

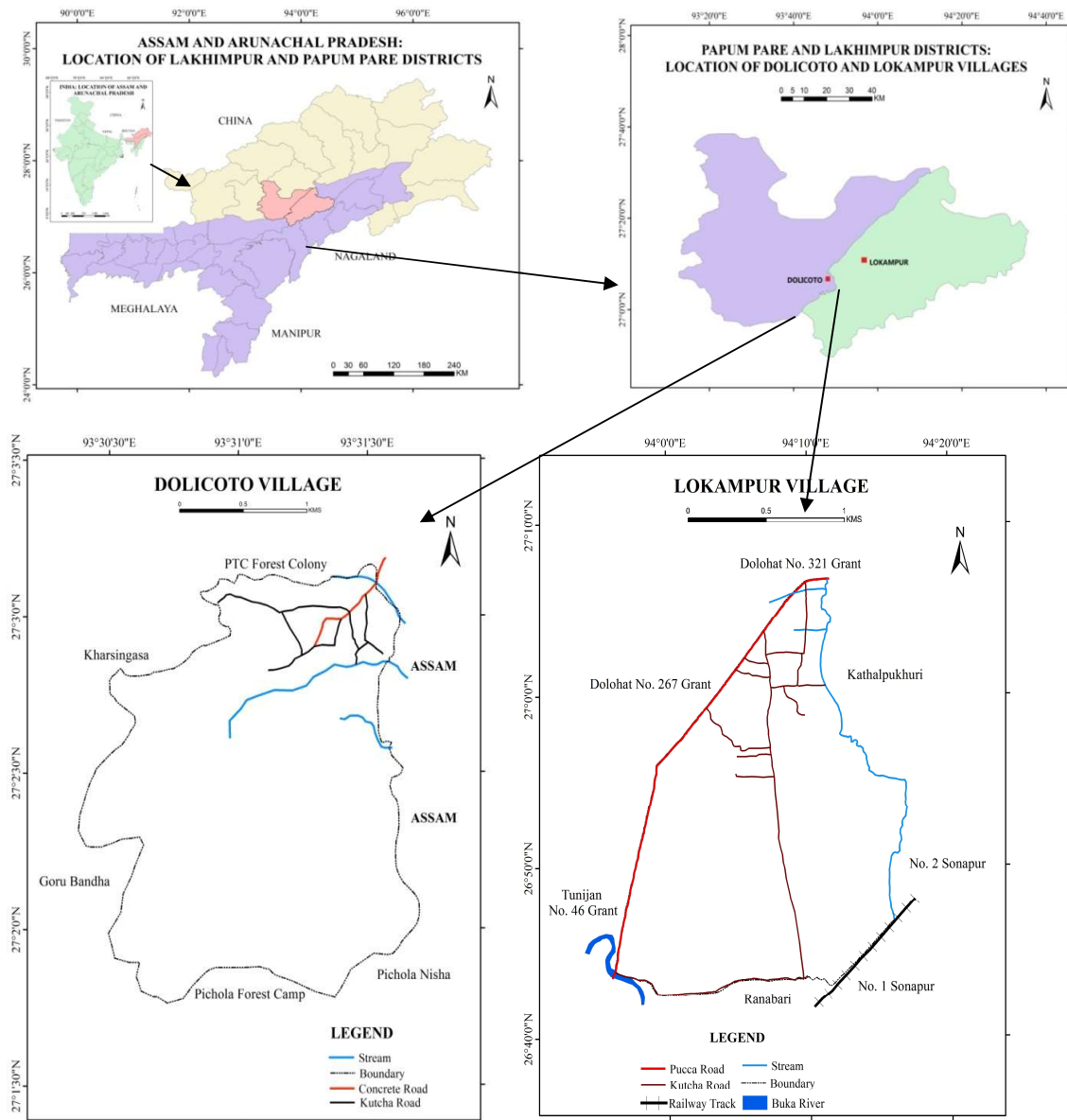
## **CHAPTER 2**

### **GEOGRAPHICAL SETTINGS OF THE STUDY AREA**

#### **2.1 Location**

In order to make a comparative study of two villages in Arunachal Pradesh and Assam two villages have been selected in Papum Pare (Arunachal Pradesh) and Lakhimpur (Assam) districts. First village Lokampur is located in the Lakhimpur district of Assam. It extends between  $93^{\circ}56'55''$  E to  $93^{\circ}58'07''$  E longitude and  $27^{\circ}09'29''$  N to  $27^{\circ}10'44''$  N latitude. “According to Census 2011 information the location code or village code of Lokampur village is 287823. Lokampur village is located in Naobaicha Tehsil of Lakhimpur district in Assam, India. It is situated 22 km away from district headquarter Bilotia. Bilotia is the sub-district headquarter of Lokampur village. As per 2009 status, Dolohat Sonapur is the gram panchayat of Lokampur village. The total geographical area of village is 1.23 Sq. Km. (247 Hectare). Lokampur has a total population of 1,311 peoples (2011 Census). There are about 261 houses in Lokampur village. Lakhimpur is nearest town to Lokampur which is approximately 23km away” (Source: villageinfo.in).

The second village name Dolicoto is located in the Papum-Pare district of Arunachal Pradesh. It extends between  $93^{\circ}48'50''$  E to  $93^{\circ}49'56''$  E longitude and  $27^{\circ}04'48''$  N to  $27^{\circ}05'30''$  N latitude. “According to Census 2011 information the location code or village code of Dolicoto village is 262333. Dolicoto village is located in Banderdawa Tehsil of Papum Pare district in Arunachal Pradesh, India. It is situated 3km away from sub-district headquarter Banderdewa and 34km away from district headquarter Yupia. Dolicoto has a total population of 194 peoples (2011 Census). There are about 25 houses in Dolicoto village. Banderdawa is nearest town to Dolicoto”. (Source: villageinfo.in). The total geographical area of village is 1.03 Sq. Km. (153 Hectare) (approx.).



**Fig2.1: Location of Lokampur and Dolicoto village**

## 2.2 Physical setting

### **2.2.1 Physiography**

Lokampur village is located in flood plain areas of Lakhimpur which is a part of north bank plain of the upper Brahmaputra valley. It represents the physical characteristics of a flood plain. The area is a plain area which has very less variation in relief. In this village mainly people are primary worker engaged in agriculture because the soil is very fertile. Based on elevation, they use resources for their uses are different. The village has small streams following through and it help in cultivation. The area for settlement and agriculture are well demarcated. There are many ponds which are used to store water during rainy season.

The other village is Dolicoto village located in foothills of Papum Pare which is a part of Arunachal Himalaya. It represents the physical characteristics of mountain area. The area is hilly with sufficient forest cover. Small streams are flow and form the village boundary which demarcates village from other villages. East side of the village, the boundary is demarcated by a small stream and small kutchha road. West side of the village there is no specific boundary. North side is demarcated by stream and south side has no specific boundary. In general, people construct kutchha house in this village because the landslide occurs frequently in summer season when there is high rainfall. Of late have been people changing their houses from kutchha to Pucca. Some people construct their house in hill slopes because of direct access to the forest resource. Due to high elevation and terrain most part of the village is abundant in mountain soil.

### **2.2.2 Climate**

The climatic condition of Lokampur village is similar to the climate of Lakhimpur district. This village is influence by Monsoonal climate. This village is also experience the sub-tropical with semi dry summer and cold in winter. Local topographical factor has also impact on the climate of this area. This village lies under humid meso-thermal climatic condition of North East India (Barthakur, 1986).

Climate of this village is almost similar to the middle Brahmaputra valley still it has micro variations. Here summer is fairly hot and humid but the winter is cold and foggy with moderately cool spring. The winter is not very long which last normally for the month of November to February. From February-March to mid April, temperature becomes moderate

rain accompanied with thunderstorm start from 2<sup>nd</sup> half of April and continuous to May. Temperature rises during this period.

The climatic condition of Dolicoto village is similar to the climate of Papum Pare district. The village influence by Monsoonal climate. This village is also experience the sub-tropical with semi dry summer and cold in winter. Local topographical factor has an impact on the climate of this area. This village lies under humid meso-thermal climatic condition of North East India (Barthakur, 1986). The climate of this village is similar to mountainous type of climate. The rainfall of this village is higher compare to village in Lakhimpur district.

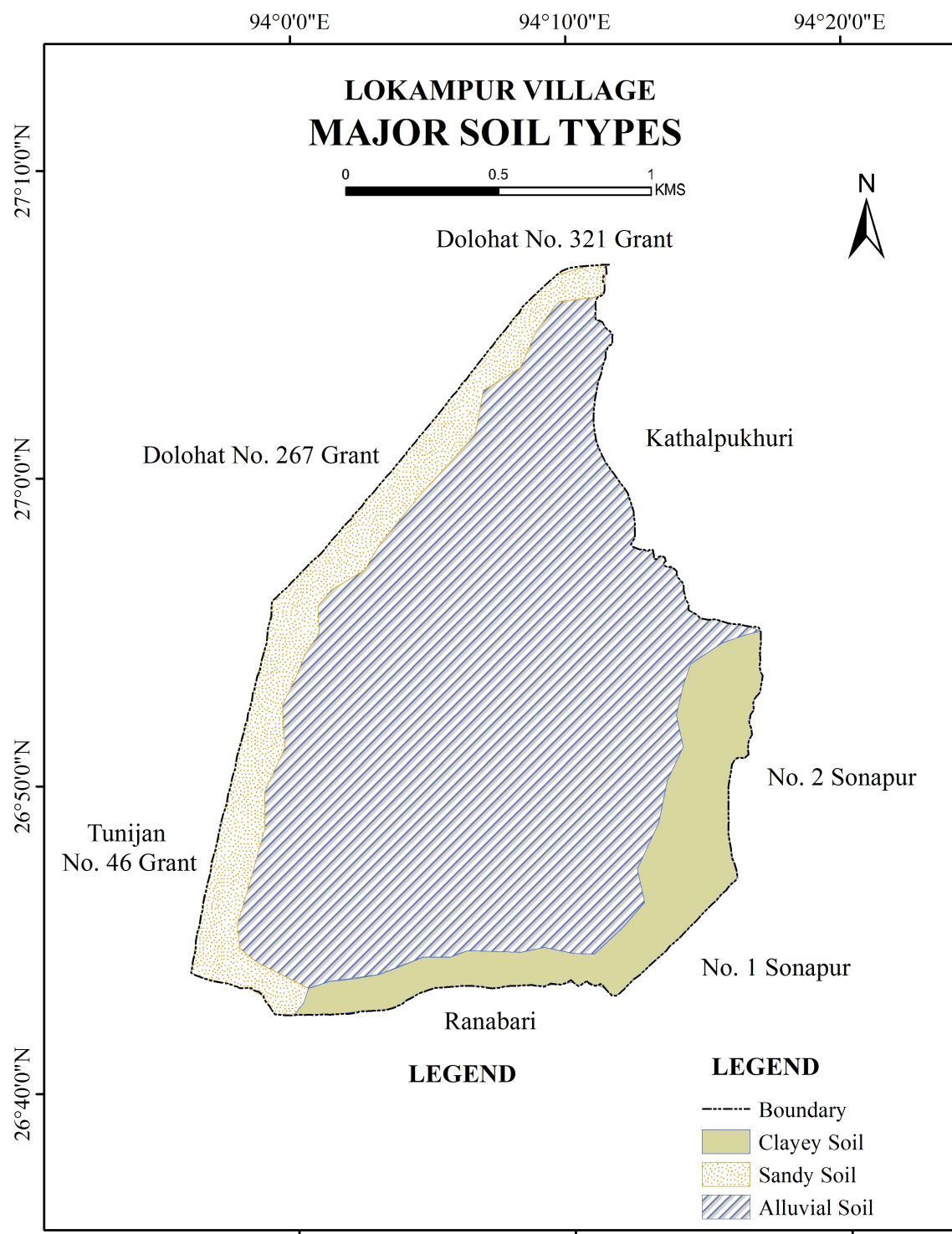
Climate of this village has little variations compare to other places of Papum Pare district. Here summer is hot and humid but winter is very cold and foggy. Winter is short and which last normally for the month of October to March. From April to November temperature become high and rainfall accompanied thunderstorm starts from mid-April and continuous to mid-August and temperature rises during this period.

### **2.2.3 Soil**

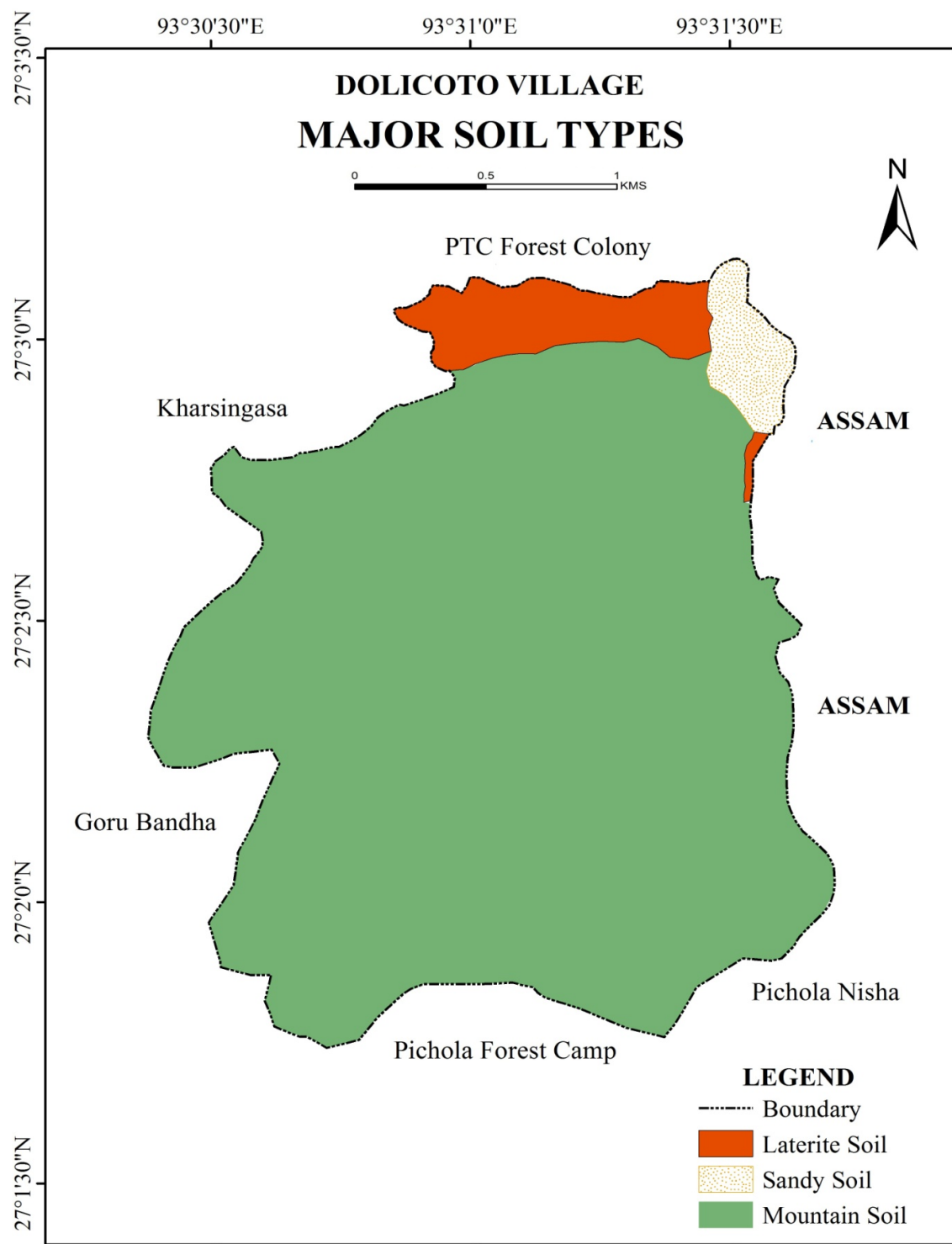
Soil characteristic of Lokampur village is most similar to soil of Lakhimpur district. The soil of this village is very fertile. Alluvial soil is found in most part of the village which is part of Bhabar soil. Here rice production is primary item and little amount of vegetables are grown for self consumption. In some parts clayey and sandy soil are found.

Soil characteristic of Dolicoto is most similar to soil of Papum Pare districts. In this region there is mostly laterite, sandy and mountain soil are found. The laterite soil is confined to the northern part of the village. In north-eastern part there is sandy soil and some portion of laterite soil is found. In the remaining parts of the village mountain soil is found. So in this village some people also practice jhum cultivation in they grow maize, teak, rubber and also bamboo. Settlement of this village is mainly in the foothills. In northern part of the village laterite soil found.





**Fig 2.2:** Major soil types of Lokampur village



**Fig 2.3:** Major soil types of Dolicoto village

#### 2.2.4 Drainage and wetlands

North Eastern region is a land of tributaries, Rivers and wetlands. Due to monsoon climate the water flows mainly in rainy season. Rivers and wetlands are very important physical setting in both the villages.

In Lokampur village there is one small stream in eastern boundary which demarcated the boundary between Kathal Pukhuri and Lokampur village. In south-western part there is one small river known as Boka River which demarcate the boundary between Lokampur and Sonapur village. There is small wetland present in southern part of the village.

In Dolicoto village there are small streams flowing side by the village. The small streams are continuing flows as it emerge from the hills in western part. In forest area of the village there are many migratory birds are seen.

#### 2.2.4 Flora and Fauna

Both the region has a significant nature of rainy season. Natural vegetation (Flora and Fauna) found more in Dolicoto compare to Lokampur village.

In Lokampur village natural vegetation decreased from 1950s to 1990s due to clearing of forest for agricultural land and settlement area. The natural vegetation modified by people in earlier time. The evergreen and tropical forest type plants are found in this village. Some varieties are Simolu (*Bombax ceiba* or *Salmalia Malabarica*), Sum (*Machilus*), Mango (*Mangifera indica*), Jackfruit (*Artocarpus integra*), Bamboo (*Bamboosa aridinarifolia*), Battle Nut (*Areca catechu*), Coconut (*Gossypium herbaceum*), Silikha (*Terminalia Chebula*), Neem (*Azadirachta indica*) etc. Varieties of bird species and a type of Gypsy Month Caterpillar are observed in this area. This area is also having degraded scrub.

Dolicoto village has full of natural vegetation. The evergreen forest occurs in the western part of the village in the hills. The evergreen, semi-evergreen and tropical forest type plants are found in this village. Some varieties are Hollokh (*Terminalia myriocarpa*), Ajhar (*Lagerstromia speciosa*) Simolu (*Bombax ceiba* or *Salmalia Malabarica*), Sum (*Machilus*), Gomari (*Gmelina arborea*), Sisu (*Dalbergia sissoo*), Mango (*Mangifera indica*), Jackfruit (*Artocarpus integra*), Bamboo (*Bamboosa aridinarifolia*), Silikha (*Terminalia Chebula*),

Neem (*Azadirachta indica*), Battle Nut (*Areca catechu*) etc. Mithun, Leech in hills and varieties of bird species are observed in hilly areas.



(a) *Bichcha* (Gypsy Moth Caterpillar)



(b) *Juk* (Leech)



(c) *Mithun* (Gayal)



(d) *China Hans* (Muscovy Duck)



(e) *Lota bael* (Stone apple or Wood apple)



(f) *Tamul Gachchi* (Battle nut tree)

**Plate 2.1:** Flora and Fauna found in Lokampur (a,d,e) and Dolicoto (b,c,f) village



## **2.3 Socio-Economic Pattern**

### **2.3.1 Process of peopling and humanization**

The process of Peopling and Humanization was unique in both the villages in earlier time. People came from different places and settled in the areas where they exist today. People in both the villages came in search agricultural land, job etc and settled in the villages.

Before the human habitation, the Lokampur village was covered by forest. During the British rule, the labourers from Bihar, Jharkhand and West Bengal brought to this village for tea cultivation in Doolohat Tea Estate and they settled here permanently. People cleared forest for settlement and agriculture land. When the village was started there were not more than 20 households (1935) present. But today there are 261 households (2011 Census) present in the village. Half of the population of this village works in Tea Garden. Here payments and marketing are done bi-weekly (15 Days) depending on *Darmaha Sapta* (Payment Week).

Before habitation Dolicoto village was a forest area. People from nearby areas like Nirjuli, Karsingsa, Papunala, Pichola etc came and settled for cultivation (1980-90). After some years people start to settle permanently. The main reason for the people for migration from other places to this village is jhum cultivation. In 1980s there were on 10-15 households present. But due to animal conflict and natural calamity like land slide they use to shift their houses frequently within the village. But today there are 25 households (2011 Census) present. Most of population depended on jhum cultivation but at present day due to better job opportunity peoples shifted their income activity from cultivation to office workers.

### **2.3.2 Population growth and distribution**

Population growth of both the villages is high in recent years. “According to 2011 census of India, Lokampur village has a total population of 1,311 peoples. There are about 261 houses in Lokampur village” (Source: villageinfo.in). But according to field survey in 2018 there are 331 houses at present and total population is 1655 out of which 814 are male and 841 are female population. The population of the village is distributed half part of the village and half part of the village is agricultural area.

“According to 2011 census of India, Dolicoto village has a total population of 194 peoples. There are about 25 houses in Dolicoto village” (Source: villageinfo.in). But according to field survey in 2018 there are 58 houses present and total population is 378. The

population of the village is distributed eastern part of the village and remaining part of the village is cultivated and forest area.

### 2.3.3 Demographic characteristics

Demographic characteristics in both the villages are different. The total population of Lokampur village is 1655 (Field Survey, 2018) and the density is 1346 persons per sq. km. The people are mostly Hindu Assamese and Muslim Adivasi. The main languages in this village are Assamese, Adivasi.

In Dolicoto village the total population is 378 (Field Survey, 2018) and the density is 367 persons per sq. km. The people are mostly Christian Nyishi and Tagin. The main language is Nyishi and Tagin.

**Table 2.1:** Demographic Characteristics

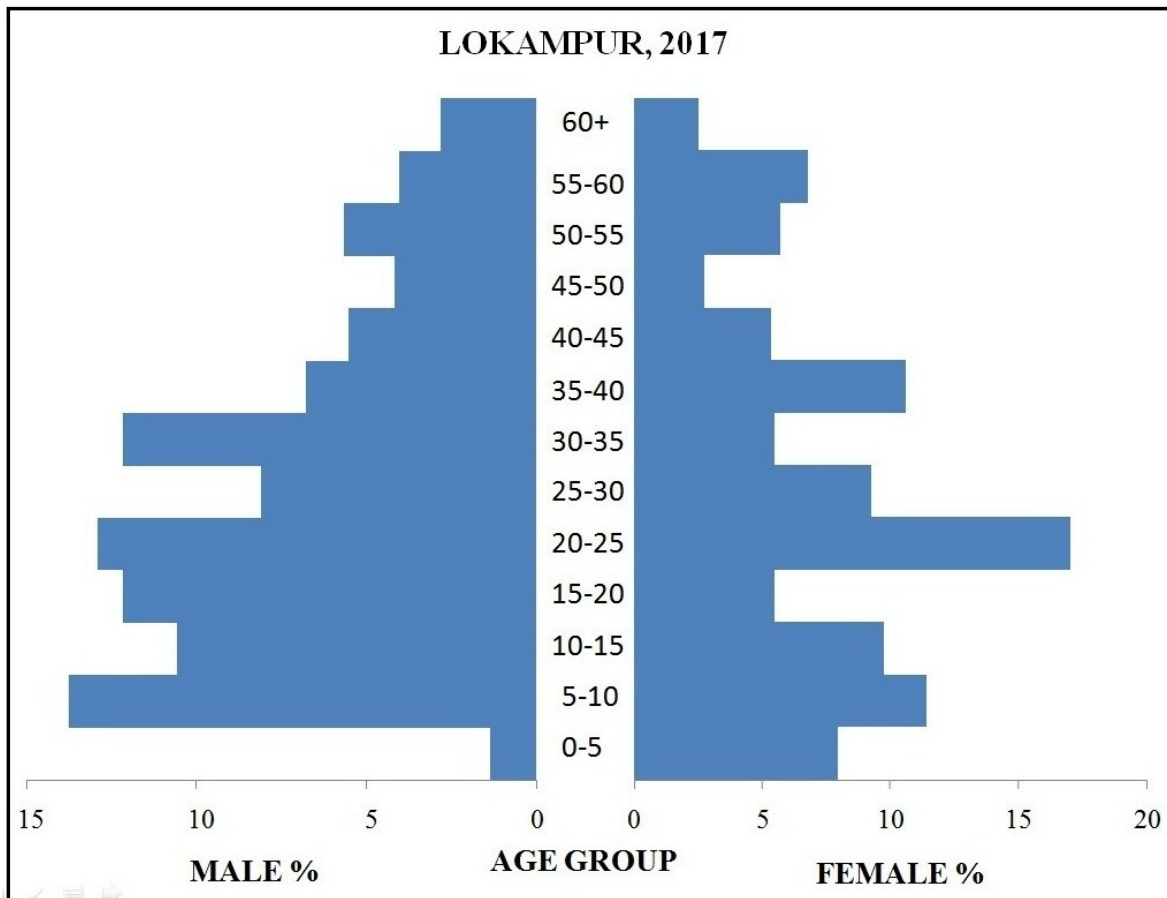
	Lokampur Village		Dolicoto Village	
Age group	Male	Female	Male	Female
0-5	11	67	9	12
5-10	112	96	35	31
10-15	86	82	18	19
15-20	99	46	31	27
20-25	105	143	15	15
25-30	66	78	21	22
30-35	99	46	13	9
35-40	55	89	12	11
40-45	45	45	5	4
45-50	34	23	9	8
50-55	46	48	8	10
55-60	33	57	11	12
60+	23	21	5	6
<b>Total</b>	<b>814</b>	<b>841</b>	<b>192</b>	<b>186</b>

Source: Field Survey, 2017-18

In the above table there is different age group of male female in Lokampur and Dolicoto villages. In Lokampur village 5-10 and 20-25 age group is highest and age group like 60+ is

least. Age group like 0-5 has lowest number in case of male and in 5-10, male are more than female. Similarly, almost all the age group of female has higher number than male. From this figure we can say that female number is higher from the birth.

In Dolicoto village male number is higher than females. 5-10 age group is highest and 60+ age group is lowest. In this village, female number is more than male in 0-5 age group. But in almost all the age groups, Male number is more than females. Age groups like 40-45 and 45-50 have very less number of male and female populations.



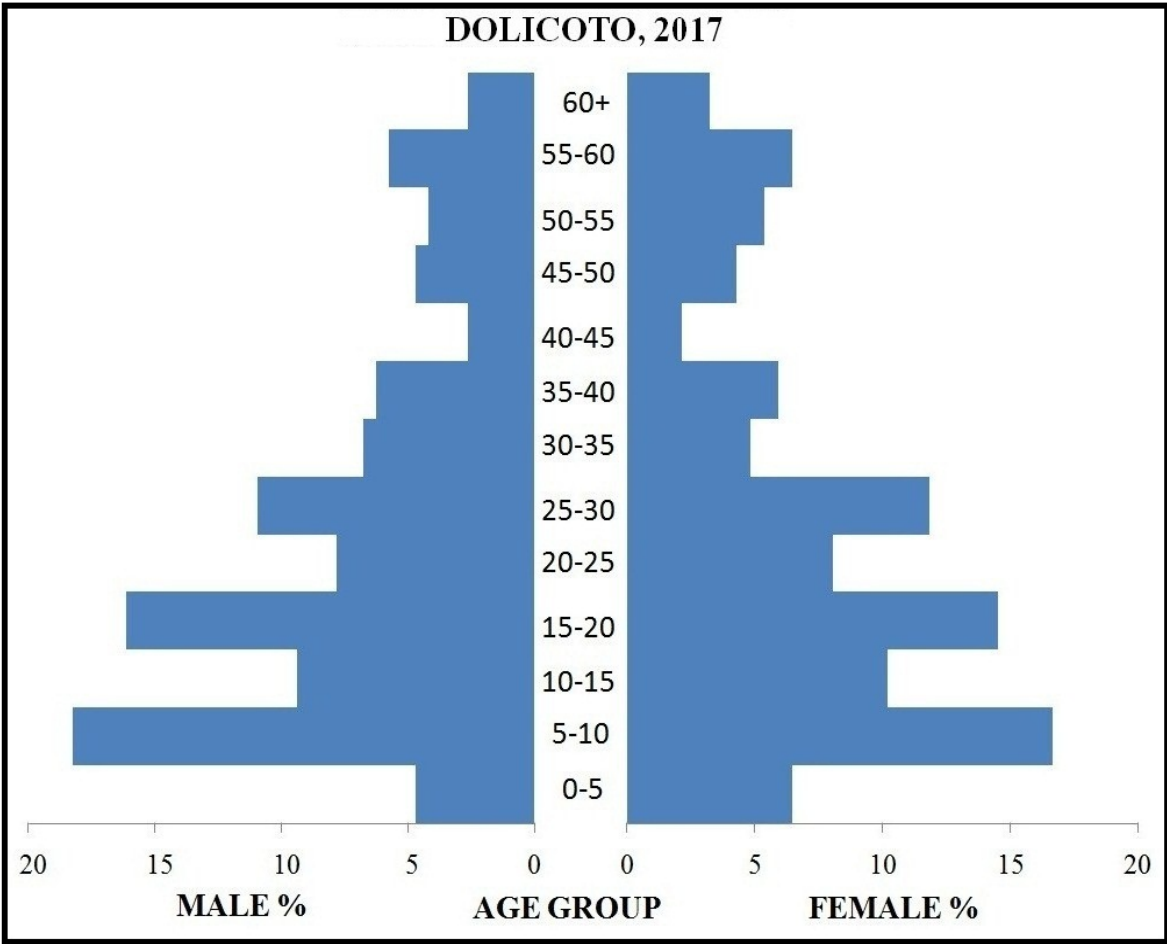
**Fig 2.4:** Age-Sex Pyramid of Lokampur village

The most important demographic characteristic of a population is its age-sex structure. Age-sex pyramids (also known as population pyramids) graphically display this information to improve understanding and ease of comparison. population is growing steadily, the longest bars of the graph will appear at the bottom of the pyramid and will generally decrease in length as the top of the pyramid is reached, indicating a large

population of infants and children which declines toward the top of the pyramid due to the death rate (Rosenberg, 2018).

Age-sex pyramids graphically display long-term trends in the birth and death rates but also reflect shorter-term baby-booms, wars, and epidemics (Rosenberg, 2018).

In the above age-sex pyramid figure 2.4, it is found that Lokampur's age-sex pyramid shows, the village has a huge number of children between the age 5-15 %, elderly and middle-age adults and the village is experiencing a dearth in the number of babies and children. In fact, Lokampur has experienced a record low number of births over the past few years.



**Fig 2.5:** Age-Sex Pyramid of Dolicoto village



From the figure 2.5, is clear that Dolicoto village has a huge number of children between the age 5-17 %, elderly and middle-age adults and the village is experiencing a dearth in the number of babies and children and also old persons. In fact, Dolicoto has experienced a record low number of births over the past few years.

#### 2.3.4 Literacy pattern

The literacy is very important in development of an area. The literacy rate in both the villages is relatively low because of lack of awareness and proper guidance and also due to low income among the families of both the village. Low income compelled people to leave school and engage in work. Families those are below poverty line are mostly illiterates. Government facilities are not reaching to them because of lack of knowledge. The older peoples of both the villages are mostly illiterates but because of *Anganbari* and Primary schools in both the villages, young populations are mostly literates. The percentage of the peoples in different levels of education in both the villages is shown in the table 2.

**Table 2.2:** No. of peoples in different educational levels.

Education Levels	Lokampur Village	Dolicoto Village
Illiterate	379	72
Vocational	77	-
L.P.	494	66
M.E.	242	48
High School	176	36
H.S.L.C.	110	30
H.S.	143	66
Degree	33	60
Engineering/Medical	1	-
<b>Total</b>	<b>1655</b>	<b>378</b>

Source: Field Survey, 2017-18

**Note:** L.P.- Lower Primary, M.E. Moral Education, H.S.L.C.- High School Leaving Certificate, H.S.- Higher Secondary

In Lokampur village the population is very high and the literacy rate is also high. Number of Illiterates, L.P. and M.E. is high and there is only 1 engineering student. But in

Dolicoto village the population is low and literacy rate is also low as compare to Lokampur village. Number of illiterates, L.P. Higher Secondary and Degree is very high. In Lokampur village there is one school up to class 8 and two *Anganbari* schools. In Dolicoto village there is only one *Anganbari* and one primary school. In both the villages student go to nearby area for higher study.



**Plate 2.2:** Schools in Lokampur and Dolicoto village

### **2.3.5 Religion and social composition of population:**

Religion composition of both the villages is different from each other. In Lokampur village there is more religion group than Dolicoto village. The Community composition is also different in both the villages.

**Table 2.3:** Religion composition.

Religion	Community	Lokampur Village	Dolicoto Village
Hindu	Assamese	347	-
	Adivasi	198	-
	Bihari	12	-
	Bengali	20	-
	Nepali	11	15
	Nyishi (Donypolo)	-	46
Muslim	Assamese ( <i>Goria</i> )	26	-
	Bihari	24	-
	Adivasi ( <i>Jolaha</i> )	913	-
	Bengali ( <i>Mia</i> )	63	-
Christian	Adivasi	41	-
	Nyishi	-	202
	Tagin	-	88
	Galo	-	27

Source: Field Survey, 2017-18

Social composition in both the villages is different. In Lokampur village the population is heterogeneous in social composition but in Dolicoto village the social composition is homogeneous.

Lokampur village is home to 1655 people, among them 814 (49%) are male and 841(51%) are female. 76% of the whole population are from general caste, 2% are from schedule caste and 13% are schedule tribes. Child (aged under 6 years) population of Lokampur village is 13%, among them 54% are boys and 46% are girls. There are 331 households in the village and an average 5 persons live in every family.

Dolicoto village is home to 378 people, among them 192 (51%) are male and 186 (49%) are female. 8% of the whole population are from general caste and 92% are schedule tribes. Child (aged under 6 years) population of Dolicoto village is 17%, among them 52% are boys and 48% are girls. There are 58 households in the village and an average 8 persons live in every family.

**Table 2.4:** Social composition of population.

<b>Caste</b>	<b>Lokampur Village</b>	<b>%</b>	<b>Dolicoto Village</b>	<b>%</b>
General	1,264	76.37	32	8.46
Scheduled Tribe	209	12.62	333	88.09
Scheduled Caste	38	2.29	8	2.11
Other Backward Class (OBC) Minorities and Other Backward Class (MOBC)	144	8.70	5	1.32
Total	1655	100	378	100

Source: Field Survey, 2017-18

In Lokampur village there is a highest number in General Caste population, followed by Schedule Tribe population. Schedule Caste population is lowest in the village. In Dolicoto village the Schedule Tribe population is highest followed by General Caste. OBC/MOBC is lowest in the village.

### **3.5 Occupational composition of population**

Occupational composition of population of both the villages is different. In starting period of both the villages people mainly engaged in primary Sector i.e. agriculture and plantation labourers. But as the time passed people slowly has shifted their occupation from primary to secondary and tertiary sectors.

In Lokampur village out of total population, 607 were engaged in work activities. 52.4% of workers describe their work as Main Work (Employment or Earning more than 6 Months) while 47.6% were involved in Marginal activity providing livelihood for less than 6 months. Out of total, 607 workers engaged in Main Work, 78 were cultivators (owner or co-owner) while 35 were Agricultural labourers.

**Table 2.5:** Occupational composition of population of Lokampur village.

	Total	Male	Female
Main workers	318	289	29
Cultivators	78	74	4
Agriculture Labourer	61	50	11
Household Industries	7	6	1
Other Workers	198	179	19
Marginal Workers	289	107	182
Non Working	704	272	432

Source: Field Survey, 2017-18

**Table 2.6:** Occupational composition of population of Dolicoto village.

	Total	Male	Female
Main workers	146	104	42
Cultivators	24	7	3
Agriculture Labourer	20	8	12
Household Industries	-	-	-
Other Workers	36	25	11
Marginal Workers	18	10	8
Non Working	134	63	85

Source: Field Survey, 2017-18

In Lokampur village there is seven category of occupation shown in table, but in Dolicoto village there is no agricultural labourer, household industries and marginal workers. In Lokampur village Main Worker (Services, Business) is highest and Non-Workers (including too old, too young persons, Students and Housewives) is also highest. Similarly in Dolicoto village Main Workers (Services, Business) is more and Non-Workers (including too old, too young persons, Students and Housewives) also more. Cultivators are only 10.

### 3.6 Agriculture

Agriculture is main occupation of the peoples since many decades. People mainly depend on agriculture for food. In Lokampur village rice cultivation is the main but in

Dolicoto village maize, teak, and bamboo is main cultivation. Some amount of rubber plantation done in Dolicoto village.

Agricultural Land is found to be fertile in Lokampur village which is suitable for rice cultivation. In Dolicoto village mainly Mountain soil are found in which maize, teak, and bamboo cultivation are done. Land distribution in both the villages are given as

**Table 2.7:** Household and agricultural lands.

<b>Land</b>	<b>Lokampur Village</b>	<b>%</b>	<b>Dolicoto Village</b>	<b>%</b>
Household Land	471 <i>Bigha</i> (63.01 Hectares)	25.51	141.3 <i>Bigha</i> (18.90 Hectares)	12.35
Agricultural Land	635 <i>Bigha</i> (84.95 Hectares)	34.39	952.5 <i>Bigha</i> (127.45 Hectares)	8.33

Source: Field Survey, 2017-18

From the above table we can say that in both the villages agricultural area is more. But agricultural area as comparisons with both the villages, Dolicoto village has more area. It is because in Dolicoto village there is no specific cultivation land. As much area people can clean for cultivation, that much area is included in village area. Lokampur village household area is more than Dolicoto village because of population.

**Table 2.8:** Major production per year.

<b>Agricultural Products</b>	<b>Lokampur Village Production</b>	<b>Dolicoto Village Production</b>
Rice	1584 Quintal	-
Maize	-	540 Quintal
Battle Nut	807 <i>Pun</i>	171 <i>Pun</i>
Bamboo	8600	3100
Banana	4715 <i>Akhi</i>	400 <i>Akhi</i>
Vegetables	320 Quintal	40 Quintal
Tea	800 kg	-
Coconut	70	15

Source: Field Survey, 2017-18

In the above table we can see that the rice production is only done in Lokampur village. It is because of the availability of alluvial soil and plain area. Maize production is only done in Dolicoto village because area and climate is suitable for maize cultivation. In Lokampur village there are also two small private tea gardens from which small amount of tea is produced every year. Other products like Battle Nut, Banana, Vegetables, Coconut and Bamboo are produced in both the villages.

### 3.7 House types

In the early period both the villages had kutchha houses. Kutchha houses have no effect on environment as it is made up of bamboo, thatch and mud. But at present this type of houses are rare. Lokampur is plain area so the houses were built on the ground. People use tin roof in the house and sometime plastic also used. Lack of *kher* (thatch) led to the shifting of house type. But in Dolicoto village area is hilly area. People build *Chang Ghar* to maintain a plain surface above the surface. People also built *chang ghar* in the slope area by adjusting the pillars to develop plain surface of the house. But at present people are changing their house types from *kutchha* to *pucca* and permanent settlement are occurring day by day.



**Plate 2.3:** House types in Lokampur village



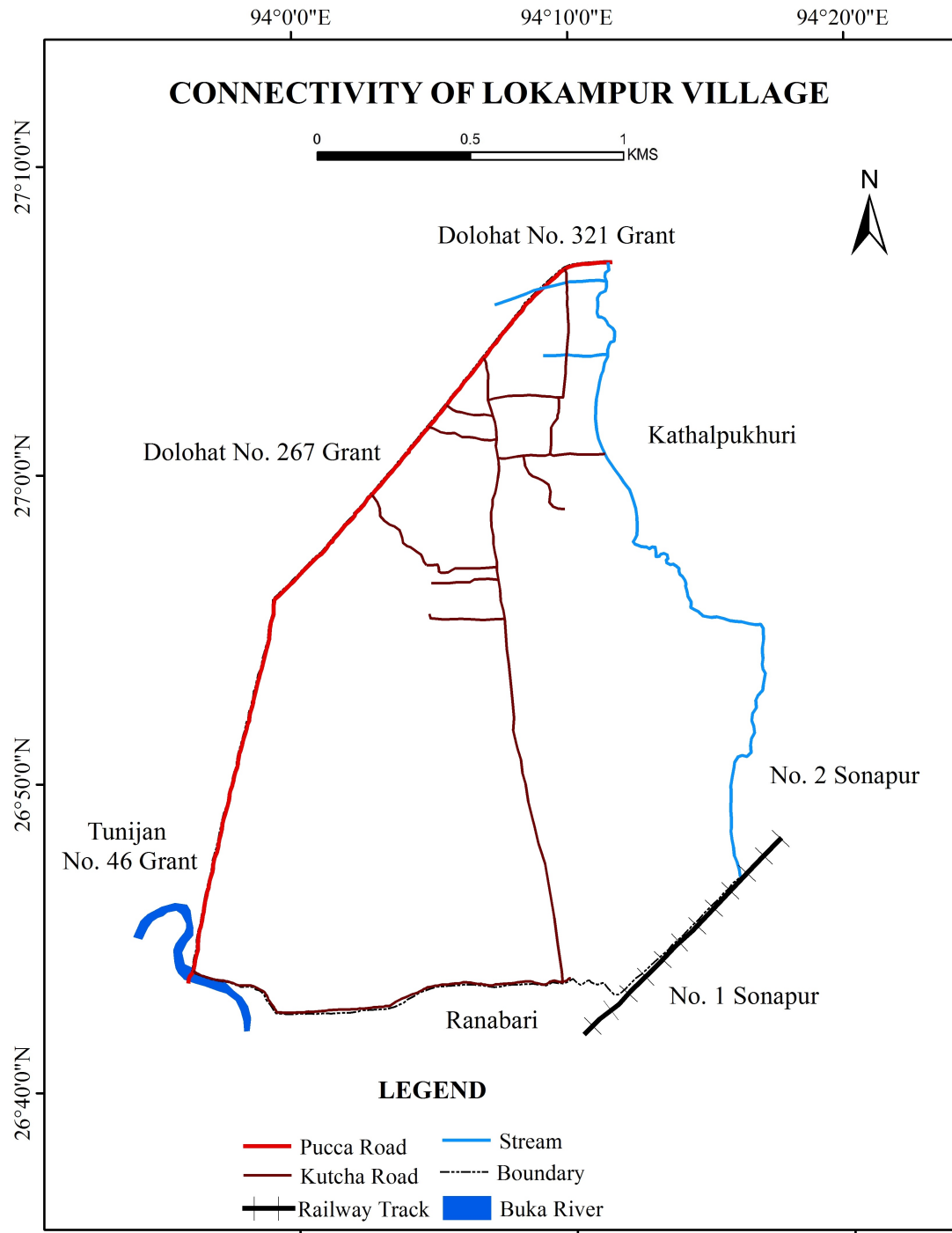


**Plate 2.4:** House types in Dolicoto village

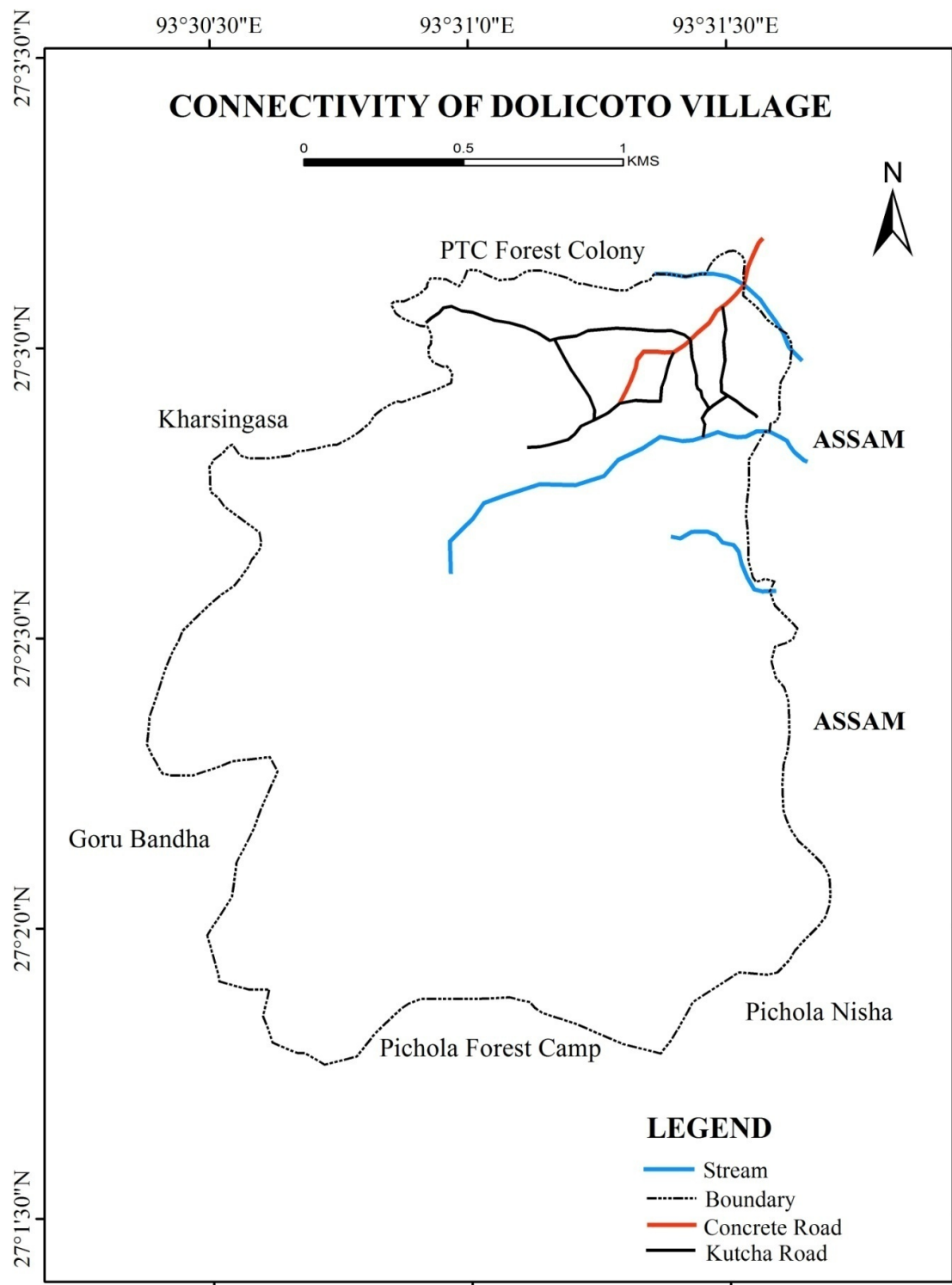
### **3.8 Transport and communication**

Connectivity of an area is very essential part of development. Metallic and Non Metallic and Concrete road are constructed in the village. In Lokampur village there is Pakka and kutchra road are available and connected to National Highway 15. In Dolicoto village kutchra and concrete road is constructed and connected to National Highway 15. Lokampur village is connected with a road which is known as 12 Mile-Doolohat Bazar Road. There are 12 kutchra road are connected all over the village. The separation boundary from two side is road and rail track. Other two sides have Buka *Nodi* and small stream respectively. Other side of the village there is Doolahat Tea Estate area.





**Fig 2.6:** Connectivity of Lokampur Village, Lakhimpur, Assam



**Fig 2.7:** Connectivity of Dolicoto Village, Papum Pare, Arunachal Pradesh

In Dolicoto village there is one main concrete road connected to National Highway-15 (Before NH 52). Other kutchra roads are connected to concrete road in the village. There are 5 small kutchra road is connected to Dolicoto road.



**Plate 2.5:** Different types of connectivity in Lokampur village



**Plate 2.6:** Different types of Connectivity in Dolicoto village