield of rice per hectare which had 12 quintals in 1955-56 went up to 14 quintals per hectare in 1959-60. Similarly, the yield of maize and sugar-cane per hectare went up to 8 and 73 quintals in 1959-60 as compared to 5 and 62 quintals respectively in 1955-56.

However, apart from deficient food supply, there was also a great fluctuation in food grain production.

during the Second Five Year Plan period. Efforts for increasing commercial crops were neglected. It was only in the Third Five Year Plan period that comprehensive schemes for development of commercial crops (cotton, oilseeds, sugar-cane and tobacco) were taken up. Even during this Plan highest priority was given to major irrigation schemes and minor irrigation schemes were neglected. The potential created had not been fully utilized due to lack of knowledge of irrigated farming and the land was not made fit to receive irrigation water. As a result, the progress in the field of irrigation was uneven and not satisfactory.

**Third Five Year Plan (1961-66):**

The Third Five Year Plan was implemented in 1961. In formulating the agricultural production programme for the Third Five Year Plan, the guiding principle was to achieve self-sufficiency in food grains keeping in view the increase in the total population of the State by the end of the Third Five Year Plan.

The specific objectives embodied in the State’s Third Five Year Plan were:  

(i) to provide for an acceleration of the agriculture developmental efforts undertaken during the two


earlier plans;

(ii) to set up agricultural production in balance with a corresponding development of industries;

(iii) to undertake progressive measures like land reforms with a view to reducing economic and social inequalities, and

(iv) to provide infrastructure facilities in the rural areas.

In order to give a big push to the agricultural sector, a new concept of package programme (IARP) had been evolved and the same was implemented in Mandya District. The Government also had realised by this time that mere creation of irrigation potential by itself would not serve the purpose unless it was actually utilised for crop production. So, special schemes were taken up to educate farmers in irrigated farming and also for reconditioning the land in command areas. For achieving maximum growth in agriculture, the Third Five Year Plan advocated the following strategy: 7 The plan contained proposals for increasing agricultural production, minor irrigation facilities and large scale soil conservation. Other measures included were (i) consolidation of holdings, (ii) setting up of new seed

farms, (iii) setting up of fertilizer factory, (iv) training people in modern techniques of agriculture and (v) popularisation of improved agricultural practices.

Out of a total actual developmental expenditure of Rs. 26,414 lakhs during the Third Five Year Plan, a sum of Rs. 11,523 lakhs were spent on agriculture. This accounted for about 43.62 per cent of the total expenditure. As a consequence of huge expenditure and implementation of various measures, the area under irrigation, improved seeds, plant protection, soil conservation etc., went up considerably. During this plan four major irrigation projects and seven medium projects were included. The potential and utilization realised at the end of the Third Five Year Plan period by the major and medium projects were 9 lakh acres and 6.9 lakh acres respectively.

Under the programme of minor irrigation, the Government also encouraged construction of small projects, like wells, tanks, etc. During this plan period, 5,348 irrigation tanks, 1,713 wells and 114 bore-wells were constructed and during the same period 6,448 electric pump sets were installed. The potential created by minor irrigation schemes during the entire plan period was 1.37 lakh hectares.

In this Plan period more attention was paid to the production and popularisation of the use of improved seeds
in the State. For achieving this, it aimed at establishing 53 additional seed forms. As against the target, the State could establish 27 seed farms by the end of 1965-66. The quantity of improved seeds distributed to farmers for general cultivation increased from 3,796 tonnes in 1961-62 to 4,327 tonnes in 1965-66. Along with increase in the use of chemical fertilizers, there was also a great increase in the use of organic manure in the State.

Special attention was bestowed on plant protection measures. The Department of Agriculture undertook the responsibility of distributing plant protection equipment and other materials on subsidised basis to cultivators. The number of sprayers and dusters supplied to the cultivators increased from 4,226 in 1961-62 to 5,850 in 1965-66 and the area covered under plant protection measures increased from 60,703 hectares to 2,26,624 hectares in the said period.

During this plan period all research stations were strengthened with necessary equipment and staff. Further, all these stations were brought under the umbrella of the University of Agricultural Sciences in the year 1965.

For increasing agricultural production, Intensive Agricultural District Programme was taken up in Mandya District during 1961-62. However, this programme was implemented at the national level in seven districts during the year 1960-61. By the end of the Third Five Year Plan all
seven talukas of Mandya district were covered under this programme. The performance of the programme was quite laudable and commendable. The yield rates of almost all major crops in the district increased after the introduction of the scheme. The yield rate itself has increased by 24.1 per cent, 36.5 per cent and 11.0 per cent in the case of rice, ragi and sugarcane respectively.

The tempo of agricultural development and food grain production increased from 38.50 lakh tonnes in 1960-61 to 48.38 lakh tonnes in 1964-65. But in the penultimate year of the Third Five Year Plan, there was a decrease in both food grain production and non-food grain production. By the end of the Third Five Year Plan period, the demand for food increased to 47 lakh tonnes. As against this, the food grains production during 1965-66 touched the low level of 35.45 lakh tonnes leaving a deficit of about 11.55 lakh tonnes. This was mainly due to the adverse seasonal conditions during the year. Further, the yield per hectare of some crops like sugarcane, cotton, gram, small millets, oilseeds etc., did not increase. On the other hand, productivity of land under food grains improved. It is also observed that, the area under food grains increased, whereas area under oilseeds decreased during the Third Five Year Plan.

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The area under food grains increased from 7,636 thousand hectares in 1961-62 to 7,739 thousand hectares in 1965-66, whereas the area under oilseeds decreased from 1,233 thousand hectares to 1,220 thousand hectares.

During the Third Five Year Plan period, the State experienced acute shortage of fertilizers, under-utilization of created water, shortage of technical personnel and extension etc. "The demand for fertilizers expanded so much that, there was difficulty in regard to supply and during the Third Five Year Plan period also there was shortage of fertilizers in the State." Further, no systematic attempts were made for the exploitation of ground water resources and development of minor irrigation schemes in the State. "There is considerable possibility of increasing irrigation through wells, tanks, and extensive use of pump sets. Unfortunately, no detailed hydrographical survey of the State has been made and consequently any assessment of the potential is largely a matter of guess."


Top most priority was given to agricultural sector during three Annual Plans. The main objective of these plans was to improve agricultural production and achieve a breakthrough in the agricultural sector. For achieving this

objective various new schemes were introduced and large sums invested. Out of a total actual development expenditure of Rs. 19,215 lakhs during the Annual Plans, a sum of Rs. 8,881 lakhs was invested on agriculture.

The outstanding features of annual plans were strengthening and reorganisation of various departments concerned with the agricultural sector. The Department of Agriculture was reorganised in 1967 for providing better facilities to the farm families. Financial institutions like Land Development Banks, Co-operative Institutions and Agricultural Refinance and Development Corporation were strengthened. The Agro-Industries Corporation was established with the main intention of supplying tractors, machines, implements and servicing facilities to farm families. The State Electricity Boards were encouraged to come forward to provide electricity to farmers for installing pump sets. Further, the Intensive Agricultural District Programme was encouraged and extended to some more districts in the State.

The High Yielding Variety Programme was launched in the State in the year 1966-67. The main objective of the programme was to increase agricultural production through the use of hybrid seeds and other inputs. The programme gathered momentum within a short period of time. The area under HYV Javar increased from 21,005 hectares in 1966-67 to 91,460 in 1968-69. (Wheat from 8,000 hectares to 26,400
hectares, paddy from 25,490 hectares to 73,490 hectares during the said period). Along with increase in the area under HYV seeds, there was also considerable increase in the use of fertilizers, pesticides, implements etc., during the Annual Plans.

Due to various measures taken by the Government, food production increased from 35.45 lakh tonnes in 1965-66 to 52.11 lakh tonnes in 1968-69.

**Fourth Five Year Plan (1969-1974):**

The specific objectives embodied in the State's Fourth Five Year Plan for agricultural improvement were (i) increasing benefits of all types of irrigation -major, medium and minor, (ii) achieving a growth rate of at least 5 to 6 per cent in agriculture so that the State would be self sufficient in food, and (iii) speedy and most profitable utilization of power generated in the State for both agricultural and industrial purposes. The total expenditure on agriculture was Rs. 18,044 crores during the entire plan period. This accounted for about 47 per cent of the total expenditure.

The main measures which were undertaken to increase agricultural production during the plan period were viz., (i) to ensure speedy development of minor irrigation works, (ii) to popularise and increase the area under high yielding
variety seeds, (iii) to popularise rotational and multiple cropping, (iv) to provide extension and training facilities to farmers and (v) to extend modern technologies to all parts of the State.

The Fourth Five Year Plan gave highest priority for irrigation development. Laudable efforts were made to strengthen minor irrigation works. In this direction, special loans were given to farmers for sinking bore-wells, digging and construction of wells, installation of pump sets and other purposes. By the end of the Fourth Five Year Plan, there were 3,24,000 irrigation wells, 34,368 tanks, and 2,02,092 pump sets. An additional area of about 2,1 lakh hectares was brought under irrigation.

In this plan, overwhelming importance was attached to popularise both organic manure and inorganic fertilizer. As a consequence, the use of organic manure increased from 53 lakh tonnes in 1968-69 to 78 lakh tonnes by the end of the plan. The total consumption of chemical fertilizers increased from 1,08,700 tonnes in 1968-69 to 1,94,810 tonnes in 1973-74.

Multiple cropping scheme received top priority in this plan. To popularise this new scheme, pilot projects were formulated by the Government. Two centres were established in the State during the Fourth Five Year Plan. This programme envisaged selection of the villages with
assured irrigation and introduced intensive multiple cropping to evolve a suitable crop rotation and crop sequence. Demonstrations, training, field days were included in the programme to popularise multiple cropping in the project area.

Under the high yielding variety programme, intensive drive was pursued to train the farmers in package practices suited to local conditions during this plan period. Seed production of hybrid jawar, maize, bajre and hybrid cotton had been taken up by farmers in the State on a large scale.

Owing to increase in the area under high yielding variety planners gave much attention towards plant protection measures. Under this programme the Government supplied sprayers, plant protection equipments and dusters to farmers at subsidised rates. In all, 34,500 dusters and hand-operated sprayers were distributed during the entire plan period. Added to all these programmes the Government extended land development programmes, and extension demonstrations to the farmers during the Fourth Five Year Plan period. Further, for protecting the quality of the pesticides, the Karnataka Agricultural Pest and Diseases Act was passed during 1968-69.

The above said measures were responsible for the increased production in the state. For example, food grains production increased from 52.11 lakh tonnes in 1968-69 to
61.51 lakh tonnes in 1975-74. Even during the Fourth Five Year Plan period, there were great fluctuations in the food grains production. For instance, the total food grains production declined from 60.25 lakh tonnes in 1971-72 to 49.57 lakh tonnes in 1972-73. But the production of sugarcane declined only slightly during this period. Similarly, the output of oilseeds came down to 7.25 lakh tonnes in 1973-74 from 7.45 lakh tonnes in 1968-69.

Even during the Fourth Five Year Plan period the state had faced problems like under-utilization of created water potential, scarcity of HYV seeds and chemical fertilizers.

Fifth Five Year Plan (1974-78):

The Fifth Five Year Plan was implemented in 1974. The plan aimed at a diversified agricultural economy and rural upliftment measures side by side with increased farm production. To meet the food requirements of the population and to build up reserves the food grains production was proposed to be increased at 4 per cent, and 4.9 per cent increase was envisaged in case of production of commercial crops annually. The strategies adopted for development of agriculture during this plan were: 11

(i) Increasing food production in the State through improved seeds, high yielding variety programme, intensive

agricultural district programme by adopting package approach;

(ii) implementation of dry farming project in the state, to evolve dry farming technology;

(iii) increasing the use of chemical fertilizers in the state and their balanced application to crop and plant protection measures;

(iv) strengthening of agricultural administration;

(v) creation of a marketing cell;

(vi) training facilities to field officers and farmers, and

(vii) promoting soil conservation and land development programmes.

During this plan period an amount of Rs. 28,626 lakhs was invested on agricultural development programmes. This accounted for about 34 per cent of the total developmental expenditure. As a result of planning, the area under high yielding variety increased from 9.51 lakh hectares in 1974 to 21.19 lakh hectares in 1978. Fertilizer consumption increased from 1.94 lakh tonnes to 2.70 lakh tonnes and net area irrigated increased from 1,201 thousand hectares to 1,388 thousand hectares during the said period. The use of compost manure increased from 78 lakh tonnes in 1974 to 89 lakh tonnes by the end of the Fifth Five Year Plan.
In the Fifth Five Year Plan, a general provision was made to upgrade academic qualifications of village level workers, so as to facilitate implementation of the agricultural programmes. With increasing technical complexities, the Government had extended intensive training to the village level workers in the field of new technologies.

During 1978, for the second time, the state Department of Agriculture was further reorganised under the new extension system called the 'Training and Visit System'. Under the new set up a good delivery system was created to transfer technology to the farming community. The main objective of the new system was to motivate the farmers all over the State to adopt improved agricultural practices. The important feature of the programme was to make the primary level worker visit the farmers, through contact farmers, in a regular schedule of 15 days and reach all improved practices to the farmers.

The new programme took care of the several needs like that of quality seeds, fertilizers, pesticides, credit arrangements, and technical know-how in respect of cereals, pulses and all other crops. Aspects like training, demonstration, soil testing etc., were also given special importance under this programme.

In the Fifth Five Year Plan period, the Karnataka Co-operative Seed Marketing Federation was set up. The main
objectives were:

(i) procurement and distribution of improved seeds;
(ii) taking up of production, processing and marketing of seeds; and
(iii) provision of air conditioned warehousing.

During this plan period, Integrated Dry Land Development Programme received top priority. Under this programme it was envisaged to adopt the available knowledge of soil and moisture conservation practices in dry farming. The other measures included under this programme were:

(i) cultivation of drought resistant variety,
(ii) judicious application of fertilizers, and
(iii) provision of incentives to the farmers of the dry land regions in the form of inputs such as fertilizers, pesticides, equipments, drought resistant seeds etc.

Regularity measures for ensuring the quality of seeds and pesticides were introduced in a large way and the Fertilizers Control Order was rigorously implemented leading to a number of convictions for fertilizer adulteration. Pest control measures were intensified and a system of advanced notices for occurrence of certain pests was introduced. Chemical fertilizers application became a general practice
and commercial crops were the principal beneficiaries from the use of fertilizers.

Educational programmes and training, demonstrations etc. for farmers gained momentum. Agricultural University and various Gram Sevaks Training Centres, started organizing, "Agricultural Fairs" every year. These have further arranged various demonstration programmes and training for the farmers at their door steps with regard to the use of new technologies. The agricultural census, conducted in 1976, was fully mechanically tabulated and computerized. An information system for other programmes including use of inputs has been proposed for computerization in the Fifth Five Year Plan. Such system would assist in timely reviews of the progress and enable adjustments and corrections in the plan.

Due to qualitative changes in the on-farm development programmes, the total food grains production increased from 61.51 lakh tonnes in 1973-74 to 75.67 lakh tonnes by the end of the Fifth Five Year Plan. In this plan period, it was however found that there were variations in food grains production. The total food grains production declined from 61.51 lakh tonnes in 1973-74 to 48.22 lakh tonnes in 1976-77. The pulses production, declined from 0.27 lakh tonnes to 5.83 lakh tonnes during the said period. Similarly, oilseeds production also declined. In the case of other commercial crops, production was more or less constant.
Sixth Five Year Plan (1978-83):

The main objectives of the Sixth Five Year Plan for agriculture were as follows: 12

(i) to bring about better utilization of land by reducing culturable waste land and fallow lands other than current fallow lands, and by improving cropping intensity;

(ii) to achieve better utilization of natural resources advantages by ensuring that the cropping pattern is in tune with the desired cropping pattern;

(iii) to introduce changes in cropping pattern favouring pulses within food grains category and commercial crops as against food grains, and to improve the productivity;

(iv) to ensure adequate qualities of sugarcane to the sugar factories and to exploit the resource advantages of the state in cultivation of cotton, oilseeds and tobacco; and

(v) to improve productivity in agriculture.

The strategy for agricultural development during Sixth Five Year Plan covered the following components. 13


(i) to ensure the spread of the new technology on a much wider basis in order to cover a more extensive section of the farming population, focussing attention on small and marginal farmers;

(ii) to facilitate a quicker transmission of new technology to the farmers by intensifying and re-orienting adoptive research;

(iii) to organise a systematic supply of inputs to farmers through various supply agencies;

(iv) to popularise dry farming technology in arid regions and multiple cropping in irrigated areas;

(v) to aim at integrated watershed management and the optimal utilization of irrigation potential;

(vi) to intensify soil conservation programmes;

(vii) to take up programmes to restore the productivity of lands affected by alkalinity, salinity and water logging;

(viii) to organise effective training programmes for extension personnel in order to keep them up to date in their technical knowledge, and

(ix) to intensify farmers' training programmes in order to facilitate a quicker adoption of the new technology.
Greater emphasis, during this plan, was given to provide better certified quality seeds, extension facilities and technical assistance to the farmers. The plan also emphasised the solving of problems like land-leveling, water-logging, salinity etc., in the State. Finally, in this plan highest priority was given for efficient utilization of the created water potential, soil conservation programmes, dry land farming technology, adoptive research, proper distribution of inputs etc. It is interesting to note that, for the first time, such agricultural development programmes were included in the State Plans. For achieving all the goals, the plan provided for a total outlay of Rs. 10,652 lakhs for agriculture and allied programmes.

Conclusion:

Since the inception of the First Five Year Plan, the State has achieved significant increase in the field of agricultural production, particularly, food grains production. The food grains production increased from 32.21 lakh tonnes in 1955-56 to 75.67 lakh tonnes by the end of the Fifth Five Year Plan. It is particularly so in rice production, which has increased from 11.83 lakh tonnes to 23.03 lakh tonnes in the said period. By the end of the Fifth Five Year Plan, in the case of pulses, the production has gone up from 3.80 lakh tonnes in 1955-56 to 5.00 lakh tonnes and oilseeds production has risen from 0.93 lakh
tonnes to 9.12 lakh tonnes. In the case of sugarcane also, the achievement is satisfactory and its production has gone up from 31.11 lakh tonnes to 118.22 lakh tonnes during the said period. This has become possible mainly due to increase in the irrigation facilities and application of modern technology. The high yielding variety seeds and chemical fertilizers have played an important role in increasing the agricultural production, particularly food grains production.

From this discussion, it is found that there has been a shift of emphasis in agricultural development programmes in the state as well as at the national level. The shift of emphasis in agriculture development programmes can be discussed under three broad phases:

**First Phase:**

The first phase covers 15 years from 1951-52 to 1965-66 (covering the First, Second and Third Five Year Plans). During this period the performance of the agriculture sector was not satisfactory and there was only a marginal increase in agriculture production. The agricultural development programmes were mainly carried out through the Community Development Programme. More attention was paid on expansion of irrigation facilities by taking up of new major and medium irrigation projects. Attention was also paid for bringing more area under the plough, land development etc. Intensive Agricultural District Programme was
launched in Mandya District with the main object of maximising production under assured irrigated conditions by providing all necessary inputs. Another milestone during this period was the setting up of the Agricultural University in the State, in the year 1964.

Research work, extension facility, demonstration and training programmes were at a low ebb and progress made in this direction was not satisfactory. Improved seeds, and chemical fertilizers were used and popularised only in irrigated pockets and dry land regions were not covered. The Government could succeed in bringing more land under the plough and land development activities implemented rigorously again in the irrigated pockets. The Government concentrated more on producing food grains.

Second Phase:

The Second Phase, from 1966-67 to 1973-74, covers three annual plans and the Fourth Five Year Plan. During this period, the food grains production considerably increased from 35.45 lakh tonnes to 75.67 lakh tonnes. This was possible mainly due to the launching of the Green Revolution. As a result there was increase in the use of High Yielding Variety seeds and continuous increase in the area under these seeds. The important HYV that were introduced during this period were CSH-1, CSH-2, CSH-3, CSH-4 and
CSH-6 in Jawar, TN-1, TN-6, TR-8, IR-20, Madhu, Mangala etc.; in paddy and Deccan-101, Ganga-5 etc. in maize. Added to this, there was considerable increase in the area under irrigation, consumption of fertilizers and pesticides. Extension machinery was strengthened in order to carry the new technologies to rural areas. Further, various improved agricultural practices were implemented in the State during this period. All these measures were responsible for increased food production.

During this period, the major thrust for agricultural production was (i) on the strengthening of research activity for further improvement of hybrid variety. (ii) on the production of good quality seeds, (iii) on the distribution of quality inputs like fertilizers, pesticides, implements etc., and (iv) on the formulations of rules and regulations for maintaining the quality of the inputs.

During this period also more efforts were made to increase food grains production. Towards the end of this phase, it was realised that while we had reached self sufficiency in food grain production, we were very much behind in respect of oil seeds and pulses.

Third Phase:

The Third Phase from 1974-75 to the beginning of the Sixth Five Year Plan marked the beginning of a conscious effort in increasing production of oilseeds and pulses.
Food grains production has shown a gradually increasing trend since the commencement of this phase.

The Government during this phase concentrated on strengthening research activities, extension facilities, on-farm developmental activities and minor irrigation works.

Under the new system of extension (1978), it was no longer necessary for the farmers to go to any office of the Agriculture Department to get the know-how with regard to crop cultivation. The primary level worker would himself visit the farmers in a regular schedule of 15 days and take all extension steps to the farmers. Under the new scheme, higher level extension staff i.e., subject matter specialists trained the secondary and primary level workers. Further, the new extension programme took care of several needs like credit arrangements, good quality seeds, fertilizers, and technical know-how in respect of all crops. The programme also included providing special services to farmers belonging to SC, ST, tenants etc. Thus, the programme was regarded as a major landmark in agricultural development in the State.

During the Sixth Five Year Plan period (1978-83), greater emphasis was attached to provide better certified quality seeds, extension facilities, and technical assistance to the farmers. Further, highest priority was given
to efficient utilization of water, dry land farming technology, soil conservation programmes, proper distribution of inputs, adoptive research etc.

Due to the planning of various strategies and programmes, agricultural production in the state has increased from 32.21 lakh tonnes in 1955-56 to 75.67 lakh tonnes by 1978-79. But the planning process succeeded only in food grains production, and other crops, particularly oilseeds and commercial crops did not show a perceptible improvement in production. Therefore, it may be stated that agricultural planning in India as well as in the state was successful only to the extent of averting famine, but it failed to make a more positive contribution to the process of economic development.