CHAPTER - SEVEN

CONCLUSIONS AND SUGGESTIONS

7.1. FINDINGS FROM SECONDARY DATA

7.1.1. DEMOGRAPHIC FEATURE

As per 2011 census, out of total population of Barak Valley the Cachar covered 48.06 percent, Karimganj covered 33.69 percent which is followed by Hailakandi covering 18.25 percent of population. The population of the valley and Assam has been rapidly rising. As per 2011 census, 11.59 percent of the total population of the state is covered by Barak Valley. The share of population of Cachar, Karimganj and Hailakandi districts in the total population of Assam are 5.57 percent, 3.90 percent and 2.12 percent respectively.

7.1.2. LAND AND NATURE OF THE ECONOMY

Out of total area of Barak Valley, the Cachar district covered 55 percent, the Karimganj district covered 26 percent and the Hailakandi district covered 21 percent. The proportionate area of Barak Valley in the total area of Assam is 8.82 percent. The three district of the valley namely Cachar, Karimganj and Hailakandi covered 4.83 percent, 2.31 percent and 1.69 percent of the total area of the state respectively. Out of
total area of the valley only 1 percent area is covered by urban area and the remaining 99 percent is covered by rural area. The percentage is also same in the case of three districts of the valley and Assam as a whole. The per capita Gross District Domestic Product (GDDP) at both current prices of the year 2007-2008 and constant prices for the year 1999-2000 is low in the three districts of Barak Valley than the Assam average. In Barak Valley, the per capita GDDP both in current and constant prices is higher in Karimganj district which is followed by Cachar and Hailakandi district in the year 2007-08.

7.1.3. OPERATIONAL HOLDINGS

The distribution of operational holdings in Barak Valley is highly skewed with the concentration of more than half of the holdings in the lowest class (less than one hectare). The average size of holdings in Barak Valley and all Assam average is almost same. About 70 percent operational holdings in Barak valley are marginal and if the small and marginal holdings (i.e. holdings less than 2 hectares) are considered together, as many as 90 percent holdings of the valley belong to this category with 8.82 percent operated area. According to 2011 census, the average size of holdings of Barak Valley and Assam as a whole are 1.52 hectare and 1.50 hectare respectively, however the national average of the same is 1.16 hectare.
7.1.4. CROPPING PATTERN

Agriculturally Barak valley is virtually a mono-cropped region producing paddy. During the period 1971-72 to 2010-11, the share of paddy to total cropped area of the region fluctuated between 91.64 percent and 95.12 percent without showing any upward or downward trend. An important feature of the cropping pattern of the valley is the predominance of paddy. The seasonal growth of paddy was somewhat in contrast with the broader trends observed for the state as a whole. It has been found that in the state there are significant increases in the share of summer paddy over the years with the related decline in the share of winter paddy. Traditionally, Barak valley had a much higher share of summer paddy in total paddy area than for the state as a whole. Comparatively higher traditional share of summer paddy in the region can be endorsed to the existence of large extent of low lying natural depression and waterlogged areas suitable for the cultivation of boro paddy. However, the absence of the increase in the share of summer paddy area in the region corresponds to be due to the lack of progress of the region in respect of irrigation infrastructure.

Among other crops grown in the region, the notable ones are rape and mustard, pulses, potato, sugar cane and vegetables. The net sown area of the valley falls short as compared to 18.3 percent in the
Brahmaputra valley, 17.3 percent in Assam and 32.5 percent in India. The ratio of Gross cropped area to net sown area in the valley works out to be 1.25 percent whereas; it is 1.29 percent in the Brahmaputra valley and 1.28 percent in Assam at aggregate Economic Survey, Assam 2010-11) Low intensity of cropping in Barak valley is found.

7.1.5. GROWTH IN AREA, PRODUCTION AND YIELD OF PADDY

The estimated annual compound growth rate shows that the production of total production of paddy (that is autumn, winter and summer paddy are taken together) registered impressive growth of 2.56 percent during the period of 1974-75 to 2009-10. The growth in paddy production was made possible mainly by growth in yield at the rate of 2.4 percent per annum, as area under paddy did not expand significantly. Season wise the growth in output was highest in the winter paddy crop. The yield rate of winter paddy maintains its decreasing trend during the year from 2004-05 to 2007-08, mainly due to draught like situation and severe floods that the state and the valley as well had experienced during the peak of the season. However, due to good seasonal rainfall during the year 2009-10 the yield rate of winter paddy has increased.

In the case of autumn paddy, there has a negative growth of production caused by a large negative growth in area, which outweighed
the positive growth of yield. In case of summer paddy, on the other hand
the productivity continued to maintain its increasing trend during the
period 2004-05 to 2009-10 except in the year 2005-06 in the state.
However, the yield rate of summer paddy in the state was marginally
low during 2009-10 i.e. at 3.8 percent. While in the case of Barak valley,
the production of summer rice, there was a mild growth of production at
the rate of 1.34 percent per annum, which was entirely contributed by
growth in area, as the yield rate did not show any improvement.

The yield levels of many of the major crops in the region were
found very low and well below their corresponding national average.
The trend of productivity of pulses and oil seeds was erratic during the
period 2004-05 to 2010-11. However, the productivity of oil seeds
recorded at 3.64 percent decrease during 2010-11 and the productivity
of pulses shown 2.4 percent recovery during the same period.

The yield of paddy in the Barak valley region has been above the
Assam’s yield in most of the years but for the other crops the yield of
Barak valley has been less than the state as a whole. Thus the pattern of
growth of paddy as a whole in the Barak valley region was similar to
that observed to hat in the state as a whole, season wise the pattern and
composition growth was very different in the valley and Assam as a
whole. There has been an impressive growth in production of summer
paddy helped by growth in both area and yield. As mentioned above, similar growth in summer paddy did not occurred in the Barak valley region. In contrast to negative growth of production of autumn paddy in Barak valley there was a significant positive growth in the area under this crop for the state as a whole. But the redeeming feature of the season wise growth pattern of Barak valley is the much higher rates of growth in production and yield of winter paddy compared to the state as a whole. The study confirms that there is not so much of significant difference in the growth of production and yield between Barak valley and Assam as a whole.

7.1.6. COMPARATIVE YIELD OF PADDY IN BARAK VALLEY, ASSAM AND ALL INDIA

The comparison of yield of paddy in the Barak valley region, the state of Assam as a whole and at the all India level shows that Barak valley yield has been above the Assam yield for most of the years during 1977-78 to 2010-11, though former in general remained below all India yield. However, the yield in Barak valley showed greater year to year fluctuation compared to the overall yields for Assam and for all India. The greater instability of yield in the region corresponds to the fact that, in Barak valley, paddy is still grown almost entirely under rain fed conditions.
7.1.7. AREA UNDER HYVs

As per statistics of the directorate of agriculture, government of Assam, by 2010-11, the acreage under high yielding varieties got extended to 55.42 percent of total area under paddy in the region. Going by the rates in terms of proportion of paddy area under HYVs, Barak valley stands ahead of state as a whole but somewhat behind the country as a whole. The total area under HYVs, of autumn paddy, winter paddy and summer paddy has increased from 13.45 lakh hectares in 2006-07 to 16.26 lakh hectares in 2010-11. During the year 2005-06 the area under HYVs, was 14.5 lakh hectares, the area coverage of HYVs, to total paddy area has been increasing step by step from 59.9 percent in 2005-06 to 65.0 percent in 2010-11 considering the productivity, cultivators preferred the seed of HYVs, etc.

7.1.8. IRRIGATION INFRASTRUCTURE

Irrigation potential created has increased very slowly in the Barak valley and also in Assam. Utilisation of irrigation potential created has declined over the years. However, 6.4 percent of the net sown area in the valley has irrigation facilities while the net irrigated area is 9.6 percent and the gross irrigated area of the valley is 14.04 percent. The utilization of irrigation potential in the Brahmaputra valley had diminished from 56.09 percent in 1990-91 to 34.40 in 2009-10. It is pertinent to mention
here that the utilization of irrigation potential is not up to the mark and there is a gap between the created irrigation potential and the potential actually used. The primary reason of less utilization of irrigation potential is that the cultivators are reluctant to take advantage of irrigation facilities. In order to encourage the farmers to go for multiple cropping, motivation training programmes are conducted from time to time. Such low utilization means that most of the crops are cultivated under unirrigated conditions. A large part of agricultural land remains unutilized.

7.2. FINDINGS FROM PRIMARY DATA

1. The majority of the sample farmers (43 percent) fell within the age bracket of 41-50 years and the lowest percentage of respondents fell in the age group of below 40 years. However about 28 percent of respondents have been found to be in the age group of above 60 years. The Average age of the respondents has been found to be 52 years.

2. Near about 24 percent of the respondents is Hindu by religion while the rest are as Muslims by religion.

3. Only 0.30 percent of sample farmers’ head of the households is found to have educational attainment of above 15 years whereas more than one fourth of the respondents have educational attainment
ranging from 0–5 years. The level of education among farmers is low with mean number of years of schooling 8.2. The primary data has also witnessed a huge disparity in educational attainment among agricultural sub-divisions under study.

4. The average year of experience of the respondents is estimated to be around 26.

5. The study also found that about 30 percent of the sample farm households have their annual income ranging from Rs. 0-50000 percentage of respondents in the income group Rs. 50001-100000 and Rs. 100001-200000 has been found to be 35.4 and 30 percent respectively. Highest percentage of sample farmers has been recorded in the income range of Rs. 100001-200000. Agricultural sub-division wise disparities in income have also been observed in this study.

6. The distribution of respondents according to the size of their operational holding witnessed highly skewed distribution of operational holding among the sample households. Most of the farms are small in size with a mean farm size of 2.11 hectares, however moderately it is found from the respondents that there are 721 households are below average and that of 350 farm households are above average. The study has found that above average farms are statistically more efficient than that of below average farms.
7. Of the total cropped area among 1071 sample households about 75 percent of area is under the production of paddy; however the highest percentage is under winter paddy marginally followed by summer paddy. However area under autumn paddy cultivation has been found to be very poor.

8. The ANOVA test result shows that the F value indicates a statistically significant difference in the efficiency level among the farmers of the three districts of the valley.

9. It is found from the analysis that as the farmers are more and more aged, they become more talented to adopt better agriculture.

10. The study revealed that yield per hectare of land in the study area is also influenced by technology adoption, that significantly and positively influence the yield.

11. It is also found that irrigation has a positive significant relationship with yield per hectare. However the farm size is proved to be significant and is exerting positive impact on yield, which implies that yield per unit of land increases with an increase in farm size.

12. The sample farmers of the valley face a special problem of having no access to the institutional credit of any kind. Since the credit institutions usually offer loans to the farmers against their land as
security, the farmers have less land to offer and do not get any credit augment in their working capital.

In the sample villages, the farmers are deprived of the benefit of receiving institutional credit, while these farmers do not prefer to take loan from the village money lenders because of their exploitative nature of high interest rate upon the capital. For the asset less farmers without access to an organized credit market, the farmers contract itself can serve as a kind of collateral for credit transactions with the land lord. Further for the poor farmers, it is not possible to show the standing crops for raising credit from the village traders for their daily necessities. In brief a commonly observed feature of poor agrarian economy of Barak valley region of Assam is the persistence of the institutions of informal credit arrangement.

The farmers in the sample villages use credit mainly for consumption purposes. The mode of informal credit transactions are of various types - kind to kind, cash to kind, cash to labour-each having different terms and conditions. The contractual term becomes more severe with the increasing amount of credit. Important features of credit market in our sample villages are--- (a) there are variations in the credit contracts on the basis of terms and conditions, other than the rate of interest. (b) The multiple credit systems of loans co-exist. This co-existence is the manifestations of the varying bargaining powers of
the lenders and the borrowers in the agricultural credit market and
reflection of imperfection not only on agricultural credit market but also
in the other agricultural markets such as labour market, commodity
market etc. The extension of loan in paddy for instance, and repayment
of the same in terms of labour services, implies that credit market,
commodity market and labour markets are all interlinked.

13. The size of rural population that is to say size of the households has
been a hot topic of discussion especially in the context of Barak
Valley agriculture. The high share of rural population in total is put
forward as a sign of underdevelopment. In short, rural population
problem has been very popular in recent years and everybody seems
to agree on the necessity to decrease the rural population for one
reason or the other. It is to be suggested that to avoid this danger
and this disguised unemployment, rehabilitation and transfer of rural
population to other sector is an important move. Once this policy is
designed on the ground of efficiency improvement, the problem
becomes decreasing by retarding the size of rural population that is
employed in agricultural production rather than decreasing the rural
population itself. Unpaid family labour constitutes an important
account of labor employed in agriculture. Thus, policies to create
alternative job opportunities in rural areas are both necessary and
sufficient to bring a solution. Though, carrying people from rural
areas to urban centers seems to be easier, its cost to the whole economy is likely to be more than its benefits. Thus policy makers should undertake this challenging task without losing time, since such a restructuring will require a prominent effort and time. It is to be suggested that to avoid this danger and this disguised unemployment, rehabilitation and transfer of rural population to other sector is an important move.

14. Use of modern technologies in agricultural production is generally achieved by giving technical support to farmers. However, technical support is found to be immaterial for efficiency. This however means that the farmers of the valley are mostly tradition based; they feel uncomfortable to adopt and practice HYVs and various types of organic manures. Hence the tradition based paddy yields comparatively lower return to the farmers. Thus to sum up, problems arising from the production side of agriculture are though, and they work out to be the underlying reason of issues that are discussed publicly. Designing ultimate solutions is beyond the scope of this work and probably any single work. The agriculture of Barak Valley is in the eve of an inevitable transformation. Most important challenge that awaits the policy makers is that they need to move the economy closer to the production possibility frontier. The major
constraints faced by the sample farmers in the study area, as expressed by the farmer-respondents and also found from the analysis made in the earlier chapters were high cost of the farm inputs, fluctuation in the prices of the produce, shortage of manures at the season time, lack of transportation and marketing facilities, fragmentation and division of land, scarcity of funds, shortage of irrigation infrastructure, lack of technical assistance, low price for the produce, which were considered to be the crucial. In order to safeguard the interests of the farmers and to enhance the farm level efficiency, necessary arrangements need to be made to facilitate credit, inputs and market information timely and adequately available to them.

Theoretically, factors affecting the efficiency of the farmers are level of fertilizer use, age of the farmers, experience of the farmers, level of education, level of awareness about improved technology, availability of cash etc. During discussion with the farmers, at the time of data collection, these theoretical considerations were further supported. Level of awareness included the sum total of extension contacts, discussions with other farmers about input use, number of times the farmer listened to agricultural programmes on televisions (TV) and reading of agricultural magazines.
7.3. CONCLUSIONS

The study proposed to find out problems and prospects of raising farm level efficiency in agriculture of Barak valley region of Assam. We have found that in the valley, agriculture is the key sector providing food and livelihood and a prime source of employment and income to the people in general. As the scope of bringing in new land area under cultivation has become severely limited, the important way to enhance agricultural productivity is through introduction of improved agricultural technologies and its appropriate utilization.

It has been observed that there arose an increase in the efficiency levels of farmers throughout the valley. That is to say the farmers’ ability to generate efficiency from the use of various inputs in the production process has increased. However there is a considerable variation among efficiency levels across sample farmers. The parameters of efficiency as observed from the field study as well as by the review of various literatures suggest that agricultural production is crucially dependent on land. An important implication of this finding is that, any policies to improve the efficiency of production should put a special emphasis on land as a production factor. It is believed that in Barak valley land on average is in quite low quality basically due to climate conditions prevailing in the other regions of the country. This
conclusion stems from the international comparisons of partial efficiency measures, especially yields. First of all, it should be understood that although the maximum natural yields are determined by the land quality and climate conditions, yields may increase by changing the production technology and the amount of other inputs. The analysis related to fertilizers, irrigation and pesticides suggests that quality of land has a material effect on the efficiency of production, together with land. Thus, low average yields are not the “destiny” of the farmers of the valley, but a consequence of rather outdated production technique. The results predicted in this study clearly stated that with the current state of technology it is not possible to increase the output without increasing the cultivated land. For all practical purposes, output elasticity of land is quite high compared to the other inputs. However, the interaction of land with the factors affecting the efficiency shows that there is already an excess employment of land in the valley.

The overall results indicated that farms are generally and technically scale inefficient. Smaller farms are less efficient than big farms because large farms tend to adopt new technology faster than the smaller farms due to their relative better access to credit, information and other scarce resources. Farm location, age of farmers and different crops or types of farms also matter for the level of efficiency. Technical
efficiency is related to economic factors, environmental conditions, locations, farm size and various agricultural policies. Farms located in the areas with better soil and weather conditions are more efficient than those who do not. However, in general, the farm level efficiency have been increasing proportionately as new and better farm practices have been implemented over the years.

7.4. SUGGESTIONS

Policy suggestions for increasing technology adoption and for rapid agricultural development of the Barak valley region can be derived on the basis of the findings of the study as follows:

1. The extension workers (VLEW) contact with farmers should be strengthened, as this is an important aspect in farmer’s adoption of behavior. Inspite of reorientation programme of the government extension services network over the last many decades, there are still enough limitations exist in the coverage of extension agencies in the Barak valley region. The problem of adequate coverage and intensity of extension services needs to be addressed and should be minimized. The study has found that farmers contact with the extension agents is very less as has been reported by the respondents. Keeping in view of the findings of
this study, the government should focus on improving the capability and effectiveness of the extension service.

2. Education plays a great role to influence the technology adoption and helps to raise the yield per hectare of land as observed from the analysis of the study. Thus government should adopt adequate measures to improve the level of education of the rural population mainly vocational studies. The farmers should be enlightened on the relevance of technologies to encourage adoption through various farmers training programme.

3. There is an urgent need for irrigation projects in rural areas. Adequate measures are required by both public and private sectors participation for the development of irrigation infrastructure in the region. The government should take special efforts to improve irrigation facility in the study area.

4. It is well understood that due to poverty, many a time’s farmers are not able to adopt any new methods of agriculture. So an increase in income would surely motivate farmer to gain more yields by adopting recommended package of practices. Hence, essential measures are looked-for to improve the institutional marketing system in order to get better the economic status of farmers.
5. It has been found that credit facilities are inadequate in the study area for the farmers. As such adequate credit facilities to the farmers need to be extended in the region. This will reduce their excessive dependence on informal sources of credit with orbitant rate of interest.

6. The study has been observed from the study that farm inputs such as fertilizers, improved varieties of paddy seeds, chemicals for weeding and curbing the activities of pest, rodents and diseases etc. are not available to the farmers in desired quantity. So these input should be made available to farmers at highly subsidized rates and make them available timely, through adequate supply and efficient distribution system.

Low productivity is a serious issue not for the Barak Valley region of Assam rather for the different parts of the country; hence it is important to continue research on productivity efficiency of paddy by national research organizations. With the rise in population, the demand for food grains specially paddy are increasing day by day and to address the same there is no option left except rendering stress on the production side. Agricultural mechanization thus needs to be ensured towards increasing productivity. So as the new millennium has already started, we must have to keep a fresh and a positive look for a better future.