IDENTIFYING THE PROBLEMS AND PROSPECTS OF AGRICULTURAL DEVELOPMENT IN BIRBHUM DISTRICT

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Abstract
Birbhum district has an agriculture based rural economy, although its western, elevated dry areas are not agriculturally developed. There are many reasons behind this backwardness, which include technological, socio-economic, environmental, political and administrative. To eradicate these problems some measures should be taken.

Key words: Rural, Agricultural problems, prospects, development.

Introduction
The rural India is an integral part of the country. Supply of food, clothing and shelters of the people of the country depends on it. Thus, our planner's main goal is the rapid economic development of the country as well as rural areas, for raising the levels of living of the rural people. The district Birbhum is not an exceptional one. Primitive method of technology in agriculture is responsible for heavy pressure of population on agriculture. Thus, it is necessary to identify the main hurdles or problems of agriculture in rural areas of Birbhum district. By eradicating these problems, an area can achieve agriculturally developed.

Study Area
The district Birbhum is situated in west central part of West Bengal in between $23^0 32^/ 30^{//}$ north to $24^0 35^/ 00^{//}$ north latitudes and $87^0 05^/ 25^{//}$ East to $88^0 01^/ 40^{//}$ east longitude (Figure 1). According to the 2001 census the total population of Birbhum district was 3015422.Out of which rural population was comprised of 2757002 and urban population was about 258420.From 1901 to 2001 the total strength of the rural population of Birbhum district is gradually decreased by about 8.5%. This is because of migration to the urban centers for the job. Birbhum is predominantly an agricultural district because the share of primary production in net district domestic product is approximately 38.51% in2003-2004.

Objectives
The district has been selected as the study area because the western elevated tract of this district including Rajnagar, Md Bazer, Khoyrasole blocks are agriculturally backward areas because of various problems. To eradicate these problems, different measures should be considered. The main objective of this paper is divided into two parts . First part identifies the hurdles, on the way of agricultural development in rural areas of Birbhum district. In the next part solutions have been identified to eradicate these problems.

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Database
Primary and secondary data have been collected from village survey. Secondary data have been collected from Census and other sources.

Methodology
On the basis of village level study by using a questionnaire and the schedule method several data have been collected. By analyzing these data, composite scores of agricultural development are calculated. Several problems have been emerged out from data analysis, which are responsible for the backwardness of agriculture in this district.

Major Findings
On the basis of collected data, agriculturally developed and backward pockets of Birbhum district have been identified (table: 1).

Table-1: Agricultural development in Birbhum district

Ranges of composite index	Name of the area under police station
1.03 – 1.18	Rampurhat, Mayreshwar, Illambazer, Labpur, Nanoor
0.97 – 1.10	Muraroi, Sainthia, Bolpur, Suri
0.81 – 0.95	Nalhati, Md. Bazer, Rajnagar, Dubrajpur, Khoyrasole

Source: Field Survey

From the above table it is clear that Nalhati, Rajnagar, Md.Bazer, Dubrajpur Khoyrasole blocks are not agriculturally developed than those of Rampurhat, Mayureswar, Labpur, Nanoor blocks .The main hurdles which are responsible for backwardness of agriculture in Birbhum district and the measures to solve these problems are discussed below.

Problems and Prospects of Agricultural Development in Rural Birbhum

Problems
Agricultural development can be achieved through the strong and healthy relationship between environmental, technological, institutional, infrastructural and social factors. The systematic co-ordination among these factors gives birth to agricultural development. It is at present necessary to discuss different problems which stand in the way of agricultural development in the study region. These problems can be grouped into 5 categories.

Environmental Problems

In this study region, particularly in the elevated western part of Birbhum district, physical environment creates constraints to human being and throws adverse influence on the agriculture as well as on the economy until and unless the agricultural resources are properly mobilized through appropriate technologies with the help of favourable and efficient socio-cultural and economic institutions.

The terrain as well as the slope affects the availability of soil moisture, depth, structure of soil, possibilities of irrigation, the amount of solar radiation, the feasibility of terracing, field pattern, agricultural transport, the size and distribution of holding, continuity of cultivation and the most important aspect of agriculture i.e. the crops, their nature and out turn. The terrain of the elevated part of the command area is quite undulating in nature which is restricted for the growth of agricultural economy. Here frequent contact between farm and field is harder, it is difficult to use agricultural implements.

The terrain of the elevated part of the study area is quite undulating in nature which is restrictive for the growth of agricultural economy. Here frequent contact between farm and field is harder, it is difficult to use agricultural implements, the tillage, spading, hoeing, weeding, sowing and harvesting are not easy tasks, so the intensification of crops has been achieved at the lower level and the area possesses considerable proportion of non-cultivated land which reduces the proportion of not sown area. The above constraints of topography are not so acute in the central and eastern parts of the study.

Another constraint that affects the agriculture is the haphazard distribution of rainfall which fluctuates from place to place and year to year. Excessive rain causes water logging in the eastern lowering part of the study area (Labpur and Nanoor blocks) and soils are therefore eroded which restricts the cultivation of crops and also damages the standing crops. On the other hand, scarcity of rainfall in the elevated part of the study area causes moisture deficiency in the crops and it may give rise to drought.

Due to the soil erosion, many tanks become derelict which lose their capacity to hold a sufficient amount of water. During the dry season, tanks cannot provide water for irrigation which restrict the extension of net sown area and the area under the practice of multiple cropping in the western elevated part of the study area.
Beside this Soils are poor and hold an inadequate amount of organic matter which causes a decline in the soil fertility in an elevated part of the area. Due to the inferior quality of soil in the western elevated part, the productivity of crops remains low. This is not so in the eastern and central halves of the study area where fertile soils spread.

Technological Problems
The speedy and extensive development of agriculture, by and large depends upon technological change and spatial diffusion of agricultural innovations, Since, the early period, attempts are being

made for mechanization of traditional agriculture. Several other costly programs for the large scale mechanization were practiced with inadequate preparation in the sixties but the running costs are too high to be compensated by an increase in production. This problem is observed throughout the region especially in the elevated part of the area. The pattern of diffusion of innovations regarding agriculture is not uniform both in space and time, because of the varied physical, social, economic and technological conditions are in the study area.

In many cases, the technological factors of the region are overshadowed by the anti-productive social power of the region. That is why, in places, where there is feasible to align canal, it has not been done so in the command area. The alignment and construction of some engineering structures of canal, (especially in the elevated part due to the ruggedness of topography throughout the region) and absence or small number of field channel and lack of sufficient number of distributaries create obstructions against the production in the study area. Moreover, the existing distributaries have not been constructed as per design, perhaps this may be due to the fact that the farmers belonging to the affluent classes of the society force to divert the alignment of the canal as per their own interest.

Due to the absence of field channels , the flush irrigation method is practiced in the region, which causes considerable loss of irrigation water, soil and soil nutrient. Physical barrier in terms of undulating topography to a great extent is responsible for agricultural backwardness in the elevated part of the region.

The bed levels of the canals and distributaries are not maintained both in the elevated western and eastern low lying parts of the study area. Here farmers often draw excess water either by putting earthen embankments on the canal beds, raising the levels of water or by cutting the embankments or by lowering the pipe of temporary outlets. Due to these malpractices the desired quantity of water cannot reach the failed areas of the canal system which influence adversely to raise the productivity of crops.

After bringing the surveyed areas of various mouzas of area under different blocks, it has been noticed that due to the malpractices and improper construction of canal in Bhagabatipur mouza of area under Saithia block do not get adequate amount of canal irrigation facilities even during the rainy season. Thus, agricultural activities of that particular area are largely hampered.

It is known from the investigation of the region that the maintenance and repair of the canal embankments as well as the building structures are not done properly and in time.

Due to the lower level of literacy and technological knowhow and piecemeal efforts of demonstration effects the farmers, who are not well aware, inspired and motivated about the development oriented cropping pattern with relevant levels of technology, is rarely found.

Other than this, the scope of extending irrigation facilities in the region is somewhat limited. The ground water reserve in the area is not very rich, as a result, a considerable amount of rainwater is lost in quick run-off due to undulating topography of the soil surface which creates a problem.

Another technological problem that stands in the way of agricultural development in the entire region is the use of chemical fertilizer which adversely affects the physical and chemical properties of the soil. It will change the soil structure as well as soil texture. In spite of presence of agricultural extension services their activities and impact on rural areas are not so good. Thus, agricultural development to a large extent does not occur. Besides lack of education largely affect the production of crops and in many parts of these mouzas production does not take place to optimum amount.

Socio-economic Problems

It has been noticed that farmers in that particular area do not clear the cross embankments used for irrigation purposes, it helps the bed to be risen and ultimately the bed gradually reduces its water holding capacity.

The poor, socio-economically backward farmers do not get proper infrastructural facilities and amenities. They are rarely assisted by the socio-cultural institution. Lack of education, conservative mind also deprives them from improvement of crops.

Due to the above mentioned facts, the farmers are not always assured to go in extensively for the crop intensification and the cropping pattern cannot be made well commercialized as it should be so. Regional disparity in Basoa Mouza of area under Rampurhat block silk industry is largely affected due to the high price charged for silk yarn, which the poor people cannot bear. In this way their income gradually decreases and economic crisis affects agriculture.

Infrastructural Problems

The undulating topography of area under Rajnagar block creates constraints to spread the transport network uniformly which causes a backwardness of agriculture of the region. Besides in Kuchighata mouza of area under Sainthia block, inadequate arrangement of service centers affect the repairing of agricultural equipments like pumpsets in time, which hamper the cultivation process. The same thing is observed in area under Mayureswar block, where transportation difficulties create problems.

Till now, the transport network has not been established properly, for the development of remote rural areas which will help to create an easy flow of rural commodities to the outside world. It has been observed that to purchase either fertilizer or any agricultural equipments villagers/farmers have to cross large distance, or nearest urban centre as in area under Rajnagar block, Farmers have to come to Suri.

Again marketing economy which can strengthen the agricultural economy of the command area is also not upto the mark. The horizontal distance of the market in the area is large and the temporal distance is quite short. All these aspects give rise to spatial conflict int he area.

Politico administrative Problems

Between various politico administrative functionaries of the region, gaps have been observed. There is hardly any functional linkage between technocrats, bureaucrats, democrats and villagers. It has already been found that there is a little coordination among the sister organizations which can help in agricultural development with their functional linkages. Distribution of various facilities, amenities and inputs are not done properly and in a straight way, the real poor people are not identified for this purpose. It is usually noticed that the rich farmers pretend to be poor and the lion's share of the major agricultural planning in the region, are controlled by them.

It has been noticed that in Kusumdihi mouza of area under Sainthia police station large amount of money is allotted by the state government as "JAWAHAR ROZGAR YOZANA" to develop the transport network, educational institutions, hospitals etc. But that amount has largely been usurped by the members of the village Panchayat.

Besides, above mentioned problems, there are other several problems. Until now good quality seeds are not supplied to the farmers and if available their price is very high. Therefore, most people cultivate their land by means of sub-standard seeds which affect the crop yields adversely.

As it has been observed before, agricultural marketing continues to remain in a poor, disorganized shape in these rural areas. In most of these areas, the transaction of agricultural products in rural areas takes place in very crude and exploiting manner. It provides disadvantage to the poor, needy agriculturists. Besides farmers have to take loan from village 'Mahajans' at a high rate of interest even today, which is an open business in Basoa mouza of area under Rampurhat police station and this exploits the poor farmers.

The co-operative credit societies have ameliorated the conditions in some rural areas. But their activities are not properly managed and rich people are largely benefited from this as found in area under Sainthia police station.
Finally it is necessary to say that an agriculture based rural development strategy is more than a growth programme. In view of the broad, participatory nature of the resulting growth process it is simultaneously an employment, anti-poverty, and income redistribution programme (Prasad, 1991)

Prospects

The downfall of the colonial regimes in Africa and the attainment of political independence by the vast majority of the African people has created the need for radical agrarian reforms and modernization of agriculture, which plays a significant role in the economics of the states.

About three quarters of the working population on the African countries agriculture remains the main occupation and the most important source of finance for the national economy. Perhaps, the same picture is observed in Indian agriculture especially in the rural areas. The two most formidable challenges it faces at this junction are –

- How to further increase and diversify production by using modern scientific techniques and inputs.
- How to reduce disparities between various social groups and regions which have emerged out due to partial adoption of the new farm technology, but it is also true that agriculture can help the development of our economy from stagnant to the progressive stage in three ways :

1. By increasing the gross national product,
2. By supplying the physical surplus in the shape of food and raw materials. and
3. By providing the economic surplus which constitutes the materials basis for economic development.

Increase in production is not enough. It has to be accompanied by an increase of surplus and thereby of investment at a compound rate which should be well above the rate of increase in population.

Besides it is necessary to reduce the discriminating policy of rural panchyat members and equal distribution of facilities for agriculture to the poor and rich peasants. W. Arther Lewes rightly depicted the importance of agriculture as follows:

Rising agricultural productivity supports and sustains industrial development in several important ways. Firstly, it permits agriculture to release a part of its labour force for industrial development while meeting the food needs of the non-farm sector. Secondly, it raises agricultural incomes, thereby creating the rural purchasing power needed to buy the new industrial goods and rural savings which may then be mobilized by direct and indirect means to finance industrial development.

The depressed level of agricultural output will negate the development of other sectors of the economy. Increased agricultural productivity will counter balance this negative effect.

A number of schemes and programs to increase agricultural production have been launched from time to time during the last two decades. There were no inherent soil, climate or other physical reasons for the present low yields and these could be significantly improved through intensive efforts by combining all the technological improvements and by concentrating all the available manpower and other resources in selected areas having the optimum condition for increasing agricultural production (Shafi, 1984).

Thus, for agricultural development planning is necessary regarding development and management of physical and natural resources such as land, water, crops, forests etc., The creation of agricultural infrastructural facilities, institutions, organizations and industries to procure, produce, provide agricultural goods and services, inputs and credits, help and advice efficiently, also the generation of income and employment, work and wages and equitable distribution of resources for the balanced development of various sections of the population such as jobless and landless laborers, small and marginal farmers (Roy and Patil , 1974) .

Agriculture can contribute substantially to the improvement of the rural as well as an overall economy and has the potential to become the leading sector in development. Many developmental planning programmes have been introduced in the rural areas to make full use of the existing resources and to increase not return from agriculture i.e.., to increase the productivity of crops, to diversify the cropping pattern and also to establish social justice in rural area for the total development in the rural areas, as well as in the region. Its problems are partly technical, partly financial and commercial, partly cultural and social. A strong base of agriculture is necessary for sustained and rapid economic growth and social development in India. Without this it will be impossible to accelerate growth and ensure sustained improvement of the economy of the people. Now it is necessary to think about the alternative strategies for the agricultural development of the village areas of India.

Land Policy

The most improtant strategy of development programme is land reform, which means the institutional changes that make the property relations favourable to tillers of the soil and that raise the size of units of cultivation to make them operationally viable (Minhas, 1978).

For this purpose, the unjust agrarian relationship in between the farmers should be improved. The adverse tenurial system should be reorganized and appropriate ceiling laws should be enacted in order to get a substantial amount of surplus land from the big farmers for redistribution among the poorer sections (Mukherjee , 1982).

More specifically, a land problem as an area of research was the fight of the British rule during its earlier and more dynamic phase before the so-called mutiny. It has been observed that several characteristics of the feudal system are still observed in rural India. These elements have identified as (1) absence of a labor market in a large part of the rural sector (2) the personal sub-servicemen of the immediate producer to the land owner (3) the excessive importance of land rent, (4) the underdeveloped marketing system resulting in less social division of labour, a low rate of accumulation and the use of produce mainly to satisfy immediate needs and this picture must be changed.

The task of land reform research is to distinguish those regions where distribution of land is the starting point of serious anti-poverty programmes, from those where the possibilities of land redistribution have either been exhausted or have at best limited potentials. The surplus land released for redistribution should not be used for multiplying small owner's land but as a land leased for collective agriculture by the landless and poor peasants (Joshi, 1975).

Land reforms are taken to be initiating endeavour in rural as well as agricultural development. In a situation where land and capital are scarce but with a surplus army of labour, agrarian reforms are the sure and swift method of converting labour into capital asset provided institutional changes, that are land reforms are first carried out.

Such reforms can break the hegemony of the land owning gentry, diminish the wealth gap. The bureaucrats, while explaining the relevance of land reforms in ensuring a course of development suited to the poor had mentioned West Bengal's success in this area.
In spite of that the monetary institutions are still in the grip of the favour of the rural and urban rich in the rural areas (Bhalla and Chadha, 1983).

Thus rich became richer, the poor remain stagnant. Besides various physical, socio-economic, politico administrative and legal problems come in the path and make it difficult to implement the plan programmes in the rural areas. As a result of these problems the real goal of rural development has not been fulfilled. So the amount of degraded land in this region has increased due to flood, water logging etc. The same condition is observed in Basoa village of area under Rampurhat police station and this distorted the ecological balance of that area, which ultimately leads to low productivity of that particular area. Along with this the land use pattern has not been properly geared in order to facilitate the socioeconomic functions of the area. The concentration of land ownership, income and wealth has taken place in the hands of a very few affluent inhabitants of this region. The purchasing power has not increased especially among the poor farmers and the proportion of employed persons also has not largely increased. In Basoa mouza of area under Rampurhat police station money lenders play an important role in agricultural activities and they run their business openly.

The weaker section of the rural areas has been denied to take active part in he development programs so that they are deprived of receiving appropriate share of gain that arise out of the development programs. They are not gainfully employed, and their earning is very low, compelling them to live below the poverty line.

The ceiling of land holding should be further lowered, especially in the irrigated parts of the tract and in the agriculturally potential areas of the region. The ceiling on the irrigated land may be ten acres and in unirrigated tracts it is 15 acres, although further investigation is necessary regarding the aspects. This policy should be implemented immediately to take away the surplus land from the well-to-do farmers; otherwise those rich farmers will get ample time to distribute their lands to their relatives in such a way that the surplus land will not be available from them.

After taking away from the farmer, this land must be reclaimed and should be made suitable for agriculture before redistributing to the poorer farmers. But in many mouzas of the study area it is observed that the rich peasants vest their surplus lands located in lower part of the villagers which suffer from water logging or may be filled up with sand. These lands are re-distributed without reclamation which is not suitable for agriculture. Besides in many cases it is observed that affluent farmers pretend to be small or marginal farmers in order to get the vested land and loan for agriculture from the bank. Now different government agencies take various steps in order to eradicate this problem especially the Panchayat members have to be taken initiative to separate the real poor of the village from the elite.

After redistribution of vested land preventive measures have to be adopted to restrict from further degradation. Along with this loan should be provided to the poor farmers for purchasing plough, bullock and other accessories of cultivation. Besides, the poor farmers should be provided with minikits. Irrigation facilities extended to them.

The social environment should be created to support and to encourage these poor farmers for using these inputs in their own land and to discourage them for not to sale the inputs to the affluent classes. Usually the poor farmers get these mini kits from the government and perhaps they do not get irrigation facilities and sale these mini kits to the rich or affluent farmers, at a low price.
The term and conditions that exist between the landlord and sharecroppers should be made in such a way that the interests of the tillers of the soil are safeguarded. Besides the rules and regulation of tenancy is not so favourable for the poor tenants which often throw them in distress. Thus, it is necessary to implement these rules in favour of poor share croppers and they can get legal support in the court wherever necessary.

Apart from that, socio-cultural mobilization of the population should be made so that these share croppers can work with certainty and mental satisfaction. That means Tagore Society for Rural Development, I.M.S.E. and other social organizations should exchange their views of development with the rural people, with this exchange of ideas rural people should be aware of present socio-economic situation and will be able to eradicate them. But at the same time , these share croppers should not monopolize and claim more than their due share.

Appropriate Social Environment
Appropriate social environment should be created in the region through the redistribution of land, income and wealth among the inhabitants of the region and by mobilizing the people, especially the poor. At the same time the farmers, belonging to different landholding classes and social classes should be functionally tied to each other in such a manner that everyone realizes that, the development of the individual and national level should be attained through a joint venture or through the mass activities where co-operation and sympathy of everyone is necessary irrespective of class and caste. So cohesion of different classes and castes is an essential ingredient of appropriate social structure.

The existing power structure of the local self government of the village should be reorganized and re-oriented to the development of the region. For that reason, the numerical and functional domination of the weaker section of the society is necessary in the local self-government. Side by side, proper infrastructures should be created to direct, manage, and administer the functions of the local self-government for distributing gains of development programmes of equitably over the region and equally among different individuals. Besides administrative machineries (Block Development Officer, A Development Officer) should be built up in such a manner that these poorer sections of villagers can take important decision about development plans in the decision making bodies of the villages, and then they can participate actively in the development program along with the elite farmers. The functional co-ordination should be established, reorganized and strengthened between the sister department of the government institutions in one hand and between these departments and the villagers on the other

Adequate number and size of the infrastructures of development programs have to be located at the proper place in order to avoid social conflict and tension in the region. Besides, the management programmes of resources should be chalked out and welfare activities should be organized by keeping functional parity in the region and by maintaining ecological balance in the ecosystem.

Technological Consolidation

The meaning of technological consolidation is the provision of all the necessary technological inputs and services of infrastructures and facilities to a large number of agricultural plots of any region while doing so the proportion of net and the gross irrigated area should be increased in order to increase the irrigation intensities.

Irrigation has been assigned a crucial role in the strategies adopted for breakthrough in farm sector of the state because it is the single most important factor which can facilitate the fuller utilization of scarce farm land resources and can facilitate acceptance of improved farm technology and also increases the productivity.

The appropriate irrigation schemes should be located at proper places, so that, most of the farmers belonging to different socio-economic classes will get access to these schemes. The canals should be aligned on the ridges, from where water can easily slope down to the distant part of the command area. Shallow tube wells should be installed in different parts of the study area in order to get irrigation water during the rainy season especially in different parts of areas under Sainthia and Rajnagar blocks, where canal irrigation is not easily available.

Dug wells should also be installed in a large number in area under Rajnagar block where canal irrigation is completely absent. At the same time the socio-cultural organization of the village and outside, must not allow any influential sections of the villagers satisfying their own interest. Besides villagers have to build their own force to look into the maintenance of works of these schemes.

Permanent field channels should be made in the command area of the irrigation schemes for distributing irrigation to the farthest part of the command area. The command area of canal does not possess field channels which are necessary to distribute irrigation water to every corner of command area with least possible wastage. Besides temporary field channels are made in the command area of tank, tube well, etc. But those channels are not always strongly build and are not lined or straight or effective as observed in Bhagabatipur mouza of area under Sainthia block and Basoa mouza of area under block. These problems should be tackled when the field channels will be aligned. The irrigation field channels reduce wastage of water resources.

The irrigation, especially from canals, should be provided only during the time of needs due to the presence of branch (branch no. 3) canal instead of main canal as in Bhagabatipur mouza of area under Sainthia block. So, necessary social and administrative infrastructures should build up for that purpose. Besides, the physical problems that come in the way of management of water resources should also be eliminated by using these infrastructures.

On the other hand, villagers should be discouraged from irrigating their land by adopting illegal means. As for example the villagers sometimes encroach upon the canal, rivulet, river or construct earthen cross the embankment over them, but never clear them after fulfilling their needs. They damage the building structures, lock gate or parts of tubewell and so on in order to get irrigation illegally. All these anti-development activities on one hand degrade the quality of land in the region and produce social conflict and tension among the villagers of the region on the other.

After assuring the irrigation facilities to the farmers, they should be provided with fertilizers, pesticides, farm machineries loan, innovative ideas for cultivating field with satisfaction. These items should be provided to the farmers at the right time and in adequate amounts.

Ecological Balance

The amount of degraded land should be reduced through the adoption of preventive measures in order to maintain the ecological balance in the ecosystem. The output of food and fiber and fuel would be accelerated. One motive for this would be to facilitate the execution of the poverty alleviation and employment generation programme.

Deforestation, desertification, river water pollution, destruction of top soil, and depletion of water tables increasingly erode the natural resource base, thereby endangering the very survival of the people dependent on it. This has made urgent the care and consideration of the natural resources, endowment, and wasteland would therefore be developed. Forests would be protected, (K.N. Prasad, 1991) in order to maintain ecological balance in the ecosystem. Thus, wanton use of natural resources should be controlled and adverse interference made by human beings should be checked.

Nature's capacity to maintain ecological balance is immense. But nature cannot control degradation of its recuperative process if this deterioration becomes beyond its capacity. In the last phase of monsoon season, when heavy rainfall occurs in the dam cannot store the surplus in its reservoir. So the surplus water is released through the canal. This surplus water combines together with the excessive rainfall and country drainage and then flows down the slope of the terrain vigorously and cause soil erosion. This problem should be controlled immediately to reduce the amount of degraded quality of land in the region.

Some large tanks or reservoir should be constructed on the forest land or on the vested land in the region which should collect the surplus water of the study region. This is necessary especially in area under Rajnagar block where surplus water is completely wastage. Besides, field channels and drainage channels are required to be constructed all over the command area of the irrigation schemes in order to distribute the irrigation and drained water throughout the study area.

Adequate number of size and building structure like sluice gate, etc. are to be installed in appropriate places in order to provide passages to the unwanted surplus water, otherwise these surplus water stagnation in the agricultural field and cause water logging. The function of the building structures should be operated scientifically, so that the particular influential groups of villagers cannot influence the operations of these structures. Besides villagers have to build their

own forces to supervise the functions of these building structures. This process will reduce the problem of water congestion and will maintain ecological balance.

Besides, construction of side embankments, as a flood protection measure, should be made scientifically so that the interests of the villagers of the region will be satisfied. Along with the construction of embankments other preventive and protective measures should be adopted to control the flood or to protect the villagers from devastation of flood hazards.

The poor quality ground water degrade agricultural land considerably. Likewise, if the parts of the tube wells are either stolen or are damaged, then irregular flow of water from the spout of the tube well cause degradation of land. So, the maintenance, works, servicing of damage is to be performed immediately, over drainage problems also cause deterioration of the quality of land that encourages weeds to grow. So the irrigation should be provided to cultivate that land and to save that land from degradation.

Conclusion

It is necessary to say that the district Birbhum enjoys a unique position in the state of agricultural economy as a surplus district. The key to the property of this district, therefore, lies in the improvement of agriculture with a view to increase the production of rice by increasing per acre yield specially in kharif season, much stress has been given on the introduction of cultivation of some special variety short duration high yielding seeds. Inputs in the form of minikit containing improved seeds fertilizer and pesticides should be distributed among the poor farmers. The district was mainly a mono cropped area but the gradual development of irrigation facilities, water conservation methods, dry land farming and the introduction of new crop farming help to increase cropping intensity. The district derives major benefit from the *'Mayurakshi Irrigation Project'* through assured irrigation during kharif season to a large extent.

The conventional long duration paddy varieties in kharif season stands in the way of increasing cropping intensity. With a view of overcoming this problem the district plan aims to promote the planting of short duration varieties with less water requirement which would help to reduce the irrigation water during kharif season as well as early release of land for second crop during Rabi and Boro season. As Boro crop completely depends on large volume of irrigation water, so the strategy for this is to produce large amount of pulses like Gram, Kalai, Arhar and Oilseeds like Mustard etc. Besides rice the other crops of the district in order of importance are Mustard, Wheat, Vegetables, Potato, Sugarcane etc. Assured irrigation will increase their productivity.

Sugarcane is one of the important cash crops in this district and the economy of the sugar cane growers is very much influenced by the existence of Ahmedpur Sugar Mill used to remain idle due to shortage of availability of raw materials input i.e. sugar cane. The sugarcane growers will be encouraged through supply of quality seeds raised in government farms, sanction of input loans coupled with subsidy to large number of growers and extension of irrigation facility to the cane growing areas like Bhagabatipur, Kuchighata mouzas of area under Sainthia block. Agricultural marketing is a component part of agricultural production programme and due care has been taken to improve marketing facilities to ensure fair return to the producers without affecting adversely

the interest of the ultimate consumers. Stress has been laid on the easy flow of credit for transportation of agricultural produces, for construction of storage structure go downs etc. The soil conservation schemes have been drawn up to solve the problem of degradation of soil. A pilot project for soil and water management in Mayurakshi command area in operation (UCO Bank : Annual Credit Plan, 19) in the district. This project is entrusted with the work of channel lining within project area for proper and better utilization of irrigation water. Sishal Farm of area under Rajnagar block has remained uncured for a pretty long time. It is important for fiber extraction from green sishal leaves, for the preparation of ropes. A state sector scheme on dry land farming has been introduced in the western part of the district. Alternative crops like vegetables, groundnut Arhar etc. got the importance. Irrigation is one of the important parts of agriculture in Birbhum district which include both major irrigation through canals and minor irrigation comprising of deep tube wells, shallow tube wells, river lift irrigation, tank irrigation and irrigation by constructing cross embankment on rivulets. But all of these irrigation facilities are not quite large in number. The Siddheswari irrigation project has to be implemented early through the construction of dams, to supplement irrigation water in drought prone areas of Rajnagar, Dubrajpur, western part of Suri blocks. Stress has been given on the conjunctive use of canal irrigation as well as available ground water in Mayurakshi command areas for increasing cropping intensity.Besides interaction of different government offices, regarding agriculture is necessary in order to improve the present agricultural situation of the district.

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