CHAPTER- III

STATUS AND EXTENT OF DISPARITIES IN RURAL DEVELOPMENT ACROSS ASSAM

3.1 Introduction

The status and extent of disparities in development across a region or cluster of regions occurs in different spheres such as demographic, socio-economic, socio-political etc. India is an underdeveloped country where regional disparity persists both in the form of inter- regional and intra- regional. In recent times, the regional disparity in India has been lowered down to a great extent which was very high in the pre-independence period and at the time of independence. Government's economic policies at the time of colonial period were more to protect the interest of the British economy rather than for development of the Indians. Further, at the time of independence the Indian economy was very poor because of colonial exploitation. In recent times, Indian economy has experienced an average annual growth rate of around 6 percent which is quite impressive compared to the performance of Indian economy at the time of independence where average annual growth rate was 3.5 percent. The improvement in economic growth leads enhancement in the level of per capita income of the economy. There has been a secular decline of poverty level since the late seventies. Along with faster economic growth and reduction in poverty there has been accelerated improvement in various indicators of human development since the early eighties. During the late seventies and eighties there has been improvement in health and education sectors.

Assam is predominantly a rural society along with other North-Eastern States of India which distress slow growth. It is basically an underdeveloped rural economy where persistent regional disparity prevails since the time of independence. The disparity in economic and social development across the regions is one of the major hurdles for adopting planning process. There seems to be very slow growth or general

deficiencies in some basic facilities such as transport and communication, education, agricultural productivity, health care etc. across the State of Assam which creates an overall depressing effect in the economy. The prosperity of a region directly depends upon the development of these basic facilities or indicators. The deficiency in one of the indicators or cluster of indicator creates inter-regional disparities. Thus, the development process of a rural economy like Assam will sustain if and only if there is an improvement of the rural developmental indicators. This dynamic process will transform such a backward economy to a more advanced one. It is the rural development which can uplift the socio-economic status of the rural people and their standard of living.

The overall scenario of rural Assam is really the most dismal one. The striking fact is that almost all the districts of Assam having spatial geographical pattern have been lacking development opportunities in the form of basic amenities like primary schools, primary health centers, paved roads, irrigation, availability of resources, government expenditure on rural development programme etc. for time immemorial. Since the planning era after independence the development of rural India as a whole has accorded the highest priority. But the development that has taken place is not sufficient for transformation of such a backward economy especially a rural economy like Assam. The rural developmental indicators are not equally distributed across the different districts or cluster of districts of the region. Again, the constraint of peculiar geographical pattern is another cause of concern leading to inter-district disparities in rural developmental indicators across the State of Assam.

This chapter tries to analyze the status and extent of spatio-temporal disparities in rural development across the districts or micro-regions of Assam using the indicators like education, health, agricultural productivity and rural employment. This is an inter-district level study by taking into account three census years viz., 1991, 2001 and 2011 of post liberalization period for the rural economy of Assam. The study wants to show the district wise as well as micro-zone wise status and extent and comparative position of the three decades about the disparities in rural development across the State of Assam.

3.2 Measurement of Rural Development

There are different ways to measure regional disparities. Different researchers measure regional disparities differently at various points of time. The measurement of regional disparities has undergone a qualitative change after independence. The measurement of rural developmental disparities across the regions can be explained by various indicators which may covers a wide range of economic and social activities. The various rural developmental indicators through which regional disparities can be measure includes per capita income, per capita consumption levels, educational attainment, agricultural productivity, health, industrial and urban growth etc. along with the availability of physical infrastructure like transport and communication, power, banks, school buildings, hospitals etc. Besides, basic minimum services like primary education, primary health, drinking water, sanitation etc. came to be used as the basis for measuring regional disparities.

In this study, to measure the status and extent of disparities in rural development in the different districts and cluster of districts of Assam four broad indicators have been used. These indicators are as follows-

a. Educational or knowledge indicator which is computed through rural literacy rate;
b. Health indicator measured through combined index of rural child sex ratio and infant mortality rate each of having equal weight;
c. Productivity indicator as measured through rural agricultural productivity and
d. Rural employment measured through work force participation rate.

Here as stated earlier in Chapter- I, an overall index of rural development have been constructed using the above four indicators viz. education, rural health, rural productivity and rural employment each of having the equal weight for each of the year. The composite index is the average index which will show the clear picture of the status and extent of disparities in rural development of a particular district or cluster of districts. Further, for analytical convenience of the study the research scholar computed

standard deviation and coefficient of variation as well as ranking in order to compare the variability among the different districts or rural regions.

Let us discuss the different measurement of rural developmental disparities the study has been taken into account as under-

3.3 Education

The very important and crucial indicator determining development in general and rural development in particular is the educational level or literacy rate of the population of the rural areas. Literacy or education is the very important indicator in a society and play a central role in human development. Higher levels of literacy and education lead to better attainment of health and nutritional status, economic growth, population control, empowerment of weaker sections and community as a whole. 'Education for All' becomes the common slogan for all the countries of the World as it improves development indicators consistently. In Census, a person aged seven years and above who can both read and write in any language is treated as a literate[1]. On the other hand according to National Sample Survey (NSS) a person is considered as literate if he/she can read and write a simple message in at least one language with understanding and educational level is the highest level a person has completed successfully[2].

In this study, educational attainment is computed through rural literacy rate which belong to the age group 7 years and above for the rural areas.The rural literacy rate plays a vital role in accelerating the pace of economic development of the rural areas and thereby improves the socio-economic condition of rural lives. Rural literacy rate is defined as the percentage of total number of literate population to the total number of population in the age group seven years and above. It is the most important measurement of educational level attained by the different regions. The rural literacy rate in Assam has increased from 49.32 percent in 1991 to 59.73 percent in 2001 which is again increased to 69.34 percent in 2011 producing an increasing and improving trend. In case of Indian scenario, the rural literacy rate in 1991 was 44.69 percent which increases to 58.75 percent in 2001 which is again increased to 68.91 percent in 2011.

[1]Census of India, 1981
[2] NSS 75th Round, July 2017 to June 2018

Thus, rural literacy level of the State is higher in all the three census period than the national level.

The Table 3.1 shows the district wise rural literacy rate and Rural Literacy Index (I_{RL}) of Assam as per 1991 Census report.

Table 3.1: District wise Rural Literacy Rate and Rural Literacy Index (I_{RL}) of Assam, 1991

Districts	Rural Literacy Rate (In percentage)	Rural Literacy Index(I_{RL})*	Status	Rank
Dhemaji	53.29	0.672	MRD	8
Lakhimpur	57.74	0.823	HRD	3
Sonitpur	45.33	0.401	LRD	16
Dibrugarh	53.11	0.666	MRD	9
Jorhat	62.78	0.995	HRD	2
Golaghat	56.74	0.789	MRD	5
Sibsagar	62.94	1.000	HRD	1
Tinsukia	44.16	0.361	LRD	18
Nagaon	51.30	0.604	MRD	11
Morigaon	46.36	0.436	LRD	14
Nalbari	55.38	0.743	MRD	7
Darrang	40.12	0.224	LRD	21
Barpeta	40.64	0.241	LRD	20
Dhubri	33.55	0.000	LRD	23
Bongaigaon	45.48	0.406	LRD	15
Kokrajhar	37.9	0.148	LRD	22
Goalpara	44.84	0.384	LRD	17
Kamrup	56.88	0.794	MRD	4
N. C. Hills	50.03	0.561	MRD	13
Karbi-Anglong	42.12	0.292	LRD	19
Cachar	56.37	0.775	MRD	6
Karimganj	51.85	0.623	MRD	10
Hailakandi	50.19	0.566	MRD	12
Assam	49.52	0.544	MRD	
Standard Deviation		0.261		
Coefficient of Variation		48.02		

Source: Constructed from,
Primary Census Abstract, 1991, Assam, Census of India

Note: $\mathbf{I_{RL}}^{*}$= Rural Literacy Index; **LRD**= Low Rural Development;
MRD= Moderate Rural Development; **HRD**= High Rural Development

In the Table 3.1 the rural literacy index (I_{RL}) shown in column 3 is computed from column 2. Out of the 23 districts of Assam at the time of 1991 Census, Sibsagar district has the highest rural literate population with 62.94 percent rural literacy rate and Dhubri district having 33.55 percent rural literacy rates has the lowest rural literate population. It has been evident that out of 23 districts 3 districts are falling in the high rural development (HRD) category, 10 districts have moderate rural development (MRD) status and remaining 10 districts are lying in the low rural development category (LRD). The overall performance of the State of Assam is found to be moderate having the value of rural literacy index (I_{RL}) index as 0.544. Sibsagar district ranks first in rural literacy level followed by Jorhat and Lakhimpur which are falling in the high rural development category followed by moderate rural development districts such as Kamrup, Golaghat, Cachar, Nalbari, Dhemaji, Dibrugarh, Karimganj, Nagaon, Hailakandi and N. C. Hills. The remaining districts such as Morigaon, Bongaigaon, Sonitpur, Goalpara, Tinsukia, Karbi-Anglong, Barpeta, Darrang, Kokrajhar and Dhubri are termed as low rural development districts.

Further, the value of coefficient of variation (CV) of the districts shows that there is about 48 percent variation in rural literacy rate across the rural regions of Assam at the time of 1991 Census having the CV value as 48.02.

The district wise rural literacy rate and rural literacy index according to 2001 Census is shown in the Table 3.2.

From the Table 3.2 it has been evident that Jorhat district ranks first in rural literacy rate followed by Sibsagar which are only two districts in the high development status according to the rural literacy rate index. There are 8 districts viz, Golaghat, Lakhimpur, Kamrup, Nalbari, Cachar, Karimganj, Dibrugarh and Dhemaji which are classified as moderate development district in rural literacy rate and remaining 13 districts such as Nagaon, Karbi-Anglong, Morigaon, Hailakandi, Goalpara, Bongaigaon, Sonitpur, Dibrugarh, Tinsukia, Darrang, Barpeta, Kokrajhar and Dhubri are classified as low developed district. Dhubri district has the lowest literacy rate out of the 23 districts of Assam. Here, the overall rural literacy rate index of Assam is found as 0.532 having moderate development status in rural literacy. From the table, it has been found that the

coefficient of variation value across the districts of Assam is 45.81 which mean there is an about 46 percent variation in rural literacy rate in 2001.

Table 3.2: District wise Rural Literacy Rate and Rural Literacy Index (I_{RL}) of Assam, 2001

Districts	Rural Literacy Rate (In percentage)	Rural Literacy Index(I_{RL})*	Status	Rank
Dhemaji	63.19	0.639	MRD	10
Lakhimpur	67.62	0.786	MRD	4
Sonitpur	55.15	0.373	LRD	17
Dibrugarh	64.0	0.666	MRD	9
Jorhat	74.07	1.000	HRD	1
Golaghat	67.63	0.787	MRD	3
Sibsagar	73.02	0.965	HRD	2
Tinsukia	55.07	0.370	LRD	18
Nagaon	58.3	0.477	LRD	11
Morigaon	57.09	0.437	LRD	13
Nalbari	66.73	0.757	MRD	6
Darrang	53.77	0.327	LRD	20
Barpeta	53.75	0.326	LRD	21
Dhubri	43.9	0.000	LRD	23
Bongaigaon	55.31	0.378	LRD	16
Kokrajhar	48.96	0.168	LRD	22
Goalpara	56.25	0.409	LRD	15
Kamrup	66.9	0.762	MRD	5
N. C. Hills	57.57	0.453	LRD	12
Karbi-Anglong	54.48	0.351	LRD	19
Cachar	64.77	0.692	MRD	7
Karimganj	64.12	0.670	MRD	8
Hailakandi	57.05	0.436	LRD	14
Assam	59.73	0.532	MRD	
Standard Deviation		0.244		
Coefficient of Variation		45.81		

Source: Constructed from,
Primary Census Abstract, 2001, Assam, Census of India

Note: $\mathbf{I_{RL}}^{*}$= Rural Literacy Index; **LRD**= Low Rural Development;
MRD= Moderate Rural Development; **HRD**= High Rural Development;

The Table 3.3 in the following shows the district wise rural literacy rate and rural literacy index across Assam according to 2011 Census Report.

Table 3.3: District wise Rural Literacy Rate and Rural Literacy Index (I_{RL}) of Assam, 2011

Districts	Rural Literacy Rate (In percentage)	Rural Literacy Index(I_{RL})*	Status	Rank
Dhemaji	71.81	0.669	MRD	12
Lakhimpur	76.22	0.847	HRD	7
Sonitpur	64.98	0.393	LRD	21
Dibrugarh	72.75	0.707	MRD	10
Jorhat	80.01	1.000	HRD	1
Golaghat	75.91	0.834	HRD	8
Sibsagar	79.27	0.970	HRD	2
Tinsukia	65.05	0.396	LRD	20
Nagaon	69.96	0.594	MRD	14
Morigaon	66.6	0.458	MRD	17
Nalbari	77.22	0.887	HRD	3
Darrang	61.5	0.252	LRD	25
Barpeta	61.47	0.251	LRD	26
Dhubri	55.25	0.000	LRD	27
Bongaigaon	66.42	0.451	LRD	18
Kokrajhar	63.63	0.338	LRD	23
Udalguri	64.43	0.371	LRD	22
Baksa	69.18	0.562	MRD	15
Chirang	62.08	0.276	LRD	24
Goalpara	65.93	0.431	LRD	19
Kamrup Metro	76.45	0.856	HRD	6
Kamrup	74.21	0.766	MRD	9
Dima Hasao	71.13	0.641	MRD	13
Karbi-Anglong	66.69	0.462	LRD	16
Cachar	77.08	0.882	HRD	4
Karimganj	76.66	0.865	HRD	5
Hailakandi	72.73	0.706	MRD	11
Assam	69.34	0.588	MRD	
Standard Deviation		0.256		
Coefficient of Variation		43.54		

Source: Constructed from-

Primary Census Abstract, 2011, Assam, Census of India

Note: $\mathbf{I_{RL}}^{*}$= Rural Literacy Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

From the column 3 of Table 3.3 it has been evident that the overall performance in rural literacy rate of Assam has moderate development status having the value of

index as 0.588. In the table, Jorhat district is in the top and Dhubri district is in the bottom having 80.01 and 55.25 rural literacy rates respectively. In the table, 8 districts such as Jorhat, Sibsagar, Nalbari, Cachar, Karimganj, Kamrup Metro, Lakhimpur and Golaghat are falling in the high rural development category. Another 8 districts viz, Dibrugarh, Hailakandi, Dhemaji, Dima Hasao, Nagaon Baksa, Karbi-Anglong and Morigaon are classified as moderate rural development and remaining 11 districts such as Bongaigaon, Goalpara, Tinsukia, Sonitpur, Udalguri, Kokrajhar, Chirang, Darrang, Barpeta and Dhubri are termed as low rural development regions in rural literacy rate.

Here, the district wise variation in rural literacy rate is found as 43.54 percent as evident from the coefficient of variation value. Thus, the disparity in rural literacy rate in 2011 is found comparatively lower than the earlier values in 1991 and 2001.

The literacy rate in Dhubri district has been found very low in all the three census years because of high growth rate of population along with weak base of educational infrastructure in contrast to other moderate or highly developed districts. The poverty along with tense international border in districts like Dhubri also creates low literacy level as compared to the developed districts like Jorhat and Sibsagar.

So far as the study is concerned the research scholar wants to analyze the variations in rural development across the State of Assam on the basis of some micro-zone or cluster of rural districts such Upper North Bank Plain of Brahmaputra Valley, Upper South Bank Plain, Central Brahmaputra Valley, Lower North Bank Plain, Lower South Brahmaputra Valley, Barak Valley and Hill Zone. The status and extent of rural developmental disparities across the micro zones in the census years 1991, 2001 and 2011 are shown in Table 3.4, Table 3.5 and Table 3.6 respectively.

In the Table 3.4 the Upper South Bank Plain attained a higher development followed by moderate development in Barak Valley, Upper North Bank Plain, Lower South Brahmaputra Valley and Central Brahmaputra Valley whereas Lower North Bank Plain and Hill Zone have low development status. Here, the region Upper South Bank Plain and Lower North Bank Plain respectively have highest and lowest development status among the regions. It is found that there exists 26.03 percent disparity across the micro zones of the State as is evident from coefficient of variation.

Table 3.4: Micro-zone wise Rural Literacy Index (I_{RL}) of Assam, 1991

Sl. No.	Micro Zone	I_{RL}*	Status	Rank
1	Upper North Bank Plain	0.632	MRD	3
2	Upper South Bank Plain	0.762	MRD	1
3	Central Brahmaputra Valley	0.520	MRD	5
4	Lower North Bank Plain	0.294	LRD	7
5	Lower South Brahmaputra Valley	0.589	MRD	4
6	Barak Valley	0.655	MRD	2
7	Hill Zone	0.427	LRD	6
	Mean	0.554		
	Standard Deviation	0.144		
	Coefficient of Variation	26.03		

Source: * Constructed from Table 3.1

Note: $\mathbf{I_{RL}}^{*}$= Rural Literacy Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

The Table 3.5 shows micro-zone wise disparities in rural literacy rate in 2001.

Table 3.5: Micro-zone wise Rural Literacy Index (I_{RL}) of Assam, 2001

Sl. No.	Micro Zone	I_{RL}*	Status	Rank
1	Upper North Bank Plain	0.599	MRD	2
2	Upper South Bank Plain	0.758	MRD	1
3	Central Brahmaputra Valley	0.457	LRD	4
4	Lower North Bank Plain	0.326	LRD	6
5	Lower South Brahmaputra Valley	0.586	MRD	3
6	Barak Valley	0.599	MRD	2
7	Hill Zone	0.402	LRD	5
	Mean	0.532		
	Standard Deviation	0.135		
	Coefficient of Variation	25.39		

Source: * Constructed from Table 3.2

Note: $\mathbf{I_{RL}}^{*}$= Rural Literacy Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

In the Table 3.5, the variation in literacy rate is 25.39 percent as per value of coefficient of variation. Here, the Upper South Bank Plain followed by Upper North Bank Plain and Barak Valley and Lower South Brahmaputra Valley lie in the moderate development category contrary to the regions such as Central Brahmaputra Valley, Hill Zone and Lower North Bank Plain which are falling in the low development category

in rural literacy rate. Here, also the Upper South Bank Plain and Lower North Bank Plain respectively have highest and lowest rural literacy status among other regions.

Again, the Table 3.6 shows micro-zone wise disparities in rural literacy rate in 2011. Here, it is found that there exist only one high development and one low development micro zones in literacy rate such as Barak Valley and Lower North Bank Plain respectively. The micro zones such as Upper South Bank Plain, Lower South Brahmaputra Valley, Upper North Bank Plain, Hill Zone and Central Brahmaputra Valley have moderate development status. As is evident from coefficient of variation of the table there exist 22.78 percent disparities across the micro regions of Assam.

Table 3.6: Micro-zone wise Rural Literacy Index (I_{RL}) of Assam, 2011

Sl. No.	Micro Zone	I_{RL}*	Status	Rank
1	Upper North Bank Plain	0.636	MRD	4
2	Upper South Bank Plain	0.781	MRD	2
3	Central Brahmaputra Valley	0.526	MRD	6
4	Lower North Bank Plain	0.377	LRD	7
5	Lower South Brahmaputra Valley	0.684	MRD	3
6	Barak Valley	0.818	HRD	1
7	Hill Zone	0.552	MRD	5
	Mean	0.625		
	Standard Deviation	0.142		
	Coefficient of Variation	22.78		

Source: * Constructed from Table 3.3

Note: $\mathbf{I_{RL}}^{*}$= Rural Literacy Index; **LRD**= Low Rural Development;
MRD= Moderate Rural Development; **HRD**= High Rural Development

Thus, the micro-zone wise rural literacy index also produces Lower North Bank Plain more backward than the other zones in the Upper Assam, Cental Brahmaputra Valley and Barak Valley. This explains that the districts of Lower North Bank Plain including Dhubri have shortage of basic amenities including educational infrastructure. Due to high growth rate of population, rural poverty is high in the region which is another cause of concern for availing the basic needs.

3.4 Health

Education and health are the basic elements for development in general and rural development in particular. 'Health for All' is a worldwide social goal. There exist large disparities in health development among different districts of Assam and cluster of districts that have been affecting economic development in the State.

In this study, two indicators of health have been used. These two measures of health indicator are rural child sex ratio in the age group 0-6 years and rural infant mortality rate. For each of the indicators an index has been calculated using secondary data based on 1991, 2001 and 2011 Census Reports which will show the comparability of rural health disparities across the rural regions of Assam. In order to investigate the overall health position of the districts a composite index of health (I_H) has been constructed by averaging the two health indices viz, rural child sex ratio index (I_{CSR}) and rural infant mortality rate index (I_{IMR}) with equal weightage to each of the index. The composite index of health so constructed will help to observe the status and extent of disparities in rural health across the different districts of Assam.

3.4.1 Rural Child Sex Ratio Index

The rural child sex ratio in the age group 0-6 years is defined as the number of rural female child per thousand number of rural male child. Rural child sex ratio index has been used as one of the measurement of health index which is calculated directly from rural child sex ratio. Based on the index a region can directly be classified as high development, moderate development and low development in rural child sex ratio. The rural child sex ratio has direct impact on rural health i.e. higher the sex ratio higher will be the health development and lower the sex ratio lower will be the development in rural health.

In case of rural child sex ratio there is a decreasing trend from 1991 to 2011 in Assam which is not conducive for overall health position. In 1991, the rural child sex ratio in Assam was 977 which decrease to 967 in 2001 and further decrease to 964 in 2011. As against these, rural child sex ratio in India was 935 in 1991 which decrease to

934 in 2001 and again it decreased to 923 in 2011 showing low development in rural child sex ratio in India than the State of Assam.

The Table 3.7 in the following shows the district wise rural child sex ratio indices on the basis of 1991 Census Report.

Table 3.7: District wise Rural Child Sex Ratio and Rural Child Sex Ratio Index (I_{CSR}) of Assam, 1991

Districts	Rural Child Sex Ratio	Rural Child Sex Ratio Index (I_{CSR})*	Status	Rank
Dhemaji	984	0.694	MRD	6
Lakhimpur	974	0.417	LRD	15
Sonitpur	980	0.583	MRD	9
Dibrugarh	972	0.361	LRD	17
Jorhat	976	0.472	LRD	13
Golaghat	987	0.778	MRD	3
Sibsagar	975	0.444	LRD	14
Tinsukia	972	0.361	LRD	17
Nagaon	976	0.472	LRD	13
Morigaon	986	0.750	MRD	4
Nalbari	967	0.222	LRD	18
Darrang	973	0.389	LRD	16
Barpeta	959	0.000	LRD	19
Dhubri	979	0.556	MRD	10
Bongaigaon	985	0.722	MRD	5
Kokrajhar	975	0.444	LRD	14
Goalpara	977	0.500	MRD	12
Kamrup	978	0.528	MRD	11
N. C. Hills	995	1.000	HRD	1
Karbi-Anglong	978	0.528	MRD	11
Cachar	983	0.667	MRD	7
Karimganj	982	0.639	MRD	8
Hailakandi	989	0.833	HRD	2
Assam	977	0.500	MRD	
Standard Deviation		0.209		
Coefficient of Variation		38.94		

Source: Constructed from,

Primary Census Abstract, 1991, Assam, Census of India

Note: $\mathbf{I_{CSR}}^{*}$= Rural Child Sex Ratio Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

From the Table 3.7 it is found that in 1991, N. C. Hills and Barpeta respectively have attained the highest and lowest development in rural child sex ratio out of the 23 districts of Assam. In terms of rural child sex ratio index there are only two districts one from hill region- N. C. Hills and another from Barak Valley- Hailakandi that have attained the high development status contrary to 11 moderate development districts like Golaghat, Morigaon, Bongaigaon, Dhemaji, Cachar, Karimganj, Sonitpur, Dhubri, Karbi-Anglong, Kamrup and Goalpara. The remaining 10 districts such as Jorhat, Nagaon, Sibsagar, Kokrajhar, Darrang, Lakhimpur, Dibrugarh, Tinsukia, Nalbari and Barpeta have low development status. The overall position of the State of Assam is moderate development having the rural child sex ratio index as 0.500 as is evident from the Table 3.7.

Further, the coefficient of variation across the districts of Assam is found as 38.94 which indicate about 39 percent variability in rural child sex ratio across the regions of Assam in 1991.

The Table 3.8 in the following indicates district wise rural child sex ratio index of Assam for the year 2001.

As per rural child sex ratio index in 2001 the overall performance of the State is a satisfactory one which is in the higher development having the child sex ratio index of Assam as 0.811. Here, in 2001 most of the districts have attained a higher development in child sex ratio. There exist 12 high, 8 moderate and remaining 3 districts have low development status. The districts which have high development status are- Darrang, Nagaon, Sonitpur, Bongaigaon, Karbi-Anglong, Goalpara, Jorhat, Sibsagar, Lakhimpur, Dhemaji, Dibrugarh and Morigaon. The districts viz, Karimganj, Dhubri, Golaghat, Tinsukia, Kamrup, Barpeta, Cachar and Nalbari fall in moderate development category and the remaining three districts such as Kokrajhar, N. C. Hills and Hailakandi fall in the low development category. As shown in the table Darrang district has the highest child sex ratio contrary to the lowest developed district Hailakandi of Barak Valley.

Further, in 2001 there exist about 28 percent variations in rural child sex ratio across the rural regions of Assam as the value of the coefficient of variation is found as 28.13.

Table 3.8: District wise Rural Child Sex Ratio and Rural Child Sex Ratio Index (I_{CSR}) of Assam, 2001

Districts	Rural Child Sex Ratio	Rural Child Sex Ratio Index (I_{CSR})*	Status	Rank
Dhemaji	970	0.868	HRD	7
Lakhimpur	970	0.868	HRD	7
Sonitpur	976	0.981	HRD	2
Dibrugarh	969	0.849	HRD	8
Jorhat	972	0.906	HRD	5
Golaghat	965	0.773	MRD	11
Sibsagar	971	0.887	HRD	6
Tinsukia	964	0.755	MRD	12
Nagaon	976	0.981	HRD	2
Morigaon	967	0.811	HRD	9
Nalbari	960	0.679	MRD	15
Darrang	977	1.000	HRD	1
Barpeta	962	0.717	MRD	13
Dhubri	966	0.792	MRD	10
Bongaigaon	975	0.962	HRD	3
Kokrajhar	949	0.472	LRD	16
Goalpara	974	0.943	HRD	4
Kamrup	964	0.755	MRD	12
N. C. Hills	948	0.453	LRD	17
Karbi-Anglong	975	0.962	HRD	3
Cachar	961	0.698	MRD	14
Karimganj	966	0.792	MRD	10
Hailakandi	924	0.000	LRD	18
Assam	967	0.811	HRD	
Standard Deviation		0.219		
Coefficient of Variation		28.13		

Source: Constructed from,

Primary Census Abstract, 2001, Assam, Census of India

Note: $\mathbf{I_{CSR}}^{*}$= Rural Child Sex Ratio Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

Again, Table 3.9 represents the district wise rural child sex ratio and rural child sex ratio index according to 2011 Census Report.

Table 3.9: District wise Rural Child Sex Ratio and Rural Child Sex Ratio Index (I_{CSR}) of Assam, 2011

Districts	Rural Child Sex Ratio	Rural Child Sex Ratio Index (I_{CSR})*	Status	Rank
Dhemaji	951	0.000	LRD	17
Lakhimpur	961	0.345	LRD	14
Sonitpur	966	0.517	MRD	9
Dibrugarh	968	0.586	MRD	7
Jorhat	968	0.586	MRD	7
Golaghat	965	0.483	LRD	10
Sibsagar	962	0.379	LRD	13
Tinsukia	967	0.552	MRD	8
Nagaon	964	0.448	LRD	11
Morigaon	957	0.207	LRD	15
Nalbari	968	0.586	MRD	7
Darrang	970	0.655	MRD	6
Barpeta	961	0.345	LRD	14
Dhubri	971	0.690	MRD	5
Bongaigaon	973	0.759	MRD	3
Kokrajhar	954	0.103	LRD	16
Udalguri	972	0.724	MRD	4
Baksa	966	0.517	MRD	9
Chirang	978	0.931	HRD	2
Goalpara	963	0.414	LRD	12
Kamrup Metro	980	1.000	HRD	1
Kamrup	968	0.586	MRD	7
Dima Hasao	966	0.517	MRD	9
Karbi-Anglong	962	0.379	LRD	13
Cachar	954	0.103	LRD	16
Karimganj	970	0.655	MRD	6
Hailakandi	954	0.103	LRD	16
Assam	964	0.448	LRD	
Standard Deviation		0.241		
Coefficient of Variation		49.32		

Source: Constructed from,

Census of India, 2011, Primary Census Abstract, Assam

Note: $\mathbf{I_{CSR}}^{*}$= Rural Child Sex Ratio Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

In the Table 3.9 there exist only two high development status district in rural child sex ratio which includes Kamrup Metro and Chirang. At the time of 2011 Census, 13 districts viz, Bongaigaon, Udalguri, Dhubri, Karimganj, Darrang, Dibrugarh, Jorhat, Kamrup, Nalbari, Tinsukia, Dima Hasao, Baksa and Sonitpur have moderate development status and remaining 12 districts such as Golaghat, Nagaon, Goalpara, Sibsagar, Karbi-Anglong, Barpeta, Lakhimpur, Morigaon, Kokrajhar, Hailakandi, Cachar and Dhemaji have low development status in rural child sex ratio. Dhemaji have the lowest rural child sex ratio in contrast to Kamrup Metro that has highest development out of the 27 districts of Assam. Further, the value of coefficient of variation is found to be 49.32 which indicate that there is about 49 percent variation in child sex ratio across the rural districts of Assam.

3.4.2 Rural Infant Mortality Rate Index

Rural infant mortality rate (IMR) is another measure of health indicator which has impacts on development. The infant mortality rate is defined as the number of infants' death per thousand numbers of live births during a particular year. Regarding infant mortality rate, so far as secondary sources data is concerned it is found in Sample Registration System (SRS) and Civil Registration System (CRS) under Office of the Registrar and Census Commissioner, Ministry of Home Affairs, Government of India. Here, in the study in calculation of infant mortality rate index SRS data have been used for the census period 1991 and 2001. But for 2011, the research scholar has used CRS data for infant mortality rate due to insufficient SRS data for the 27 districts.

The calculation of infant mortality rate index is same to the earlier indices which has also the effect on health development. But unlike to the rural child sex ratio the infant mortality rate has inverse relationship with that of health development. That is, higher the infant mortality rate of a region lower will be the health development and lower the infant mortality rate higher will be the health development. Therefore, for convenience and comparability of the study the index for infant mortality rate has been calculated in such a way that higher infant mortality rate follows a lower index and lower infant mortality rate follows a higher index. This index has been calculated using a simple mathematical form as one less the value of the direct index.

The rural infant mortality rate in Assam in 1991 was 92 as against 87 in the all India level. Similarly, in 2001 the rural infant mortality rate in Assam was 64 contrary to the national figure of 66. In 2014, this figure further decreased to 43 in India contrary to 52 in Assam. Thus, though there is an improvement in infant mortality rate both at the national and state level, the State of Assam experiences a lower development than that of all India level.

The constructions as well as the analysis of the infant mortality rate index as a measure of health indicator for disparities in rural development for 1991 have been shown with the help of the Table 3.10 as under-

From the Table 3.10 it has been evident that out of the 23 districts of Assam in 1991, Dhubri district has very low development status contrary to the Jorhat district which ranks first in infant mortality rate as a measure of rural health. There are only three districts in rural Assam that has attained high development as provided by the infant mortality rate index. These three districts are Jorhat, Dibrugarh and Golaghat. The indices of the table also reveal that six districts such as Tinsukia, Karbi-Anglong, Sibsagar, Kamrup, Sonitpur and Kokrajhar have moderate status. The remaining 14 districts viz, Morigaon, Nagaon, Nalbari, Cachar, Hailakandi, Barpeta, Goalpara, N. C. Hills, Karimganj, Darrang, Lakhimpur, Dhemaji, Bongaigaon and Dhubri have low development status as per the infant mortality rate index. The overall index of Assam as a whole is found to be 0.445 which shows low development status in infant mortality rate. From the Table 3.10 it has been also evident that the coefficient of variation in rural infant mortality rate is 57.53 which indicate about 58 percent disparities exist in infant mortality rate across the districts of Assam.

One of the very important causes of high infant mortality rate in some regions including Dhubri is low level of health status of the people. This is due to poverty along with high population growth which increase infant mortality rate. Due to poverty the poor people can’t afford nutritional foods as well as health hygiene. Further, the basic minimum facilities like health infrastructure, education infrastructure are also affects the infant mortality rate of a region.

Table 3.10: District wise Rural Infant Mortality Rate and Rural Infant Mortality Rate Index (I_{IMR}) of Assam, 1991

Districts	Rural Infant Mortality Rate	Rural Infant Mortality Rate Index (I_{IMR})*	Status	Rank
Dhemaji	114	0.173	LRD	18
Lakhimpur	112	0.198	LRD	17
Sonitpur	77	0.630	MRD	6
Dibrugarh	61	0.827	HRD	2
Jorhat	47	1.000	HRD	1
Golaghat	61	0.827	HRD	2
Sibsagar	75	0.654	MRD	5
Tinsukia	73	0.679	MRD	3
Nagaon	97	0.383	LRD	9
Morigaon	88	0.494	LRD	8
Nalbari	96	0.395	LRD	10
Darrang	111	0.210	LRD	16
Barpeta	101	0.333	LRD	13
Dhubri	128	0.000	LRD	20
Bongaigaon	122	0.074	LRD	19
Kokrajhar	78	0.617	MRD	7
Goalpara	106	0.272	LRD	14
Kamrup	77	0.630	MRD	6
N. C. Hills	108	0.247	LRD	15
Karbi-Anglong	76	0.642	MRD	4
Cachar	97	0.383	LRD	11
Karimganj	111	0.210	LRD	16
Hailakandi	99	0.358	LRD	12
Assam	92	0.445	LRD	
Standard Deviation		0.257		
Coefficient of Variation		57.73		

Source: Constructed from,

Assam Human Development Report 2003,

Department of Planning and Development Department, Government of Assam

Note: $\mathbf{I_{IMR}}^*$= Rural Infant Mortality Rate Index;

LRD= Low Rural Development; **MRD**= Moderate Rural Development;

HRD= High Rural Development

Table 3.11 in the following indicates status and extent of disparities in rural infant mortality rate across rural regions of Assam in 2001.

Table 3.11: District wise Rural Infant Mortality Rate and Rural Infant Mortality Rate Index (I_{IMR}) of Assam, 2001

Districts	Rural Infant Mortality Rate	Rural Infant Mortality Rate Index (I_{IMR})*	Status	Rank
Dhemaji	45	1.000	HRD	1
Lakhimpur	59	0.600	MRD	6
Sonitpur	72	0.229	LRD	15
Dibrugarh	56	0.686	MRD	3
Jorhat	60	0.571	MRD	7
Golaghat	64	0.457	LRD	10
Sibsagar	60	0.571	MRD	7
Tinsukia	57	0.657	MRD	4
Nagaon	69	0.314	LRD	13
Morigaon	74	0.171	LRD	16
Nalbari	65	0.429	LRD	11
Darrang	71	0.257	LRD	14
Barpeta	51	0.829	HRD	2
Dhubri	76	0.114	LRD	17
Bongaigaon	56	0.686	MRD	3
Kokrajhar	80	0.000	LRD	18
Goalpara	58	0.629	MRD	5
Kamrup	63	0.486	LRD	9
N. C. Hills	66	0.400	LRD	12
Karbi-Anglong	61	0.543	MRD	8
Cachar	60	0.571	MRD	7
Karimganj	71	0.257	LRD	14
Hailakandi	56	0.686	MRD	3
Assam	64	0.484	LRD	
Standard Deviation		0.235		
Coefficient of Variation		48.60		

Source: Constructed from,

Annual Health Survey, 2010-11, Fact Sheet, Assam, Government of India

Note: $\mathbf{I_{IMR}}^{*}$= Rural Infant Mortality Rate Index;

LRD= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

Table 3.12: District wise Rural Infant Mortality Rate and Rural Infant Mortality Rate Index (I_{IMR}) of Assam, 2011

Districts	Rural Infant Mortality Rate	Rural Infant Mortality Rate Index (I_{IMR})*	Status	Rank
Dhemaji	15.25	0.912	HRD	17
Lakhimpur	9.81	0.954	HRD	8
Sonitpur	5.0	0.991	HRD	3
Dibrugarh	27.49	0.818	HRD	22
Jorhat	31.41	0.788	MRD	23
Golaghat	14.33	0.919	HRD	16
Sibsagar	13.78	0.923	HRD	15
Tinsukia	17.83	0.892	HRD	18
Nagaon	4.24	0.997	HRD	2
Morigaon	5.59	0.986	HRD	4
Nalbari	12.16	0.936	HRD	12
Darrang	133.85	0.000	LRD	26
Barpeta	8.62	0.963	HRD	6
Dhubri	3.83	1.000	HRD	1
Bongaigaon	18.45	0.888	HRD	19
Kokrajhar	12.4	0.934	HRD	13
Udalguri	10.51	0.949	HRD	9
Baksa	7.43	0.972	HRD	5
Chirang	25.81	0.831	HRD	21
Goalpara	10.45	0.949	HRD	9
Kamrup Metro	70.35	0.488	LRD	25
Kamrup	9.44	0.957	HRD	7
Dima Hasao	22.74	0.855	HRD	20
Karbi-Anglong	12.49	0.933	HRD	14
Cachar	31.86	0.784	MRD	24
Karimganj	11.25	0.943	HRD	11
Hailakandi	22.7	0.855	HRD	20
Assam	15.34	0.867	HRD	
Standard Deviation		0.198		
Coefficient of Variation		22.78		

Source: Constructed from,

Vital Statistics of India, 2013, Ministry of Home Affairs, Government of India

Note: $\mathbf{I_{IMR}}^{*}$ = Rural Infant Mortality Rate Index;

LRD= Low Rural Development; **MRD**= Moderate Rural Development;

HRD= High Rural Development

In the Table 3.11, only two districts viz, Dhemaji and Barpeta have attained high development status in rural infant mortality rate according to rural infant mortality rate index. The districts like Dibrugarh, Bongaigaon, Hailakandi, Tinsukia, Goalpara, Lakhimpur, Jorhat, Cachar, Sibsagar and Karbi-Anglong are falling in the moderate development status in contrast to the remaining districts like Kamrup, Golaghat, Nalbari, N. C. Hills, Nagaon, Darrang, Karimganj, Sonitpur, Morigaon, Dhubri and Kokrajhar which have low development status in infant mortality rate. Here, in the table it is also evident that having the overall value of Assam as 0.484 the State lies in the low development category in infant mortality. Further, it is found that the coefficient of variation is 48.60 which indicate that there exist about 49 percent variations across the rural regions of Assam in infant mortality rate.

Again, the Table 3.12 (given in the above) indicates district wise infant mortality rate indices of rural Assam for 2011. Here, among the 27 districts of Assam Kamrup Metro and Darrang have low development status in infant mortality rate along with two districts Jorhat and Cachar that have moderate development status. The remaining 23 districts have high development status as shown in column 4 of the Table 3.12. With value of the index as zero Darrang district has the lowest development in infant mortality rate contrary to Dhubri district that has attained highest development among the regions of Assam. The status of overall Assam is found to be high development having value of the index as 0.867. Further, from the Table 3.12 it is evident that coefficient of variation is 22.78 which means there exist about 23 percent variations across the 27 districts of Assam in rural infant mortality rate.

3.4.3 Rural Health Index

Now the status and extent of rural health developmental disparities as an important indicator of rural development can suitably be examined with the help of combined index of rural child sex ratio in the age group 0-6 years and infant mortality rate. The construction of composite health index is very simple. It is only the simple average of the two indices viz, rural child sex ratio index and rural infant mortality rate index.

The construction of rural health index (I_H) for 1991 is shown with the help of Table 3.13 as under-

Table 3.13: District wise Rural Health Index (I_H) of Assam, 1991

Districts	Rural Health Index(I_H)*	Status	Rank
Dhemaji	0.434	LRD	14
Lakhimpur	0.308	LRD	20
Sonitpur	0.607	MRD	5
Dibrugarh	0.594	MRD	7
Jorhat	0.736	MRD	2
Golaghat	0.803	HRD	1
Sibsagar	0.549	MRD	10
Tinsukia	0.520	MRD	13
Nagaon	0.428	LRD	15
Morigaon	0.622	MRD	4
Nalbari	0.309	LRD	19
Darrang	0.300	LRD	21
Barpeta	0.167	LRD	23
Dhubri	0.278	LRD	22
Bongaigaon	0.398	LRD	17
Kokrajhar	0.531	MRD	11
Goalpara	0.386	LRD	18
Kamrup	0.579	MRD	9
N. C. Hills	0.624	MRD	3
Karbi-Anglong	0.585	MRD	8
Cachar	0.525	MRD	12
Karimganj	0.425	LRD	16
Hailakandi	0.596	MRD	6
Assam	0.491	LRD	
Standard Deviation	0.153		
Coefficient of Variation	31.09		

Source: * Constructed from- Table 3.7 and Table 3.10

Note: $\mathbf{I_H}^*$= Rural Health Index; **LRD**= Low Rural Development;
MRD= Moderate Rural Development; **HRD**= High Rural Development

In the Table 3.13, column 2 depicts rural health index (I_H) of Assam for census year 1991 which is computed as simple average of column 3 of Table 3.7 and Table 3.10 respectively. From the table it is evident that the overall status of health development of Assam is low development as the composite index is found as 0.491. In 1991, Barpeta is the least developed district in health followed by Dhubri, Darrang,

Lakhimpur, Nalbari, Goalpara, Bongaigaon, Karimganj, Nagaon and Dhemaji which fall in the low development status in health contrary to remaining 12 districts that have moderate development status except Golaghat which is the only one district that have high development status in health development. Again, it has been found that the value of coefficient of variation as 31.05 which indicate existence of about 31 percent disparity in rural health development across the State of Assam in 1991.

Table 3.14: District wise Rural Health Index (I_H) of Assam, 2001

Districts	Health Index($I_{H)}$)*	Status	Rank
Dhemaji	0.934	HRD	1
Lakhimpur	0.734	MRD	8
Sonitpur	0.605	MRD	16
Dibrugarh	0.768	MRD	5
Jorhat	0.739	MRD	7
Golaghat	0.616	MRD	15
Sibsagar	0.729	MRD	9
Tinsukia	0.706	MRD	10
Nagaon	0.648	MRD	11
Morigaon	0.491	LRD	19
Nalbari	0.554	MRD	17
Darrang	0.623	MRD	13
Barpeta	0.773	MRD	4
Dhubri	0.453	LRD	20
Bongaigaon	0.824	HRD	2
Kokrajhar	0.236	LRD	23
Goalpara	0.786	MRD	3
Kamrup	0.621	MRD	14
N. C. Hills	0.427	LRD	21
Karbi-Anglong	0.753	MRD	6
Cachar	0.635	MRD	12
Karimganj	0.525	MRD	18
Hailakandi	0.343	LRD	22
Assam	0.631	MRD	
Standard Deviation	0.161		
Coefficient of Variation	25.47		

Source: * Constructed from, Table 3.8 and Table 3.11

Note: $\mathbf{I_H}^*$= Rural Health Index; **LRD**= Low Rural Development;

MRD= Moderate Rural Development; **HRD**= High Rural Development

Table 3.15: District wise Rural Health Index (I_H) of Assam, 2011

Districts	Health Index(I_H)*	Status	Rank
Dhemaji	0.456	LRD	25
Lakhimpur	0.650	MRD	21
Sonitpur	0.754	MRD	8
Dibrugarh	0.702	MRD	13
Jorhat	0.687	MRD	15
Golaghat	0.701	MRD	14
Sibsagar	0.651	MRD	20
Tinsukia	0.722	MRD	12
Nagaon	0.723	MRD	11
Morigaon	0.597	MRD	22
Nalbari	0.761	MRD	7
Darrang	0.328	LRD	27
Barpeta	0.654	MRD	19
Dhubri	0.845	HRD	2
Bongaigaon	0.824	HRD	4
Kokrajhar	0.519	MRD	23
Udalguri	0.837	HRD	3
Baksa	0.745	MRD	9
Chirang	0.881	HRD	1
Goalpara	0.682	MRD	17
Kamrup Metro	0.744	MRD	10
Kamrup	0.772	MRD	6
Dima Hasao	0.686	MRD	16
Karbi-Anglong	0.656	MRD	18
Cachar	0.444	LRD	26
Karimganj	0.799	MRD	5
Hailakandi	0.479	LRD	24
Assam	0.678	MRD	
Standard Deviation	0.131		
Coefficient of Variation	19.39		

Source: * Constructed from, Table 3.9 and Table 3.12

Note: $\mathbf{I_H}^*$= Rural Health Index; **LRD**= Low Rural Development;
MRD= Moderate Rural Development; **HRD**= High Rural Development

The district wise rural health index of Assam for 2001 is shown with the help of Table 3.14 (given above). The Table 3.14 shows that Kokrajhar is the least developed district in rural health development contrary to Dhemaji which has highest development status out of the 23 districts of Assam in 2001. There exist only five low developed

regions such as Morigaon, Dhubri, N. C. Hills, Hailakandi and Kokrajhar. In 2001, the remaining 16 districts have moderate development status in contrast to only two districts that have high development status. These two high developed districts are Dhemaji and Bongaigaon. From, the table it is again evident that having the value of the index as 0.631 the overall status of Assam has moderate development in 2001.

Further, the health disparity across the State of Assam in 2001 is found as 25.47 percent as is evident from value of the coefficient of variation.

For the census year 2011, the district wise disparities in rural health index of Assam is shown with the help of Table 3.15 (shown above). In the Table 3.15 out of the 27 districts of Assam, only four districts viz, Chirang, Dhubri, Udalguri and Bongaigaon are found as high development status in health. The districts which have moderate development status are Karimganj, Kamrup, Nalbari, Sonitpur, Baksa, Kamrup Metro, Nagaon, Tinsukia, Dibrugarh, Golaghat, Jorhat, Dima Hasao, Goalpara, Karbi-Anglong, Barpeta, Sibsagar, Lakhimpur, Morigaon and Kokrajhar. The remaining four districts as- Hailakandi, Dhemaji, Cachar and Darrang have low development status in rural health. Having the value 0.881 and 0.328, Chirang and Darrang districts respectively have highest and lowest health development among the districts of Assam in 2011. In the table, the overall picture of health in Assam is moderate development with the value of the index as 0.678.

Further, having the coefficient of variation value as 19.39, the disparity in health development across the regions of Assam in 2011 is about 19 percent.

The micro-zone wise Rural Health Index (I_H) of Assam for the years 1991, 2001 and 2011 are shown in the Table 3.16, Table 3.17 and Table 3.18 as follows-

In the Table 3.16 there is no any high health development status micro zone in the State in 1991. Upper South Bank Plain stands in the first position in rural health followed by Hill Zone, Central Brahmaputra Valley, Barak Valley, Lower South Brahmaputra Valley, Upper North Bank Plain and in the bottom Lower North Bank Plain. In the table, since coefficient of variation is found to be 18.93, there exists about 19 percent variation in health development across the micro zones of Assam.

Table 3.16: Micro-zone wise Rural Health Index (I_H) of Assam, 1991

Sl. No.	Micro Zone	I_H*	Status	Rank
1	Upper North Bank Plain	0.450	LRD	6
2	Upper South Bank Plain	0.640	MRD	1
3	Central Brahmaputra Valley	0.525	MRD	3
4	Lower North Bank Plain	0.326	LRD	7
5	Lower South Brahmaputra Valley	0.483	LRD	5
6	Barak Valley	0.515	MRD	4
7	Hill Zone	0.605	MRD	2
	Mean	0.506		
	Standard Deviation	0.096		
	Coefficient of Variation	18.93		

Source: * Constructed from Table 3.13

Note: $\mathbf{I_H}^*$= Rural Health Index; **LRD**= Low Rural Development;
MRD= Moderate Rural Development; **HRD**= High Rural Development

Table 3.17 in the following depicts micro-zone wise disparities in rural health index in 2001 of Assam.

Table 3.17: Micro-zone wise Rural Health Index (I_H) of Assam, 2001

Sl. No.	Micro Zone	I_H*	Status	Rank
1	Upper North Bank Plain	0.758	MRD	1
2	Upper South Bank Plain	0.712	MRD	2
3	Central Brahmaputra Valley	0.570	MRD	6
4	Lower North Bank Plain	0.577	MRD	5
5	Lower South Brahmaputra Valley	0.704	MRD	3
6	Barak Valley	0.501	MRD	7
7	Hill Zone	0.590	MRD	4
	Mean	0.630		
	Standard Deviation	0.087		
	Coefficient of Variation	13.84		

Source: * Constructed from Table 3.14

Note: $\mathbf{I_H}^*$= Rural Health Index; **LRD**= Low Rural Development;
MRD= Moderate Rural Development; **HRD**= High Rural Development

From the Table 3.17 it is evident that having the value of 0.758, Upper North Bank Plain is the only one high health development micro-zone of Assam in 2001. The remaining 6 micro-zones are fall in the moderate development category. In descending

order they are Upper South Bank Plain, Lower South Brahmaputra Valley, Hill Zone, Lower North Bank Plain, Central Brahmaputra Valley and Barak Valley. There exists about 14 percent disparity in health development across the micro-zones of Assam having the coefficient of variation value as 13.84.

The Table 3.18 in the following shows micro-zone wise rural health disparity in 2011. It is evident from the coefficient of variation that the micro-zone wise health disparity is found as only 7.57 percent. Again, it has been found that all the 7 micro zones have moderate health development status. In descending order these zones are Lower South Brahmaputra Valley, Lower North Bank Plain, Upper South Bank Plain, Hill Zone, Central Brahmaputra Valley, Upper North Bank Plain and Barak Valley.

Table 3.18: Micro-zone wise Rural Health Index ($(I_{H)}$) of Assam, 2011

Sl. No.	Micro Zone	I_H*	Status	Rank
1	Upper North Bank Plain	0.620	MRD	6
2	Upper South Bank Plain	0.693	MRD	3
3	Central Brahmaputra Valley	0.660	MRD	5
4	Lower North Bank Plain	0.710	MRD	2
5	Lower South Brahmaputra Valley	0.733	MRD	1
6	Barak Valley	0.574	MRD	7
7	Hill Zone	0.671	MRD	4
	Mean	0.666		
	Standard Deviation	0.050		
	Coefficient of Variation	7.57		

Source: * Constructed from Table 3.15

Note: $\mathbf{I_H}^*$= Rural Health Index; **LRD**= Low Rural Development;
MRD= Moderate Rural Development; **HRD**= High Rural Development

From the above, it has been evident that districts like Dhubri, Barpeta, Kokrajhar etc. of Lower Assam and districts of Barak Valley are less conducive to rural health status. Physiographically, these districts are lying in difficult socio-economic conditions. Further, they have international border that are more prone to migration. This creates more population growth and low level of per capita income in the regions. Malnutrition, illiteracy, poverty are the serious problem of the people living there. These districts have low level of educational institutions and health facilities proportionate to population growth.

3.5 Rural Agricultural Productivity

For a rural economy like Assam, which is predominantly an agricultural economy the rural agricultural productivity as a productivity measure is an important indicator determining rural development. For rural development to be sustaining the primacy of agrarian sector has felt for its support base for the vast rural populace.

Here, in the study secondary data relating to contribution of agriculture to district domestic product to 100 hectares of net sown area have been used as the measurement for rural productivity. For sake of convenience of the study due to unavailability of data of the year 1991, contribution of primary sector which includes agriculture, forestry, fishing, quarrying and mining in the Gross District Domestic Product to 100 hectares of Net Sown Area have been used for the measurement of rural agricultural productivity. In order to find out the status and extent of productivity of the different regions an agricultural productivity index has been calculated from rural agricultural productivity for the census years like 1991, 2001 and 2011.

It has been calculated that the rural agricultural productivity of Assam in 1991, 2001 and 2011 are 29.76, 41.06 and 73.53 percent respectively against the all India figure of 23.0, 33.08 and 45.67 percent for 1991, 2001 and 2011 respectively.

The Table 3.19 represents district wise rural agricultural productivity and productivity index (I_{RAP}) on the basis of 1991 Census data. In the table, column 2 implies the rural agricultural productivity for 23 districts of Assam for 1991 which is calculated as the contribution of primary sector in the GDDP to 100 hectares to net sown area. The rural agricultural productivity index is shown in column 3 of the table which shows Tinsukia and Darrang as the highest and least developed region respectively in rural agricultural productivity. Tinsukia is the only one high developed region followed by two moderate districts viz, Sibsagar and N. C. Hills. The remaining 20 districts have low development status in rural agricultural productivity. Having the value as 29.76 the value of rural agricultural productivity index of the State of Assam is found to be 0.275 which depicts low rural agricultural productivity. It is evident from the value of coefficient of variation that there exists about 86 percent rural agricultural productivity disparity across the rural regions of Assam.

Table 3.19: District wise Rural Agricultural Productivity and Rural Agricultural Productivity Index (I_{RAP}) of Assam, 1991

Districts	Rural Agricultural Productivity*	I_{RAP}	Status	Rank
Dhemaji	38.39	0.408	LRD	6
Lakhimpur	42.45	0.490	LRD	4
Sonitpur	30.56	0.250	LRD	10
Dibrugarh	35.41	0.348	LRD	7
Jorhat	21.61	0.070	LRD	20
Golaghat	27.55	0.190	LRD	14
Sibsagar	52.92	0.701	MRD	2
Tinsukia	67.77	1.000	HRD	1
Nagaon	25.11	0.141	LRD	16
Morigaon	22.31	0.084	LRD	18
Nalbari	19.11	0.020	LRD	21
Darrang	18.13	0.000	LRD	23
Barpeta	31.75	0.274	LRD	9
Dhubri	29.09	0.221	LRD	13
Bongaigaon	25.23	0.143	LRD	15
Kokrajhar	41.14	0.464	LRD	5
Goalpara	23.54	0.109	LRD	17
Kamrup	21.42	0.066	LRD	19
N. C. Hills	45.66	0.555	MRD	3
Karbi-Anglong	18.29	0.003	LRD	22
Cachar	30.09	0.241	LRD	11
Karimganj	34.13	0.322	LRD	8
Hailakandi	29.51	0.229	LRD	12
Assam	29.76	0.275	LRD	
Standard Deviation		0.238		
Coefficient of Variation		86.61		

Source: Constructed from,

Statistical Hand Book, 2001, Assam, Government of Assam

Note: $\mathbf{I_{RAP}}^{*}$= Rural Agricultural Productivity Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

The district wise rural agricultural productivity and its index for the year 2001 are shown in the following Table 3.20.

Table 3.20: District wise Rural Agricultural Productivity and Rural Agricultural Productivity Index (I_{RAP}) of Assam, 2001

Districts	Rural Agricultural Productivity*	I_{RAP}	Status	Rank
Dhemaji	39.44	0.221	LRD	10
Lakhimpur	33.89	0.147	LRD	14
Sonitpur	35.05	0.162	LRD	12
Dibrugarh	48.84	0.348	LRD	5
Jorhat	47.22	0.326	LRD	7
Golaghat	48.78	0.347	LRD	6
Sibsagar	46.31	0.314	LRD	8
Tinsukia	28.82	0.078	LRD	17
Nagaon	34.95	0.161	LRD	13
Morigaon	26.49	0.047	LRD	21
Nalbari	23.01	0.000	LRD	22
Darrang	27.23	0.057	LRD	20
Barpeta	97.24	1.000	HRD	1
Dhubri	37.71	0.198	LRD	11
Bongaigaon	28.04	0.068	LRD	18
Kokrajhar	30.85	0.107	LRD	16
Goalpara	28.04	0.068	LRD	18
Kamrup	42.95	0.269	LRD	9
N. C. Hills	62.40	0.531	MRD	2
Karbi-Anglong	27.59	0.062	LRD	19
Cachar	54.89	0.429	LRD	3
Karimganj	53.67	0.413	LRD	4
Hailakandi	33.62	0.143	LRD	15
Assam	41.06	0.239	LRD	
Standard Deviation		0.215		
Coefficient of Variation		89.86		

Source: Constructed from,
Statistical Hand Book, 2005, Assam, Government of Assam

Note: $\mathbf{I_{RAP}}^{*}$ = Rural Agricultural Productivity Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

Similar to the rural agricultural productivity of 1991, in 2001 also the overall productivity of the State of Assam is not found satisfactory. With the value of rural agricultural productivity as 41.06 the agricultural productivity index as a whole of the State of Assam is found to be 0.239 which implies low development status in

agricultural productivity. With value of index as one and zero Barpeta and Nalbari district respectively have attained first and last position in rural agricultural productivity. In 2001, Barpeta and N. C. Hills are the only two districts that have high and moderate development status respectively in rural agricultural productivity. The remaining districts like Cachar, Karimganj, Dibrugarh, Golaghat, Jorhat, Sibsagar, Kamrup, Dhemaji, Dhubri, Sonitpur, Nagaon, Lakhimpur, Hailakandi, Kokrajhar, Tinsukia, Goalpara, Bongaigaon, Karbi-Anglong Darrang, Morigaon and Nalbari have low development status in rural productivity. Further, the disparity in rural agricultural productivity is found as 89.86 percent which is very significant as is evident from the value of coefficient of variation.

Again, the Table 3.21 depicts district wise rural agricultural productivity and rural productivity index in 2011.

From the table it has been evident that Assam has very poor position in rural agricultural productivity having the value of the index as 0.404. There are 16 districts that have low development status including Kamrup which is the least developed region. The other low developed regions are Cachar, Golaghat, Sibsagar, Jorhat, Kokrajhar, Dima Hasao, Hailakandi, Goalpara, Nagaon, Morigaon, Kamrup Metro, Darrang, Dhubri, Barpeta, Udalguri and Kamrup. Baksa district is in the top along with Chirang which have high development status. As against this, the districts like Lakhimpur, Karimganj, Tinsukia, Bongaigaon, Nalbari, Dibrugarh, Dhemaji, Sonitpur and Karbi-Anglong are fall in the moderate development status in rural agricultural productivity. Here also the disparity in rural agricultural productivity is very significant as shown by the value of coefficient of variation as 63.48.

It has been found that some districts like Darrang, Kamrup, Nalbari, Dhubri etc. have very low rural agricultural productivity which is very low in the districts. This implies the farm sector production was not in the desired way to increase value of district domestic product. This is due to soil productivity of these areas are low compared to other high developed region like Sibsagar, Tinsukia, Baksa, Barpeta etc.

Table 3.21: District wise Rural Agricultural Productivity and Rural Agricultural Productivity Index (I_{RAP}) of Assam, 2011

Districts	Rural Agricultural Productivity*	I_{RAP}	Status	Rank
Dhemaji	86.06	0.553	MRD	8
Lakhimpur	100.38	0.767	MRD	3
Sonitpur	85.11	0.539	MRD	10
Dibrugarh	85.40	0.543	MRD	9
Jorhat	72.94	0.357	LRD	15
Golaghat	76.53	0.411	LRD	13
Sibsagar	73.05	0.359	LRD	14
Tinsukia	92.59	0.650	MRD	5
Nagaon	64.47	0.231	LRD	20
Morigaon	61.12	0.181	LRD	21
Nalbari	86.13	0.554	MRD	7
Darrang	55.98	0.104	LRD	23
Barpeta	53.51	0.067	LRD	24
Dhubri	55.98	0.104	LRD	23
Bongaigaon	89.12	0.599	MRD	6
Kokrajhar	72.78	0.355	LRD	16
Udalguri	51.74	0.041	LRD	25
Baksa	116.02	1.000	HRD	1
Chirang	107.68	0.876	HRD	2
Goalpara	65.53	0.247	LRD	19
Kamrup Metro	59.96	0.163	LRD	22
Kamrup	49.01	0.000	LRD	26
Dima Hasao	69.86	0.311	LRD	17
Karbi-Anglong	83.15	0.509	MRD	11
Cachar	76.84	0.415	LRD	12
Karimganj	95.82	0.699	MRD	4
Hailakandi	56.91	0.267	LRD	18
Assam	73.53	0.404	LRD	
Standard Deviation		0.256		
Coefficient of Variation		63.48		

Source: * Constructed from,

Statistical Hand Book, 2011, Assam, Government of Assam

Note: $\mathbf{I_{RAP}}^{*}$= Rural Agricultural Productivity Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

The micro-zone wise rural agricultural productivity index and its disparity for the years 1991, 2001 and 2011 are shown in the Table 3.22, Table 3.23 and Table 3.24 respectively.

Table 3.22: Micro-zone wise Rural Agricultural Productivity Index (I_{RAP}) of Assam, 1991

Sl. No.	Micro Zone	I_{RAP} *	Status	Rank
1	Upper North Bank Plain	0.383	LRD	2
2	Upper South Bank Plain	0.462	LRD	1
3	Central Brahmaputra Valley	0.113	LRD	6
4	Lower North Bank Plain	0.187	LRD	5
5	Lower South Brahmaputra Valley	0.088	LRD	7
6	Barak Valley	0.264	LRD	4
7	Hill Zone	0.279	LRD	3
	Mean	0.254		
	Standard Deviation	0.127		
	Coefficient of Variation	49.98		

Source: * Constructed from Table 3.19

Note: $\mathbf{I_{RAP}}^{*}$= Rural Agricultural Productivity Index;
LRD= Low Rural Development; **MRD**= Moderate Rural Development;
HRD= High Rural Development

In the Table 3.22 the coefficient of variation is found to be 49.98 which imply existence of about 50 percent variability in rural agricultural productivity across the micro-zones in the State in 1991. In rural agricultural productivity, there are no any high or moderate development micro-zones in Assam. All the micro-zones are fall in the low development category. In the table Upper South Bank Plain is in the top followed by Upper North Bank Plain, Hill Zone, Barak Valley, Lower North Bank Plain, Central Brahmaputra Valley and Lower South Brahmaputra Valley.

The micro-zone wise breakup of rural agricultural productivity index in 2001 can be analyzed with the help of the Table 3.23. According to the Table 3.23, the variability across the different zones is found to be 32.88 percent as shown through coefficient of variation. From the table, it has been evident that all the zones are fall in low development status. The region Barak Valley is in the top followed by Hill Zone, Upper South Bank Plain, Lower North Bank Plain, Upper North Bank Plain, Central Brahmaputra Valley and Lower South Brahmaputra Valley.

Table 3.23: Micro-zone wise Rural Agricultural Productivity Index (I_{RAP}) of Assam, 2001

Sl. No.	Micro Zone	I_{RAP}*	Status	Rank
1	Upper North Bank Plain	0.177	LRD	5
2	Upper South Bank Plain	0.283	LRD	3
3	Central Brahmaputra Valley	0.104	LRD	7
4	Lower North Bank Plain	0.238	LRD	4
5	Lower South Brahmaputra Valley	0.169	LRD	6
6	Barak Valley	0.328	LRD	1
7	Hill Zone	0.297	LRD	2
	Mean	0.228		
	Standard Deviation	0.075		
	Coefficient of Variation	32.88		

Source: Constructed from, Table 3.20

Note: $\mathbf{I_{RAP}}^{*}$= Rural Agricultural Productivity Index;
LRD= Low Rural Development; **MRD**= Moderate Rural Development;
HRD= High Rural Development

The micro-zone wise rural agricultural productivity index of Assam for the year 2011 has been shown through the Table 3.24 in the following.

Table 3.24: Micro-zone wise Rural Agricultural Productivity Index (I_{RAP}) of Assam, 2011

Sl. No.	Micro Zone	I_{RAP}	Status	Rank
1	Upper North Bank Plain	0.619	MRD	1
2	Upper South Bank Plain	0.464	LRD	2
3	Central Brahmaputra Valley	0.206	LRD	6
4	Lower North Bank Plain	0.411	LRD	5
5	Lower South Brahmaputra Valley	0.137	LRD	7
6	Barak Valley	0.460	LRD	3
7	Hill Zone	0.410	LRD	4
	Mean	0.387		
	Standard Deviation	0.152		
	Coefficient of Variation	39.27		

Source: Constructed from, Table 3.21

Note: $\mathbf{I_{RAP}}^{*}$= Rural Agricultural Productivity Index;
LRD= Low Rural Development; **MRD**= Moderate Rural Development;
HRD= High Rural Development

Here, it has been evident from the Table 3.24 that the value of the coefficient of variation is 39.27 which means the micro-zone wise variability in rural agricultural productivity is about 39 percent. The table depicts that the Upper North Bank Plain is the only one moderate development region in rural agricultural productivity followed by five low rural agricultural productivity regions such as Upper South Bank Plain, Barak Valley, Hill Zone, Lower North Bank Plain, Central Brahmaputra Valley and Lower South Brahmaputra Valley.

3.6 Rural Employment

Unemployment, poverty etc. are very serious economic problem in the development process of a country like India. In the development and growth process employment is very crucial indicator for development of a region. It is particularly very important for rural development of a developing country like India. Here in the study, the rural employment as one of the development indicator has been taken into account to show the disparities in rural development of Assam.

Here, the rural employment is measured through work force participation rate which is measured through percentage of workers (main) to total population. The district wise secondary data relating to main workers as percentage of total population of the rural areas are compiled from Census Reports for 1991, 2001 and 2011 to show the index of rural employment for each district of the concerned census year. There is a direct relationship between employment and rural development which means higher the index of rural employment higher will be the rural development and vice versa.

The rural employment rate in Assam for the census years 1991, 2001 and 2011 respectively are 31.30, 26.06 and 27.27 in contrast to all India level as 35.69, 30.87 and 29.49. That is, rural employment rate has been decreasing both at the state and national level. Further, it is also evident that the rural employment rate figure of Assam always lies below the national figure. It means that in case of work force participation rate the State of Assam experiences a lower growth rate than all India level.

The district wise disparities in rural employment for the census years 1991, is shown with the help of Table 3.25.

Table 3.25: District wise Rural Employment and Rural Employment Index (I_{EMP}) of Assam, 1991

Districts	Rural Employment Rate	I_{EMP}	Status	Rank
Dhemaji	33.49	0.504	MRD	10
Lakhimpur	32.23	0.413	LRD	11
Sonitpur	35.59	0.634	MRD	7
Dibrugarh	35.48	0.646	MRD	6
Jorhat	34.95	0.608	MRD	8
Golaghat	35.51	0.648	MRD	5
Sibsagar	36.91	0.748	MRD	4
Tinsukia	37.37	0.781	MRD	3
Nagaon	29.46	0.215	LRD	15
Morigaon	28.71	0.163	LRD	18
Nalbari	26.45	0.000	LRD	23
Darrang	31.36	0.351	LRD	12
Barpeta	26.50	0.004	LRD	22
Dhubri	27.30	0.061	LRD	19
Bongaigaon	30.39	0.282	LRD	13
Kokrajhar	34.14	0.550	MRD	9
Goalpara	29.33	0.206	LRD	16
Kamrup	26.68	0.016	LRD	21
N. C. Hills	40.43	1.000	HRD	1
Karbi-Anglong	38.88	0.889	HRD	2
Cachar	29.80	0.240	LRD	14
Karimganj	26.85	0.029	LRD	20
Hailakandi	29.22	0.198	LRD	17
Assam	31.30	0.399	LRD	
Standard Deviation		0.298		
Coefficient of Variation		74.69		

Source: Constructed from,
Primary Census Abstract, 1991, Assam, Census of India

Note: **I_{EMP}**= Rural Employment Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

In the Table 3.25 district wise values of employment index (I_{EMP}) of Assam for the year 1991 are shown in column 3. Having the value of employment index 0.399 the rural Assam has low development status in rural employment. It has been observed from column 3 of the table that Nalbari is the least developed in work force participation rate contrary to N. C. Hills which has highest rural employment rate. The

districts N. C. Hills and Karbi-Anglong have been categorized as high development status region followed by 8 moderate development status districts viz, Tinsukia, Sibsagar, Golaghat, Dibrugarh, Sonitpur, Jorhat, Kokrajhar and Dhemaji. The remaining 13 districts fall in the low development category. These districts are- Lakhimpur, Darrang, Bongaigaon, Cachar, Nagaon, Goalpara, Hailakandi, Morigaon, Dhubri, Karimganj, Kamrup, Barpeta and Nalbari. Further, having the coefficient of variation value as 74.69 it can be concluded that there exist about 75 percent disparity in rural work force participation rate in Assam in 1991.

The district wise rural employment and rural employment index for 2001 is shown in the following Table 3.26. From the value of column 3 of Table 3.26, it is evident that having value of the employment index as 0 and 1 Karimganj and Lakhimpur respectively are the least and highest developed districts in rural employment out of the 23 rural regions of Assam in 2001. There exist 16 low developed districts including Karimganj such as Dhemaji, Sonitpur, Sibsagar, Darrang, Kokrajhar, Morigaon, Goalpara, Hailakandi, Bongaigaon, Nalbari, Dhubri, Barpeta, Kamrup, Nagaon and Cachar. Further, whereas 6 districts like Tinsukia, Golaghat, Jorhat, Dibrugarh, Karbi-Anglong and N. C. Hills have moderate development status, only one district Lakhimpur has high development status in rural employment. Again, there exists about 62 percent variability across the regions of Assam having the coefficient of variation value as 61.55.

Similar to the Table 3.26, the Table 3.27 depicts district wise rural employment and rural employment index for the census year 2011. Here, the column 3 of Table 3.27 indicates rural employment index of different districts of Assam in 2011. From the table it is evident that the overall position of rural employment is moderate having the value of the index as 0.510 which is slight improvement than the earlier census years. In 2011, the districts like Lakhimpur, Sibsagar, Nagaon, Morigaon, Nalbari, Darrang, Barpeta, Dhubri, Bongaigaon, Goalpara, Karbi-Anglong, Cachar, Karimganj and Hailakandi have low development position in rural employment contrary to the districts like Dhemaji, Sonitpur, Dibrugarh, Kokrajhar, Baksa, Chirang, Kamrup Metro and Kamrup which have moderate development status. The districts that have high development status in rural employment are Dima Hasao, Golaghat, Tinsukia, Jorhat and Udalguri.

From the table, it has been evident that among the 27 districts at the time of 2011 Census, Dima Hasao achieved highest development in contrast to least developed region Karimganj. Having the value of coefficient of variation as 52.00 the disparity in rural employment across the districts of Assam is said to be 52 percent.

Table 3.26: District wise Rural Employment and Rural Employment Index (I_{EMP}) of Assam, 2001

Districts	Rural Employment Rate	I_{EMP}	Status	Rank
Dhemaji	27.08	0.444	LRD	8
Lakhimpur	32.33	1.000	HRD	1
Sonitpur	26.82	0.417	LRD	9
Dibrugarh	28.26	0.569	MRD	5
Jorhat	27.84	0.525	MRD	7
Golaghat	28.25	0.568	MRD	6
Sibsagar	26.63	0.397	LRD	10
Tinsukia	30.37	0.793	MRD	2
Nagaon	23.86	0.104	LRD	21
Morigaon	25.57	0.285	LRD	12
Nalbari	25.29	0.255	LRD	16
Darrang	26.63	0.397	LRD	10
Barpeta	24.49	0.170	LRD	19
Dhubri	24.01	0.120	LRD	20
Bongaigaon	25.31	0.257	LRD	15
Kokrajhar	25.63	0.291	LRD	11
Goalpara	25.39	0.266	LRD	13
Kamrup	24.58	0.180	LRD	18
N. C. Hills	29.03	0.651	MRD	3
Karbi-Anglong	28.69	0.615	MRD	4
Cachar	24.72	0.195	LRD	17
Karimganj	22.88	0.000	LRD	22
Hailakandi	25.33	0.259	LRD	14
Assam	26.06	0.381	LRD	
Standard Deviation		0.234		
Coefficient of Variation		61.55		

Source: Constructed from,

Primary Census Abstract, 2001, Assam, Census of India

Note: **I_{EMP}**= Rural Employment Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

Table 3.27: District wise Rural Employment and Rural Employment Index (I_{EMP}) of Assam, 2011

Districts	Rural Employment Rate	I_{EMP}	Status	Rank
Dhemaji	29.42	0.723	MRD	7
Lakhimpur	26.77	0.403	LRD	17
Sonitpur	28.64	0.629	MRD	11
Dibrugarh	28.98	0.670	MRD	9
Jorhat	30.68	0.857	HRD	4
Golaghat	31.00	0.914	HRD	2
Sibsagar	27.12	0.445	LRD	15
Tinsukia	30.85	0.896	HRD	3
Nagaon	25.35	0.231	LRD	23
Morigaon	27.10	0.443	LRD	16
Nalbari	25.31	0.226	LRD	24
Darrang	25.64	0.266	LRD	20
Barpeta	25.42	0.239	LRD	22
Dhubri	25.45	0.248	LRD	21
Bongaigaon	25.19	0.212	LRD	25
Kokrajhar	28.22	0.578	MRD	12
Udalguri	30.35	0.836	HRD	5
Baksa	29.32	0.711	MRD	8
Chirang	28.92	0.663	MRD	10
Goalpara	26.14	0.326	LRD	19
Kamrup Metro	29.65	0.751	MRD	6
Kamrup	27.61	0.504	MRD	13
Dima Hasao	31.71	1.000	HRD	1
Karbi-Anglong	27.17	0.451	LRD	14
Cachar	26.50	0.370	LRD	18
Karimganj	23.44	0.000	LRD	27
Hailakandi	24.85	0.170	LRD	26
Assam	27.27	0.510	MRD	
Standard Deviation		0.265		
Coefficient of Variation		52.00		

Source: Constructed from,

Primary Census Abstract, 2011, Assam, Census of India

Note: **I_{EMP}**= Rural Employment Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

The Table 3.28, Table 3.29 and Table 3.30 in the following respectively show micro-zone wise break up of disparities in rural employment for 1991, 2001 and 2011 of Assam.

As shown in Table 3.28, the coefficient of variation value is found as 73.90 which indicate existence of about 74 percent disparity in rural work force rate across the seven micro-zones of Assam in 1991. Here, four micro-zones namely, Lower North Bank Plain, Central Brahmaputra Valley, Barak Valley and Lower South Brahmaputra Valley have low rural employment status contrary to the Upper South Bank Plain and Upper North Bank Plain which have moderate rural employment status. The Hill Zone is the only one micro-zone that have high rural work force ratio.

Table 3.28: Micro-zone wise Rural Employment Index (I_{EMP}) of Assam, 1991

Sl. No.	Micro Zone	I_{EMP}^{*}	Status	Rank
1	Upper North Bank Plain	0.517	MRD	3
2	Upper South Bank Plain	0.686	MRD	2
3	Central Brahmaputra Valley	0.189	LRD	5
4	Lower North Bank Plain	0.208	LRD	4
5	Lower South Brahmaputra Valley	0.111	LRD	7
6	Barak Valley	0.156	LRD	6
7	Hill Zone	0.945	HRD	1
	Mean	0.402		
	Standard Deviation	0.297		
	Coefficient of Variation	73.90		

Source: * Constructed from, Table 3.25

Note: **I_{EMP}**= Rural Employment Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

In contrast to the above, the micro-zone wise disparity in rural employment of Assam in 2001 is found to be about 54 percent having the coefficient of variation value as 53.63 as shown in Table 3.29. There are four micro-zones viz, Barak Valley, Central Brahmaputra Valley, Lower South Brahmaputra Valley and Lower North Bank Plain which have low development position in rural employment in contrast to the three moderate zones such as Hill zone, Upper North Bank Plain and Upper South Bank Plain.

Table 3.29: Micro-zone wise Rural Employment Index (I_{EMP}) of Assam, 2001

Sl. No.	Micro Zone	I_{EMP}^{*}	Status	Rank
1	Upper North Bank Plain	0.620	MRD	2
2	Upper South Bank Plain	0.570	MRD	3
3	Central Brahmaputra Valley	0.195	LRD	6
4	Lower North Bank Plain	0.248	LRD	4
5	Lower South Brahmaputra Valley	0.223	LRD	5
6	Barak Valley	0.151	LRD	7
7	Hill Zone	0.633	MRD	1
	Mean	0.377		
	Standard Deviation	0.202		
	Coefficient of Variation	53.63		

Source: * Constructed from, Table 3.26

Note: **I_{EMP}**= Rural Employment Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

Further, the Table 3.30 in the following shows micro zone wise rural employment index for 2011.

Table 3.30: Micro-zone wise Rural Employment Index (I_{EMP}) of Assam, 2011

Sl. No.	Micro Zone	I_{EMP}^{*}	Status	Rank
1	Upper North Bank Plain	0.585	MRD	3
2	Upper South Bank Plain	0.756	MRD	1
3	Central Brahmaputra Valley	0.337	LRD	6
4	Lower North Bank Plain	0.442	LRD	5
5	Lower South Brahmaputra Valley	0.527	MRD	4
6	Barak Valley	0.180	LRD	7
7	Hill Zone	0.726	MRD	2
	Mean	0.508		
	Standard Deviation	0.191		
	Coefficient of Variation	37.71		

Source: * Constructed from, Table 3.27

Note: **I_{EMP}**= Rural Employment Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

Here, having the coefficient of variation value as 37.71, the overall disparity in rural employment is about 38 percent. It is revealed that there is a reduction in disparity

in rural employment across the micro zones of Assam in contrast to 1991 and 2001. In 2011, there are three low development status districts viz, Barak Valley, Central Brahmaputra Valley and Lower North Bank Plain. Upper South Bank Plain attained highest development out of the 7 micro zones in Assam in contrast to Barak Valley the least developed micro zone. The Upper South Bank Plain followed by Hill Zone, Upper North Bank Plain and Lower South Brahmaputra Valley have moderate development position.

From the above analysis of rural employment as one of the indicators of rural development, it has been evident that there is a declining trend of disparity in rural employment both at the inter-district as well as across the different micro zones of Assam. It has been seen that as per value of coefficient of variation the inter-district disparity in rural employment have been reduced from 75 percent in 1991 to 62 percent in 2001 and then to 52 percent in 2011. This trend can also be seen from micro zone wise disparity across different cluster of districts. The disparity in rural employment has been reduced from 74 percent in 1991 to 54 percent in 2001 and then to 38 percent in 2011. Further, the districts of Barak Valley, Central Brahmaputra Valley and Lower North Bank Plain have low development status in rural employment. The high growth rate of population in these regions has negative effect on rural employment. Again, the districts which have some sort of industrialization in the Upper Assam as well as low population growth in the Hill region have high development status in rural employment.

3.7 Extent of Disparities in Rural Development

Let us examine the disparities in the extent of rural development across the various regions of Assam. In this study, rural educational attainment measured by rural literacy rate, rural health which is constructed as combined average of rural child sex ratio and infant mortality rate, rural productivity measured by rural agricultural productivity and rural employment which is measured through work force participation rate in rural areas are the basic indicators as well as requirement for rural development. To improve the rural development of a particular region simultaneous improvement of these indicators are necessary. The overall rural development means aggregate development in rural areas in respect of educational level, rural health, rural

productivity and rural employment. The study has already examined the disparities of each of the indicators of rural development across the State of Assam. Now, the point here is to examine the overall spatio-temporal disparities in the extent of rural development across the districts of Assam as well as the cluster of districts by combining the broad four indicators of rural development. To examine the status and extent of rural developmental disparities across various regions of the State of Assam, it will be of particular interest to compute a composite index. The composite index so formed is the rural development index (I_{RD}) which is the simple average of the four indices, viz, rural literacy index (I_{RL}), rural agricultural productivity index (I_{RAP}), rural health index (I_H), and rural employment index (I_{EMP}).

Let us analyze the extent of spatio-temporal disparities in rural development of Assam for the three census years- 1991, 2001 and 2011 respectively as under-

Table 3.31 in the following depicts the district wise indices of overall rural development of Assam for the 1991 Census year. From the indices of Table 3.31, it has been evident that there is no any high rural development district exists in Assam in 1991. Further, it is cleared that there exist eight moderate rural development districts such as Sibsagar, N. C. Hills, Tinsukia, Golaghat, Jorhat, Dibrugarh, Lakhimpur and Dhemaji. The remaining districts like Sonitpur, Cachar, Karbi-Anglong, Kokrajhar, Hailakandi, Kamrup, Karimganj, Nagaon, Morigaon, Bongaigaon, Goalpara, Nalbari, Darrang, Barpeta and Dhubri have low rural development status. Among the 23 districts of Assam, Dhubri district is the least developed district under low rural development category as against Sibsagar which has highest development under moderate rural development category. Again, from the column 2 of Table 3.31 it has been evident that having the mean value of the indices as 0.428 of rural development of the 23 districts, the overall status of the State of Assam is found as low rural development. Further, as the coefficient of variation is found to be 38.02 the disparity in rural development is about 38 percent in 1991.

It has been found that Dhubri district has lowest rural development along with some other low rural development area. This is because such districts are lacking the rural development indicators. Some districts have low literacy rate, high infant mortality

rate and low agricultural productivity. It is to be noted that some districts are lacking more in some of the indicators because of paucity of related facilities in that area.

Table 3.31: District wise Rural Development Index (I_{RD}) of Assam, 1991

Districts	I_{RD}*	Status	Rank
Dhemaji	0.505	MRD	8
Lakhimpur	0.509	MRD	7
Sonitpur	0.473	LRD	9
Dibrugarh	0.564	MRD	6
Jorhat	0.602	MRD	5
Golaghat	0.608	MRD	4
Sibsagar	0.750	MRD	1
Tinsukia	0.666	MRD	3
Nagaon	0.347	LRD	16
Morigaon	0.326	LRD	17
Nalbari	0.268	LRD	20
Darrang	0.219	LRD	21
Barpeta	0.172	LRD	22
Dhubri	0.140	LRD	23
Bongaigaon	0.307	LRD	18
Kokrajhar	0.423	LRD	12
Goalpara	0.271	LRD	19
Kamrup	0.364	LRD	14
N. C. Hills	0.685	MRD	2
Karbi-Anglong	0.442	LRD	11
Cachar	0.446	LRD	10
Karimganj	0.350	LRD	15
Hailakandi	0.397	LRD	13
Assam	0.428	LRD	
Standard Deviation	0.163		
Coefficient of variation	38.02		

Source: * Constructed from, Table 3.1, Table 3.13, Table 3.19 and Table 3.25

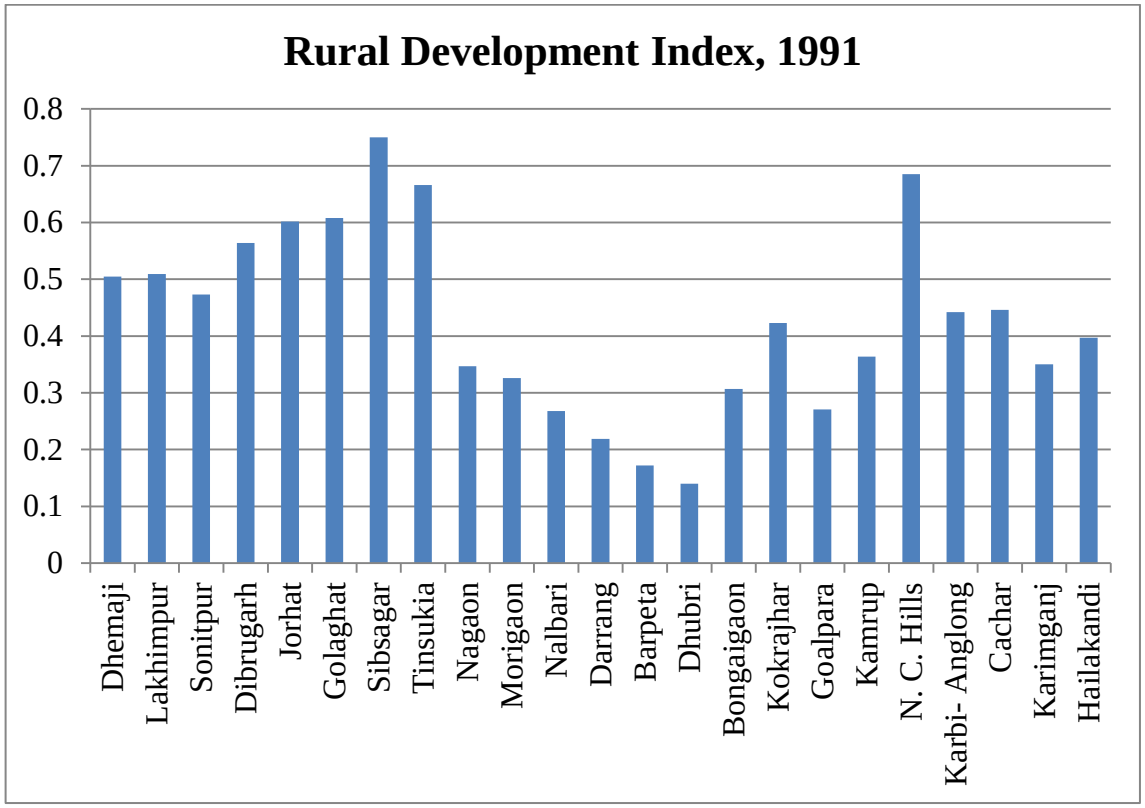
Note: **I_{RD}**= Rural Development Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

The extent of disparities in rural development across the rural districts of Assam for 1991 can be shown with the help of Figure 3.1 as under-

From the Table 3.31 given above, the Figure 3.1 can be drawn showing district wise disparities in rural development of 1991. In the simple bar diagram the horizontal axis measure the districts or regions and vertical axis measure the indices against the

districts. Here, also it is evident that Sibsagar and Dhubri respectively have the highest and lowest rural development among the 23 rural districts of Assam.

Figure 3.1: District wise Rural Development Index, 1991



Source: Constructed from, Table 3.31

Table 3.32 in the following shows micro zone wise extent of the disparity in rural development across the State of Assam in 1991. In the table, the disparity in rural development across the micro zones in 1991 is found to be 30.29 percent as evident from the value of coefficient of variation. There is no any high rural development micro zones found in 1991. The only two zones viz, Upper South Bank Plain and Hill Zone have moderate rural development status in 1991. The remaining five regions such as Upper North Bank Plain, Barak Valley, Central Brahmaputra Valley, Lower South Brahmaputra Valley and Lower North Bank Plain have low rural development status. Among the 7 micro zones across the State of Assam in 1991 the Lower North Bank Plain is the least developed region.

Table 3.32: Micro-zone wise Rural Development Index (I_{RD}) of Assam, 1991

Sl. No.	Micro Zone	I_{RD}*	Status	Rank
1	Upper North Bank Plain	0.496	LRD	3
2	Upper South Bank Plain	0.638	MRD	1
3	Central Brahmaputra Valley	0.337	LRD	5
4	Lower North Bank Plain	0.255	LRD	7
5	Lower South Brahmaputra Valley	0.318	LRD	6
6	Barak Valley	0.398	LRD	4
7	Hill Zone	0.564	MRD	2
Mean		0.429		
Standard Deviation		0.130		
Coefficient of Variation		30.29		

Source: * Constructed from, Table 3.31

Note: **I_{RD}**= Rural Development Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

The district wise status and extent of disparities in rural development of Assam in 2001 has been depicted in the Table 3.33.

In the table as is evident from column 2, there is no any high rural development region out of the 23 districts of Assam in 2001. The eight districts such as Lakhimpur, Jorhat, Sibsagar, Dibrugarh, Golaghat, Barpeta, Dhemaji and N. C. Hills have moderate rural development status. The remaining 15 districts such as Cachar, Tinsukia, Kamrup, Karbi-Anglong, Karimganj, Nalbari, Sonitpur, Bongaigaon, Goalpara, Darrang, Nagaon, Morigaon, Hailakandi, Kokrajhar and Dhubri have low rural development status. Thus, among the districts of Assam in 2001 Lakhimpur district of Upper North Brahmaputra Valley has highest development in contrast to Dhubri from Lower North Bank Plain. From the table it has been also evident that with the value of index 0.446 the overall rural development of Assam has low rural development status.

Further, the disparity in rural development across the State of Assam is found to be about 29 percent in 2001 which is less than 38 percent in 1991 as is evident from coefficient of variation value. Thus, the rural development disparity is lowerd down in 2001 than in 1991 though the overall rural development status is same or low rural development status for both the years 2001 and 1991.

Table 3.33: District wise Rural Development Index (I_{RD}) of Assam, 2001

Districts	I_{RD}*	Status	Rank
Dhemaji	0.560	MRD	7
Lakhimpur	0.667	MRD	1
Sonitpur	0.389	LRD	15
Dibrugarh	0.588	MRD	4
Jorhat	0.648	MRD	2
Golaghat	0.580	MRD	5
Sibsagar	0.601	MRD	3
Tinsukia	0.487	LRD	10
Nagaon	0.348	LRD	18
Morigaon	0.315	LRD	19
Nalbari	0.392	LRD	14
Darrang	0.351	LRD	17
Barpeta	0.567	MRD	6
Dhubri	0.193	LRD	22
Bongaigaon	0.382	LRD	16
Kokrajhar	0.201	LRD	21
Goalpara	0.382	LRD	16
Kamrup	0.458	LRD	11
N. C. Hills	0.516	MRD	8
Karbi-Anglong	0.445	LRD	12
Cachar	0.488	LRD	9
Karimganj	0.402	LRD	13
Hailakandi	0.295	LRD	20
Assam	0.446	LRD	
Standard Deviation	0.130		
Coefficient of variation	29.15		

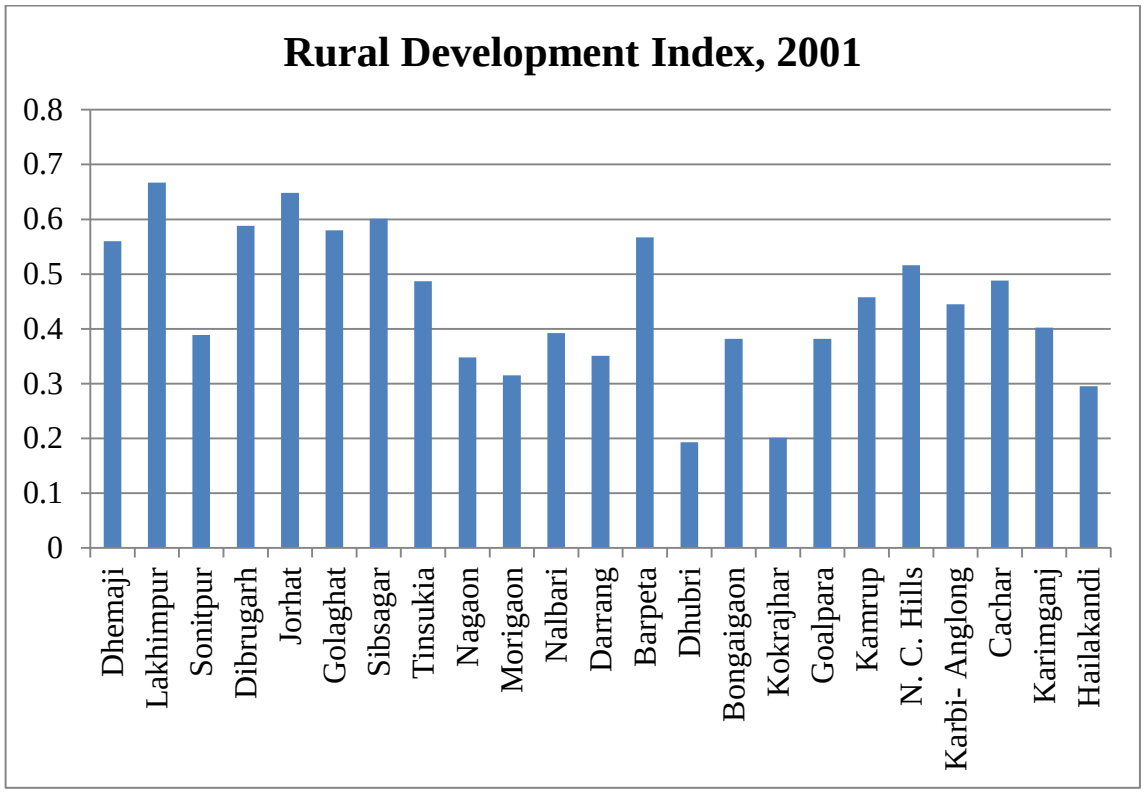
Source: * Constructed from, Table 3.2, Table 3.14, Table 3.20 and Table 3.26

Note: **I_{RD}**= Rural Development Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

Graphically, the above table can also be analysed with the help of simple bar diagram as under-

The Figure 3.2 depicts district wise rural development index for the year 2001 derived from Table 3.33. Similar to the Figure 3.1 it is found out that out 23 districts of Assam, Lakhimpur district ranks first contrary to the lowest developed region Dhubri.

Figure 3.2: District wise Rural Development Index, 2001



Source: Constructed from, Table 3.33

Again, Table 3.34 in the following indicates micro zone wise disparities in rural development of Assam for 2001. In the Table 3.34, the micro zone wise disparities in rural development is found to be about 20 percent being coefficient of variation value as 19.84. From the table, it has been evident that there exist two moderate rural development areas which are Upper South Bank Plain and Upper North Bank Plain and the remaining five micro zones like Central Brahmaputra Valley, Lower North Bank Plain, Barak Valley, Lower South Brahmaputra Valley and Hill Zone are classified as low rural development. Thus, Upper South Bank Plain and Central Brahmaputra Valley zones respectively have highest and lowest rural development status among the seven regions of Assam.

Thus, from Table 3.32 and Table 3.34 it has been cleared that the variation in rural development across the different micro zones of Assam have been declined to a great extent from 30.29 percent in 1991 to 19.84 percent in 2001. This is because the

lagging regions in the form of different rural developmental indicators in 1991 have accessed to that indicators in 2001 due to which disparity have been reduced.

Table 3.34: Micro-zone wise Rural Development Index (I_{RD}) of Assam, 2001

Sl. No.	Micro Zone	I_{RD}*	Status	Rank
1	Upper North Bank Plain	0.539	MRD	2
2	Upper South Bank Plain	0.581	MRD	1
3	Central Brahmaputra Valley	0.332	LRD	7
4	Lower North Bank Plain	0.348	LRD	6
5	Lower South Brahmaputra Valley	0.420	LRD	4
6	Barak Valley	0.395	LRD	5
7	Hill Zone	0.481	LRD	3
Mean		0.442		
Standard Deviation		0.088		
Coefficient of Variation		19.84		

Source: * Constructed from, Table 3.33

Note: **I_{RD}**= Rural Development Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

The district wise status and extent of disparities in rural development of Assam for 2011 has been depicted in the following Table 3.35.

From the following Table 3.35 it is cleared that there exists moderate rural development status having the value of rural development index as 0.546 for the overall State of Assam in 2011. Darrang is the least developed region among the 27 districts of Assam. As against this Baksa from Lower North Bank Plain has highest rural development which falls in the moderate rural development category. Across the State of Assam there are 19 districts such as Baksa, Jorhat, Golaghat, Chirang, Lakhimpur, Tinsukia, Dima Hasao, Dibrugarh, Kamrup Metro, Nalbari, Sibsagar, Dhemaji, Karimganj, Sonitpur, Cachar, Bongaigaon, Udalguri, Karbi-Anglong and Kamrup that have moderate rural development status. The remaining 8 districts including Darrang have low rural development status. In descending order these districts are Kokrajhar, Nagaon, Goalpara, Morigaon, Hailakandi, Barpeta, Dhubri and Darrang.

Again, as seen from the table the coefiicient of variation is 24.54 which means there exist about 25 percent variation in rural development across the 27 districts of Assam. This is again an improvement than in 1991 and 2001. The disparity has been reduced from 38 percent in 1991 to 29 percent in 2001 and then 25 percent in 2011.

Table 3.35: District wise Rural Development Index (I_{RD}) of Assam, 2011

Districts	I_{RD}*	Status	Rank
Dhemaji	0.600	MRD	12
Lakhimpur	0.667	MRD	5
Sonitpur	0.579	MRD	14
Dibrugarh	0.656	MRD	8
Jorhat	0.725	MRD	2
Golaghat	0.715	MRD	3
Sibsagar	0.606	MRD	11
Tinsukia	0.666	MRD	6
Nagaon	0.445	LRD	21
Morigaon	0.420	LRD	23
Nalbari	0.607	MRD	10
Darrang	0.238	LRD	27
Barpeta	0.303	LRD	25
Dhubri	0.298	LRD	26
Bongaigaon	0.522	MRD	16
Kokrajhar	0.448	LRD	20
Udalguri	0.521	MRD	17
Baksa	0.755	MRD	1
Chirang	0.674	MRD	4
Goalpara	0.422	LRD	22
Kamrup Metro	0.629	MRD	9
Kamrup	0.511	MRD	19
Dima Hasao	0.660	MRD	7
Karbi-Anglong	0.520	MRD	18
Cachar	0.545	MRD	15
Karimganj	0.591	MRD	13
Hailakandi	0.406	LRD	24
Assam	0.546	MRD	
Standard Deviation	0.134		
Coefficient of variation	24.54		

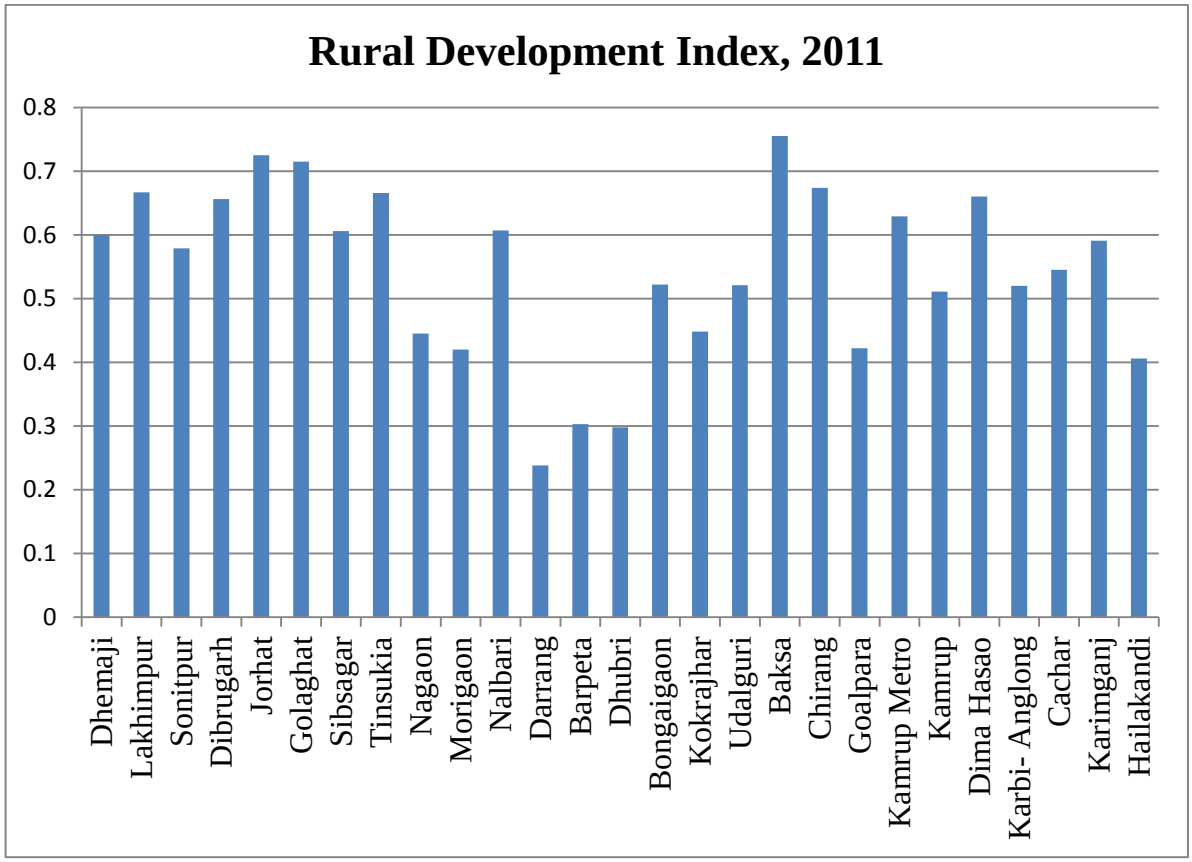
Source: * Constructed from, Table 3.3, Table 3.15, Table 3.21 and Table 3.27

Note: **I_{RD}**= Rural Development Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

The same analysis can be done through a pictorial chart as depicted in Figure 3.3 using simple bar diagram in the following.

The Figure 3.3 also indicates out of 27 districts of Assam in 2011, 19 districts have moderate rural development status in contrast to 8 districts that have low rural development status. Here, also the district Darrang has been found as least developed district against Baksa district which has highest development among the districts of Assam.

Figure 3.3: District wise Rural Development Index, 2011



Source: Constructed from, Table 3.35

The disparities in rural development across the various micro zones of Assam in 2011 are shown in the following Table 3.36.

According to the table there are six regions that have moderate rural development status. The Upper South Bank Plain with value of index as 0.674 ranks

first out of the seven micro regions of Assam followed by five moderate rural development regions as Upper North Bank Plain, Hill Zone, Lower South Brahmaputra Valley, Barak Valley and Central Brahmaputra Valley. The Lower North Bank Plain is the only one low development region out of the 7 micro regions of Assam in 2011. From the table it has been also evident that the coefficient of variation is only 11.46 which depict about 11 percent variation in rural development among the micro regions of the State.

Table 3.36: Micro-zone wise Rural Development Index (I_{RD}) of Assam, 2011

Sl. No.	Micro Zone	I_{RD}*	Status	Rank
1	Upper North Bank Plain	0.615	MRD	2
2	Upper South Bank Plain	0.674	MRD	1
3	Central Brahmaputra Valley	0.510	MRD	6
4	Lower North Bank Plain	0.485	LRD	7
5	Lower South Brahmaputra Valley	0.521	MRD	4
6	Barak Valley	0.514	MRD	5
7	Hill Zone	0.590	MRD	3
Mean		0.558		
Standard Deviation		0.064		
Coefficient of Variation		11.46		

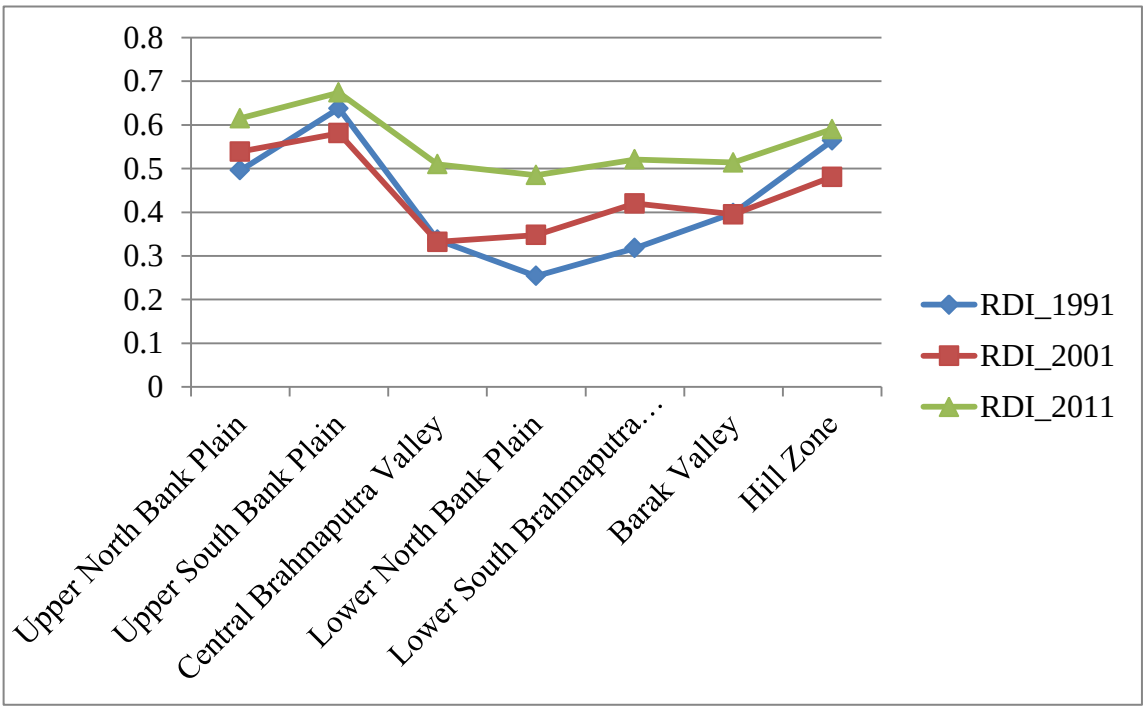
Source: * Constructed from, Table 3.35

Note: **I_{RD}**= Rural Development Index; **LRD**= Low Rural Development; **MRD**= Moderate Rural Development; **HRD**= High Rural Development

From the above analysis it is clear that the districts of Lower North Bank Plain have low rural development status. These regions fall on the peculiar geographical locations and have difficult socio-economic and political conditions. Further, most of the regions are linked with international border which may affect the socio-economic livelihood of the people living there. Except Baksa and Chirang the then newly formed districts under BTC (Bodoland Territorial Council) the indicators like literacy rate, rural chils sex ratio, agricultural productivity and rural employment are lagging in such low developed regions.

Further, the micro-zone wise disparities in rural development across the State of Assam for all the three census years viz, 1991, 2001 and 2011 has been depicted in the following Figure 3.4 with the help of line diagram as shown below-

Figure 3.4: Micro-zone wise disparities in Rural Development of Assam



Source: Constructed from- Table 3.32, Table 3.34 and Tablr 3.36

Note: RDI_1991= Rural Development Index for 1991
RDI_2001= Rural Development Index for 2001
RDI_2011= Rural Development Index for 2011

On the horizontal axis of Figure 3.4 the micro zones have been measured and on the vertical axis the respective indices have been measured. It is evident from the Figure 3.4 that in 1991, micro-region wise disparities in rural development of Assam is more than that of 2001 and 2011. The disparity in rural development across the micro zones of Assam have been declining from 1991 to 2001 and then to 2011. Further, in all the census years the Upper South Bank Plain has highest rural development contrary to Lower North Bank Plain that has lowest rural development.

The following Table 3.37 depicts the overall variability of the State of Assam for the three census periods namely, 1991, 2001 and 2011.

From the Table 3.37, it is cleared that the overall disparity in rural development of Assam is highest in 1991 having the coefficient of variation values as 38.02 and 30.29 for district and micro-zone wise respectively in contrast to lowest disparity in rural development in 2001 having the coefficient of variation values as 29.15 and 19.84 for district wise and micro-zone wise respectively. Further, in 2011 the disparities in rural development both district wise and micro-region wise have been decreased to 24.54 percent and 11.46 percent respectively. Thus, the overall rural developmental disparity across the State of Assam experiences a declining trend.

Table 3.37: Overall Variability of the State of Assam

Year	Coefficient of Variation (CV)	
	District wise	Micro-zone wise
1991	38.02	30.29
2001	29.15	19.84
2011	24.54	11.46

Source: Table 3.31, Table 3.32, Table 3.33, Table 3.34, Table 3.35 and Table 3.36

Again, here in the study, the micro-zone wise temporal variability in rural development for the three census years 1991 to 2011 across the State of Assam have been shown with the help of the following Table 3.38.

As is evident from the table the coefficient of variation which is derived from the rural development index of all the three census years of a region shows the disparity in rural development of the particular region during the time periods. It is found from the value of coefficient of variation that the temporal disparity in rural development in the Upper South Bank Plain area has the lowest 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. Chronologically, the temporal disparity in rural development among the micro-zones can be arranged as- Upper South Bank Plain, Hill Zone, Upper North Bank Plain, Barak Valley, Lower South Brahmaputra Valley, Central Brahmaputra Valley and Lower North Bank Plain.

Table 3.38: Micro-zone wise Temporal Variability in Rural Development across Assam

Micro Zone	I_{RD} -1991	I_{RD} -2001	I_{RD} -2011	CV
Upper North Bank Plain	0.496	0.539	0.615	10.96
Upper South Bank Plain	0.638	0.581	0.674	7.43
Central Brahmaputra Valley	0.337	0.332	0.510	25.79
Lower North Bank Plain	0.255	0.348	0.485	32.06
Lower South Brahmaputra Valley	0.318	0.420	0.521	24.19
Barak Valley	0.398	0.395	0.514	15.58
Hill Zone	0.564	0.481	0.590	10.45

Source: Constructed from- Table 3.34, Table 3.35 and Table 3.36

Note: I_{RD} -1991= Rural Development Index for 1991
I_{RD} -1991= Rural Development Index for 1991
I_{RD} -1991= Rural Development Index for 1991
CV= Coefficient of variation

3.8 Conclusion

From all the figures and tables discussed above it has been evident that there exist vast and significant disparities across the rural districts or cluster of districts of Assam. The disparities exist as because of some districts are in the more advantageous position than the other districts. Mention may be of the districts of the South Bank of Brahmaputra Valley in general and Upper Assam in particular has more development than that of the Lower Assam, Barak Valley and Hill Zone. Most of the plantations industry especially tea industry along with different other industries located in Upper Assam which has impact on rural economy. The other underdeveloped regions have different socio-economic problems ranging from high growth rate population, low per capita income, tense border area, migration etc. Some of the the rural developmental indicators are lacking in such regions. There are amenity differences ranging from number of primary schools in proportion to population growth, availability of health centres, irrigation facilities, pucca roads, resource availability like operational holding, access to land etc. which causes a high degree of disparity across the different districts or cluster of districts of Assam. Further, the paucity in the degree of urbanization and industrialization, government expenditure on different rural development schemes etc.

also affects the rural economy to a great extent. The overall development of different indicators in all the rural regions will bring balanced and equal rural development.

Thus, disparities occur in terms of rural development across the different districts as well as cluster of districts or micro-zones of Assam in different census years. In Assam, most of the districts have low rural development status whereas only a few regions have high or moderate rural development status. In average, whereas some districts or regions are more endowed with education, productivity, health and employment some districts or regions are little endowed with such basic facilities. For example, the districts like Dhubri, Darrang and Barpeta of Lower Brahmaputra Valley of Assam are found as most backward districts in all the census years viz, 1991, 2001 and 2011. This is because they have little endowed with the developmental indicators as compared to the districts of Upper South Brahmaputra Valley like Sibsagar, Dibrugarh, Jorhat, Golaghat and Tinsukia. The rural regions of Lower North Bank Plain have different socio-economic, demographic and geographic conditions than that of the regions of Upper South Bank Plain. In the districts of Lower North Brahmaputra Valley high growth rate rate of population due to high birth rate and international migration, tense international border, difficult terrains, low infrastructural development for basic socio-economic services, low industrial and urban growth etc. brings low rural development. Whereas along with Guwahati the gateway of entire North-East India which lies in Kamrup Metro, some districts of Upper Assam have high urban and industrial growth due to localization of some industries in that areas. Though there exist some deficiencies in some rural developmental indicators but it is sufficient enough to offset by other indicators that have high development in these areas.