CHAPTER – 7
CONCLUSION AND SUGGESTIONS
7.1 Conclusions:

From the overall findings relating to the objectives and Hypotheses of the study, we draw up the following conclusions.

The slope coefficient on the trend in productivity of rice in Hailakandi district has been found to be negative on the basis of secondary data. This implies that the land productivity of rice in Hailakandi decreases by 10.4 per unit of time. The decrease in land productivity of rice in Hailakandi can be attributed to the insufficient use of fertilizers, inadequate irrigation facilities and insufficient use of HYV and lack in the use of modern technology by the farmers.

The trends in average productivity of other leading districts are decreasing by 11.99 per unit of time. A comparison of the trend of productivity of rice in Hailakandi district with the trend of average productivity of the leading districts of Assam makes it clear that the rate of decrease in average productivity in the leading districts is more than that in Hailakandi district. Thus, the trend of agricultural productivity in Hailakandi district is not at par with other leading districts of Assam. The trend in area under HYV of rice production decreases by 344.9 per unit of time in Hailakandi district. The trends in fertilizer consumption in Hailakandi are also decreasing by 38.04 per unit of time. The decrease in fertilizer consumption may be one of the reasons of declining land productivity as found earlier in Hailakandi district. Gross Irrigation potential created in Hailakandi is also showing a negative trend. It also decreases by 171.6 per unit of time.

The study measures the relationship between farm size and productivity by applying regression taking productivity as the dependent variable and farm size as the independent variable based on primary data. The Beta coefficient on farm size is significantly negative. This is inconsistent with the literature that provides inverse relationship between farm size and productivity. R-square is found to be 0.34. This suggests that 34% variation in productivity is explained by the variation in farm size. Thus we can say that the size of the holdings has impact on productivity.

It has been found that the productivity of the small holdings is more than that of relatively larger farms. The main cause as already narrated is the feelings
of belongingness of the cultivators in the small farms which is rare in large farms. Though the large farms are more suitable for technological adoption we do not get higher productivity because of the psychological factors. So a mechanism of providing more incentives to the farmers to develop a sense of belongingness among them needs to be created for overall development of agriculture in general and Hailakandi district in particular.

In order to make more insight into the productivity of rice in Hailakandi district, we applied multiple regressions. Apart from farm size, coefficients on technology, HYV, irrigation and fertilizer are positive, implying positive impact of these variables on productivity. It means productivity will increase if technology, HYV, irrigation and fertilizer are increase.

The study also empirically tested the linkage between farm size and productivity. The coefficient on farm size is significantly positive. This has an implication that larger the farm size, the more is the use of technology. It implies that the variable farm size is responsible to determine the technology used in the farm. So, we observed that adoption of new agricultural technology is not scale neutral in Hailakandi district.

In order to investigate into the relationship between crop diversification and infrastructural facilities, we applied multiple regressions. The coefficients are positive and significant at 1% indicating that the explanatory variables of technology, irrigation, fertilizer and credit are directly associated with crops diversification. This implies that the variable number of crops increases with a unit increase in each of the variables. Such a positive linkage is expected from the theoretical point of view.

The most accelerating factors determining productivity like irrigation and water supply facilities of the district are not properly functioning, although there are many schemes being taken up during the plan period of Assam.

From field survey it is observed that the farmers of the district are not practicing a fully mechanized system of ploughing. The farmers are still using the traditional wooden plough. The use of chemical fertilizers and adoption of HYV is inadequate in Hailakandi district. The marketing in the rural areas is accompanied by many inadequacies. The worst is the earthen roads connecting
remote village areas preventing the farmers from carrying the agricultural products to the towns for sales at a reasonable price.

There is a lack of institutional credit facilities. In such a situation, farmers are compelled to take shelter in local landlords or money lenders with a high rate of interest to meet their urgent needs. Due to these constraints, productivity (yield rate) in Hailakandi district is comparatively lesser than the all India level.

The study indicates that the plan and policy of the Government for the development of agriculture could not provide the necessary infrastructures like irrigation, institutional finance for implementation of modern agricultural method. This study found that the irrigation facility in the district is only 6.96% of the households surveyed and 10.36% farmers get credit facility from institutional sources. Moreover, fertilizer and pesticides in a fair-price shop are also hardly available.

7.2 Suggestions for Improving Agricultural Productivity:

The low agricultural productivity is a very serious problem for the economy of Assam as well as Hailakandi District. Agriculture remains the mainstay of a large majority of rural population. So improvement of agricultural production and productivity is of immense necessity. For the improvement of agricultural productivity in Hailakandi district the following measures may be adopted.

1. Application of Modernized Technology:

Modern technology in agriculture is one of the important factors for increasing agricultural productivity. Modernization of agriculture i.e. use of modern agricultural inputs is the need of the hour in Hailakandi district. The uses of traditional wooden plough have to be gradually eliminated and replaced by modern technology. Farmers in Hailakandi district should apply modernized techniques in their agricultural farms for raising agricultural productivity. The application of scientific technology such as the use of tractors, pumping sets, water-lifts, seed drills, fodder cutters, pesticides, and insecticides etc. should be adequate for increasing agricultural productivity in the district.
2. Providing Sufficient Irrigation Facilities:

Irrigation is the one of the most important factors for the growth of agricultural production and productivity. But Irrigation Facilities are very rare in Hailakandi district. Agriculture still depends mostly on rainfall in Hailakandi district. There is a need to increase more irrigation projects. The existing projects which are out of order needs to be repaired. The steps for the development of irrigation facilities in the district are urgently needed. So the Government should provide sufficient irrigation facilities.

It is observed in the field survey that the service of DTWs and STWs are not available except rare LLPs. Therefore, it is suggested that necessary steps should be taken to expand the minor irrigation schemes specially STWs and LLPs which will increase the utilization of irrigation potentials. Moreover, for developing irrigation facilities, the district has to depend on its two rivers, Dhaleswari and Katakhal, for the water source. Therefore more emphasis should be given on irrigation canals to supply water to the fields.

There is potential for surface water irrigation in Hailakandi. But the scope of sub surface irrigation is very limited due to lower water table causing no feasibility of STW. Therefore strength of LLP, Electric motor and flow irrigation will be increased to increase area under irrigation.

For development of irrigation, the following actions are needed:

Ground water irrigation – Deep tube wells with appropriate institutional structures.
Surface water irrigation – for promoting the geographic spread of rabi season and for flood control.

3. Adequate use of HYV Seeds:

The use of HYV seeds in Hailakandi district is inadequate. Most of the farmers still use traditional seeds. More and better use of HYV seeds along with the modern agricultural inputs is the need of the hour. Thus, the area under HYV of seeds should be enlarged by popularizing HYV seeds among the farmers in the district to increase agricultural productivity. The numbers of seed distribution agencies are not adequate in the district. Improved and High Yielding Variety of
seeds should be properly supplied to the actual farmers through seed agencies for increasing productivity.

4. More Utilization of fertilizer:

More use of fertilizer along with the modern agricultural inputs is an immense necessity for which the district is also lagging behind. The numbers of fertilizer distribution agencies are not adequate in the district. Fertilizer subsidy directly to the farmers is necessary for the development of agricultural production. Moreover, the Department of Fertilizer in co-ordination with fertilizer industries should initiate pilot programmes in the district level.

The following strategies may be proposed for sustainable development for agricultural production and productivity. These are: Promoting preparation and use of compost, vermin compost, and cultivation of green manure crops and application of compost in scientific method.

5. Expansion of Credit Facilities:

In Hailakandi, agricultural finance is inadequate. Thus, credit facilities from institutional sources, particularly marginal holdings are to be provided on an urgent basis. In this regard, the process of availing loans from banks should be easier so that the farmers have easy access to bank loans.

In Hailakandi district agricultural finance is inadequate. A very minimum percentage of household cultivators received credit and most of the households are deprived from credit. There is a need for delivering credit to every household. Credit for small and marginal farmers is more important because they are mostly dependant on village moneylenders who charge high rates of interest. Thus, credit facilities from institutional sources, like commercial banks, regional banks, and co-operative societies are to be provided on an urgent basis particularly to marginal farmers. Intermediators (dalal/middle men), in between farmers and financial institutions should be removed as they discourage financial market. In this regard, the process of availing loans from banks should be easier so that the farmers may have easy access to bank loans. So, a sound district credit planning is the need of the hour.
Credit facilities to farmers of all categories should be encouraged in order to adopt modern technology, which can certainly raise productivity from all size holdings.

Expansion of easy credit facilities through rural banks should expand its network to cover every village. Without solving the problem of agricultural credit no programme of development in agricultural sectors can succeed. The improved means of production require enough capital and poor farmers cannot offer to invest. Hence, they are in the grip of money lenders. The Govt. has to make arrangements for supply of inputs through subsidy and for easy flow of agricultural credit from institutional sources.

The following strategies may be proposed for Expansion of Credit Facilities:

1. Improving the risk bearing capability of farmers.
2. Improving the Accessibility of farmers to banks.
3. Improving the repaying capacity of farmers.
4. Improving misconceptions on both sides (Farmers & Bankers)

6. Marketing Facilities:

A well organized agricultural marketing can play a vital role in agricultural development. Agricultural marketing network should be improved in the rural areas of the district so that farmers may sell their produce at a reasonable price. The roads connecting the villages should be improved as soon as possible for the rapid development of Hailakandi district.

Improved marketing facilities, in such a way that farmers receive better and remunerative prices for their product particularly for small size of holdings, are urgently needed. Therefore, it is suggested that the government should come forward and take an initiative for establishing a developed organized market structure. Steps should be taken to develop marketing infrastructure in the district through strengthening regulated marketing network.

This is very much necessary to stop exploitation of farmers by middlemen. The number of intermediaries should be as small as possible so that the middleman profits are reduced. To improve the marketing facilities,
however, the development of marketing centre in the district is very much necessary.

The price of produce should be regulated so that the producers are not deprived of their fruits of labour.

Commercialization of agriculture requires establishing markets and trading centres with adequate storage facilities close to production centres. More numbers of markets and trading centres with adequate storage facilities close to production centres will be established in the district. Rice is the most dominant crop in Hailakandi. The prevailing markets of paddy in the local, neighboring districts, states and the country are the main advantage and inspiration for commercialization of paddy.

The role of private sector must be recognized here. Private sector may be expected to play a major role in the development of general-purpose agricultural markets and marketing yards, though some narrow private channels of trade might emerge over time. Here too, the initiative has to come primarily from the government.

7. Provision of Warehousing Facilities:

In order to have better advantage in marketing of his agricultural produce the farmer should have proper facilities for storing his goods. He should have holding capacity, in the sense that, he should be able to wait for times when he could get better prices for his produce.

A govt. warehouse may be established to store fertilizers, and other inputs. Private sectors may also be expected to play a major role in the development of rural godown, cold storage, processing units of fruits and vegetables.

8. Improved Transport Facilities:

The farmers should have cheap and quick transport facilities, which would enable them to take their surplus produce to the Mandi located in district headquarter. The earthen and non-metalled roads connecting the villages should be improved as soon as possible for the rapid development of Hailakandi district.
To improve the marketing facilities, however, the pre requisites are the development of roads and communication between the villages and marketing centres in the district.

9. Minimum Support Price:

Marketing of produce has to be profitable and agriculture should have a profit motive rather than a self-consumption motive. Profit motive would be strong if and only if the farmers are able to sell at such a price that gives them the desired profit margin. The government has to come up with a minimum support price programme and make it effective at the grass root level so that the sale of paddy is strictly done at or above the minimum support price.

10. Multiple Cropping:

Multiple cropping is the solution to cultivator’s poverty, backwardness and lack of commercialization. The key to marketable surplus generation is both higher yield per bigha as well as multiple cropping.

Cropping pattern in the district is predominantly cereal based. Non-cereal and commercial crops are also grown in some parts. An adequate and economically most advantageous cropping pattern needs larger areas to be brought under high price crops, so that the overall incomes from the district’s agriculture are maximized.

The system of mono-cropping cultivation should be changed to double and multiple cropping systems for raising the volume of productivity. For raising cropping intensity larger areas should be brought under cultivation with the help of supporting factors like proper irrigation facilities such as canal irrigation networking, rain water harvesting and personalized micro-irrigation facilities.

11. Rainwater Harvesting:

Since agriculture in Hailakandi district mainly depends on rainfalls which are uncertain, steps should be taken with regard to rainwater harvesting in the district. In this regard, the govt. of Assam should come forward to increase
awareness of rain water harvesting among farmers for utilization of rain water in agriculture to increase productivity.

12. Creation of Alternative Employment Opportunities:

Alternative employment opportunities during the lean season must be created to give income support to the farmers through areas like construction works, improved small scale and cottage industries. In this regard, rural employment generation programmes like NREGS, PMGSY should be properly implemented in the district to generate alternative employment during lean season in the district. This will help further the agricultural investment especially in the marginal holdings.

13. Proper Wages to the Agricultural Labours:

Agricultural labours must get incentives to higher productivity. Moreover, agricultural labours get very poor wages in spite of legal provision of minimum wages. Measures must be taken to see that the workers get their due share. One effective way of achieving this is to promote trade unionism among the agricultural workers in the district.

14. Education and Training:

For the improvement of agricultural productivity in the district, the quality of farmers must be improved through education, both general and technical.

For the improvement of agricultural productivity in the district, the quality of farmers must be improved through education, both general and technical. At least a minimum level of education has to be provided to farmers so that they are equipped with a workable knowledge and efficiency to make use of the improved methods of production in Hailakandi. Technical knowledge has to be imparted to cultivators in order to get optimum results. Basic literacy and education of the cultivator is the key to awareness, motivation, and above all access to both financial capital as well as vital information necessary for agricultural success. Without basic education, literacy and awareness, it is difficult to raise efficiency
in farming. Education plays a vital role in the adoption of new seeds and techniques which otherwise remain difficult.

Since extensional personnel are incapable to provide appropriate facilitation for the redressal of divergent types of need of the farming community, to upgrade their capacity, the following activities may be proposed:
1. Orientation training cum exposure visit on market led extension.
2. Orientation training cum exposure visit on HRD skills.
3. Orientation training cum exposure visit on entrepreneurship skills.
4. Orientation training on information communication technology.

15. Agricultural Extension Service Network:

The existing extension service network seems theoretically good but there is a gap in the coverage of extension agencies so far their approach to the grass root level is concerned. Agricultural extension services have to reach all corners of the district and must reach all classes of farmers. The extension functionaries will be engaged for motivating the farmers for following suitable cropping pattern with appropriate crop varieties for commercialization of kharif crops.

The following activities may be proposed:
1. Mobilization of all existing FMCs, SHGs, FIGs to follow full package of practices in autumn, winter and summer rice through extension tools.
2. Revitalization and motivation of at least 25–30 % members of all farmer organizations to adopt preparation of super digest compost or vermin compost through extension tools.
3. Motivation of farmers and farmer organizations to replace own seeds by certified seeds in every three years.

16. Flood Control and Anti-erosion Measures:

Flood is a common phenomenon in Hailakandi district of Assam. Without having a permanent solution to the complex problem of preventing floods in the district, agricultural productivity cannot be improved. So far, the flood control
measures adopted in the district are only of temporary nature. Topmost priority has to be given to the flood control and prevention of soil erosion in the district. Construction of embankments and strengthening of the existing ones, canalization of rivers, bank protection works and village protection works must be taken up on a large scale in Hailakandi district.

17. Crop Insurance:
   In Hailakandi, harvest is uncertain due to occurrence of floods and droughts.
   The kharif season, which is the main cropping season in Hailakandi, is subject to various natural risks such as floods and high humidity. Effective implementation of crop insurance scheme is much more important in the district.

18. Government Subsidy:
   Government help to the agricultural farmers is very much essential to increase agricultural productivity in the district. Improved mechanization of agriculture is not possible by the poor farmers without government support. The Government should provide the tools and implements relating to mechanized agriculture to the actual farmers at subsidized rates properly.

19. Model Farming:
   Equipped with better technical know-how and scientific management, the agricultural department should setup the model farmers in every Community Development Block to induce cultivators to adopt quickly and easily better farm practices and newer crops in the district.

20. Raising Labour Efficiency:
   Only removal of surplus labour from agriculture will not automatically raise the labour productivity. The conditions of labour efficiency have to be increased. The most important necessities are improvement of general health and hygienic living. To save the farmers from epidemics and other diseases, adequate public health measures must be undertaken. Farmers should off their fatalism and
adopt new ideas which will make them more rational and help them to gain self confidence in the district.

21. Land Reforms:

Legislative measures which are already taken by the Government of Assam are bold. But most of them have been renamed in papers only. The land selling measures and distribution of surplus land to landless cultivators should be implemented in true spirit in Hailakandi district. Therefore institutional reforms are urgently needed for consolidation of marginal holdings.

One of the main objectives of the growth of agricultural productivity is alleviating poverty and bringing about infrastructural and technological changes. This requires not only a change in institutional policies but also enhancement of public and private investment in agricultural research, rural infrastructures including roads, marketing, storage and irrigation. Investment is a better instrument than subsidy in agriculture and whatever subsidies to be provided it should be targeted to the poor and backward regions. The role of human capital and agrarian reforms are critical, as these have direct and indirect effect on agricultural productivity and rural poverty. Moreover, it is further suggested that in view of the financial austerities of government, incentives to farmers should be improved to enhance private investment in agricultural sector.