CHAPTER II

AGRICULTURAL DEVELOPMENT IN U.P. SINCE 1951
Need for Agricultural Developments:

Whatever the cause may be of low yield of crops, the present position and future prospects of industries in the state depend to a very large extent on the product of our agriculture. The Industrial Commission once pointed out while stating the permanent importance of agriculture and the necessity of its development to increase the output "We consider the improvement of agriculture necessary, not only because it forms the basis on which almost all Indian industries must depend, but also extended other reasons, that the extension amongst the people for the knowledge of improved agricultural methods and in particular, of the use of the power and hand driven machinery, will benefit agriculture both by adding to their income and by its educative value." Further agricultural development will lead to a general rise in the standard of living and increase the purchasing power of the peasantry which in return will create a much larger demand for manufactured goods now exists and provide a market for the increased industrial activities. Improvement in this direction will also relieve the acute food shortage which unfortunately the country has been facing.
since world war second. Thus agricultural development is not only necessary but inevitable in the interest of teeming millions of this state whose ultimate prosperity to a very large extent depends upon agriculture.


As already expressed in the previous chapter, India although primarily an agricultural country, is found much backward as regards the technique and system of agriculture, and yield per acre has been lowest in the world. Due to the general poverty and ignorance and being wedded to old customs, our farmer has no incentive for any improvement. He regards agriculture as a mode of life inherited from his ancestors than a basis for his livelihood. Under the circumstances no progress could be made except on state initiative and assistance. Looking to this size Muslim rulers who were our masters till two centuries ago never cared for helping country's agriculture since they were content with their land revenue only, law and order. With the advent of British regime in the 18th Century it was hoped that the new rulers would like initiative and would introduce in India the new methods of agriculture that were prevalent in England after the Agrarian Reforms. Famines after famines ravaged Indian villages and took a heavy toll of cattle and human beings. It influenced the ideas of the
administrators to the shortcomings of a policy of absolute laissez-faire in 1866, the commission that was appointed to conduct an enquiry into the great famine of Bengal and Orissa originated the idea of starting a special department of agriculture. The Government cared a little for the recommendations of commission, as a result of the continued representations of the Lancashire cotton industry which was interested in the growth of long stapler cotton in India, a department of Revenue, agriculture and commerce was opened at the Centre in 1871.

The famine commission of 1880 recommended for the establishment of Agricultural Development in provinces as well as and accordingly the U.P. Govt. also opened a Department of Agriculture with the scientific objectives of agricultural enquiry, agricultural improvement and famine relief. In practice it was found that the department was to treat the collection of agricultural statistics and to organise the famine relief as its main function and according to the instructions of the Govt. of India. This work was to take precedence over agricultural experiments. Thus the department could make little progress in the organisation of agricultural research.

By 1905, it was clearly realised that provincial departments should undertake agricultural research and promote agricultural improvements by evolving varieties and methods suited to local conditions.
and popularising them. The famine commission of 1901 expeditiously recommended the strengthening of research staff in the agricultural departments of all the provinces and emphasised the steady application of the results of research to agricultural problems which was crying need of the time. As a result of this the provincial departments were reorganised and strengthened on the experimental and scientific basis in U.P. an Agriculture College was established at Kanpur and expert staff was added to the agriculture Department with a view to concentrate on agricultural researches, experiments, demonstrations to spread over among the cultivators the improvements advocated by the experts engaged there in. To enable the provincial Departments Agriculture to keep to thought with one another and to discuss programmes of Agricultural Improvements, as a result of these experiments All India Board of Agriculture was set up in 1905.

After the reforms of 1915, Agriculture became a different subject and since 1921 the provincial Governments have been solely responsible for agricultural developments in their respective areas.
The Central Department of Agriculture is since then concerned only with the control of all India agricultural schemes. This change has brought a revolution in the U.P.'s Agricultural Department and it has developed very rapidly in recent years and has concentrated itself not only with improving the varieties of crops and agricultural methods and agricultural implements but its activities have been multiplied in other directions also. Assumption of office by Congress Govt. in 1937 meant a new blood to the department and schemes were made for planned development of agriculture in U.P. in all its aspects. However, due to the change of political conditions the Ministry in the province resinged its office and the World war began in 1939, with the result that all new schemes were postponed. On termination of war, the food problem of country became acute and the new congress Govt. which assumed in 1946 is since then paying maximum attention towards agriculture Reforms.

The agricultural strategy during the eighties will place increasing emphasis on integrated approaches to pest control, nutrient and energy supply, and also to production, conservation, consumption and trade. The triple alliance of weeds, pests and pathogens will have to be fought through an appropriate blend of genetic, agronomic, biological and chemical methods of genetic pest control. In the area of nutrients supply, organic and biological sources of fertilisers will have to be harnessed in addition to increasing the
supply of mineral fertilisers. Phosphorus management and recycling require special attention since phosphorus is a non-renewable resource. The care and maintenance of soil health as well as plant and animal health will have to be carried out with the help of the local community. Integrated energy supply systems will have to be based on the use of solar and wind energy, biogas, village wood lots in addition to electricity and petroleum products. These systems will also be so designed as to reduce energy losses.

Three major groups of factors influence stability of production—weather, pest epidemics and public policies. Pest and epidemics can be kept under control through proper pest surveillance and plant protection measures. The public policies in the area of agrarian reforms and pricing, marketing and distribution can also be tailored to stimulate production. Weather aberrations are, however, beyond human control. Therefore, it is essential that contingency plans are developed, particularly in areas which are prone to drought and floods for meeting different weather probabilities. The overall strategy for minimising the adverse impact of aberrant weather will be:

(a) to introduce crop life-saving techniques,

(b) to popularise alternative cropping patterns based on weather conditions; and
(c) to introduce compensatory production programmes in irrigated areas and in off-seasons. Steps will have to be taken during the Sixth Plan period to systematise efforts in the field of disaster management with regard to human, animal and plant populations.

The Sixth Plan will thus present many challenges and opportunities. Since food occupies the first place in the hierarchical needs of man, we can neglect agriculture only at the risk of economic instability.

Starting from the beginning of this century, three major phases can be identified in our agricultural evolution. The first phase from 1900 to 1947 was marked by a near stagnation in farming as is clear from growth rate of about 0.3 per cent per annum achieved in agricultural production during this period. Phase-II extending from 1950 to 1980 has been marked by considerable advances in the process of modernisation of agriculture, thanks to the steps taken in the development and spread of

(a) Technologies based on scientific research;
(b) wide range of services; and
(c) public policies in land reform, pricing, procurement and distribution. As a result agricultural
2.8 per cent during 1967-68 to 1978-79. The third phase which has begun in the eighties will be marked by the need for greater attention to marketing and trade, and to institutional frameworks which can help to minimise the handicaps of small and marginal farmers and maximise the benefits for intensive agriculture offered by small holdings.

The agrarian structure of our rural economy is such that small and marginal farmers cultivate nearly 73 per cent of the operational holdings in the country although they handle only about 23 per cent of the cultivated area. Their total earnings from farming alone hence tend to be small and, in unirrigated areas, also uncertain. The long-term answer to this problem does not lie in steps like writing off loans and fixation of procurement prices at levels which will further reduce the already low levels of consumption of farm products. It is, therefore, proposed during this plan to introduce a 3-pronged strategy to improve the economic and well-being of small and marginal farmers and share croppers.
Recently, the area under sunflower, soybean and summer groundnut (irrigated) has been increasing significantly in certain States. This experience shows that the prospects of achieving self-sufficiency in oilseeds are bright provided special efforts are made to extend the available technology, evolve new technologies and ensure price and marketing support. The National Oilseeds Development Project will be continued during the Seventh Plan period as a Centrally Sponsored Programme by providing operational flexibility to the State Govts. to draw up programmes suited to local situations. Besides, a major technology mission for oilseeds will be mounted to evolve new varieties and practices for achieving a breakthrough on yields. Since raising profit margins for farmers as well as reducing variability in yields and prices are extremely important in the case of oilseeds, the efforts at vertical integration of production, marketing and processing through the growers' cooperatives will be encouraged. In this context, efforts will be made to strengthen the State-level Oilseeds Growers' Federations, organized under the National Dairy Development Board's Oilseeds Project.
INTEGRATED RURAL DEVELOPMENT PROGRAMME

The objective of Integrated Rural Development (IRDP) is to provide assistance to families below the poverty line to attain an income level well above the poverty line. This is achieved by providing such families productive assets and inputs. The programme is financed by a combination of subsidies provided by the Government and loans advanced by the banking institutions. It is also envisaged to assist 30 per cent of the families belonging to Scheduled Castes and Scheduled Tribes and 30 per cent women beneficiaries.

The IRDP is being implemented through District Rural Development Agency (DRDA). At the State level, a co-ordination committee, headed by the Chief Secretary, monitors the overall aspects of the implementation of the programme. The chairman of the DRDA plays a key role in providing co-ordination in the implementation of the programme at the district level. There is a governing body for providing guidance to the DRDAs. The governing body comprises Members of Parliament, Members of Legislative Assemblies, Chairman Zila Parishad, Chairman, Central Co-operative Bank, Land Development Bank, General Manager, DCC, two representatives of weaker sections, one of whom may be Scheduled Caste or Scheduled Tribes on a woman representative. The Zila
Parishads and Panchayat Samities are intimately involved in the planning and implementation of the programme. The final selection of the beneficiaries is to be done in the meeting of the Gram Sabhas.

**DROUGHT PRONE AREAS PROGRAMME**

A Rural Works Programme was formulated in 1970-71 with the aim of creating assets designed to reduce the severity of drought wherever it occurred and to provide employment in the drought affected areas. The fourth plan mid term Appraisal redesignated the programme as the Drought Prone Areas.

The main objectives of the DPAP are:

a. reducing the severity of the impact of drought;

b. stabilising the income of people, particularly weaker sections of the society; and

c. restoration of the ecological balance.

The programme at present covers 615 blocks in 90 districts of 13 states. In the Sixth Plan, there was a provision of ₹350 crore to be shared equally by the Central and State Governments. The actual allocation came to ₹404.30 crore based on the annual outlays approved by the Planning Commission. Against this, the expenditure has amounted to ₹337.41 crore.
DESERT DEVELOPMENT PROGRAMME

The Desert Development Programme was started in 1977-78 with the objective of controlling desertification and creation of conditions for raising the level of production, income and employment of people of the desert areas. This was sought to be achieved by:

a. Afforestation (with special emphasis on shelter belt plantation), grassland development and sand dune stabilisation;

b. Groundwater development and utilisation;

c. Construction of water harvesting structures;

d. Rural electrification for energising tubewells pumpsets; and

e. Development of agriculture/horticulture and animal husbandry.

The DDP covers both hot and cold arid areas. Eighteen districts in the hot deserts and three districts in the cold deserts have been selected for this programme. The total number of blocks covered is 131.

During the Sixth Plan period there was a provision of ₹100 crore which was shared equally between the centre and the states. The amount was subsequently reduced to ₹94.85 crore on the basis of annual outlays approved by Planning Commission.

An amount of ₹73.55 crore has been utilised on the programme during the Sixth Plan.
NATIONAL WATERSHED DEVELOPMENT PROGRAMME FOR RAINFOED AGRICULTURE

On the basis of the past experience, it is proposed to take up during the Seventh Plan a new Centrally Sponsored Scheme called the National Watershed Development Programme for Rainfed Agriculture, to supplement the state efforts, by merging the ongoing programmes. The main components of Watershed Development Programme for Rainfed (Dryland) Agriculture are to harvest water and conserve soil moisture from the low rainfall which is also highly variable in these areas, and to extend farming practices and cropping systems which increase production by minimising yield risks. Since watershed is a natural drainage unit, it is the most suitable physical unit for land treatment and water management, which is the prerequisite for scientific development of dryland agriculture. It is proposed under this project to delegate to the State Governments the responsibility for evolving a suitable administrative framework for planning as well as implementing the project while Central Government would be responsible for the overall policy formulation and monitoring.

FLOOD CONTROL

After the extremely severe floods experienced in 1954, it was considered that efforts in the field flood control need to be intensified on the basis of
a well planned programme. Accordingly, the National Flood Control Programme was launched in 1954. The Programme was divided into three phases-immediate, short-term and long-term. The immediate phase was devoted to intensive collection of data and execution of emergent flood protection measures. The short-term programme which was roughly to coincide with Second Plan, envisaged the construction of embankments, protection of some towns, raising of villages, etc. The long-term phase envisaged the construction of storage reservoirs, stabilising benefits of the works already carried out as well as taking up of additional works of embankments, river draining, etc.

During 1985, floods of varying intensities occurred in Andhra Pradesh, Assam, Bihar, Gujrat, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Uttar Pradesh and West Bengal. The total damage, as reported by the states, was on the order of Rs 4,059 crore.

CENTRAL WAREHOUSING CORPORATION.

The concept of storage is as old as man kind. But warehousing connotes much wider activities covering amongst other, preservation of quantity and quality, safety and security of stocks, documentation and prompt retrieval as and when required. Warehouses also provide ancillary services connected with storage such as handling and transport, sale and distribution of various commodities on behalf of the depositors etc.
The Central Warehousing Corporation was set up in 1957 under an Act of Parliament. The scheme of warehousing in the Public Sector comprises of a three tier system under which the CWC operates at centres of All India importance, its associates, the State Warehousing Corporations run warehouses at State and district level, and the cooperatives provide warehousing facility at taluka and village level.

The main functions of the CWC are: to acquire and build warehouses, run warehouses for storage of agricultural implements and notified produce, seeds, manures, fertilisers, agricultural implements and notified commodities, arrange facilities for handling and transport for commodities offered for storage, subscribe to the share capitals of SWCs and act as agent of the Government, companies and cooperative societies for purpose of purchase, sale, storage and distribution of various commodities stored in the warehouses.

The corporation issues a warehouse receipt which is an instrument for expansion of credit through commercial banks for benefit of producers, dealers and others. The warehouse receipt also assists in orderly marketing of the commodities. The warehouses of the Corporation are run on scientific lines and manned by personnel trained for the purpose.

The CWC has a wide net work of warehouses almost in all the States. At present, it is running 466 warehouses with a capacity of 62.9 lakh tonnes. Besides,
conventional godowns, the Corporation also has 3
cold storages at Agartala, Hyderabad and Bombay
and air-conditioned warehouses at Calcutta and Madras.
Specialised storage facilities are provided for
hygroscopic and delicate commodity like shellac,
jaggery, tobacco, coffee bean, tea, spices etc. The
Corporation also offers facilities for storage of
heavy materials and machinery on open plinths, as
well as liquid cargo in tanks. The Corporation provides
scientific storage facility for more than 200 commodities.

The CWC is providing public bonded warehousing
facility at 156 stations with an aggregate capacity
of 8.20 lakh tonnes. These warehouses serve the trade
and industry. Two air-cargo complexes have also been
set up at Amritsar and Goa.

In order to assist the import and export trade
the CWC has set up container freight station at Delhi
and Madras. An ultra modern container handling freight
station will also be soon operational at the Nhava
Sheva Port under the management of the Corporation.
A Railfed Container Freight Station at Loni near
Shahadra may also be commissioned by December, 1989.

Besides a rebate of 10% on the storage charges
the Corporation has taken up a scheme to educate
the farmers in the post harvest technology. For this
purpose, the Technical Officers of the Corporation
visit selected villages, organise demonstrations in the use of pesticides and other preservation techniques.

FOOD CORPORATION OF INDIA.

On the 14th of January, 1965, under an Act of Parliament, the Food Corporation of India came into being, to manage the basic food requirement of the country. A mere 25 years from its inception, having faced varying stages of drought and floods, surplus and deficit, the FCI has emerged as the national food handling agency in India. An agency that looks after the interests of both the farmers and the consumers.

To provide an effective food security system in the country, the FCI, through a series of operations, simultaneously ensures stability in food supplies and physical and economic access to food on the part of the vulnerable sections.

In the process, FCI has had a significant impact in sustaining the high growth rate of production in both wheat and rice, along with maintaining their price stability over a long period.

But FCI's most creditworthy achievement has been in transforming the food supply scenario from the earlier shortage prone supply situation, to that of a stable food security system. A food security system that supplements the availability of food to the people, specially the vulnerable sections, all over the country.
not only in times of crisis but also in normal circumstances.

Operationally, the FCI reaches the remotest corner of the country, through its vast network of offices employing over 70,000 people. FCI has its Corporate Office in New Delhi, 5 Zonal Offices, 19 Regional Offices in practically all the state capitals, 5 Port Operations at Bombay, Calcutta, Madras, Vizag and Kandla, plus 153 District Offices. In order to ensure that the poorer sections of the country have easy physical access to foodgrains, FCI has over 1400 well located storage godowns all over India. Financially it is one of the largest public sector undertakings with an annual turnover of about ₹11,000 crores.

FCI procures quality foodgrains according to Govt. specifications directly from the farmer. At over 8000 mandis spread all over the country, the farmer can sell his produce to the FCI for a procurement price fixed by the Govt. and be ensured of immediate payment. The efficacy of the price support measure is demonstrated by the fact that 98% of the market arrivals of wheat are sold to the FCI in the surplus areas.

Thus FCI provides an assurance against price fluctuations, an assured market, as well as a price support to the even in times of plenty. This assurance that FCI will buy his produce at a fair price even
in a glut, encourages the farmer more foodgrains. Indirectly, FCI has indeed contributed significantly in nurturing the green revolution.

By trains, trucks and boats. The FCI uses every possible means of locomotion to move over 220 lakh tonnes of foodgrains over an average distance of 1500km every day, from the mandis to its various godowns spread all over the country. Thus within a matter of days, rice or wheat procured in Punjab is moved to such far flung corners as Imphal in Manipur or Bangalore in Karnataka.

Thus by effective planning and management of transport, the FCI constantly moves grain from the surplus to the deficit areas, from the producers to the consumers.

Needless to say, the foodgrains are made available at a uniform price everywhere. With a network of 1400 godowns, and a well-planned transportation capability, the FCI can transport food to any a part of India immediately.

Another facet of the Corporation's manifold activities is the provision of scientific storage for the millions of tonnes of foodgrains procured by it. In order to provide easy physical access in deficit, remote and inaccessible areas, the FCI has a network of storage shelters strategically located all over India.
These depots include silos, godowns and an indigenous method developed by FCI, called "Cover and Plinth." Today FCI has over 200 lakh tonnes of storage capacity in over 1400 godowns that are located in keeping with the specific agroclimatic conditions of the area.

The health of stored foodgrains is constantly monitored, and curative and prophylactic treatment is undertaken to ensure their proper quality even during long periods of storage.

FCI has made a beginning in adopting the sophisticated technology of bulk storage in silo form. Already about 5 lakh tonnes of capacity has been built and is in use in different centres.

For the future, efforts are also being made to develop an integrated system of handling, transportation and storage of foodgrains in bulk.

In the last stage of the food cycle, the stored foodgrains are moved from the godowns and distributed by the Public Distribution System through 35 lakh Fair Price Shops all over the country. This Government-administered Public Distribution System has many advantages for the poorer sections. Firstly, it ensures an equitable distribution of foodgrains to the deficit areas. Secondly, under the PDS, foodgrains are sold at very subsidised rates, which ensures economic access serves to substantially augment the consumption by the poor people.

Every month, FCI distributes over 15 lakh tonnes
of foodgrains from these fair price shops.

Today FCI is recognized as a successful organisation where professional management of food is concerned.

The efficiency with which FCI tackled one of the century not only cemented its role as the premier organisation in charge of food security in India, but also brought it accolades from the United Nations. During the devastating drought of 1987, FCI supplied more than 30 lakh tonnes of foodgrains to affected parts of the country through special schemes. And FCI is justifiably proud of the fact that, due to better anticipation and management of the drought, there was no recurrence of the devastation caused by the Bengal famine of 1943.

As a result, international organisations today recognize FCI's significant role in effectively managing the food security of the nation.

And the FCI is indeed proud of serving the nation in managing its basic need—'food'.

**CROP INSURANCE**

Farming in India is prone to various adverse climatic conditions, leading to several risks and economic losses to the farmers. Both rain-fed and irrigated farms are subject to the vagaries of nature resulting in damage to crops and thereby causing
losses to the farmers, affecting their economic status. The vulnerability of the farmers and the hazards arising from factors beyond their control underscore the need for devising an arrangement to protect the farmers from such crop losses. It is in this scheme context that the need for having a crop insurance scheme is being urged in different forms from time to time. From 1979 onwards, a pilot Crop Insurance Scheme is being implemented in the States of West Bengal, Gujarat and Tamil Nadu. The scheme is based on area approach and it covers the loss of production due to drought, excessive rain, flood, freeze, frost, hail, snow, windstorm, cyclone, insect, infestations, plant disease and any other unavoidable causes of losses due to adverse weather conditions. The Insurance Policy is issued in favour of the financing institutions and insurance is based on crop loan of the cultivator. The State Government are co-insures with General Insurance Corporation of India and share the premium and the indemnity to the extent of 25 per cent.

CROP LOANS

Production of crops necessitates expenditure on inputs like seeds, fertilisers, compost, pesticides, weedicides and hiring charges for casual labourers. Crop production credit is given for specific crops in a season and amount of loan is need based which depends upon the size of holding, types of crops to be grown, methods of
cultivation, crop-rotation, and level of fertility of land. Farmers are not required to contribute towards margin from their sources for loan amount upto Rs. 15,000/- for loans of higher amount they are required to contribute 15% upto Rs. 25,000/-, 20% upto Rs. 50,000/- and 25% for loans above Rs. 50,000/- The repayment of loan is effected from the sale proceedings of the crops. As such a period of about 2 months after the actual harvest of the crops is allowed for repaying bank dues- principal and interest. In the case of progressive farmers the crop loans are allowed in the form of cash-credit limits also for meeting their requirement on an ongoing basis. In the case of failure of crops due to some natural calamities or other given from cultivation of crops are converted into medium term loans repayable over a period of 3 to 5 years in suitable instalments. The crop loans for the identified crops are also covered under the scheme of "crop insurance" in the notified areas.

MEDIUM TERM LOANS FOR PROGRESSIVE FARMING

For increasing agriculture production appropriate measures are required to be taken for developing agricultural land, mechanising farm operations and creating minor irrigation potential etc. Various schemes for making such investments have been devised by the bank under which financial assistance would be available to the farmers as under:
1. Farmers can raise bank loan for reclamation of soil, conditioning of their land, undertaking land levelling bunding, and terracing etc. Such loans can be raised by the farmers having land holdings either as owners or as tenants/lesseses with long term cultivation rights. Financial assistance can be given to Panchayats and other bodies also having such degraded lands lying waste. Bank loan is given to the full extent of cost of development seeking no continuing contribution from the beneficiaries. Above it concessional rate of interest i.e. 10% p.a. is applied to the beneficiaries raising such loans irrespective of whether they are small farmers or others. Suitable repayment holiday is also provided to the borrowering farmer for an initial period in repayment of loan as the land is developed only after 2-3 years of developmental process undertaken by the farmer with bank’s financial assistance. Accordingly such loans can be repaid by the farmers in a period ranging from 10 to 15 years.

2. Scheme for purchase of cart and draft animals
3. Scheme for financing forestry development programme
4. Scheme for financing purchase of agri. land
5. Scheme for setting up dairy farm
6. Scheme for poultry farming
7. Scheme for financing sheep/goat breeding and rearing activities
8. Scheme for financing fisheries development
Production of wheat and rice touched a new target in Uttar Pradesh during the year ending 1960. Yield per acre of various crops also went upward on trend. Further production of rice and wheat increased on a high level in Uttar Pradesh during the year ending June 30, 1962. Per acre yield of various crops also registered an upward trend indicating favourable impact of the concentrated efforts, that are being made in the state for the development of agriculture. During the year about 3 lakh acres of uncultivated land was also brought under the plough and soil conservation work done over 48,000 acres of land.

Wheat production in the year 1961-62 according to the latest estimates touched the figure of 40.45 lakh tonnes mark against 26.68 lakh tonnes in 1950-51 and 28.82 lakh tonnes in 1960-61. The production of paddy in terms of rice crossed the figure of 33.24 lakh tons against 19.76 lakh tons in 1950-51 and 31.01 lakh tons in the previous year. The table showing the production of wheat and Rice during the Plan Period:

<table>
<thead>
<tr>
<th>UNDER PLANS</th>
<th>PRODUCTION IN: Lakh Tonnes:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RICE</td>
</tr>
<tr>
<td>1951-56</td>
<td>21.0</td>
</tr>
<tr>
<td>1956-61</td>
<td>26.6</td>
</tr>
<tr>
<td>1961-66</td>
<td>30.8</td>
</tr>
<tr>
<td>1966-69 'Annual Plan'</td>
<td>26.2</td>
</tr>
<tr>
<td>1969-74</td>
<td>35.7</td>
</tr>
<tr>
<td>1974-79</td>
<td>46.4</td>
</tr>
<tr>
<td>1980-85</td>
<td>62.1</td>
</tr>
</tbody>
</table>
The year was, however, not free from natural calamities. It began with the flood visiting most of the districts adversely effecting sowing programmes. The unprecedented vold wave that swept, the state in the last week of December and lingered on far many days also added to the miseries of the farmer. Among the food crops arhar suffered the most from in tense cold, recording a sharp fall of about 5 lakh tons in its production, oil seeds too were hit hard and sugarcane was also effected slightly. The state could not, therefore, achieve its target of producing 144.12 lakh tons.

Despite of the vagaries of the weather, ground-nut (Moong-Phali) production touched 2.26 lakh tons against 1.72 lakh tons in 1960-61. Oil seeds production recorded 12.3 lakh tons and cotton 45,000 bales. Jute production registered and increased from 139 lakh bales in 1961-62 to 145 lakhs bales. Sugarcane, however, declined to 488.81 lakh tons from 536.5 lakh tons in the previous year.

Per acre yield of principal crops has however, increased during the last 10 years. Wheat per acre went up from 8.88 maunds in 1950-51 to 10.94 munds in 1960-61 rice from 5.27 maunds to 7.94 maunds, grams from 6.46 maunds to 7.78 maunds, maize from 8.15 maunds to 10.1 maunds, arhar from 12.47 maunds to 14.72 maunds, Sugarcane from 315.6 maunds to 444.8 maunds and Jute from 10-lakh 10 bales to 13.86 bales.
The wheat production stood more or less static up to 1966-67. Thereafter, the production increased from 11.4 million tonnes in 1966-67 to 469 million tonnes in 1985-86 with corresponding increase in the productivity from 887 kg to 2030 kg/ha. This increase in production may largely be attributed to wide spread of dwarf/or semi dwarf high yielding and disease resistant wheat varieties and adoption of improved production technology for the same. At present, wheat also alone contributes about 32 per cent of the total food grain production in the country, which stands at 150 million tonnes. In U.P. also, the production has increased considerably. The area, production and productivity of wheat in different wheat growing states is given in table:

AREA PRODUCTION AND PRODUCTIVITY OF WHEAT IN DIFFERENT STATES OF INDIA (1985-86)

<table>
<thead>
<tr>
<th>STATE</th>
<th>AREA</th>
<th>PRODUCTION: mt</th>
<th>PRODUCTIVITY: kg/ha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bihar</td>
<td>1.91</td>
<td>3.14</td>
<td>1646</td>
</tr>
<tr>
<td>Haryana</td>
<td>1.70</td>
<td>5.26</td>
<td>3094</td>
</tr>
<tr>
<td>M.P.</td>
<td>3.60</td>
<td>4.13</td>
<td>1145</td>
</tr>
<tr>
<td>Punjab</td>
<td>3.11</td>
<td>10.99</td>
<td>3530</td>
</tr>
<tr>
<td>Rajasthan</td>
<td>8.28</td>
<td>3.92</td>
<td>2208</td>
</tr>
<tr>
<td>U.P.</td>
<td>8.28</td>
<td>16.48</td>
<td>1999</td>
</tr>
<tr>
<td>All India</td>
<td>23.07</td>
<td>46.88</td>
<td>2033</td>
</tr>
</tbody>
</table>
India has the largest area under rice (41 million ha.) It ranks second in production, but the yields are relatively low. Rice contributes more than 40% of the total grain production in the country. In 1950-51, the total production in the country was 22 millions tonnes and productivity was 668 kg/hectare. During the First Plan, the productivity reached up to an average of 817 kg, and this increased to an average of 915 kg in the Second Plan period. By the Third Plan, the average productivity reached to 986 kg. Then the new high yielding varieties were introduced and the average production increased to 1,112 kg/hectare during the Fifth Plan period (1974-79). During 1979-80, it fell drastically to 1082 kg/hectare due to severe drought. However, by the end of the Sixth Plan (1985-86), the total production and productivity reached to 64 million tonnes and 1560 kg/hectare, respectively.

PIGGERY DEVELOPMENT IN U.P.

Before the introduction of five year plans, except for some sporadic import of a few superior quality pigs of exotic breeds, by a few missionary organisations, no concerted measures were taken to improve pig production in the state until the second Five Year Plan, when pig production attracted some attention and a coordinated pig development programme was launched. Under this programme,
schemes were drawn up for establishment of Bacon Factories, Regional Breeding Stations, Pig Breeding Farms/Units and Piggery Development Blocks. Under this piggery development programme, 4 piggery development blocks were established in Agra and Meerut circles. The scheme envisaged distribution of 50 stud boars in a compact area and providing a maintenance subsidy of Rs. 5/- per boar. Similarly, 15 blocks were established during the II Five Year Plan period. In addition, 4 intensive piggery development blocks were also established in the eastern region of the state. The maintenance subsidy for upkeep of boars under this special scheme was provided as Rs. 10/- per boar. Out of 15 ordinary blocks, two blocks were converted into intensive piggery development blocks. In addition, a pig breeding unit along with 5 piggery development blocks around it was established at State Livestock Farm, Arazilines (Varanasi) at the end of 3rd Five Year Plan period. To meet the demand of hilly districts, a pig unit is functioning at Bin in Pithoragarh district, with a view to increase the availability of the raw material to the bacon factory at Central Dairy Farm, Aligarh. In addition to the above programme, 102 breeding centres were established at different veterinary hospitals by providing one improved boar each for providing facilities to the breeders.

In this piggery development programme, Aligarh and Etah districts took lead. Origin Originally ten piggery
development blocks were sanctioned out of which two blocks were established at Hatharas and Sankandra Rao in Aligarh district. In 1967-68, one block at Sheotalpur in district Etah was started. In 1968-69 the Khair block in Aligarh district was also included in the same scheme. During the VI Five Year Plan two blocks in Etah district Soron and Amapur and one block in Aligarh district Hasayan were included. In both the districts the scheme was looked after by the Piggery Development Officer with the headquarter at Central Dairy Farm, Aligarh. Later the scheme was put under supervision of the concerning District Livestock Officers.

During 6th Five Year Plan, the pig production programme was given special attention under special Livestock Production Programme, S.F.D.A., I.R.D., Antyodaya and Special Component Plans. At the end of 1979-80, 11.34% of breedable pigs were being provided coverage of breeding which was supposed to be increased to 23.18% at the end of VI plan. Still the target has not yet been achieved. Thus, there is paucity of improved boars for breeding. It is, therefore, desirable to strengthen pig breeding farms.
The production in the field of agriculture in the state was remarkable. Out of an all India target of 15.48 million tons of additional food production under the Second Plan, Uttar Pradesh was allotted the target of 2.40 million tons. In order to attain the desired increase in good grain, various improved agricultural methods were adopted. As usual, the Kharif and Rabi campaigns enormously contributed to the raising of agricultural production.

The agricultural department concentrated its activities mainly on fertility and seed campaigning. It was able to encourage the use of 0.895 lakh tons of fertilisers against the target of 2.685 lakh tons. As much as 5,00,000 tons of compost was made and distribution among the cultivators against the target of 5,40,000 tons. In addition, 7,354 maunds of manure was distributed, while the target was fixed at 8,421 maunds. In order to add more fertility to the soil an additional quantity of 10,238 tons of compost was made available in villages throughout the state. Conclusively, 40,000 tons were less consumed than the target allotted and such thing should not be repeated in further programme. Considerable fillip to the "Grow Capital More Food Campaign" was given by production stocking and distribution improved quality of seeds to the cultivators. Under this scheme, more pedigree-seed farms and seed stores were started.
Attention was concentrated on popularising improved methods of cultivation. Japanese methods of paddy cultivation was implied on 10,609 lakh acres of land, and line sowing methods was applied for producing early paddy, maize, Millet, Bajara and Arhar on 7,36,8088 lakh acres, 3,240 lakh acres, 1.66 lakh and 2.03 acres of land respectively. The U.P. method of wheat cultivation was also successfully demonstrated on 15,628 lakh acres of land.

Special schemes were under-taken in the backward and scarcity areas of the state. Potato development scheme in Kumaon Division, supplementary crop schemes in eastern districts grew more pine apple scheme and the long terms of loan schemes for popularising gardening in eastern Uttar Pradesh achieved for tremendous success.

A thorough survey was made on 32,621 acres of land to examine the contents of soil. Soil conservation measures were successfully carried out on 21,971 acres of land. The work on demonstrations projects conducting experiments of improvement of barren and eroded land made appreciable success.

As regards the commercial crops, the production of jute and Oilseed was the above target figure. The cane development made determined and sustained efforts to increase the yield of sugarcane. Accordingly 780 small tubewells and 3,332 made masonry wells were equipped with persian wheel and 175 with pumping sets.
As regards to the development of live-stock, due emphasis was given on the development of cattle wealth. The whole state was divided into 12 zones with a view to carrying out scientific breeding of cattle.

In the sphere of agriculture the most significant achievement of the 1960 was the opening of the agriculture University at Phoolbagh on the pattern of U.S. Land Grants College at Azpachge, programme in collaboration with Ford Foundation, is being implemented in the Aligarh District.

The cise of land reforms, which began with the U.P. Zamindar Abolition and Land Reforms Act 1950, will be completed with the proposed abolition of Zamindari in hills and urban areas. A bill was also finalised for fixing ceilings on land holdings. The consolidation of holdings maintained steady progress.

**AGRICULTURAL ENGINEERING**

Let us know switch over to the field of agricultural Engineering and find out where it stands today. Man power and cattle power have been used since time memorial, while the invention of wheel made the utilization of the wind and the water power possible. Power utilization, however seems to have been revolutionised with the perfection of internal combustion engine. Oil engines are being increasingly used in agriculture. The most important single machine is the tractor with its capacity to do a lot of work in a short
span of time, also the tractor can do the jobs impossible for man and animals, e.g. reclamation work deep digging and excavation of ditches and drains. With size ranging from the 100 horse power machines to those with less than one horse power, these tractors are growing very popular. Conversion sets have also been evolved by which these machine can be made bigger and smaller according to the need and size of the field to be ploughed. The modern tractor is increasingly becoming capable of performing variety of different types of work such as ploughing, cultivating, threshing, sowing and even pumping. It can also supply power to movers, winders and small combined harvesters.

The "Unit Principle" is being followed and the tractors are fast getting to be multipurpose machines capable of all processes on farms. Similarly the side drag line and mechanical excavators are being applied to drain away ditches and dredge out the digging of narrow trenches required for laying pipe lines. A small bulldozing tractor is employed to fill in the some trenches on the tops of the pipes. Mole drainage is another from carried from soils having a retentive sub soil, e.g. clays. But if a narrow cylindrical tunnel is dug out to work out as a drainage channel, the process is not too costly, it can be repeated at moderate cost and at intervals, mechanical harvesters, binders and threshers are in great use today and have considerably simplified the various farming operations.
skin, hairs and bones when dead with cattle therefore, agricultural production would be impossible and rural transport would be entirely absent. The marketing department of Govt. of India estimated that the value of the contribution made by the cattle to the economy of the country is Rs. 2,600 crores. It has been estimated that the cattle population in this country is about 40 crores. In a sense therefore, the cattle problem in this country may be cattle the erux of Indian Agriculture. **

**CATTLE PROBLEM**

1. **LARGEST NUMBER OF CATTLE**

Roughly India has largest number of cattle wealth. Near about 99 cattle for every 100 acres shown with crops. Halland has only 38 cattle and Egypt 25 and yet we have no pastures as other countries have, our country possess very largest number of cattle. Cattle are considerab in excess of fodder resources of the country. Unfortunately there is an acute problem of Indian cattle because there quality is the poorest.

2. **LACK OF FOODER**

There is a great lack of adequate and proper fodder supply. There is a rapid growth in cattle population. The space of land is not available for grazing but it has declined by and by and over part of country between July and December actual shortage of fodder is felt. Scope ofincreas
fooder production is extremely limited because of the acute food shortage raises the question, fodder, is produce while in (England, Egypt) and other foreign countries its proportion is serially 25%, 26%. Indian council of Agricultural research has published regarding "Dairying in India" that the cattle of India get sufficient fodder in rainy season and some times they did not feed full fodder as they require due to heavy rains or lack of time. Some times they did not green grass with full vitamins. Huge plants of natural sods are utilised, if not utilised in very badly. Supply of dry fodder is well but there is a lack of vitamin in it.

3. LACK OF PROPER CARE

Proper care of cattle is extremely lacking. The India cultivators do not and very often cannot take proper care of the cattle in possession. In this connection it has been said by- Royal Commission on Agriculture

"Cows become less fertile and their calves become undersized and do not satisfy cultivators, who, in the attempt to secure useful bullocks, breed more and more cattle. The process has gone too far and the task of reversing the process of deterioration and of improving the livestock of this country is now a gigantic one.

ROYAL COMMISSION ON AGRICULTURE-
4. INDIS CRIMINATE BREEDINGS

The system of cattle breeding is extremely unsatisfactory. There are villages where breeding bulls are not found and where there are available, a good portion among them is fit not to be allowed to breed. The deficit breeding stock produces sub-normal type. Scientific breeding is almost unknown.

5. CATTLE DISEASES

Cattle diseases are extremely excessive and largely responsible for the death of cattle and deterioration of the quality of the cattle. The significance of all these defects and deficiencies of the cattle is very poor, the cultivators require to maintain a large number of them than would otherwise be required, This adds to the cost of agricultural and reduces agricultural profits. The prejudice against destroying life is so strong amount the Hindu that they would rather starve the cattle than kill them. This problem is lightened by the fact that due to religious sentiment distraction of underuseable can not practical extensively.

If the agriculture of the country is to be improved, improvement of cattle wealth to be sought:

i. There should be good feeding through economical use of available supply and increase in fodder supply.

ii. There should be arrangement for fodder storage and extension shall have to the question of cattle breeding.
Attention shall have to be paid to the question of cattle breeding.

The number of good breeding bulls must be increased.

Management of the cattle wealth is also to be improved. It is for example easy by good management to reduce the dry period by at least three months.

Satisfactory arrangements shall have to be devised for the control of the cattle diseases by increasing the number of veterinary hospitals and qualified surgeons as also the availability of cheap medicines. If these steps will be taken the cattle problem can be solved immediately. Our Government has been taking these things under the plans.

KEY VILLAGE SCHEME

This scheme represents a comprehensive effort for increasing the productive capacity of the cattle in the country. Intensive development resources are being undertaken in selected suitable centres called the key village scheme.

GO SADAN SCHEME

The objective of the scheme is to remove in old, infirm and unproductive cattle from areas of active development work and to maintain them economically in Gosadans established in the interior forest areas.
CONTROL OF DISEASES

Mass immunisation campaign under the Rinderpest Eradication Scheme is being so placed as to cover the entire country under the plans. So many dispensaries are being opened in all the states of the country. These dispensaries are administered mostly under National Extension Service Scheme.

PRESENT POSITION OF ANIMAL HUSBANDRY

There are two research Institutions for Animals Education and Research in India. They are governed by Central Government. One is situated at Izzatnagar near Bareilly named Indian Veterinary Institute and its other branch is at Muketeshwar. Sera and vaccines are also made here to control the diseases. They are 14 veterinary college running in India. Our cattle are mostly suffering from Glander, Sura, Poul and Mouth disease, Anthrax diseases Rinderpest eradication scheme was started in the First Plan, even to day it is running dairy farming which is not so progressive.

The Government of India started to give some aid to state Government of opening of Dairy farming Centres. This scheme was started in 1957-58 and the following programme was settled:
1. Increase in supply of milk in Chandigarh, Hissar, Agra, Gorakhpur, Goya, Agartala, Rajkot, Sholapur, Bangalore and Trivandrum.

2. Bone Forms in Punjab Abhishek Ka-Patti and Kurikuppi.

3. Opening of various veterinary colleges.

4. A scheme for training in Animal Husbandry was also started in Bihar.

Setting up a rural creamery at a total cost of Rs. 9.88 lakhs and the establishment of the regional pig breeding-cum-becon factory at the cost of Rs. 20 lakhs at the Central Dairy Farm Aligarh marked the activities of the Animal Husbandry Department during the year under review.

The production of cow milk in the year under review increased from 45-149 million maunds in 1957 to 52.725 million maunds and of goat from 5.178 lakhs maunds to 12.372 lakhs maunds, recording an increase of 20.50 percent in a decade.

The key village centers Western region are no production about 500 bulls every year each valuing about Rs. 1,000/-. Poultry also made a mark during the year over 8 crore egg size were produced for consumption. The
Combined harvesters have been perfected and they are capable of performing all the three jobs. The problem of grain storage has also been tackled successfully by means of pneumatic conveyors and smaller elevators units.

Another development of great importance is the combined drill which shows both the seeds and fertilizers in one single operation. The fertilizer and seed waste is thus considerably eliminated and good crop ensured. Transplanting similar plants have also been developed. Hammer mill for grinding corn, etc., is another interesting innovation. In the wake of introduction of week killers, farm spraying machinery has been invented. Grass grinding plants have also been put on the market to meet the demand for good drier of a cheap variety. But the most useful engineering development is the milking machine which not only saves a lot of labour and drudgery cost but also ensures bacteria free pure milk supply. Its features are a vacuum pump, a pulsivator, a set of tea cups with rubber connections and a milk can, and as a result, milking parlours have become the craze, e.g., abreast type and the tandem type. In the former, the cattle stand in single file and is being made by the poultry farmers to encourage hens to lay more eggs when the demand is high. Poultry laying houses are illuminated after sun set to encourage hatching and to discourage roasting.
Electric fencing is another valuable innovation. The cattle coming in contact with the fence receives a distinct shock but without any harm being done to them.

Gradually, the cattle and another farm stock get schooled to these shocks and hesitate approaching the wire. The problem of "Rotary-cultivation" is now, not being bulky, heavy and expensive, and a smaller type is being evolved. In short, power is applied not to almost every farm operation from ploughing to milking and from draining to spraying. The two-fold objectives have been to lower costs (this has been achieved in respect of large scale farmings) and to eliminate drudgery, human or animal labour.

There was no production of Agricultural tractors in 1950-51, in 1960-61, 5600 tractors will be produced by the end of the Fourth Plan period.

EDUCATION AND RESEARCH

For the progress of agriculture, education and research of agriculture is very necessary. Therefore, efforts are being made to carry on agriculture research both in the laboratory and on the farm. The results are verified and their application watched closely. New methods of farming are being developed and commercialised. Most of this work is being done in state experimental farms and laboratories. But the more important problem is that of popularising these
innovations and inventions among the rather conservative farmers. For that purpose agricultural education both at the school level and the University. Stage is encouraged Extension services have been built strenuously to keep contact with the farmer and to encourage him to drive full advantages of scientific progress. The medium is social and adult education or radio, T.V. talks in agricultural institutions of above all, the extension services which with discriminate actively knowledge about the application of agricultural technique, farming science, and have economics both among male and female.

BETTER MANURES & FERTILIZERS

As already observed in the soil of the province there is a deficiency of nitrogen, phosphoric acid to remedy these defects, right type of manuring is needed. As the result of the propaganda by the Department, the demand for artificial manure has been increasing in the province and the use of ammonia sulphate, bone meal, fish manures and soil cakes has increased. However, in this direction the progress has been slow as the methods suggested would have to be suitable for many kind of soil and climatic conditions of U.P. and the requirements of particular crop since a hasty introduction of methods funds suitable in foreign countries is likely more often to result in failure and in discrediting for ever the methods suggested by the department in the eyes of the farmer. It is gratifying that in post
independence period U.P. Govt. is paying head more and more to the question of compost making use and increased use of fertilizers, our U.P. Govt. distributed a large quantity of better manures to farmers under the plans.

**DISTRIBUTION OF BETTER MANURES**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>IN TONS **</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>41,174</td>
</tr>
<tr>
<td>1955-56</td>
<td>82,320</td>
</tr>
<tr>
<td>1960-65</td>
<td>1,46,814</td>
</tr>
<tr>
<td>1966-67</td>
<td>11,78,310</td>
</tr>
<tr>
<td>Target in Seventh Plan</td>
<td>28,63,000</td>
</tr>
</tbody>
</table>

Production of fertilizers (Nitrogenous) increased from 56,000 tons to 6,00,000 tons. It will increase to 2 million tons by the end of the Fourth Plan.

**DISTRIBUTION OF IMPROVED SEEDS**

A spick and span function of the Agricultural Department is not new but old of for U.P. for production, maintenance and distribution of crop is of the poorest quality and fetches only a low price in the market. The Department started a number of seed farms for the production of the seeds of the improved varieties. Several Seed farms owned by co-operative societies and by private individuals were taken up by the Department under its own supervision and control.

** Information Department U.P.**
control. The chief work of the Department has been in the evolving improved varieties of a number of crops such as sugarcane, wheat, rice and tobacco. Although this has increased the annual yield of the above crops in U.P. still a vast ground is yet to be covered with the improved varieties. Following is a table given by Information Department U.P. about the seeds distributed in last some years.

**DISTRIBUTION OF SEEDS**

<table>
<thead>
<tr>
<th>YEARS OF DISTRIBUTION</th>
<th>IN THOUSAND TONS**</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950-51</td>
<td>4,757</td>
</tr>
<tr>
<td>1955-56</td>
<td>5,338</td>
</tr>
<tr>
<td>1959-60</td>
<td>10,527</td>
</tr>
<tr>
<td>Targets of the 3rd pland</td>
<td>31,796</td>
</tr>
<tr>
<td>Targets of the 4th pland</td>
<td>-----</td>
</tr>
<tr>
<td>Targets of the 7th pland</td>
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</tbody>
</table>

**SUPPLY OF INFORMATION**

The peasants are also out of touch with the prices prevailing in whole sale markets for his produce and is generally exploited by the middle men. The Government has made arrangements for broadcasting. "All India Radio" information regarding prices, stocks etc. of main agricultural products closing rates of wheat and other food grains at Hapur market are daily broadcast on Radio. The forecast of crops and weather are also of much help to agriculturists. Further villagers programme has been included in the daily broadcast by Lucknow station of A.I.A. Every district has a information offices having staff an Information Officer, some Information
Inspectors, Clerks, Demonstrators and other Officials.
Marketing services also provided for agricultural produce.

DEBT RELIEF

It hardly needs any emphasis that the heavy indebtedness of peasantry has been an stumbling block in the way of only efforts for improving agriculture. Firstly, this question was discussed by the Famine Commission of 1980 and 1901. The passing of Co-operative Credit Societies Act 1904 was first major in this direction. The Loan Act which was consolidated and amended in 1978 aimed at determining the legal and maximum amount of interest recoverable. In 1938 this act was further amended in U.P. so as to provides still more security to cultivators. Other legislation in U.P. in this connection includes Agriculturist Relief Act, 1934. Encumbrance Act, 1934, and Regulation Sale Act 1940. The moneylenders Bill (1939) provides for registration and licensing of money lenders and forbids molestation and intimidation of debtors. The U.P. Agriculturists Redemption of 1939 authorises courts toward not more than double the principal such as amount payable including interest. However, due to rise in prices of agricultural products, the peasants have paid a major portion of their debts and are in a better position now. Everything about the Debt relief have been given in detail in the chapter "Agriculture Finance in U.P."
PACKAGE PROGRAMME

Greater attention is now being paid to intensive cultivation and to improvement in techniques for yielding a larger output per acre. An important effort in this direction is the launching of what is known as the "Package Programme" in some districts which have the greatest potentialities for increased production. The districts are: Aligarh (U.P.), Ludhiana (Punjab), Pali (Rajasthan), Raipur (M.P.), Shahabd (Bihar), West Godawari (A.P.) and Tanjare (Tamilnadu). In the scattered districts all essential elements like fertilizers, pesticides, improved seeds and farm tools, scientific demonstrations and credit facilities for increasing production are being provided. A full year's experience of the working of programme has shown encouraging results. Embodied by the initial success of the programme, the Government is extending the scheme to selected districts in the remaining eight states.

Although there has been an imperative upsurge in food production by nearly 35 per cent during the past eleven years, the progress towards self-sufficiency in food must always be cautioned by the requirements of the people. As incomes rise and food habits undergo a change, a substantial increase in the demand for food must be expected, particularly from people whose actual consumption is at present low. Provision should also be made for greater-consumption of superior types of cereals like
wheat and rice over larger areas because of greater urbanisation. The rapid growth of population is another factor is solving the situation.

The demand for good grains should, therefore, be very high in the coming years nevertheless it stresses that further development as a result of these factors should be achieved. Raising the incomes and standards of living more urbanisation and population growth should not over avenues. They are a challenge that the nation must accept on the road to self sufficiently.

PACKAGE PROGRAMME IN ALIGARH

The package deal programme launched in Aligarh District has started showing encouraging result with the increase in agricultural production and improved methods of cultivation as well as use of fertilizers are now becoming quite popular with the farmers. This view was expressed by the Dy. Minister of Agriculture U.P. Minister Shiva Raj Singh. It was pointed out that the package deal programmed aimed at increasing agricultural production by providing all agricultural resources to peasants, to give demonstration in the scientific methods of agriculture in irrigated areas for the increase in food production and to provide facilities for the marketing of agricultural products of the farmers.
With a view to exploiting to the full production potentialities of some favourable ideas with maximum irrigation facilities and minimum natural hazards, a scheme entitled, Intensive Agricultural District Programme, was sponsored turning 1961-62 with financial assistance from the Ford Foundation. The programme has two-fold objectives of (a) increasing food production in order to meet existing shortage as well as to provide a base for more rapid economic development and (b) demonstrating the most effective ways of increasing food production through concentration of resources both in men and material, and setting a pattern for extending such intensified agricultural programme to other favourable areas having irrigation or assured water supply. The object also promotes the adopting of a combination of improved practices by the farmers by making like credit, seeds, fertilizers, pesticides, implements etc.

The programme which will extend over a period of five years, will normally cover all the food crops grown in the district, emphasis being laid on major food crops like paddy, emphasis being laid on major food crops
like paddy, wheat and millets. It is also proposed to induce livestock improvement programmes and other related activities.

**CATTLE WEALTH**

In the present and foreseeable future no cultivation would be possible, without cattle no produce can be transported.

Cattle wealth occupy a pivotal position in the agriculture of India. The help of cattle, play an important role in the promotion of agricultural sphere. As a matter of fact, Indian agriculture without cattle is considerable.

The husbandmen have got a very small and scattered holdings. Moreover their resources being very limited they can not afford to use machines and other mechanical sources to carry on agricultural operations. It has been rightly said that cow bears on her patient back the entire burden of Indian Agriculture. Dairy farming is an occupation of husbandmen. Apart from that all the important agricultural operations, the present technique of production and marketing depend upon the use of cattle on an extensive scale.

In ploughing and irrigation of fields cattle are indispensable and rural transport system is exclusively cattle drawn. They are not only the source of milk but also the source of supply of manure, full, when alive and meat,
number of birds for table use also increased by about 6% compared to previous year.

CATTLE BREEDING

Cattle are the next main important factor in the agricultural production. The importance of live stock can not be over emphasised.

Their improvement, therefore, serves to raise the tone of agriculture. Stock breeding has already become a matter of scientific practice. The milk yield in dairy cattle and the breed improvement are directly and closely inter-connected "Sex linkage" is also being practised by advanced peasants. In animal breeding two things are to be considered genetic constitution of the animal and the environment in which it is brought up. The latter covers and such external conditions as location, attitude, housing management. The farmers usually scrutinises production records and progeny records.

One thing is certain i.e. that siree must belong to goods families. In order toward of stray breeding the standard males are sterilised. Recently artificial insemination, too has been practised successfully.

CATTLE FEEDING

Regarding feeding of animals four considerations are started in view:-
There are five constituents of cattle feed: carbohydrates (Starches and Sugar), proteins, fats and oils, mineral matter, and vitamins in whose absence food will not act properly. Flesh and muscles contain largely proteins and some fat. Energy is measured by the composition of different feeds. Standards for the maintenance of meat production and milk yield of cattle have been elaborate in devising animal rations, points to be considered: the live weight of animal (This indicates the quality and quantity of food necessary for maintenance), the purpose feeding (The production Ration) and the animal's capacity for food consumption for it is no use giving it more than it can digest. One has also to guard against vitamins starvation.

Minerals, too, must supplement the ration for without them the food will not be concentrated. Lastly, there is the control of bulk so as not to overload the stomach. Animals' food consists of a ROUGHAGE AND CONCENTRATE. The farmers refer to quantitative food while later refer to quality. A careful blending of these in keeping the local supplies is what is desirable.

In the backward economy specially, the role of cattle can hardly be over emphasised. Cattle are required for power, food, manure etc. As mechanisation being limited, greater depending has to be placed on the farm animal to provide the peasants with his daily needs.
in respect of food, manures and powers. And it is in these
countries that the animals and cattle are mostly neglected.
This neglect has its repercussions on the state and nature
of agricultural productivity, and in turn on the farmer.

DEVELOPMENT OF IRRIGATION IN UTTAR PRADESH

IRRIGATION RECORDS UPTO 1960-61

An all time record was set up for Kharif with
an irrigated land making the total of over 40 lakh acres
as against 3527 lakh acres proceeding year. During Rabi,
also an area of over 50 lakh acres was irrigated as against
the maximum of 46.95 lakh acres attained in 1957-58.

A notable figure of this period was the keen
demand for water in Kharif due to insufficient rainfall. All
completed and even partially completed irrigation works
had therefore, to be run to capacity.

A sum of Rs. 328.55 lakh was spent on the major
and minor irrigation schemes and a sum of Rs. 115.42 lakh
was spent on the other irrigation schemes.

The amount spent on flood schemes during
the period was Rs. 17.11 lakhs. The mileage of channels
increased to 25,4000 miles and number of tube wells to 6400.
The irrigational potentialities from the schemes of the first
and second plans rose to 39.39 lakh acres at the end of the
period. Out of this, the potential created from the major and medium irrigation schemes are of the First Five Year Plan was 19.64 lakh acres and the rest from minor irrigation schemes.

Work on the zero Dam Upper Khajuri Dam and the Balmiki Sagar was completed and the channels were opened for irrigation. Water from Dohrighat pumped canal reached the Bahia Districts. Under minor irrigation schemes 630 tube wells were energised and brought into operation under the 1500 tube well projects of the Second Plan. Work on construction of small channels in the Bahia district is in an advanced stage of constructions. Work on plains, dams and "bundies" in Southern U.P. and drainage schemes under the various projects is nearing completion.

The state has some of the oldest canal systems in the country among which are the Eastern Yamuna canal, the Upper and lower Ganga canal, Agra Canal, Betwa canal, Sharda Canal, Dhesson Canal and Ken Canal important irrigation projects implemented since 1947 are Matatila Dam, Obra Hydel and Thermal Power Stations, besides a number of small and medium irrigation projects. Yamuna and Tehri Hydel projects are in progress.

Among the major irrigation projects under construction are Tehri dam, Lakhwar Vyasi Dam, Eastern
Ganga Canal modernisation of Upper Ganga Canal, Narain pur Sump Canal and Deehati Pump Canal.

Utter Pradesh increased its installed capacity of power from 378 MW in 1960-61 to 4084 MW to in 1985-86. As many as 64,840 villages and 32,634 Harjan Basti were electrified and 4,98,452 private tubewells and 25,085 state tube wells were energised upto March 1986.

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</thead>
<tbody>
<tr>
<td>Irrigation potential</td>
<td>76.69</td>
<td>96.79</td>
<td>118.23</td>
<td>164.84</td>
</tr>
<tr>
<td>Cultivation area covered</td>
<td>13.04%</td>
<td>17.70%</td>
<td>20.70%</td>
<td>98.79%</td>
</tr>
<tr>
<td>Length of canal in miles</td>
<td>19.069</td>
<td>22.123</td>
<td>26.000</td>
<td>39.000</td>
</tr>
<tr>
<td>Number of Tube Wells</td>
<td>2,305</td>
<td>4,515</td>
<td>6,579</td>
<td>507998</td>
</tr>
</tbody>
</table>

The available river water resources in the country have been estimated at about 1,360 million acrefeet, but owing to physiographical conditions only 450 million acre feet can be used for irrigation. Upto 1951 only about 76 million acre feet or 17% of the usable annual flow were utilised. This increased by the end of the Third Plan to about 150 million acre feet or say 33% of the usable flow. Another 50 million acre feet are likely to be added.
in the Fourth Plan. This will bring the total up to 200 million acre feet or about 45% of usable flow.

The area which can be ultimately irrigated by major and medium irrigation schemes is about 112 million acres (gross) at the beginning of the first plan in 1950-51. The gross area irrigated from all sources was about 56 million acres of which 24 million acres was from major and medium schemes. With the creation of irrigation facilities for an additional area of 18 million acres from such schemes in the Three Plans. The area left over for future development through major and medium schemes is about 70 million acres.

RIHAND DAM PROJECTS

The Rihand Dam Project estimated to cost Rs. 4605 crores includes the construction of a concrete gravity dam about 300 feet high and 3065 feet long across the river Rihand near the village of Pipri in the Mirzapur District of Uttar Pradesh about 29 miles south of the confluence of the Rihand and some other rivers. The reservoir, 180 square miles in area to be created by the dam, will store 86 lakh acre feet of water. A power station with an initial installed capacity of 2.5 lakh K.W. and an ultimate installed capacity of 3 lakh K.W. is also under construction at the foot of the Dam. A network of transmission lines with the necessary transmission and switching sub-stations...
will cover entire eastern and south eastern region of U.P.
Power from the project will be used for the industrial and agricultural development of this economically backward region with a population of over 2.5 crores, by providing cheap power for cottage industries as well as for medium and major industries as well as for medium and major industries and pumping schemes for irrigation. This power station will also supply power to the Aluminium Industry which is first of its kind in the State. The project will further provide irrigation benefits to about 14 lakh acres in U.P. and about 5 lakh acres in Bihar. This project has almost completed.

**PRINCIPAL IRRIGATION WORKS**

<table>
<thead>
<tr>
<th>NAME OF PROJECT</th>
<th>YEAR OF COMPLETION</th>
<th>TOTAL OUTLAY (INLAKH)</th>
<th>AREA IRRIGATED (1000 Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ganga Canal</td>
<td>1891</td>
<td>465</td>
<td>1727</td>
</tr>
<tr>
<td>Lower Ganga Canal</td>
<td>1891</td>
<td>469</td>
<td>1152</td>
</tr>
<tr>
<td>Betwa Canal</td>
<td>1893</td>
<td>122</td>
<td>206</td>
</tr>
<tr>
<td>Garari &amp; Ghanger Canal</td>
<td>1918</td>
<td>120</td>
<td>55</td>
</tr>
<tr>
<td>Shardra Canal</td>
<td>1930</td>
<td>1137</td>
<td>1972</td>
</tr>
<tr>
<td>Shardra Canal Extension</td>
<td>1955-56</td>
<td>137</td>
<td>176</td>
</tr>
<tr>
<td>Mata Tila Stage-I</td>
<td>1957-58</td>
<td>488</td>
<td>265</td>
</tr>
</tbody>
</table>

Available to the projects were not extra ordinary
This was done with objective that the achievement can be perceptible easily.
OBJECTIVES

1. To measure the extent of agricultural development in terms of production, social improvement, initiative self confidence and co-operation of the people also evaluated.

2. To assess the quickness of the acceptance of the results of the programme by the people.

3. To assess how far the results are responsible in other places.

4. How to gain and grow up confidence of the villagers.

5. To build up a sense of community living.

6. To build up a spirit of self-help in the villagers so that they can earn on independently.

7. To begin with 56 villages were chosen and afterwards few more were added to it.

METHODS

The programme was based on the felt needs of the people with the objective of the meeting the over all requirements of the community. The following lines of work were adopted.

1. DEMONSTRATION AND EVALUATION

Trained personnel were employed in the following fields for demonstration for better practices:

(A) Scientific Agriculture  (B) Animal Husbandry

(C) Agricultural Engineering and (D) Rural Life Analysis.
2. WINDENING THE VILLAGE HORIZON

Radio, T.V. news agencies and information centres were provided to link the villagers with out the side works.


PROGRAMMES

1. Reclamation of usar land.
2. Construction of sanitary wells.
3. Revine reclamation and bunding of up land.
4. Construction of Road.
5. Agricultural demonstration.
6. Supply of seeds and manures.
9. Flood Control Programme
10. Drought Prone Areas Programme
11. Desert Development Programme.

The Government of India was encouraged by the achievement of the Etawah Projects and considered the Etawah Project a shining example of excellent work.

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