

## **CHAPTER- V**

### **FINDINGS AND MEASURES TO REDUCE SPATIO-TEMPORAL DISPARITIES IN RURAL DEVELOPMENT OF ASSAM**

#### **5.1 Summary of Findings of the Study**

The main objectives of the study entitled “A Critical Study on Spatio-Temporal Disparities in Rural development of Assam” are to find out the status and extent of disparities along with the factors responsible for the disparities across different regions of the rural economy of Assam in the post liberalization census periods such as in 1991, 2001 and 2011. Further, the study wants to find out the policy measurement to reduce such spatio-temporal disparities in Assam. Subject to the availability of data, the study has collected secondary data for the chosen indicators of rural development and the factors for such level of disparities. All the values of the chosen indicators have been transformed into a standardized uniform index for comparability of the data. Similar to the construction of dimension index of HDI (Human Development Index) by UNDP (United Nations Development Programme), 2006, the indices of the indicators have been constructed. Based on the values of the indices, the different regions have been divided into three development groups such as high development, moderate development and low development. This has been further analyzed by standard deviation and correlation coefficient. Again, to test the hypotheses and answer to the research questions the research scholar fitted a multiple regression model and simple correlation coefficient with values of the factors as independent variable and values of composite index of rural development as dependent variable. This is an inter-district level study where different indicators of rural development of the rural regions have been taken into account. The study also wants to analyze the rural developmental disparities through different cluster of districts such as Upper North Brahmaputra Valley, Upper South Brahmaputra Valley, Central Brahmaputra Valley, Lower North Brahmaputra Valley, Barak Valley and Hill Zone based on location of the districts.

The Chapter- 3 entitled ‘Status and Extent of Disparities in Rural Development across Assam’ analyzed spatio-temporal disparities in rural development of Assam through four main indicators of rural development such as rural literacy rate, rural health, rural agricultural productivity and rural employment. Rural health again is an overall index of two indices viz, rural child sex ratio and rural infant mortality rate. The overall index of rural development can be finding out by combining all the four indicators by giving equal weight. Here, the computed values of rural development and its components revealed wide variations across different rural regions of Assam in different census periods.

The district wise data of rural literacy rate for all the last three census periods viz, 1991, 2001 and 2011 revealed a wide disparity among the different rural regions of Assam. In 1991, the rural literacy rate in Assam was 49.52 percent which reflects the average rural literacy rate index as 0.544. Here, the coefficient of variation (CV) is found as 48.02 percent which means existence of about 48 percent disparity in rural literacy rate in 1991. Again, as evident from the value of coefficient of variation micro zone wise variation in rural literacy rate in 1991 is found to be about 26 percent. Similarly, in 2001 rural literacy rate has increased to 59.73 percent. Here, the rural literacy rate index of overall Assam is found as 0.532. The computation of coefficient of variation revealed about 46 percent disparity in rural literacy in 2001. The micro zone wise disparity also revealed a variation of about 25 percent. Again, in 2011 the rural literacy rate in Assam was 69.34 percent showing an average rural literacy rate index as 0.588. Here, the disparity in rural literacy has found as about 44 percent. Similarly, the micro zone wise disparity in rural literacy rate has also reduced to about 23 percent as evident from the value of coefficient of variation.

Regarding health indicator which is composed of rural child sex ratio and rural infant mortality rate the average health index for Assam in 1991, 2001 and 2011 are 0.491, 0.631 and 0.678 respectively showing an increasing trend of health development. The disparity in overall health index across the rural Assam in 1991, 2001 and 2011 respectively are found as 31.09, 25.47 and 19.39 percent showing a decreasing trend. The micro zone wise health disparity also shows a decreasing trend as 18.93, 13.84, and 7.57 percent respectively for 1991, 2001 and 2011. It has been evident that the disparity

in rural child sex ratio in 2011 is very high having the coefficient of variation value as 49.32 percent as compared to 38.94 percent in 1991 and 28.13 percent in 2001. Further, the disparity in rural mortality rate across the rural regions of Assam in 1991 was 57.73 percent as compared to 48.60 percent in 2001 which again decreased to 22.78 percent in 2011.

Among the various rural developmental indicators the variation in rural agricultural productivity is found to be very high. The rural agricultural productivity of the State of Assam for the years 1991, 2001 and 2011 are found as 29.76, 41.06 and 73.53 respectively reflecting rural agricultural productivity index as 0.275, 0.239 and 0.404. It has been found that the disparity in rural agricultural productivity in 1991, 2001 and 2011 respectively were 86.61, 89.86 and 63.48 percent. So, there is high disparity in 2001 as compared to 1991 and then in 2011. The micro zone wise disparity in rural agricultural productivity in Assam was found as 49.98, 32.88 and 39.27 percent respectively in 1991, 2001 and 2011.

Another significant indicator of disparities in rural development of Assam is rural employment. Here, also the values of rural employment varied to a great extent across the rural regions of Assam. The rural employment as measured through main workers as percentage of total population in 1991 was 31.30 percent which decreased to 26.06 percent in 2001 which again increased to 27.27 percent in 2011. The disparity in rural employment in 1991 was found to be 74.69 percent compared to 61.55 percent and 52.00 percent in 2011 showing a decreasing trend of disparity in rural employment. The micro zone wise disparity in rural employment also revealed a similar trend such that 73.90, 53.63 and 37.71 percent respectively for 1991, 2001 and 2011.

The overall variation in rural development as is evident from the value of coefficient of variation (CV) of rural development index for the year 1991, 2001 and 2011 are 38.02, 29.15 and 25.54 percent respectively. There is a decreasing trend in the variation of rural development in Assam from 1991. In average, the status of rural development of Assam in 1991 and 2001 were low development with values of the index as 0.428 and 0.446 respectively as compared to moderate rural development status in 2011 having the value of the index as 0.546. Compared to 1991 and 2001 there was an improvement of status of rural development in 2011. The micro-zone wise disparities

in rural development of Assam also showed a decreasing trend since 1991 with values of the coefficient of variations as 30.34, 19.84 and 11.46 percent respectively for 1991, 2001 and 2011. Further, micro zone wise temporal variations in rural development across Assam shows that Upper South Bank Plain has the lowest variability having the value as 7.43 percent in contrast to Lower North Bank Plain Region which has highest disparity having the value as 32.06 percent.

Thus, it is cleared that as a whole the rural development condition of Assam is underdeveloped because most of the districts fall on the low development category. Only a few regions have moderate or high development status because of higher endowment in some of the indicators of rural development. The disparities exist because some regions are in a more advantageous position than the other region. Mention may be of the districts of Upper Assam in general and South Bank of Brahmaputra Valley in particular has more development than that of the Lower Assam, Barak Valley and Hill districts.

The Chapter 4 entitled 'Factors Responsible for Disparities in Rural Development of Assam and its Effect on Economic Development' analyzed the different factors such as resource availability, rural infrastructure, urban and industrial growth and amount of government expenditure on rural development programme which are responsible for disparities in rural development of Assam and its effect on economic development of the State. The rural infrastructure is again subdivided into four heads viz, education, health, irrigation and roads. The availability of resources also subdivided into two heads viz, average size of operational holding and landlessness. Here, with suitable index similar to the analysis of Chapter 3 the different factors affecting rural developmental disparities have been analyzed.

The overall status of rural infrastructure across Assam in 1991 was found as low development having the composite value of rural infrastructure index as 0.303. According to the value of coefficient of variation the disparity in rural infrastructure is found to be 40.36 percent in which education infrastructure has the highest disparity followed by health, irrigation and rural roads having the values 128.39, 76.43, 65.61 and 59.61 percent respectively. Having the value 0.295 the position of rural infrastructure was also low development in 2001. Here, the inequality in rural development across

rural regions of Assam has been reduced to 35.13 percent. There is significant disparity in education and health infrastructure followed by irrigation and rural roads with the coefficient of variation values as 135.81, 124.53, 63.32 and 55.42 respectively. Further, as compared to 1991 and 2001, the disparity in rural infrastructure has been reduced to 33.58 percent in 2011 though the position of rural infrastructure in overall Assam has found to be almost same i.e, low development with value of the index as 0.295. Here also the variation in education infrastructure is very high followed by irrigation, rural health and rural roads with the values as 120.67, 76.67, 63.23 and 63.06 percent respectively. The micro-zone wise disparity also reflects a decreasing trend such that 27.53, 27.01 and 22.83 percent respectively for 1991, 2001 and 2011.

The disparity in resource availability in 1991 was found to be 37.67 percent and 31.76 percent in 2001 as compared to 40.76 percent in 2011. The status of resource availability in 2011 was low development as compared to moderate status in 1991 and 2001. In the resource availability segment, the disparity in operational holding has been increasing from 42.17 percent in 1991, 46.84 percent in 2001 and 63.76 percent in 2011. On the contrary, the disparity in landlessness index has decreased from 50.75 percent in 1991 to 37.72 percent in 2001 which again increased to 40.34 percent in 2011. It has also revealed that the micro zone wise disparity in resource availability in 1991, 2001 and 2011 respectively are 35.69, 28.81 and 29.98 percent.

Similarly, the disparity in government expenditure on rural development programme across the rural regions of Assam has increased from 115.76 percent in 1991 to 147.06 percent in 2001 which again reduced to the extent of 95.50 percent in 2011. The micro zone wise disparity also revealed an increase from 97.03 percent in 1991 to 113.50 percent in 2001 which further decreased to 61.88 percent in 2011 as shown through the value of coefficient of variation.

Again, it has been evident that overall rural Assam has low development status in urbanization and industrialization in all the three census years 1991, 2001 and 2011 with the values of urbanization and industrialization index as 0.339, 0.306 and 0.381 respectively. Further, as evident from the values of coefficient of variation the disparity in urbanization and industrialization index have been reduced from 59.29 percent in 1991 to 56.86 percent in 2001 which further reduced to 45.41 percent in 2011. The

micro zone wise disparity also shown a decreasing trend such that 48.83, 40.63, 19.07 percent respectively for 1991, 2001 and 2011. In the urbanization and industrialization head the disparity in urbanization is found as 83.15, 82.29 and 117.65 percent respectively for 1991, 2001 and 2011 whereas the disparity in industrialization is found as 65.68, 78.46 and 41.94 percent respectively for 1991, 2001 and 2011.

It has been evident from the different factors accountable for variations in rural development of Assam that each of the factors has disparities across the rural regions of Assam. In all the three census years i.e. 1991, 2001 and 2011 government expenditure on rural development programme showed highest disparity level followed by urbanization and industrialization, resource availability and then rural infrastructure. For identification of the significant factors responsible for disparities in rural development across the districts of Assam the study used multiple regression models for all the three census periods. In 1991, 71 percent of the disparity in rural development has been explained by the chosen factors. Again, rural infrastructure and resource availability have positive impact on rural development out of which resource availability factor is significantly account for disparities in rural development of Assam in 1991. Contrary to the findings of 1991, in 2001 it has been evident that about 49 percent of that chosen factors are responsible for variations in rural development of Assam. Here, only the factor resource availability is statistically significant for disparities in rural development. The other factors that the study has been taken into account yet to have impact on rural development across the State of Assam. Further, in 2011, as per value of the goodness of fit of the regression model there was 53.5 percent variability as has been explained by the chosen factors for disparities in rural development. Here, again resource availability along with government expenditure on rural development programme are significantly account for disparities in rural development across the various districts of Assam.

Thus, from the multiple regression analysis it is concluded that the research hypothesis adopted in the study that resource availability factor has no effect in spatio-temporal disparities in rural development of Assam and thus it has no significant impact in reducing disparities in rural development is not accepted for all the three census years viz, 1991, 2001 and 2011. Again, the second hypothesis that urbanization and

industrialization reduce disparities leading to more rural development by reducing pressure on land is not accepted. Thus, the effect of urbanization and industrialization is yet to make impact to the surrounding rural economies.

## **5.2 Proposed Measurement for Reduction in Spatio-Temporal Disparities in Rural Development of Assam**

Rural development is a multidimensional process. It has different implications. Different advocates of rural development measure rural development through varied indicators. Through these rural developmental indicators the disparities across the various regions can be analyzed which is the focal point of the research study. Based on the extent of disparities in terms of the indicators across the different regions in a point of time or in different periods of time different measurement have been developed to reduce the spatio-temporal disparities in rural development of Assam. There is general deficiency in the basic facilities in a region ranging from rural infrastructure such as roads, education, health, irrigation facilities, sanitation, drinking water, housing, electricity etc., lack of resources, underdevelopment of farm and non farm sector etc. These will reduce not only income and employment opportunities but also brings a depressing effect in the quality of life. The weak socio-economic condition and low base of human development are the main cause to bring down the ladder of overall development. That is, the high incidence of poverty along with shortage of these basic facilities across the different regions of Assam reduces rural development to a great extent and leading to increasing disparities across the regions. Again, one of the basic features of Assam is strategic location. It is lacking locational advantages and therefore development agendas can't be implemented properly. Further, the traditional agricultural practice which dominates the farm sector is one of the major causes of hindering rural development. Along with these, economic overheads like transport and communication facilities, power, technology, banking, insurance etc. which are very crucial for development of a particular region don't follow suit in the process of rural development of Assam.

Since the inception of planning, Government of India launched a variety of rural development programmes which are grouped into wage employment, self employment

and infrastructure development programmes. The wage employment programmes includes Sampoorna Gramin Rozgar Yojana (SGRY), Jawahar Gram Samridhi Yojana (JGSY) and Employment Assurance Scheme (EAS) which have to provide additional employment opportunities to rural poor. Among the different self employment programmes Swarnajayanti Gram Swarozgar Yojana (SGSY) is the leading one which includes restructuring of erstwhile Integrated Rural Development Programmes (IRDP) and its allied programmes including Million Wells Programme (MWS). The main objective of SGSY is to assist the rural poor through bank credit and subsidy so that they can enhance their productivity and income. Again, National Rural Employment Programme (NREP) is another self employment programme which assist rural poor basically the seasonally unemployed or in bad agricultural season in constructing social and economic overhead capital in rural areas. The Sampoorna Gramin Rozgar Yojana (SGRY) plays a very crucial role in building of infrastructure in rural areas. The main aim is to create infrastructure such as rural roads, power, housing, sanitation etc. The various other programmes in alleviation of rural poverty and rural development in infrastructure development are Accelerated Rural Water Supply Programme (ARWSP), Central Rural Sanitation Programme (CRSP), Pradhan Mantri Gram Sadak Yojana (PMGSY), Mahatma Gandhi National Rural Employment Guarantee Programme (MGNREGA), Bharat Nirman, Integrated Watershed Development Project (IWDP), Indira Awas Yojana (IAY), Pradhan Mantri Gramodaya Yojana (PMGY), National Social Assistance Programme (NSAP), Saubhagyo Yojana, Ujjawala Yojana etc.

Taking into account the status and extent of disparities of rural development across the State of Assam and the various factors accountable for disparities in rural development, the study wants to point out some measures to curb rural developmental disparities in respect of rural Assam. For enhancement of rural development as well as reduction of disparities across the regions both farm as well as non-farm sector has crucial role. Even a primarily agriculturally dependent economy like Assam should have to depend on non-farm sector like secondary and tertiary sectors. Both farm and non-farm sectors are interdependent for overall progress of rural development of a region. We know that, along with productivity and income the indicators of human development like literacy and health are the crucial indicators for rural development in particular and overall development in general. Therefore, the variables or factors which



improve the condition of human development and productivity will be considered for improving rural development of a region or curbing inequality in rural development across the regions.

The following are the proposed measurement for reduction in disparities in rural development across the rural districts or cluster of districts of Assam.

### **5.2.1 Development of Rural Infrastructure**

In the present study rural infrastructure has been taken into account as one of the broad key factor for disparities in rural development of Assam. For increasing productivity as well as elimination of deprivation of basic facilities of life the development of rural infrastructure such as enhancement of number of primary schools, primary health centres, irrigation facilities, rural connectivity mention may be of rural roads are very essential. These will enhance both farm and non-farm activities and thus increase income and employment of the rural people. The economic and social infrastructure such as education and health are also crucial for human development. There exist very high variation in infrastructural facilities ranging from number of primary schools per lakh of rural population, number of primary health centres per lakh of rural population and in all components of irrigation as percentage of irrigated area and number of minor irrigation schemes in all the three census years, viz, 1991, 2001 and 2011. In the irrigation component percentage of irrigated area to net sown area has a greater variation than number of minor irrigation schemes.

Thus, rural infrastructure should be developed in a rapid way to cope up all the rural regions and populations so that the average position of Assam as a whole in rural infrastructure will increase. Further, to eliminate or reduce variations across rural regions in basic facilities such as rural literacy, rural health, rural connectivity etc. more infrastructures to be build in the deprived regions in terms of primary schools, primary health centres, paved roads etc. Again, in order to accelerate rural productivity the need of the hour is to boost the farm sector through different irrigation schemes so that more net sown area has been irrigated. For example, the districts of Barak Valley like, Hailakandi, Karimganj, Cachar alongwith some districts of Upper South Brahmaputra Valley have very poor irrigation infrastructure which have been affecting rural

agricultural productivity. So, such type of infrastructure to be enhanced in the selected regions to reduce disparity in rural development.

### **5.2.2 Increase of Resource Availability**

The rural development to be sustainable the optimum and better use of natural resource base of a region is the need of the hour. The availability of natural resource base of a country is one of the significant factors in changing rural development scenario of a region. The disparities in rural development across the regions have been significantly affected by availability of resources. Therefore, optimum utilization of natural resources with fuller exploitation of production possibilities across the rural regions of Assam is the need of the hour for reduction of regional variations.

For convenience of the study, availability of resources has been categorized into two groups such as size of operational holding and landlessness. In the analysis of Chapter 4, as stated earlier, the overall disparity in resource availability has been decreasing from 37.67 in 1991 to 31.76 in 2001 which again rise to 40.76 in 2011. Further, the average status of resource availability also found to be moderate in the census year 1991 and 2001 except in 2011 in which there exists low development status. Between the two factors average size of operational holding and landlessness the disparity in the former factor has higher as compared to the later one. This may be due to high growth rate of population.

Thus, policy implications will be such that it enhances increase in average size of operational holding. For the optimum use of scarce natural resources population control is a must as well as unemployment in the agricultural sector have to be reduced. This will enhance access to land at the disposal of rural populace.

### **5.2.3 More Urbanization and Industrialization**

The non-farm sector plays a dominant role in increasing rural development of a region. There exist vast disparity in urbanization and industrialization across rural districts of Assam in the years of post liberalization period. For rural development to be successful disparity in urban and industrial growth across the different districts of Assam have to be reduced. It has been evident that there is a decreasing trend in

disparity in urbanization and industrialization since 1991 though not reduced to a great extent. Guwahati the gateway of North-East which is situated in Kamrup district (presently in Kamrup Metro) has the highest urban and industrial growth contrary to districts like Morigaon, Dhemaji, Goalpara etc. which have very low urban and industrial growth due to backwash effects in that regions. Further, the districts of Upper Assam especially in the districts of Upper South Brahmaputra Valley have some sort of industrialization. Most of the tea industries are located in those regions. Along with this most of the oilfields are located in the regions of Upper Assam. Due to these, townships as well as industrialization are developing. So, other regions are backward due to backwash effects in those regions. So, inequality persists across the regions. This inequality has to be reduced for overall rural development of the region. Growth of industrialization in different forms like micro, small, medium enterprise will surely help to reduce inequalities in urban and industrial growth.

#### **5.2.4 Enhancement of Government Expenditure on Rural Development Programme**

Increase in rural development as well as reduction of disparity in rural development across regions can be possible through direct action of government expenditure on different rural development programmes in the rural areas. These may include various social security schemes of government, wage employment or self employment programmes, employment guarantee schemes etc. Since independence, the Government of India had launched variety of programme to boost the income and employment of the rural masses for rural development of the economy. As has been seen in the analysis the existence of disparity in government expenditure on rural development programme across the rural regions of Assam is also a challenge to the rural development. Therefore, need of the hour is the proportionate distribution of the share of fund of rural development programmes across the rural districts.

It has been evident that the performance in terms of government expenditure on rural development programme as a whole of the State is a dismal one. It has been evident in Chapter- IV that the status of the various regions in government expenditure programme has low development. Further, it has been found that there exist very high

variations among the regions in the different periods the study has taken into account. The districts of hill area have something more developed than the other regions except districts of Upper North Bank Plain. It is to be noted that Central Brahmaputra Valley region such as Morigaon and Nagaon achieved highest development in government expenditure on rural development programme in 2011. So, the deprived districts have to be giving more funds for rural development schemes. In this regard, good governance along with abolition of corruption at various levels will enhance rural development to a great extent.

Along with the above measures, there are some other measures which can help to reduce disparities in rural development. One of such measure to develop the position of rural development in a region is expansion of service sector in rural areas. In the post liberalization period, service sector has an important role in upliftment of economic development of the country. The contribution of service sector to the state domestic product is increasing at the fast rate which is more than the primary sector and secondary sector growth. The development of trade, hotel, restaurants, financial institutions, transport and communication etc. in the rural areas will increase standard of living of the rural people. This will also helpful in enhancing urbanization which can help in reducing inequality among the different regions of Assam.

The high growth rate of population in some regions is also a malady that affects rural development. Illiteracy, poverty, unemployment, migration are the main cause of high growth rate of population. Therefore, in order to achieve rural development population growth should be curbed in different ways like reducing illiteracy, increasing government expenditure in different poverty eradication programmes, implementing legislation for controlling population growth as well as protecting migration etc.

### **5.3 Conclusion**

Thus, from the above discussion it is clear that there are so many factors exist in disparities in rural development of Assam depending upon the indicators of rural development. Which factors significantly affect the rural developmental disparities in different periods have to be taken into account and through this policy implications have to be derived. In this study factors like rural infrastructure, resource availability,

industrialization and urbanization and government expenditure on rural development programme etc. affect rural developmental disparities of Assam to a great extent. Therefore, the lagging districts have to be identified and make available the required facilities. Further, in the analysis of multiple regression model and correlation coefficient it is evident that resource availability factor out of four factors came out to be highly significant in all the three census periods the study have been taken into account. Therefore, availability of resources which includes size of operational holding and access to land to the agricultural labourer has to be improved for curbing disparities in rural development of Assam. The resource availability in a region certainly improved productivity and income of an agricultural economy like Assam. Next to availability of resources in recent times the rural infrastructures along with urban and industrial growth and amount government expenditure on different rural development programmes have also positive impact in improving rural development and thus economic development.