CHAPTER III.
"Manifold as man's activities are, agriculture occupies the most important place amongst them. We get our food from agriculture. Corn is grown on the farms, horticulture is a similar pursuit, cattle rearing and dairy farming are subsidiary industries, while fishery is an allied occupation. The farmer is thus the food giver. Again it is on the raw material grown in our fields and farms that most of the manufacturing industries are based. Our clothing needs are met from agriculture, whether it be textiles (from cotton and other fibres) or it be woollen clothes (from sheep farming) or the silken varieties (from sericulture)."

B.N. Pal

(Principles of Agriculture Economics, 1959, p.1)
CHAPTER III.
AGRICULTURE AND LAND IMPROVEMENT

That agriculture is the mainstay of the Indian populace, needs hardly any emphasis. About 70% of India's populations is dependent on this source and predominantly, India is an agricultural country, though its rural arts and crafts were among the best ones in olden days in the international markets and a major portion of nation's national income is derived from this very source. In the 1951 census, 69.8 per cent of the total working population is said to be earning their livelihood from 'Agriculture' and this holds good to a great extent in the present 1961 census as well. The report of the National Income Enquiry also gave the following figures which assert that 'Agriculture' plays a significant role in Indian Economy.

The following table shows the distribution of national income by occupational categories.
### National Income by Occupational Categories

*(in crores of rupees)*

<table>
<thead>
<tr>
<th>Items</th>
<th>1959 - 1960</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture:</strong></td>
<td></td>
</tr>
<tr>
<td>Agriculture, animal husbandry and ancillary activities.</td>
<td>6,060</td>
</tr>
<tr>
<td>Forestry</td>
<td>100</td>
</tr>
<tr>
<td>Fishery</td>
<td>50</td>
</tr>
<tr>
<td><strong>Total for agriculture</strong></td>
<td><strong>6,210</strong></td>
</tr>
<tr>
<td><strong>Mining manufacturing and small enterprise:</strong></td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td>140</td>
</tr>
<tr>
<td>Factory establishments</td>
<td>1,110</td>
</tr>
<tr>
<td>Small enterprises</td>
<td>1,080</td>
</tr>
<tr>
<td><strong>Total for Mining, manufacturing and small enterprises</strong></td>
<td><strong>2,330</strong></td>
</tr>
<tr>
<td><strong>Commerce, Transport and Communications:</strong></td>
<td></td>
</tr>
<tr>
<td>Communications (post, telegraphs and telephone)</td>
<td>60</td>
</tr>
<tr>
<td>Railways</td>
<td>330</td>
</tr>
<tr>
<td>Organised banking and insurance</td>
<td>140</td>
</tr>
<tr>
<td>Other commerce and transport and communications</td>
<td>1,710</td>
</tr>
<tr>
<td><strong>Total for commerce, transport and communications</strong></td>
<td><strong>2,240</strong></td>
</tr>
</tbody>
</table>

To conclude, agriculture is by far the most important source of employment and it contributes a major share to national income. Raw materials are also exported to foreign countries in a large measure. Agriculture provides raw material for our small scale and large scale industries and thus occupies an important position in the national economy. It provides food for the entire population and fodder for the cattle. Thus in the manifold activities of mankind, the agriculture occupies an important place. On account of the over-all importance of agriculture in the national economy, the detailed programme of agriculture improvement has been included in the Community Development Programme. Schemes of improvement of the fertility of the soil, measures to check further fragmentation and sub-division of land holdings, distribution of manures and fertilisers both organic and chemical, supply of improved seeds and better implements, introduction of plant protection schemes, and a number of such other schemes are included in the agricultural scheme of the Community Development Programme.

One Extension Officer is provided for each block from the State Agriculture Department who looks after the agricultural development schemes and acts as an expert for the village folk. The village production plans are prepared by the Agricultural Extension Officer in consultation with the village public and he is assisted by the
Agricultural overseer and the Village Level Workers, as well as the public. The agricultural programme under Community Development scheme also includes the development of irrigation potentials and thus the Government distributes taccavi loans to the needy cultivators for digging wells and certain other minor and major irrigation schemes are also implemented. The knowledge of developed science or agriculture is made available to the cultivators and they are kept in touch with the improved methods and techniques of cultivation. Cattle is the most indispensable and valuable asset of Indian agriculturist. Hence, the schemes of animal husbandry are also given proper weight under the programme of Community Development through artificial insemination centres, distribution of pedigree bulls, establishment of veterinary hospitals and outlying veterinary dispensaries, key village centres and a number of other institutions. The Indian peasant is provided with credit facilities to purchase his requirements for agriculture on easy terms and certain other important schemes are implemented fully which are discussed in the following lines. The broad schemes of development can be divided in the following headings:

1. Distribution of improved seeds, rust resistant wheat seeds, sann seed for green manuring.
2. Distribution of chemical and organic fertilisers town refuse compost, grant of taccavi loans for the purchase of fertilisers.
3. Plant protection schemes, distribution of necessary implements for plant protection and medicines for spray in the fields.


5. Crop competition schemes, crop-cutting experiments, village level workers competitions.

6. Development of commercial and food crops, and horticulture.

7. Soil conservation, and soil erosion schemes.

8. Fragmentation and sub-division of land holdings.

9. Co-operative farming and other co-operative schemes.

10. Scheme of distribution of land to landless workers.

11. Pilot demonstration schemes, expansion of area under cultivation, reclamation of virgin land, contour bunding and construction of field embankments.


13. Forest schemes, afforestation of catchment areas.

**Improved Seeds:**

"As you sow, so you reap" is an old saying which still holds good. One of the main reasons for the depressed state of affairs of our agriculture is that our farmer who suffers from financial difficulties does not get improved seeds and thus the crop grown is of poor quality. Improved seeds are the first pre-requisite for better agricultural
production. Healthier and better seeds yield bumper crops and thus they may be used as better seeds for the future crops too. The reason for the high yield of crop in Japan is mainly the use of improved seeds by the Japanese cultivators. Not only the supply of seeds should be adequate, but their proper storage and making them available on competitive and reasonable rates to the farmers easily are also the main things to be borne in mind while dealing with this subject. If improved seeds are used properly, our farmers will get an opportunity to improve and increase the quality and quantity of Indian produce to a great extent and the menace of food problem can be overcome completely. Realising the importance of improved seeds in the agricultural operations, the Government has taken active interest in the distribution of improved seeds and a detailed scheme in regard to the distribution of improved seeds is also being undertaken by the Community Development organisation. In the beginning the seeds are grown at Government-sponsored seed-multiplication farms. Registered growers are also asked to grow better quality seeds and thus the improved seed is available to the Government for distribution among the needy cultivators. After the seed is so grown, it is sent to the co-operative societies and seed distribution stores in the district, where it is distributed systematically among the farmers. Certain laboratories have also been established in the country where improved seeds are stored and research work is undertaken in this respect.
"And the battle starts"
CROPS IN REHLI BLOCK

1" = 1,000,000 Acres

Graph with axes labeled: Total Area, Total Cropped Area, Area Source, Current Fallow.
Seed multiplication farms are established throughout the country and seed stores are established in rural areas under the co-operative societies.

The main difficulty faced by the farmers in Rehli block is that the farmers are required to cover a long distance for obtaining improved seeds. To remove this lacuna, some seed distribution stores on co-operative basis should to be established in intensive rural areas. Moreover, adequate godown facilities are not available in rural areas which add to the trouble still further. The small number of seed multiplication farms in this area is also a fact, to be given proper attention to by the Agriculture Department. In certain cases, the loans and taccavi issued by the Government for purchase of improved seeds was utilised by the farmers in certain other purposes as payment of old debt, marriage celebrations, festivals etc. which should receive proper check and should be supervised by the Government officials. The Programme Evaluation Organization in its third report has observed that the work being done under this scheme in the block areas has been satisfactory, but still it needs improvement. At least one seed multiplication farm should be established for each block. Number of godowns should also be increased. To sum up, the scheme of distribution of improved seeds in Rehli block has not been satisfactory one but now cultivators are taking keen interest in this respect. Every cultivator should be
convinced of the necessity and importance of using the improved seeds and should be encouraged to fix a certain portion of his farm to produce improved seeds for sowing purposes with application of modern techniques etc.

The views expressed by the Nandlal Joshi Committee on Community Development Programme in Madhya Pradesh, 1960 are that "systematic efforts to judge the suitability of a particular type of improved seed in a particular tract by means of germination test or farm experiment should be made. Pre-determined efforts should also be made to collect the produce back from the cultivators. The purpose and objective of the Government in doing this work should be clearly defined as to the point whether the work of seed distribution is undertaken as an extension activity to improve the yield or merely as a measure of relief to farmers. A good deal of Government money and effort can be saved by this definition. The Government officials should bear in mind that mere target - achievement should not be their motto but they should implement this scheme in its right earnest."

The following table gives the details of improved variety of seeds distributed in Rehli block upto the end of Second Five Year Plan.

---

<table>
<thead>
<tr>
<th>Items</th>
<th>Target (in maunds)</th>
<th>Actual achievement (in maunds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paddy</td>
<td>250</td>
<td>196</td>
</tr>
<tr>
<td>Jowar</td>
<td>11</td>
<td>10</td>
</tr>
<tr>
<td>Wheat</td>
<td>14000</td>
<td>10891</td>
</tr>
<tr>
<td>Maize</td>
<td>2</td>
<td>-</td>
</tr>
<tr>
<td>Sugarcane</td>
<td>27</td>
<td>100</td>
</tr>
<tr>
<td>Cotton</td>
<td>5</td>
<td>2.25</td>
</tr>
<tr>
<td>Ground-nut</td>
<td>10</td>
<td>12</td>
</tr>
</tbody>
</table>

Special emphasis was laid on the distribution of rust resistant wheat seed and the farmers were given proper guidance for the use of the improved seeds. They were also given demonstration in government farms.

**Manures and Fertilisers:**

Our farmers are growing crops on the Indian soil from hundreds of years and the fertility of soil is now depleted in most of the cases due to absence of proper manurial application. The contents like Nitrogen, phosphoric acid and potash are not in adequate number in it and we

* District Statistical Office, District Sagar: Progress of second five year plan.
see that Indian soil today, gives poor produce, both in quality and quantity. The Royal Commission on Agriculture has rightly remarked, "The impoverishment of the soil has been due to continuous cropping." The fertility of the soil is gradually declining and we see that the second in order of importance for an Indian cultivator is use of best chemical and organic fertilisers and manures in addition to the improved seeds as has been discussed earlier, so that the deficiencies of the soil can be very easily met and the soils "which have already reached their maximum state of impoverishment, hundreds of years ago"*, may be provided with proper nitrogenous and other important ingredients for better cropping. Most of the soil in Rehli block has reached a stationary stage and it produces a low yield. Not only the deterioration of soil should be prevented, but it should be the guiding principle of the Indian farmers that the fertility of the soil should also be improved to a considerable extent. The per acre production of certain crops, as compared to other countries of the world, is very low in India. Mr. R.S. Shiwalkar has given the following figures which exhibit the state of affairs in India.
### Comparative crop yields in lbs.

<table>
<thead>
<tr>
<th>Country</th>
<th>Wheat</th>
<th>Rice</th>
<th>Maize</th>
<th>Cotton</th>
</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>100</td>
<td>100</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>China</td>
<td>151</td>
<td>191</td>
<td>160</td>
<td>230</td>
</tr>
<tr>
<td>U.S.A.</td>
<td>128</td>
<td>176</td>
<td>199</td>
<td>301</td>
</tr>
<tr>
<td>Japan</td>
<td>259</td>
<td>278</td>
<td>165</td>
<td>320</td>
</tr>
<tr>
<td>Italy</td>
<td>209</td>
<td>368</td>
<td>259</td>
<td>191</td>
</tr>
<tr>
<td>Egypt</td>
<td>290</td>
<td>942</td>
<td>236</td>
<td>601</td>
</tr>
</tbody>
</table>

The following manures can be used to improve the soil fertility:

1. Animal waste
2. Human waste
3. Oil seeds
4. Cakes
5. Green manures
6. Chemical fertilisers.

In India, cowdung is burnt in plenty for fuel purposes. This is a pure waste. If a suitable substitute is provided to the farmers, this waste can be checked and cowdung can be utilised for manurial purposes. In this way a large portion of farmyard manure may be saved. The Indian Council of Agriculture Research have estimated that about 250 million tons of cowdung is burnt in the shape of fuel.
in India, Dr. Voelcker has asserted that one ton of farm-
yard manure consists 30 lb of nitrogen. Not only the
cowdung, but also the remaining other animal wastes are not
properly used by the Indian cultivators and the important
manurial things like animal urine, is wasted simply because
of religious susceptibilities and superstitions. Where
cowdung is used for manurial purposes, it is not stored
properly till its application to the soil. The use of
night soil, bone meals, and other similar manures is neglec-
ted due to ignorance and lack of modern scientific measures.
Green manuring is scarcely seen in the villages and the
modern chemical fertilisers are also out of use in certain
cases simply because of their cost and lack of knowledge
in regard to their application to the soil. It is said
that farm-yard manure has got all the necessary ingredients
for the successful growth of crop and has got a better
water holding capacity. In other estimate, it is calculated
that in India about 20% of cattle dung is lost through
defective methods and about 40% is burnt as fuel. The
present methods of preparation of manure from the cowdung
are defective and urine is not utilised fully in the
preparation of manures.

At present compost pits have been dug in Rehli
block to store farm-yard manure in order to utilise this
important manurial source. Gas plants are also available
in our country for using cowdung in proper way. The Gas
Plant for preparation of gas from cowdung has also been
popular in certain areas in our country. Large plants are being run on co-operative basis and small plants are being used by farmers jointly. At present the cost of the plant is much and efforts should be made to reduce its price so that an ordinary cultivator may be in a position to purchase it. Such plants have not been introduced in Rehli block yet.

The farmers need to be educated and given proper guidance on use of cow-dung and animal waste fully for the purpose of manuring. A suitable suggestion is made in this respect, however, is that farmers may be supplied with alternative fuel wood and thus the problem of proper utilisation of fuel may be solved to a great extent. At present this scheme is being undertaken in most part of the Rehli block. But the supply so made is not adequate which must be rectified. Plantation of fuel trees is another suggestion often put forth in this regard.

Compost-pits-digging programme is also given place of priority in the Community Development Programme. At present the farmers are asked to prepare ideal compost pits in the rural areas and use them regularly for storage of kutchera, animal waste and cattle dung etc. The compost pits dug by the farmers, in the rural area should be properly used and they should be all of standard size so that the manure conserved in them may be of better quality and moisture may be preserved for a long time.
The other types of manures include, bone-meals, fish-meals, animal refuse, (like horn turnings hair-wool, woolrags and feathers), and certain other by-products such as dried blood, may also be utilised for making manures in plenty and solving the problem of availability of cheap manures. But these manures are not in vogue due to religious feelings in the villages and their superstitions. The refuse available in towns is also a source of good manure for cultivation. It is estimated that about 100 lakh tons of compost manure can be prepared with the town refuse. Human waste also plays an important part in this direction, but this night-soil is often not used by the Indian cultivators as is the case with other aforesaid manures. Moreover, the sludge process for conserving sewage is suitable for towns only.

Oilseeds and oil cakes are not being used properly in our country for manuring purpose. The reason for this seems to be their non-availability on low cost in the market and their use in certain other items of importance. The Indian cultivators are ignorant of the practical knowledge of such manures. Their short supply and higher cost hinders the way, otherwise they are said to be very good manures. A large amount of oilseeds is exported to foreign markets from India. This also adds to the cost of production of manures produced through oilcakes and oilseeds. It is argued that if the cattle in India were
fed with oilcakes, the manure would be returned to the soil, whose fertility might thus be conserved. Mr. Voelcker advocates, "to send away the entire seed or the refuse after the removal of the soil, is to send away valuable manurial constituent of the soil's fertility."*

To keep up the supply of the humus to the soil, green manures are also used as a second line of defence. Actually speaking, the value of leguminous plants is really indispensable in keeping nitrogenous contents in them and storing nodules in their roots which adds to the soil fertility to a great extent. The importance of green manures can be very well emphasised from the following table.

<table>
<thead>
<tr>
<th>Manure</th>
<th>Efficiency compared to that of green manure 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>No manure</td>
<td>33.0</td>
</tr>
<tr>
<td>Phosphate only</td>
<td>50.0</td>
</tr>
<tr>
<td>Nitrogen only</td>
<td>70.0</td>
</tr>
<tr>
<td>Nitrogen-Phosphate</td>
<td>90.0</td>
</tr>
<tr>
<td>Green manure</td>
<td>100.0</td>
</tr>
<tr>
<td>Green-manure-phosphate</td>
<td>120.0</td>
</tr>
<tr>
<td>Green manure nitrogen</td>
<td>133.0</td>
</tr>
<tr>
<td>Green manure nitrogen phosphate</td>
<td>166.0</td>
</tr>
</tbody>
</table>

Dr. C.B.Momoria: Agricultural problems of India: p.85.
DISTRIBUTION OF MANURES FERTILISERS IN REHLLI BLOCK

Scale → 500 = 1”
The method of green manuring is as follows:

Certain leguminous crops are grown on the field in the beginning and when they are of 2 to 3 feet in height, the land is ploughed and irrigated. The crops which are of herbaceous character and rapid growth, cover the field within a short time and hence it is called green manure. Then the plant lying on the surface are allowed to rot and again it is ploughed after some time. In this way the soil is enriched with this green manuring method, this method is economical as compared to other previous manures. This improves the physical structure of the soil, and the soil retains its original elements. Various green manuring campaigns have been undertaken in the past by the State Agriculture Departments in the Rehli block. Some persons criticise this scheme and say that this method is not practicable in every field. It is possible only, where there is no shortage of water and the land is wet. Where there are no proper irrigation facilities, this system is impracticable. According to Mr. Hopkins, the green manuring system is not the best system for manurial purposes. It is said that it is only a method of humus maintenance. But to conclude the green manuring has got its own value and importance in the modern times and is cheap as compared to organic and chemical fertilisers. The Community Development programme includes the wide propaganda of this scheme and specified targets are fixed for every block to be
covered during a fixed period. In Rehli block too this method is being practiced widely. During the Second Plan period, 130 maunds of green manure seed were distributed among the cultivators in the Rehli block by the Block authorities. The compost pits dug in rural areas figured to 820 and demonstration trials were held in 2078 farms. In brief the programme has been satisfactory for the entire block. Village and town refuse compost scheme also received stimulus from the block and public bodies. Co-operative societies were established for distribution of manurial seeds.

Synthetic or Chemical fertilisers are other important items of discussion, which are at present being a place of priority in the manurial and fertilisers scheme under the Community Development programme. Organic manures involve a great number of difficulties and they are not in a position to meet out all the necessary ingredients for the rich soil. In foreign countries, synthetic fertilisers have played a significant role in increasing the farm output as compared to the organic manures. It is said that one pound of nitrogen in the form of ammonium sulphate gives an increase of 12-15 lbs. produce while the other manures, as discussed earlier, increase the yield only by three or four times. As a matter of fact, these fertilisers are easily transportable and may be used in small quantity, while compared to organic and green manures. They take little time, little space and little strain in use and
show their result in a shorter period of time comparatively. These fertilisers are not solely dependent upon the irrigation or water supply factors as certain organic manures and green manures do. They increase the soil fertility comparatively better than the other manures. But recently there had been a criticism against them. "The classical researches of Colonel McCarrison and R.B.V. Nath in India and those of Macke ridge and Bottomley in Europe and Clarke and Roller in America, have conclusively, proved that crops raised with the organic manure, are pre-eminently superior in their nutritive value to those raised with artificial fertilisers, and that seeds produced from the field, treated with organic manure possess greater germination power than those obtained from lands manured with artificial fertilisers. Improving the texture and water-holding capacity of the soil and providing food for the innumerable and invisible organisms inhabiting the soil are the benefits which organic manure confers on plant growth. In addition to these indirect advantages organic manures appear to give plants a better balanced nutrition and provide certain nutritive factors, which chemical fertilisers either do not supply or supply only imperfectly."

Taking into consideration the advantages of chemical fertilisers, these fertilisers have been not

neglected and they are distributed by the block authorities in even greater number. Taccavi loans are granted to the cultivators and demonstration scheme of fertilisers was practiced in 1958-59 which grew fertiliser consciousness among the village people. Nitrogenous and superphosphates fertilisers are distributed among the block cultivators and people are using these fertilisers with full interest. The Project Evaluation Committee and the Nandlal Joshi Committee on Community Development appreciated this drive and were of the opinion that fertilisers consciousness has now been grown among the rural folk. The following table shows the distribution of various manures and fertilisers in the Rehli block during the Second Five Year Plan period:

**Distribution of manures and fertilisers, in Rehli block during Second Plan.**

<table>
<thead>
<tr>
<th>Items</th>
<th>Quantity in units</th>
<th>Target</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ammonium sulphate</td>
<td>mds.</td>
<td>1840</td>
<td>777</td>
</tr>
<tr>
<td>Other chemical fertilisers</td>
<td>&quot;</td>
<td>1100</td>
<td>2092</td>
</tr>
<tr>
<td>Green manure seed</td>
<td>&quot;</td>
<td>150</td>
<td>130</td>
</tr>
<tr>
<td>Super-phosphate composts dug</td>
<td>Number</td>
<td>640</td>
<td>341</td>
</tr>
</tbody>
</table>

The following important recommendations were put forth by the Estimate Committee of the Lok Sabha in their

* District Statistical Office, Sagar - 'Progress of Second Five Year Plan in Rehli Block.
Forty-second Report:

1. The burning of cattle dung should be discouraged and arrangement should be made for the supply of alternative fuel in the villages;

2. The composting of farm refuse and cattle should be given more attention and farmers should be taught the proper method of composting by demonstration in the villages and by making proper and full use of all compost pits already dug in the villages;

3. The utilisation of liquid manure should be demonstrated and encouraged;

4. Green-manuring should be encouraged by supplying green manure seeds and seedlings at concessional rates and by teaching the farmers the technique of growing green manure crops and using them as manure. The sub-Committee which visited Etawah Pilot Project, found, that the use of green manures was made very much popular in the project area by occasional demonstration to the farmers and the utility of green manuring with the result that every village in the project area was growing green manure crops. Parties of peasants from other areas should be deputed to see this experiment.

5. Construction of community cattle sheds on the outskirts of the village may be encouraged and the compost pits may be dug near such sheds to
avoid carrying of cattle refuse to long distances. This will also help in keeping the houses neat and clean; and

(6) A special study may be undertaken by a team of experts to ascertain the extent of contribution towards increased food production by each element such as improved seeds, use of fertilisers, improved implements and improved methods of cultivation, etc.*

Plant protection schemes:

With the help of improved varieties of seeds, use of timely doses of fertilisers, irrigation facilities and modern implements, the peasant may grow good crops, but his fruits are put to drain if the crops are not protected from the insects, pests, crop diseases and other natural vagaries, which take a heavy toll each year. A separate Plant Protection Organization has been established by the Government which surveys fields, propogates improved methods of saving the crop from the above diseases and natural troubles, distributes such insecticides, medicines and implements to put the scheme of plant protection into real action throughout the state. The main functions entrusted

* Rajeshwar Dayal: The C.D.P. in India 1960, p.47.
to this organization include:

1. Use of insecticides and fungicides and biological control measures in the fields,
2. Anti-locust work,
3. Weed control,
4. Seed storage and
5. Control of rats and mice in fields and godowns.

Research Institutes at all India level are conducting fruitful researches and putting forth new approaches to plant protection. The work being undertaken in the Rehli block of Sagar district has been satisfactory as compared to the first five year plan. During the second five year plan, the following results were obtained:

**Plant Protection and other schemes of agricultural development in Rehli block during the second five year plan.**

<table>
<thead>
<tr>
<th>Items</th>
<th>Unit</th>
<th>Target for the 2nd plan</th>
<th>Achievement during the 2nd plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Pesticides</td>
<td>mds.</td>
<td>70</td>
<td>48</td>
</tr>
<tr>
<td>Area ploughed</td>
<td>ares</td>
<td>30</td>
<td>86</td>
</tr>
<tr>
<td>Compost pits dug</td>
<td>number</td>
<td>2000</td>
<td>820</td>
</tr>
<tr>
<td>Demonstration trials held</td>
<td>number</td>
<td>1474</td>
<td>2078</td>
</tr>
</tbody>
</table>

* District Statistical Office, Sagar, M.P.*
Land Development Schemes:

The scheme of land development includes in itself, the scheme of soil conservation, soil erosion, fragmentation and sub-division of holdings, distribution of land to landless labourers, contour bunding etc. All these schemes are being worked under the Community Development Programme in every block and considerable progress has been recorded under these schemes in the Rehli block of Saugor district.

The Department of Forest at the state and district levels helps in the formulation and implementation of the soil conservation scheme. The Forest Department thus executes the scheme on the following lines in co-ordination with the block staff:-

(a) Survey of grazing land.
(b) Standardisation of practical methods of determining initial comparability and evolving a sampling technique.
(c) Determination of optimum incidence for different methods of grazing - continuous, rotational and periodic, based on percentage utilisation of herbage.
(d) Effect of continuous, rotational and periodic grazing on the pasture under the uniform incidence of grazing.
(e) Determination of optimum cycle of rotational grazing.
(f) Effect of burning of grazing grounds.
(g) Effect of soil working (light hoeing) manuring and reseeding grass reserves or 'birs'.

(h) Effect of one cut or more than one cut on fodder yield from grass reserves or birs.*

(i) Study of succession of grasses under different closure, burning etc.*

On order to check fragmentation and sub-division of land holdings, the Government has taken active interest to complete the consolidation of holdings work in Rehli block and till the end of Second Five Year Plan the entire work has been completed. The scheme of co-operative farming was started by the block authorities but due to certain peculiar beliefs of the rural folk in this block the same has not been fully successful. The work in respect of contour bunding and afforestation of catchment areas, has also not been implemented successfully in this block. It is now the duty of the Departments concerned to implement these schemes and act as eye-openers to the block populace. A number of needy landless labourers has received land from the State Government but it is noted that in most of the cases these lands are not being properly utilised by the public. In order that the soil-erosion and soil deterioration problems may be solved, it should be the primary responsibility of the Government to implement these schemes fully in this block.

* Second Five Year Plan of Madhya Pradesh, Vol.II, p.64, Govt. of India, New Delhi.
To conclude, the agricultural production plans which are prepared by the block authorities, should also include these schemes and it should be the motto of the Government that the targets so earmarked are fulfilled in their real earnest.

Shri Shriman Narayana, while dealing with agriculture and community development has very rightly remarked that the scheme of village production plans should be chalked out with the following details:

The main elements in the preparation of agricultural production plans at the village level should be:

(i) Full utilisation of irrigation facilities, including maintenance of field channels in good condition by the beneficiaries, repairs and maintenance of community irrigation works and economy in the use of water;

(ii) increase in the area under multiple cropping;

(iii) multiplication in the village of improved seed and its distribution to all cultivators;

(iv) supply of fertilisers;

(v) programme for composting and green manures;

(vi) adoption of improved agricultural practices, e.g. soil conservation, contour-bunding, dry farming, drainage, land reclamation, plant protection, etc;
(vii) programme for new minor irrigation works to be undertaken in the village, both through community participation and on an individual basis;

(viii) programme for the introduction of improved agricultural implements;

(ix) programme for increasing production of vegetables and fruits;

(x) programme for development of poultry, fish and dairy product.

(xi) Animal husbandry, e.g. supply of stud bulls, establishment of artificial insemination centres and castration of scrub bulls, etc.; and

(xii) programme for the development of the village fuel plantation and pastures.*

India being an agricultural country, it needs no emphasis to give here a word about the importance of cattle wealth in India. The Royal Commission on Agriculture rightly remarked, "The number of livestock have an important effect both on the total output of agriculture and on the farm in which the output appears." The cattle in India are generally maintained for milk and meat and particularly for plough or used in cart and pulling other types of vehicles. In our country a lot of transport in the field of agriculture is performed through this source. They play

*
"A Veterinary Doctor at work."
an important role in the Indian agricultural economy. In addition to providing the Indian populace with milk, ghee and the like products, cattle provide manure, which enriches soil and a major portion of the cattle-dung is used for fuel purposes in the country. A number of other miscellaneous products, such as skin, hides etc. are the further advantages derived from cattle wealth.

Sufficient attention has not been paid to this side in past and the cattle wealth in India suffers from certain great defects which instead of improving the conditions of cattle in India degrade it and day by day our cattle become weak. There is absence of co-operation in the undertaken villages and no proper safeguards in the past have been/in regard to the cattle diseases. In brief the cattle in India generally face the following drawbacks:

(1) Malnutrition.
(2) Lack of adequate and proper fodder supply.
(3) Absence of proper care on the part of cultivators.
(4) Non-availability of improved breeding stock.
(5) Diseases and pests.
(6) Ignorance and lethargy of the people.
(7) Overstocking of grazing and grass lands.
(8) Non-utilization of cultivable wasteland and barrenness of soil.
(9) Late maturity of the Indian cattle and long dry periods of the cow as well as slow rate of their growth.
Saugor District

Veterinary Schemes

Veterinary Hospitals
Veterinary Institutions
Subsidy
Water Drinking Troughs
Poultry Units
Insemination Units
(10) Failure of monsoon resulting in inadequate of supply of fodder.

(11) Lack of proper Gosadans.

(12) Insufficient number of Artificial Insemination Centres and other such institutions as Outlying Veterinary dispensary, key village centres.

(14) Our farmers keep a large number of cattle, undersized and weak which promote their growth in less fertile cattle. The Royal Commission on Agriculture has remarked, "In whatever respect Indian cattle may be lacking, they do not lack in number." The Commission further remarks, "the worse conditions for rearing efficient cattle are the greatest the number kept tend to be. 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, As numbers increase the pressure on available supply of food leads to still further poverty in the cow. As cattle grow smaller in size and greater in number the rate at which conditions become worse for breeding good livestock is accelerated. As cattle become smaller the amount of food needed in proportion to their size increases. But the religious susceptibilities lie in the way of slaughter of decrepit and useless cattle and hence the cattle however weak and poor, are allowed to live."

* Report of the Royal Commission on Agriculture: p.188.
"Better Cattle - Better Agriculture."
For an all-round improvement in this sphere, the Government has taken active interest in the development of veterinary facilities in the block areas. Artificial Insemination centres, Outlying Veterinary dispensaries and certain other institutions in the block areas such as Key village centres are being established under the five year plan programmes. In Rehli Block of the Sagar district a number of activities have taken place in this respect. Improved pedigree bulls are supplied to the cultivators, castration and vaccination work is being done on a large scale, improved bulls are being supplied and animals are being artificially inseminated at the Artificial Insemination centres. Silage pits are also being filled up, fingerlings supply is also being made through the Block staff and a lot of alike activities are in progress.

The progress made during the Second Five Year Plan period in the Rehli block is detailed below:

**Second Plan Progress in the field of 'Veterinary' in Rehli Block & Sagar District,**

<table>
<thead>
<tr>
<th>Particulars of scheme</th>
<th>Target for Plan</th>
<th>Achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improved bulls supplied</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Improved cocks supplied</td>
<td>70</td>
<td>28</td>
</tr>
<tr>
<td>Improved hens supplied</td>
<td>50</td>
<td>61</td>
</tr>
<tr>
<td>Animals castrated</td>
<td>5000</td>
<td>3891</td>
</tr>
<tr>
<td>Animals Artificially Inseminated</td>
<td>-</td>
<td>23241</td>
</tr>
<tr>
<td>Silage pits filled</td>
<td>-</td>
<td>2</td>
</tr>
</tbody>
</table>

Minor irrigation schemes are more economical and important for the rural development and providing water for crops at a low competitive rate to the public. Under the Community Development Programme, the State Irrigation Department executes the scheme of minor irrigation. The Block Development Officer also provides loan facilities to the public and taccavi for digging the katchcha and pucca wells, in block areas. In Rehli block, only one tank has been repaired during the Second Five Year Plan, which provides irrigation facilities for a number of villages. A small canal has been constructed in Khairana village under the Community Development programme. Loans are also being provided by the Block Development Officer for the purchase of pumping sets and oil engines. Oil engines and pumping sets are also issued to poor farmers on hire-purchase basis. Electric pumping sets have also been installed at six places. The following table gives the progress made in respect of minor irrigation works in the block.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Unit</th>
<th>Target for IInd Plan</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kachha wells constructed</td>
<td>No.</td>
<td>40</td>
<td>18</td>
</tr>
<tr>
<td>Pucca wells repaired</td>
<td>&quot;</td>
<td>50</td>
<td>58</td>
</tr>
<tr>
<td>Kachha wells repaired</td>
<td>&quot;</td>
<td>30</td>
<td>15</td>
</tr>
<tr>
<td>Pucca wells constructed</td>
<td>&quot;</td>
<td>90</td>
<td>72</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>No.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Tanks repaired</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Tube wells constructed</td>
<td>&quot;</td>
<td>2</td>
</tr>
<tr>
<td>Pumping sets installed</td>
<td>&quot;</td>
<td>7</td>
</tr>
<tr>
<td>Oil engines supplied</td>
<td>&quot;</td>
<td>14</td>
</tr>
<tr>
<td>Electric pumping sets supplied</td>
<td>&quot;</td>
<td>6</td>
</tr>
</tbody>
</table>

It needs no emphasis that the minor irrigation projects are very economical and long-yielding. Such works need less cost, and can be executed quickly and yield quick results. Local resources can be very well utilised in these projects which are lying inactive from a number of years. They may also be helpful in providing employment to a great portion of rural unemployed labourers. In Rehli Block the progress made in this field has not been significant enough if we compare it with the progress made in other areas. The respective district authorities in the block, should take active interest in these schemes so that satisfactory progress is made.

In regard to new demonstration, Mr. J.S. Patel, in his article "Development of Agriculture" has given an important suggestion: that, "when a new type of demonstration is to be launched, the Department of Agriculture should arrange for training of Agriculture Extension Officers and Village Level workers and farm-leaders in carrying out these demonstrations. If in the demonstration a new implement is to be introduced, its working must be shown and each
Agricultural Extension Officer should be enabled to operate the implement with his own hand. They should also have an opportunity to talk with a person who has already adopted this practice. Such a person may be the manager of a government farm or a leading farmer. The agricultural extension officers should arrange for similar training of the Village Level workers of their respective blocks. Each Village Level worker should, similarly, arrange for the training of the farm leaders in his circle."

It goes without saying, that in the present circumstances of the country, it is the duty of every national to increase agricultural production and make an all-round drive to cut imports of certain commodities which can be produced well, in the country. The suggestions submitted above, should particularly be practiced by the farmers and the extension workers. The government should take prime responsibility to undergo the above changes in their present policy of agriculture.

The research work at present being undertaken in the country in the field of agriculture must be constant with a two-way interchange. The problem faced by the farmers should first be studied deeply by the scientists, and it should be borne in mind that the research so

undertaken brings any direct gain to the cultivator instead of paper value. The Agricultural Extension Officer, in the block must be conversant with the latest experiments in agriculture, and it must be his main function to bring these fruits to the cultivator in a better way to practice them actually, and to interprete them more easily before the farmers. The Agricultural Extension Officer must have a grasp of scientific principles. In the words of Shri K. Sen, "He must realise and understand the inter-relation between the various things and interplay of the various forces which go to make and mould the sum total of rural life and the economy. While he must share and live the village life, have understanding and sympathy for the villager, he must not let the village swallow him up, but must preserve before him a picture and an ideal of a better order of things. The task of the Extension Worker is by no means easy..... It is only by the combined efforts of the scientist, the Extension worker and the farmer that solid and lasting improvement can come to agriculture. A spirit of hope and the urge to go forward new exists among them all."*

Suggestions:

All the farmers in this block are mostly not conversant with many of the development schemes of agriculture such as Plant-protection scheme, use of improved

"Harvesting the crop."
agricultural implements, new crops, new varieties and new rotation of crops. Most of the poor farmers do not even understand these things and they keep themselves aloof with the fear of mixing with the block-personnels. There are many farmers who own only one bullock and thus they have to undergo a number of difficulties at the time of plantation and harvesting. Some of the farmers in this Block are not even able (financially) to purchase the improved variety seeds and therefore, they use the same poor quality seeds which promote slow growth and even in some cases decay of the crops. While discussing village agricultural programmes, with the villagers, it was found that agricultural extension is still regarded as a programme for obtaining seeds and fertilisers from the Government and obtaining help for financing tassavi development scheme, but nothing more than that. Some of the villagers were found totally escaped from the pervie of the Agricultural Extension staff. The farmers at present in most of the cases are so ignorant that they can not conceive the advantages of improved agricultural practices and they avoid these programmes simply because they are to undergo a long process to obtain improved seeds and utilise the facilities available from the Community Development programme. It is for the supervising authorities in this department to look to these discrepancies and arrange for wide demonstration of these practices in the village. Mrs. Kusum Nair asserts that, "As we have seen, even now certain communities do not require much persuasion
to adopt new techniques. In fact, they do not always wait for the Government extension agencies to teach them or to extend to them various financial incentives and facilities by way of loans and subsidies. There are others, and they probably form the majority, who, in spite of the efforts by them, seem inert and indifferent. They pass up repeated opportunities to increase production and income, even when opportunity knocks at their very door. This is correlated with the respective value systems of those communities and the individual peasant's place in the society."

To conclude, the people in the blocks are not at present so interested in these Community Development programmes as they ought to have been. People's participation if received in abundance for implementing every scheme of rural development, then and there only, the comprehensive programme of Community Development can be a real success and, what at present is done in months and years can be easily performed within a shorter period of time.

Mrs. Kusum Nair's views in the above para brings us to the reality of what is actually happening in our blocks. In the scheme of agriculture it is seen that merely target achievement motto was the feeling of the extension officers. She further opines that "on a more fundamental level, the question arises whether, in the agricultural field, new

techniques, tools and institutions can be made effective within the existing framework and environment. Can for instance the mere introduction of model institutions, such as panchayats or farming co-operatives, be expected to break up and destroy the caste basis of the prevailing structure of power, property, influence and status and create a more egalitarian and flexible social -- organization within the village communities? Though since 1947, India has enacted perhaps more land reforms legislation than any other country in the world, it has not succeeded in changing in any essentials the power pattern, the deep economic disparities, nor the traditional hierarchical nature of inter-group relationships which governs the economic life of village society."* And same is the case in regard to our agricultural schemes in the blocks. In Rehli block, though a number of schemes have been operating since the inception of First Five Year plan, yet, after a decade or more, due to the above reasons, of casticism and non-operation by a number of persons, or so to say, absence of people's participation in such schemes with the block staff, most of the farmers stand on the same position as they were a decade before.

The people in the Rehli block as people in many other parts of India, are not much interested in the planned

agricultural progress through Community Development Programme. And so long as Government is unable to make people interested in the Community Development Programme not much progress can be made in Rehli block as in case of the whole of India.