CHAPTER - XII
PROBLEMS AND SUGGESTIONS
In the previous chapters the varied aspects of the growth and pattern of agricultural development in the district of Hooghly have been discussed. Some of the major problems of agriculture in the district are highlighted in the present chapter.

Problem of Manures and Fertilizers

Depletion of soil fertility posed to be the most important problem associated with the low yield of the crops in the district compared to other countries. Like the Indian soils, the soils of the district are poor in nitrogen and phosphate (chapter VI) but rich in potassium. With every crop removed from the land the soil is depleted of the three important plant nutrients viz. Nitrogen, Potassium and Phosphate. As the intensity of cropping is very much higher in the district averaging 197.43 those three important plant nutrients are depleted to a great extent with the cultivation of a number of crops within a year. Assuming good average yields of the crops the approximate amount of nutrients removed by each of the crops are shown in the following table.
Table 1. Nutrient removal by a few selected crops
Average from a variety of Indian sources.

<table>
<thead>
<tr>
<th>Name of the Crops.</th>
<th>Good average yield in lb per acre.</th>
<th>Nutrient removed by crops in lb/acre.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Rice</td>
<td>2,000</td>
<td>30</td>
</tr>
<tr>
<td>Wheat</td>
<td>1,400</td>
<td>50</td>
</tr>
<tr>
<td>Rape + Mustard</td>
<td>600</td>
<td>20</td>
</tr>
<tr>
<td>Jute</td>
<td>1,400</td>
<td>60</td>
</tr>
</tbody>
</table>

Continued cultivation for centuries without adequate replenishment of losses of nutrient has resulted in the average impoverishment of the soils in the district like Indian soil as a whole. The fertility status of the soil is though comparatively high in some of the blocks it is considerably low in some others. In the Western most block i.e. Goghat the content of nitrogen and phosphate is very low. The following causes may be attributed to the least replenishment of soil fertility.
1) Much of the farmyard manure available particularly cow-dung is burnt as a fuel causing a great agricultural loss which as emphasised by Dr. Voelcker¹ amounted to a waste of 29.95 lb out of 30 lb nitrogen in every ton of farm yard manure.

2) Besides the cowdung cake even the rest of the Cattledung is not properly kept and utilised. Even where pits are dug for storing Cattledung they do not have sufficient breadth and depth so that they soon get filled up and the dung lying at the mouth of the pit remains open and is scattered away by the passing of cattle and loses its manurial value. Cattle urine is not used to the full extent. Except for the little urine which inevitably gets mixed up with dung no effort is made to collect it.

3) The use of nightsoil is neglected due to social prejudices and religious susceptibilities and conservatism of the farmer. Similarly the use of bones, bonemeal and fish has been very scanty mainly due to prejudice, ignorance and lack of facilities. Green manuring too is scarcely practiced by the farmers as they attempt to cultivate other crop during the period required for cultivation of green manure crops.
Artificial nitrogenous and other kinds of fertilizers are used to a limited extent as the farmers can not afford for it because of their poverty. High cost of fertilizers is also a factor.

4) The farmers have little information about the proportion of nitrogen, phosphorus, and potassium required by different kinds of soils and crops or the right proportions in which organic manure should be used.

**Suggestion:**

The problem of depletion of soil fertility can be combated if the following measures are adopted.

(a) The nitrogenous deficiency of the soils can be overcome by (i) the careful conservation and proper use of farmyard manure (ii) the manufacture of composts from village and town refuse (iii) the use of human waste (vi) oilseed cakes (v) the use of green manure (vi) rotation of crops (vii) mixed cropping and the use of chemical fertilizers.

**Farmyard manure** is the most important of all the fertilizers as they are supposed to contain all the ingredients required for the growth of crops and also because it
causes a certain amount of disintegration of the soil. In addition to its manurial properties it has valuable physical effects upon the texture and water-holding powers of the soil and in dry seasons this may account far more than fertilisers towards ensuring food crops. It restores humus in the soil, gives cohesion to the sandy soil and renders clayey soils more porous and workable. It serves as a buffer in the soil ensuring even distribution of (inorganic) plant nutrients to roots of the crop. It is therefore very essential when applying chemical fertilisers, simple application of inorganic manners does not give good return.

In order to produce adequate farm manure the village compost scheme should be taken up on a wide scale as it had been taken up in Punjab and U.P. to augment the farm manure production. The Punjab has adopted trenches of 25 ft in length, seven to eight feet in breadth and three feet in depth. One trench of punjab dimensions would be sufficient for a household to carry the refuse all the year round. The trenches are filled up with dung waste, litter and waste of horses and poultry combined with herbage strand garbage, urine and other habitation wastes such as household sweepings, wood-ash and leaves etc are also added. The manure is ready
Plate 8. Preparation of farmyard manure in a trench
in four to six months time and a rich product containing over two per cent nitrogen (on dry basis) obtained which would increase crop yields by 25 to 50%. In addition to village refuse the night soil of nearly urban centres may also serve as a useful source of organic manure. It is gratifying to note that the importance of human excreta and urine is being recognised as a source of nitrogen, phosphorus and organic matter. The town compost may be successfully applied to vegetables, potatoes, cabbages and fruit crops.

Green manuring: When farmyard manure is scarce, green manuring may be practiced to supply organic matter to the soil for increasing the humus content. The value of leguminous plants lies in their ability to fix the free nitrogen in atmosphere and accumulate in their root nodules in appreciable quantities with the help of some useful micro-organisms who live in symbiosis with the plant. Various leguminous crops adds nitrogen to the soil from 40 to 140 lbs per acre, depending on the soil, climatic conditions and trends of crops, the average being 80 lbs\(^2\). It is therefore imperative to make the farmers aware of the importance of green manure by field demonstration and propaganda by the blocks. Because of ignorance the farmers do not practice green
manuring. There is ample scope for the cultivation of green manures in the period when the field lies unused between two successive crops. During the rabi and kharif seasons the leguminous plants like pulses can also be cultivated.

Rotation of crops: Soil fertility can also be regained by practicing the rotation of crops. According to Leighton "Crops rotation or the growing of different crops in recurring succession on the same land" was recognised as advantageous by early agricultural scientists and was made the foundation of the improvement in agriculture which took place in England in large part of continental Europe and in the U.S.A during the last part of the eighteenth and especially during the 19th century. Experiments conducted at Indian Agricultural Research Institute have shown that growing of a legume like berseem develops a stable type and high degree of soil fertility for the succeeding cereal crops and that higher yields of wheat could be obtained for 3 to 4 years than when wheat is grown continuously.

The effects of crop rotation on yields are manifold. Rotation aids in controlling weeds and certain crop pests and diseases. It may render manure and chemical fertilizers more effective. It increases the soil supply of organic matter and different crops
in themselves may exert beneficial effects on those which follow.

**Mixed cropping**: Yet another way of regaining the lost fertility of the soil lies in the secret of mixed farming. Mixed crops in addition to maintaining soil fertility are a guard against total failure of harvest due to unfavourable seasons. In mixed crops with different root habits the plant food is utilised to the best advantage and there is no competition. Mixtures also furnish protection to other crops. eg. jowar protects cotton from hot winds in the Punjab.

**Chemical fertilizers**: In view of great difficulty and impracticability of supplying potential manure requirements of India by means of organic manures artificial fertilizers become a matter of great importance. An important factor that has contributed to the increase in agricultural production in the U.S.A and the continent of Europe is the introduction of synthetic fertilizers. The use of chemical fertilizers has increased considerably in the district to make success the high yielding variety programme and multiple cropping programme. The consumption of nitrogenous fertilizers has increased from 7578 tonnes in 1971-72, to 13,900 in 1983-84, phosphatic fertilizers from 1846 tonnes
in 1971-72 to 9500 tonnes in 1983-84, potassic from 559 tonnes in 1971-72 to 8500 in 1983-84.

The continuous and sole application of chemical fertilizers has deleterious effects on the soil due to various causes. The classical researches of Colonel McCarrison and R.B.V Nath in India and those of Mackeridge and Bottomley in Europe and Clarke and Roller in America have conclusively proved that crops raised with organic manures are preeminently superior in their nutritive value to those raised with artificial fertilizers and that seeds produced from the field treated with organic manure possess greater germination power than those obtained from lands manured with artificial fertilizers. 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 manures 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 fertilizers either do not supply or supply only imperfectly. The application of chemical fertilizers should therefore, be supplemental to bulky organic manures like green manure or cattle manure.
Problems of implements and machinery:

Apart from the general consideration of economic policy which forms the necessary background for all improvements designed to increase the yield of crops the improvement of implements need to be looked into in this connection.

As in India the majority of the farmers in the district operate with tools and implements which were designed during medieval times and are inadequate to carry out agricultural operations efficiently. As a whole the agricultural implements are few in number, simple in kind, smaller in size, obsolete in character and very insignificant in values. The implements include (i) the plough and plough share used for the upturning of the soil and driven either by a pair of bullocks or a pair of bull buffaloes. The antiquated plough is such that it scratches only a few inches of the upper surface of the soil and does not invert the soil. The main advantage of such plough as recognised by even eminent authorities are that it is within the haulage capacity of ordinary drought animals and secondly its cultivation does not lead to the evaporation of moisture during the dry season, (ii) the wooden yokes in which bullocks are yoked for hauling the plough, (iii) the pata or the leveller (wooden or bamboo) used for
Plate 9. Tilling of the field with traditional plough
levelling the fields preliminary to sowing (v) a massive wooden roller for crushing clods; (vi) a spade or khudari used in irrigating purposes and to some extent in assisting the ploughs; (vii) khurpi (trowel) used for harvesting; (viii) the jeli or five fingered fork for weeding and spacing out (ix) the donga (hand operated implement for lifting water for irrigation); (x) the cart used for transporting purposes but owing to its prohibitive cost it is not within the reach of every peasant. Because of the use of such obsolete machinery the cost of production of crops is higher and the speed of work is low.

_Suggestion_ : To tide over the problem of implement efforts should be directed to improve the implements. There has been considerable improvement in the evolution of more efficient implements such as iron plough, harrows, cultivators, soil-scoopers, thrasher, tractors and pumps. The use of such implements greatly reduces the production cost of a particular crop as it is revealed from the following table.
Plate 10. Tilling of the field with hand tractor
Table 2. Comparative cost for ploughing the field for boro paddy (.33 acre or 1 bigha)

<table>
<thead>
<tr>
<th>Type of implement</th>
<th>Time required</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tractor (Hand)</td>
<td>1 hour 45 minutes</td>
<td>@ Rs. 36/- hour = Rs. 61/-</td>
</tr>
<tr>
<td>Plough</td>
<td>4 man hours</td>
<td>@ Rs. 18/- man hour = Rs. 72/-</td>
</tr>
</tbody>
</table>

Table 3. Comparative cost for thrashing boro paddy (.33 acre or 1 bigha)

<table>
<thead>
<tr>
<th>Type of implement</th>
<th>Time required</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thrasher</td>
<td>4 man hours</td>
<td>@ Rs. 14/- per man hour including machine fare = Rs. 56/-</td>
</tr>
<tr>
<td>Soley manual labour</td>
<td>7 man hours</td>
<td>@ Rs. 10/- per man hour = Rs. 70/-</td>
</tr>
</tbody>
</table>

Source: Table 1 & 2 Field experience.
Plate 11. Thrashing of paddy by manual labour

Plate 12. Thrashing of paddy with a mechanical thrasher
It appears from the above tables that there would be saving of time and money in the use of improved implements like tractor and thrasher. The preparation of .33 acre of land for boro paddy with the help of tractor requires 1 hour 45 minutes and Rs. 61/- as compared to 32 hours and Rs. 72/- with the help of plough. Therefore there is saving of 30 hours 15 minutes and Rs. 11/- in the use of tractor in place of plough.

Similarly the thrashing of boro paddy of .33 acre land solely by manual labour require 56 man hours and Rs. 70/-, but thrashing of the same with the help of mechanical thrasher requires 32 man hours and Rs. 56/-. Thus there is also saving of time and money if thrashing is done with the help of improved implements.

Since 1961 there has been increase in use of tractors, thrasher, pumps etc in the district of Hooghly. Number of tractors has increased from 8 in 1961 to 52 in 1966, to 100 in 1982-83. Whatever progress has been made is very limited and much yet remains to be accomplished in this direction. Sir John Russel strikes a more hopeful note when he observes "The new implements are not always more effective than the old
Plate 13. Harvesting of paddy by traditional method
but they are lighter, require less labour of men and bullocks and they do their work more rapidly. Economy of bullock power means that the large cultivator need not possess so many bullocks and so can better feed his milch cattle, and speed of work means that operation can be done just when necessary and when therefore they are most beneficial." J. Russel.

To help cultivators in the increased use of such implements it is necessary that administrative and development authorities at different levels should come forward more in this direction. These should raise loans for the purchase and supply of the improved implements and distribute them amongst Village Panchayats on the basis of careful investigation of the nature and size of agricultural holdings in the village, the area under cultivation and the number of cultivators who can afford to purchase these implements at the rate which will cover the cost of implements and cost of repairs. Bank loans on moderate interest to the farmers may also help in purchasing the improved implements. Amount of loans from the Agricultural credit societies should be enhanced further to help the farmers also in this direction. There was such 726 credit societies which
provided loan of Rs. 8.714 million to 55000 members in 1973-74.

**Problem of Land Holding**: India is par excellence a land of small peasants. The unit of holdings is everywhere small and uneconomic. This statement is also true in this district. Like India the problem in the district presents two distinct features. The first is that the holdings tend to be very small; and the second is that individual holdings tend to become broken up into a number of separate plots often situated at a considerable distance from each other. The former tendency is designated as subdivision of holdings and the latter as fragmentation of holdings.

The average size of the holding in the district was 0.28 hectare in 1980-81 against the West Bengal's average of 1.88 hectares. Thus the average size of the holdings is uneconomic. The following table will reveal the degree of such uneconomic holding.
Table 4  Size of land holding.

<table>
<thead>
<tr>
<th>Size of holding in hectare</th>
<th>No of holding</th>
<th>Per cent of total holding</th>
<th>Area in acre</th>
<th>Per cent of total area</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Up to 1.0</td>
<td>1,94,623</td>
<td>73.5</td>
<td>75,638.4</td>
<td>34.67</td>
</tr>
<tr>
<td>b) 1.1 - 2.0</td>
<td>47,746</td>
<td>18.1</td>
<td>65,047.6</td>
<td>29.82</td>
</tr>
<tr>
<td>c) 2.1 - 4.0</td>
<td>19,684</td>
<td>7.6</td>
<td>48,871.2</td>
<td>22.41</td>
</tr>
<tr>
<td>d) above 4</td>
<td>2,215</td>
<td>0.8</td>
<td>28,578.0</td>
<td>13.10</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,64,268</strong></td>
<td><strong>100</strong></td>
<td><strong>2,18,135.2</strong></td>
<td><strong>100.00</strong></td>
</tr>
</tbody>
</table>

Source: Principal Agriculture office, Hooghly, Govt of W.B.
Holding up to 1 hectare accounts for 73.5 per cent of total number of holdings. While the holdings averaging 1.1 to above 4 hectare accounts for 26.5 per cent. The problem of uneconomic holdings is further complicated by the practice of fragmentation of holdings which is the result of the extinction of families in default of direct heirs and the division of their property amongst a large number of distant relatives. As a result of such fragmentation, the holdings of an agriculturist do not consist of a single compact block of land but of a number of small scattered plots over different parts of the village, often of a irregular shape.

The fragmentation of agricultural holdings creates several problems which are as follows:

(i) The fragmented and uneconomic holdings have brought about progressive agricultural deterioration and aggravated the poverty of the masses.

(ii) The cultivation of unduly small holding entails waste in a variety of ways. This practice involves encroachment on the soil otherwise available for cultivation. It entails waste of land in boundaries, hedges and pathways.
(iii) Subdivision progressively reduces the average size of holdings. When the holdings get smaller the proportion of fixed costs to the total costs of cultivation increases. Some of the costs incurred by the farmers such as expenses of maintaining his family, a pair of bullock and a few agricultural implements do not decrease proportionately when his holdings get smaller.

(iv) Subdivision means also a rise in the variable costs. The cost of fencing per acre, of manure and seed are all higher when the farmers cultivate a small rather than big holding in which case fencing may not be done to the fields leading to damage by stray cattle from the neighbouring fallow fields.

(v) When holdings are intensely fragmented much time is naturally lost in moving from one plot to another, particularly at the time of sowing, watering, weeding and harvesting. Personal supervision is rendered difficult because unless the plot is large enough it does not pay to erect platforms to keep an eye on the standing crops. Further, if the family is small, the owner has to content himself with morning and evening visit to his various fields leaving the rest to chance. Carriage of manure is easier and more economical if the land is in one block and so it is usual to manure the plots which lie near the heaps.
(vi) Fragmentation creates difficulties in maintaining correct levels and making provision for surface drainage. When a land owner holds his land in scattered bits he has naturally less incentives to spend money on the maintenance of proper drains to prevent water logging and on the construction of embankments to check soil erosion.

(vii) When land is excessively fragmented, irrigation often becomes impracticable, although sufficient water may be available. Water cannot be supplied so as to reach all the little parcels into which an individual holding may be cut, and besides this there is the difficulty of taking water by channels which will have to run through other people's holding.

(viii) Fragmentation also brings in its train the invariable crop of disputes regarding boundaries, rights of way etc. leading the farmers into expensive litigation.

In spite of all those difficulties it must not be supposed that all cases of fragmentation are undesirable. The lack of holding in a compact block may be due to perfectly sound economic consideration. By having their holdings scattered in different parts of the village farmers are able to take advantage of different soil conditions and it facilitates the distribution
of work on the fields, for it may and it does happen that when it rains in one part of the village, the field in another part, where it may not rain can either be ploughed or prepared for sowing the seed. It thus enables him to make a more effective use of his time and labour and of his bullocks. 5

This process of fragmentation ensures that every holder has share of all qualities of the soil, which in a system of subsistence farming is a matter of some importance, since it enables him to grow all the various crops which he requires for his own and his family's food, and also acts as an insurance against the total failure of crops which might occur if they were grown in a compact area. 6

**Suggestion**: The advantages of small holdings are quite insignificant as compared to the disadvantages associated with it. The only remedy for such problem is the consolidation of holdings. It would be a positive advantage to the peasant if instead of having widely scattered small plots of land, he had an equivalent compact block of land. "It is a process" says Strickland, "Whereby owners of rightholding tenants are persuaded or compelled to surrender their scattered plots and receive in their place an equal area of land of the same quality in one or two blocks". 7
The consolidation of holdings may be done in two ways: (a) by voluntary co-operation between the cultivators themselves on the initiative of the persons belonging to that locality; and (b) by compulsory methods adopted by the Government. No compulsory methods through enactment by W.B. Government has yet been taken up in the district to consolidate the fragmented holdings. In this respect the best instrument seems to be the co-operative society for the consolidation of holdings. The main merit of these societies is that it is voluntary, that it rests upon the education of the public opinion in favour of consolidation and upon the persuasion of the landholders concerned. Once the voluntary agreement is sponsored by the co-operative consolidation of holding society, the results are permanent as the landholders once they realised the evils of fragmentation are not to allow its re-emergence after some time.

Consolidation in itself offers no permanent solution and the problem is likely to recur with every new generation. Restrictions are, therefore necessary on future partitions, exchanges or transfers.
Problem of Agricultural Marketing

Marketing plays an important part in the national economy of the country. The process of agricultural production alone cannot profit the tiller of the soil. Side by side with the progress in cultivation methods an advance should be made towards efficient sale of his produce. Without a developed marketing system the farmers labour under distinct disadvantages in as much as his sales are so many isolated act without any plans. He sells immediately after the crops are ready due to pressure of his creditors to return the loan. Frequently he has neither the facilities of marketing nor the business ability. Even if the production side is strengthened and cultivation improved the peasant would not gain much as the benefits of better farming would probably be reaped by middlemen intervening between them and the ultimate consumers under the present system of marketing.

System of marketing: Agriculture being an industry of slow turnover the farmers require financial assistance to bridge over the gap between the sowing and harvesting of the crop. Again the produce of his land does not always suffice for the whole year and he is compelled to seek the assistance for subsistence as well as for commencing his agricultural operations.
in the following seasons. Borrowings made by the cultivators are taken before the commencement of cultivation operations from middlemen, village beopari, factory-owner with undertaking that the producer after harvest will be sold to him or through him. The real evil is the tendency of these intermediaries who exploit the ignorance and helplessness of the farmer to increase their profits by manipulating the rates.

With whatever limitations or natural calamities the farmers who raises a good crop brings it to commission agent to market his produce as soon as it is harvested. The commission agent selected is generally the one with whom the grower has already had financial or business relations. Although there is no compulsion on the seller to take his produce to commission agent from whom he has previously secured advance or loan in kind or cash, nevertheless the fear that the financial accommodation may be withdrawn in the future induces the cultivator to trade through his creditor. If the seller decides not to dispose of his produce on that day he leaves it with the commission agent who store it for him until sold. The following diagrams show the system of marketing of paddy, and jute.
Paddy sale:

Grower (Saling price Rs. 110/- per bag of 60 Kgs)

Travelling buyer (pharia) Saling price Rs. 115/- per bag of 60 Kgs.

Wholesale dealer (Saling price Rs. 117/- per bag of 60 Kgs.)

Mill buyers or Merchant.

Jute sale:

Grower (Saling price Rs. 125/- per 40 Kgs.)

Village dealer or Travelling buyer. (Saling price Rs. 135/- per 40 Kgs.)

Merchant (Saling price Rs. 137/- per 40 Kgs.)

Mills.

It appears from the above diagrams that in case of marketing of paddy the growers are being deprived of Rs. 7/- per bag of 60 Kgs. In case of jute the growers are being deprived of Rs. 12/- per 40 Kgs.

The main defects of such system of marketing are as follows:

(i) Lack of organisation: The first thing that strikes the observer is the lack of any kind of collective organisation among the producers. The buyers of agricultural produce specially
in the case of money crops, usually operate on a large scale and are organised while the producers are invariably small ryots scattered over a wide area with no common organisation to guide them and to protect their interests, while purchasers of commercial crops on the other hand are large scale operators on an organised basis. In the circumstances it is common to find that the producers of agricultural products as a class are being exploited by the purchasers.

(ii) Forced sale: The farmers in general sells his produce at an unfavourable time and usually he gets very unfavourable terms. Place, time and terms, these three factors provide the clue for an understanding of the existing positions. The nearest place where a farmer sells his produce is his own village. The most important cause for the high percentage of produce sold in the village is without doubt the indebtedness of the producer. The second important factor which is responsible for the high percentage of village sales is the unsatisfactory nature of communication with the nearest market. With bad roads transport costs tend to become heavier. The element of time is an important factor and this for double reason. The marketing possibilities of perishable commodities depend very largely on the rapidity with which they can be transported to the market-place. Communication is therefore
of utmost importance in this case. As regards non-perishable commodities the price to be realised by the cultivators depends among other things on the time when his produce is marketed. Most of the cultivators are hard pressed for cash to meet the claims of their creditors and to pay off rent and other charges.

Superfluous Middlemen: The majority of farmers dispose of their produce in the village itself. The result is the intervention of most middlemen between the producer and the final consumers of his produce. The agencies in the chain of marketing from the producer to the manufacturer and consumer depend up on the nature of the crop. Paddy usually passes from the village, merchant to the mill or to the wholesale dealer in the assembling market and from the mill rice passes on to the wholesale dealer in the consuming market and thence through one or more retailers to the consumer. Between the wholesaler or Miller in the producing end the wholesaler at the consuming end a host of intermediaries intervene and execute orders on the strength of samples.

Absence of grading and standardisation of Agricultural produce: Absence of grading and standardisation of agricultural produce is another defect. In the absence of certain standard grades accepted by the whole trade as the basis for commercial
transaction, attempt of individual producers merely secure the ordinary market rate. In most cases the heaps of both good and bad produce are sold together as one lot common in most markets.

**Lack of information regarding price**: Absence of market intelligence as to prices is another defect. The villagers have practically no contact with the outside world, nor are they in touch with the trend of market prices; and they mostly depend on hearsay report received from the village bania who is not at all interested in supplying them the correct information as to prices obtaining in the wholesale market.

**Lack of storage facility**: The absence of good storage facility in the villages force the ryot to sell as soon as the harvest is over and thus create a glut in the market.

**Suggestions**: If the agriculturist in the district is to secure a higher price for his produce, if the need and preference of the consumer are to be conveyed to the producer with the minimum amount of delay, obviously the defects in the machinery for marketing of agricultural produce mentioned before should be remedied as quickly as possible. In fact, an improved system of agricultural marketing which will secure for the cultivators a larger proportion of consumer's price is a sine qua non for
agricultural improvement in the district. The following measures may be adopted as recommended by the Royal commission on Agriculture and endorsed by Provincial and Central Banking Enquiry Committees.

(i) Improvement of transport facility
(ii) Establishment of Regulated Market under state legislation
(iii) Standardisation of Weights and Measures
(iv) Adoption of measures to secure improved quality of produce by organisation among buyers and traders.
(v) Fixation of standards and grades of commodities
(vi) Promotion of co-operative sales.
(vii) Holding of auction sales by Agricultural Departments to ensure increased prices to the cultivators who produce improved varieties.
(viii) Fixation of price of agricultural commodities by the Government.
(ix) Provision of cold storage and processing facilities necessary for perishable fruits and vegetables.

Irrigation:

The most significant single factor that can provide this district with steady levels of agricultural production is
freedom from the scourge of droughts. Even in the normal rainfall years irrigation facilities are necessary for cultivating the rabi crops and summer vegetables. Though considerable development in irrigation has been achieved in the district yet further programme should be commissioned to extend the irrigation facility not only to assure regular supply of water to the crops but also to bring more, mono cropped land under multiple cropping. In 1981-82 net irrigated area accounted 330.12 thousand acres out of 543.49 thousand acres of net sown area i.e. 60.74 per cent of net sown area. If irrigation in remaining 39.26 thousand acres of sown area irrigated is provided there will be much increase in production of crops.

The problems associated with the irrigation may be summarised as follows.

(i) Irregularity in supply of water: In the district much of the net irrigated area is irrigated by canals which are mostly inundated. During the dry period there is greater fluctuation in supply of water. In the years of drought and less rainfall practically no irrigation can be done from such source. Next to canal the most important source of irrigation is shallow tubewells. Efficiency of these tubewells depends on the depth of water table. In the years of normal rainfall there is no difficulty associated
In the year of drought shallow tubewell is to be operated by a pump placed in a pit of 2-4 metres deep due to fall of ground water level.
with the supply of water. But in the years of drought majority of shallow tubewells are to be closed down due to fall in depth of water table. Some times though transplanting of boro paddy may be done with water from such tubewells, the standing crop wilts for want of irrigation caused by failure of tube wells in its growing period. No such difficulty is faced with the deep tubewells even in the years of drought. But the number of such tubewells is very meager and it accounts for 6.2 per cent of total irrigated area.

(ii) Mechanism for lifting water: In majority cases water is lifted by means of outdated implements like dongas, bucket etc. Both the cost and time of such irrigation method is higher than the improved machines like the pump.

There are a few numbers of such pump set. The pump sets are operated with the help of fuel mostly kerosene and diesel. In this case also the operation cost is higher. At the same time much difficulty is faced with collecting fuel due to its scarcity and it is to be purchased at higher price. A few of the shallow tubewells are electrified. The electrified shallows are not also without the difficulty. Irregular supply of electricity greatly hamper the regular supply of water. Therefore to make
the water supply regular diesel operated pumpset is to be kept side by side with the electrically operated pump set. Such arrangement some times is not possible because of lack of capital.

Lack of capital for purchasing pumps and setting up shallow tubewells: Because of lack of fund the poor and marginal farmers are not in a position to either purchase the pumpset or install the shallow tubewells. Only the rich farmers can afford for such purchase of pumpsets and installation of shallow tubewells. It is not at all possible for the farmers to install the deep tubewells which seems to be more effective for irrigation having greater capacity and regular supply of water without their failure.

Suggestion: In order to extend the irrigation facility and to make the supply of water regular without their failure greater attention should be paid towards installation of more deep tubewells by the Government. More financial assistance is to be provided from banks and co-operatives to the farmers, so that they are able to purchase the pump sets and install the shallow tubewells for tapping the vast resource of under ground water. The farmers may be encouraged to install shallow tubewells on co-operative basis offering subsidy and bank loans on moderate interests.
The shallow tubewells which have not yet been electrified are to be provided with electric facilities. Efforts should also be directed by the Development Blocks to make necessary arrangements to make available the fuel for pump sets (diesel and kerosene) regularly during the crop season particularly the period of the cultivation of boro paddy.

**Problem of Seeds**

Agricultural development of an area is largely the result of assured and adequate irrigation facility, improved seeds and fertilizers. Improved seeds and fertilizers means increased production. Though a break-through in improved seed varieties has been made in recent years largely after launching the Highyielding Varieties Programme (HYV) in 1966-67, good quality seeds are not available adequately to the farmers and if available their price is exorbitant. As for example during rabi season the high yielding variety of potato seeds (Mother) like Chandramukhi, Jyoti, Kufri Alankar etc. are not available in larger quantity as deserved by the farmers and as such their prices are kept so high that the marginal and small farmers cannot provide for them. Though a remarkable achievement has been made in the discovery of dwarf high yielding varieties of paddy seed success has not yet been
materialised in the discovery of tall high yielding varieties of paddy seed which are very much suitable for low lying inundated paddy fields.

Suggestion: Though the acreage of high yielding variety of paddy has increased considerably since 1967-68 in the district local variety of paddy occupied 88.35 thousand hectares in 1979-80 out of 263.81 thousand hectares, i.e. 30 per cent of total paddy cropped area. If tall high yielding variety of paddy is invented in the mean time it may be used on the 88.35 thousand hectares occupied by local variety of paddy.

Efforts should also be directed to distribute the improved high yielding varieties of seed among the farmers as deserved by them through Development Blocks, Co-operative societies, seed corporation of India etc. at fair prices. Distribution of mini kit free of cost among all the small farmers may also be an effective measure in this respect.

Problem of labour:

The success of intensive agriculture is greatly depended on the adequate supply of efficient labours in time. Increased wage rate of the labourers as compared to their efficiency is adversely affecting agriculture in the district as in other districts of
West Bengal. During peak season of crop cultivation as for example in the period of transplanting and harvesting the crops there is not only the want of adequate number of labourers but also their wage rate greatly affects the cost of production of a particular crop. Increased wages are not also accompanied by their increased efficiency. It is therefore imperative in order to safeguard the interests of the farmers to fix the wage rate and at the same time the amount of various kinds of work to be done within the fixed time or man hour. It is interesting to note that though there has been fixation of wage rate and time of work of the labourers there has not been the fixation of quantum of works i.e. area of transplanting, weeding, harvesting to be done per labourer on day basis.

**Problem of agricultural credit**

Though, since Independence when rural debt figures in the district ran into several crores of rupees, things have improved, most of the small cultivators are still under debt often taken at exorbitant interest rates. The co-operative credit societies have ameliorated condition in some areas; commercial banks under special instruction from the Government have begun to advance loans to agriculturists in recent years. Inspite of these measures a major section of the farmers are being deprived of loans from the banks as they have no sufficient landed property to be kept as security at banks against the loan they deserve for. The farmers should have sufficient cash in hand to cultivate any type of crop as cost of
production has increased substantially due to increase in wage rate, price of fertilizers and seeds, and of many items required for cultivation. It is therefore imperative that arrangement should be made to provide short term loan to the farmers before the cultivation of crop against minimum security deposit. In 1983-84 credit facility provided to the farmers from different sources accounted 751.69 lakh rupees (.75 lakh as Govt. loan, 196.84 lakh as Co-operative loan and the remaining 554.1 as Bank loan.)

Conclusion:

It appears from the above study of problems related to agriculture in the district that if the basic problems associated with the production of crops viz. depletion of soil fertility, irrigation and agricultural credit and the marketing of agricultural produce are solved according to the measures as suggested the district will progress further in the field of agriculture manifesting in increase in production of crop. Thus the district will be able to achieve progress both in agriculture and industry.
Reference:

1. Voelcker, J.A., Report on Improvement on Indian Agriculture pp.41


6. Allen, R.G. Social Service in India p. 133.