

CHAPTER 6

PROJECTION OF POPULATION OF ASSAM

PROJECTION OF POPULATION OF ASSAM**6.1 Introduction**

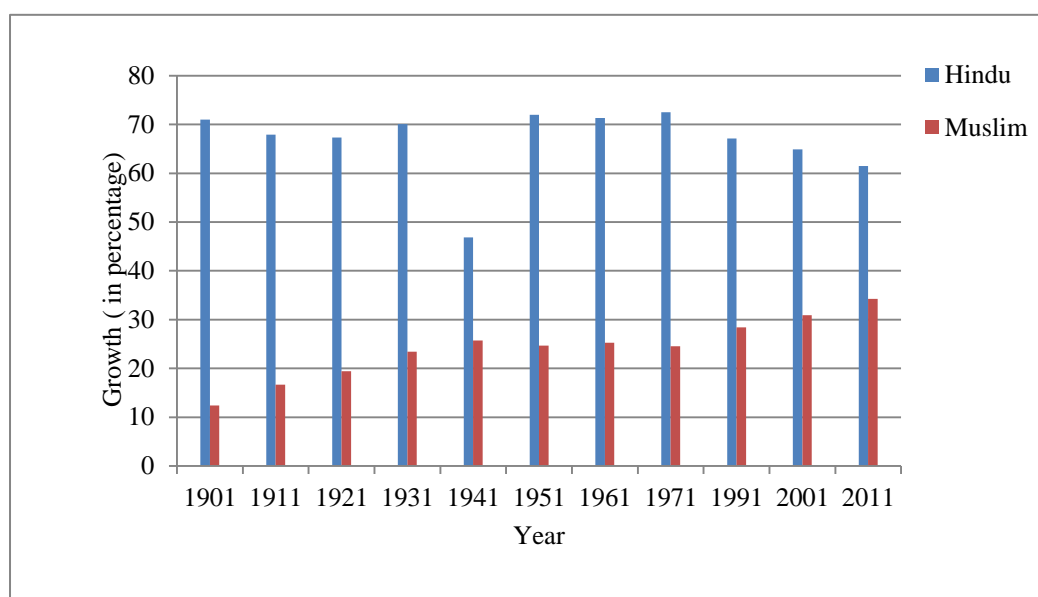
In the Chapter 5 the key aspects that emerge out are higher fertility differences, higher fertility disparities and higher PPR among the Muslims women in comparisons with Hindus. As all these findings indicate rapid rise of Muslim population and its capability to change the demographic landscape of Assam, a population projection is necessary to understand the pattern of population rise.

Population projection is a scientific attempt to look closely into the future population scenario. A projection may be defined as the numeric outcome of a particular set of assumption regarding the future population [64]. The prime data source for monitoring and evaluation is census data. It is a conditional calculation showing what the future population would be if a particular set of assumption were to hold true. There are many circumstances where it is desirable to predict future population abundance from past data. Estimation of demography for the future period is essential tool for the planning and development. Population projections can be used for a number of purposes. It provides a tool for analyzing the components of growth and the sensitivity of basic assumptions. Again, the term fertility refers to actual reproductive performance whether applied to an individual or a group to project population size [66] at a future date. Therefore, demographers make assumptions about levels of fertility and mortality and about how many people will move into or out of an area before that date. Projection can raise our perceptive of the determinants of population change.

In this chapter, the population is projected up to 2051. The Least Square Method is applied for population projection. The religion is one of the characteristics related with demographic investigation; the projection is also made in some selected districts for two major communities namely Hindu and Muslim. It has been found that the Hindu population at national level has declined by 0.7 percent in the census report of 2011 while the Muslim population has increased by 0.8 percent [22]. A comparison has been made between the decadal growth rate of state level

and national level which is already discussed in Chapter 1. The state level growth rate and the national level growth rate is shown in Fig. 1.2 and Fig. 1.3 respectively. It may be noted from figures that the growth rate of Assam and India are not identical. Moreover, the growth rate of Muslims of Assam shows a significant increase. The religion wise population in percentage of Assam from 1901-2011 has been shown in Fig.6.1.

Fig. 6.1: Religion wise population of Assam¹

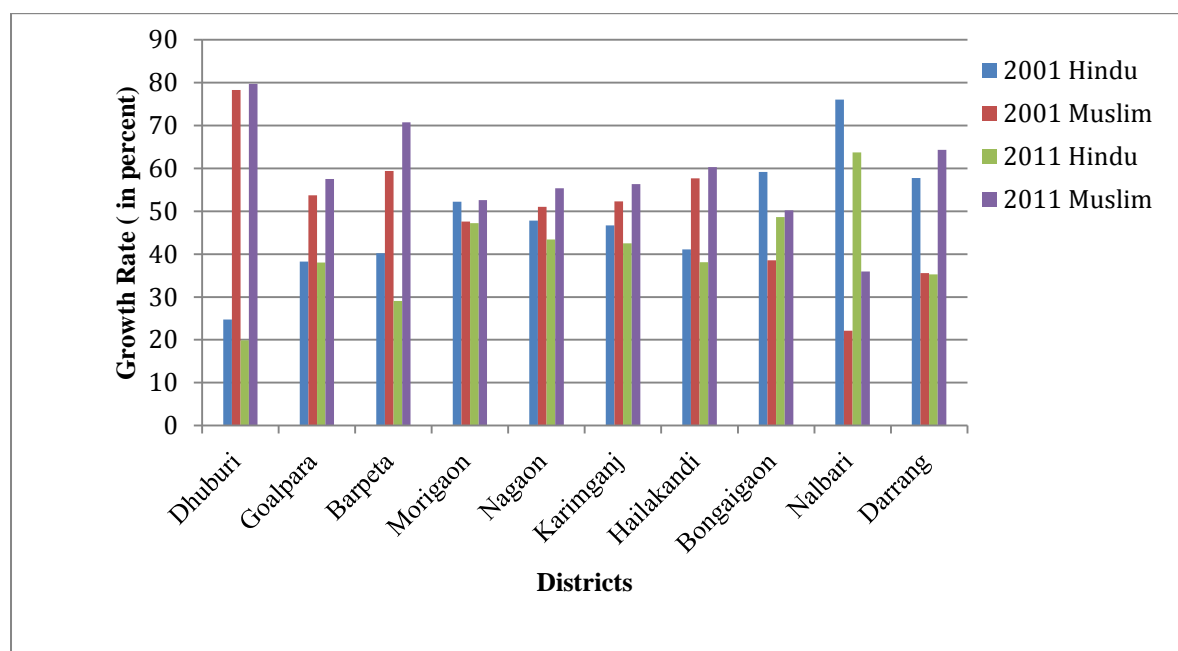


Source: Census Report of India, Government of India

From the above figure, it is distinctly clear that there is always a huge gap between the growth rate of Hindu and Muslims, the two major religious groups of the state

According to Census report of 2011, the total Hindu population of Assam is 1,91, 80,759 and the Muslim population is 1,6,79,345. Muslim population has risen to 34.22 percent, a jump of over four percent, while the Hindu population has been pegged at 61.46 percent [21, 22]. Fig.6.2 represents the comparisons of the differentials of growth rate of Hindu and Muslim. It may be mentioned that ten districts are selected for the comparisons.

¹In 1981 Census was not conducted in Assam

Fig 6.2: Comparison of population growth rate of some selected districts of Assam

Source: Census Report of India, Government of India, 2011

From the figure we have seen that, in 2011, growth rate of Hindu is less than that of Muslim. In case of Nalbari district the gap between growth rate of Hindu and Muslim was large in 2001. But in 2011 the difference in growth rate between the communities decreases. It reflects that the Nalbari districts will become Muslim majority district. The figure also reveals that the growth of Muslim is high in the districts of lower Assam. Thus the Muslim population has maintained its upward trend and for Hindu it is in reverse form. According to Census report 2001, there were only six districts where the Muslim population was highest. But, by 2011 it goes up to nine districts. These nine districts are Barpeta, Dhuburi, Karimganj, Goalpara, Darrang, Bongaigaon, Hailakandi, Nagaon and Morigaon [21]. This asymmetry of population growth of Muslim is the key aspect for us to find the projection of future.

6.2 Projected population of Assam

Avishek et al. [64], two methods have been used for projection of population of Haryana. The methods are Ratio Method and Growth Differential Method. In this

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investigation the method of Least Square has been considered for projection of population Assam. From the results of this investigation, it is obtained that this method may also be a useful tool for projection of population. We access and compare the two major communities and found that Muslim population is significantly high in several districts of Assam than the Hindu (which are mentioned in preceding section).

The population has been projected on the basis of Census data. Out of 27 districts of Assam, eight districts registered a rise in the decadal population growth rate. Since, it gives an overview of the percentage of total population growth in a particular decade. The projected decadal growth rate for the decade 2021 will be 13.46 percent whereas in 2011 it was 17.07 percent of Assam. The Muslim highest districts of Dhuburi, Goalpara, Morigaon, Nagaon, Hailakandi and Barpeta have recorded growth rates ranging from 20 percent to 24 percent during the last decades. Since, independence, the rate of increase of Muslim population is higher than that of Hindu population. As a result of this higher growth rate has been attributed to higher fertility among the Muslims. The Fig.6.3 shows the projected population up to 2051 of Assam.

For the prediction of population growth the following empirical mathematical model has been considered.

$$Y = e^{a+bt} + \alpha \quad (6.1)$$

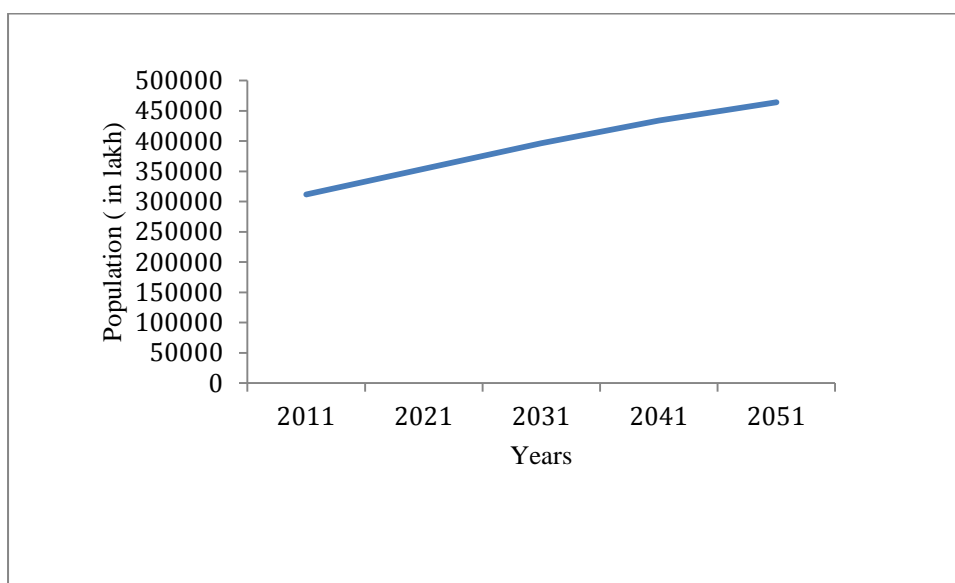
The least square method has been used for the estimation of the parameters a and b , where

$$y = \log Y$$

Ultimately, the value of the constant α has been estimated as

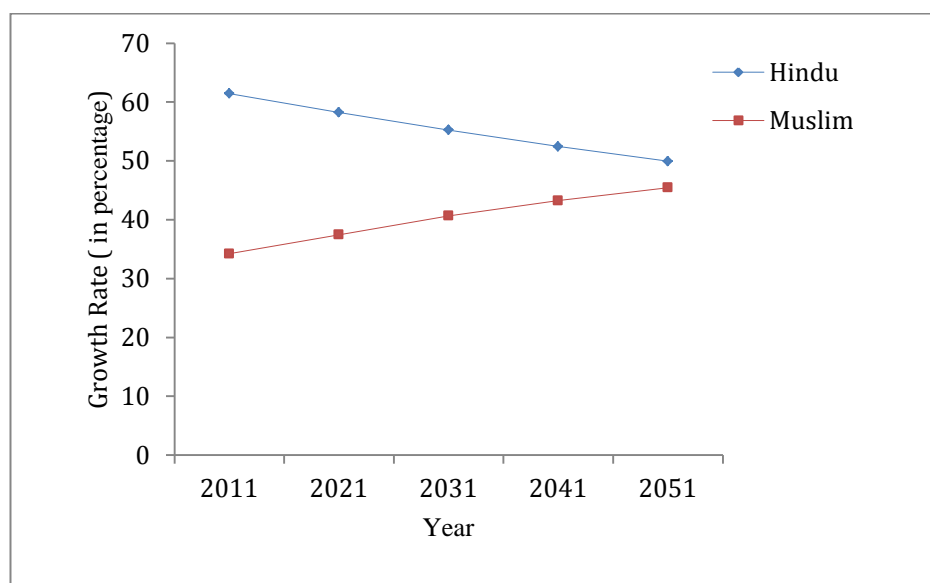
$$\hat{\alpha} = \frac{y_1 y_2 - y^2}{y_1 + y_2 - 2y_3}$$

Where, y_1, y_2 are the points selected at extremes of the profile of Y versus t , and y_3 is the arithmetical means of y_1 and y_2 .

Fig. 6.3: Projected population of Assam

Source: Census Report of India, Government of India, 2011

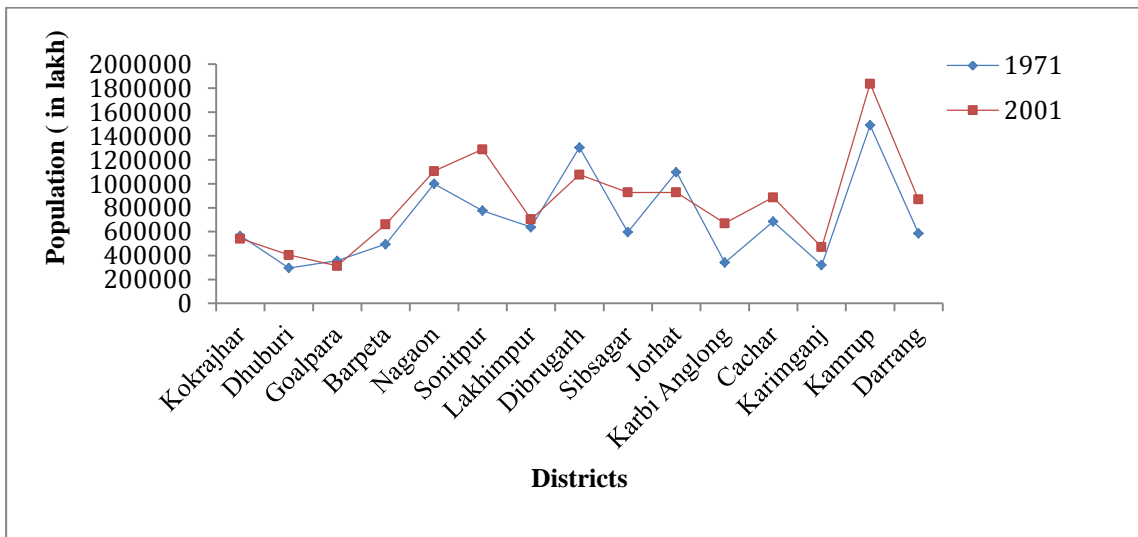
From the above projected Fig.6.3 it is seen that the population growth in Assam is in increasing trend. If we see the Census figures from 1901 onwards, it is clear that growth rate among the Muslims is consistently higher than that of the Hindus. The religious census data shows that between 2001 and 2011, the Hindu population in Assam grew by -3.43 percent, while that Muslim by 3.3 percent. Hence, it is seen that Muslim growth rate is alarmingly higher in Assam. The Fig.6.4 shows the proportion of population of Hindu and Muslim communities of Assam from 2011 to 2051.

Fig. 6.4: Projected proportion growth trend of two major religious group

It has been observed that the proportion of Muslim population in Assam is continuously in increasing trend, whereas proportion of Hindu is in decreasing. It is seen that the proportion of Hindu 58.25, 55.25, 52.45 and 49.95percent, whereas proportion of Muslim will be 37.46, 40.66, 43.26, and 45.46percent in the years 2021, 2031, 2041 and 2051 respectively. Thus if this change of proportion pattern continues then the Hindu population will becomes less in Assam after 2051.

A plot of population has been worked out for the years 1971 and 2001. The Fig. 6.5 and Fig. 6.6 shows the variations of two major communities of Assam for 15 selected districts.

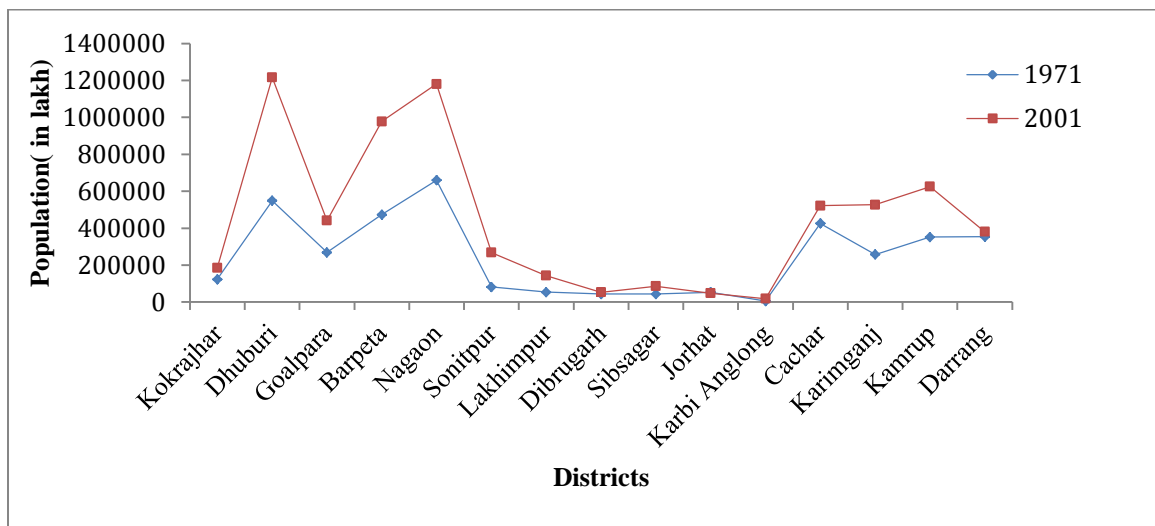
Fig.6.5: Growth of Hindu for selected 15 districts of Assam



Source: Census Report of India, Government of India, 2011

It is seen that though some districts the Hindu population increases in some district the growth is not same for all selected 15 districts.

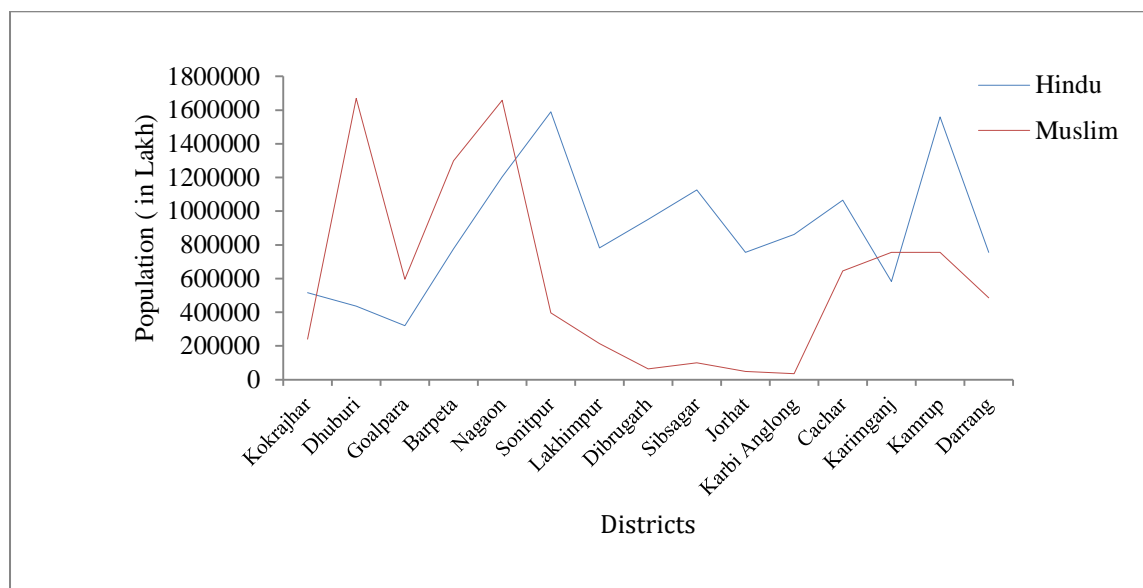
Fig.6.6: Growth of Muslim for selected 15 districts of Assam



Source: Census Report of India, Government of India, 2011

The figures reveal that the population of Muslim increases gradually than Hindu. The projection has been made for four decades. The decadal variations have been evaluated for different districts. The plots have been represented in Fig.6.7 to Fig.6.10 respectively.

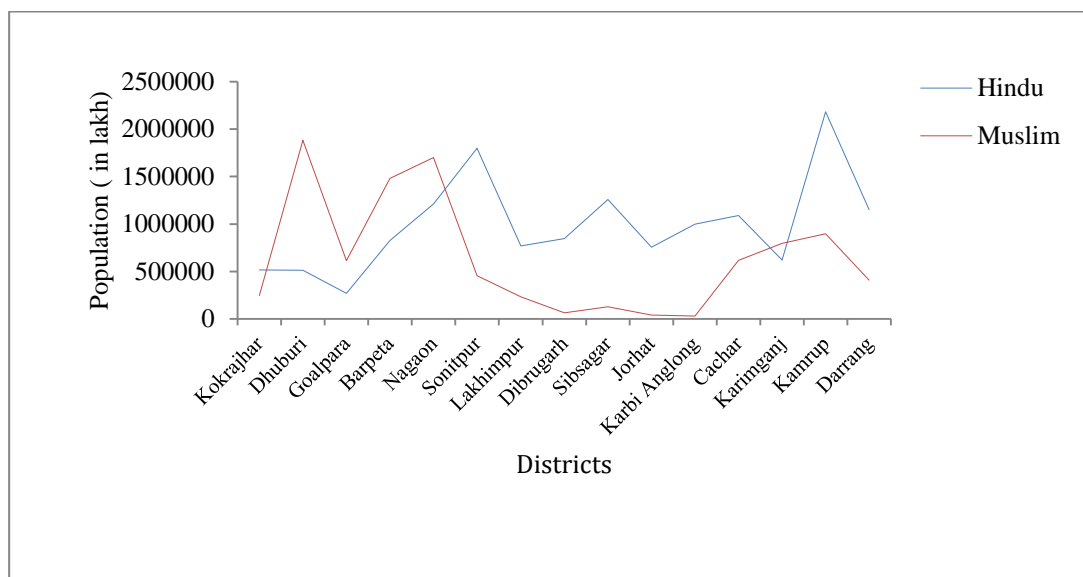
Fig.6.7: Projected Population for selected 15 districts of Hindu and Muslim in 2021



Source: Census Report of India, Government of India, 2011

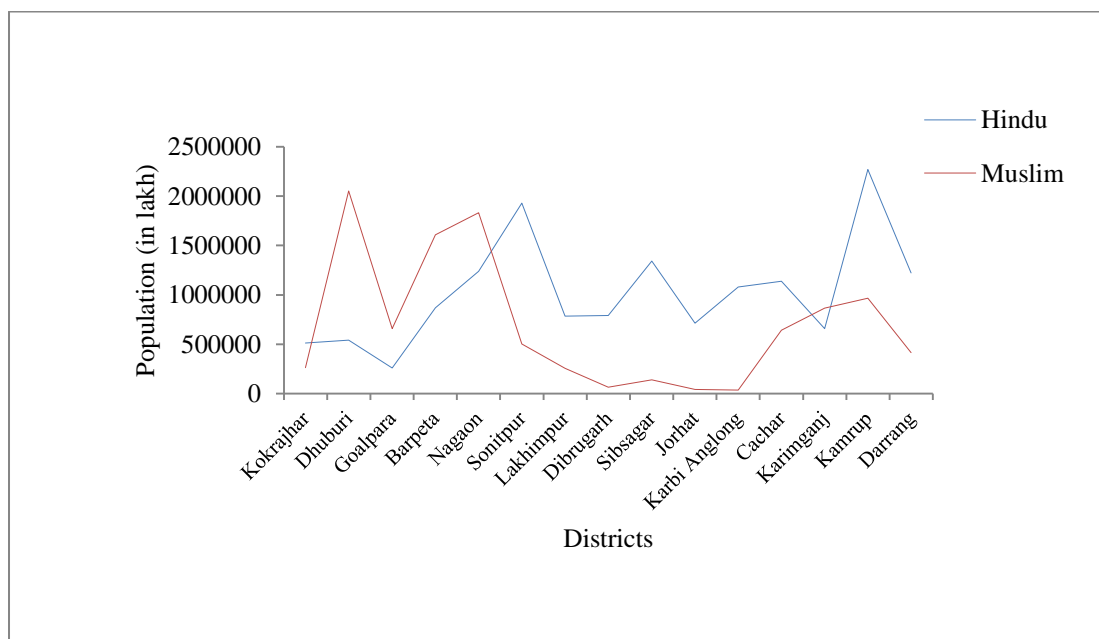
From the projected districts for two major communities it has been observed that population growth is different for each districts. In most of the districts population growth of Muslim is high whereas in some districts like Dibrugarh, Sibsagar, Jorhat etc. the growth of Muslim is low. It is noticeable that in those districts Hindu population is not so high.

Fig.6.8: Projected Population for selected 15 districts of Hindu and Muslim in 2031



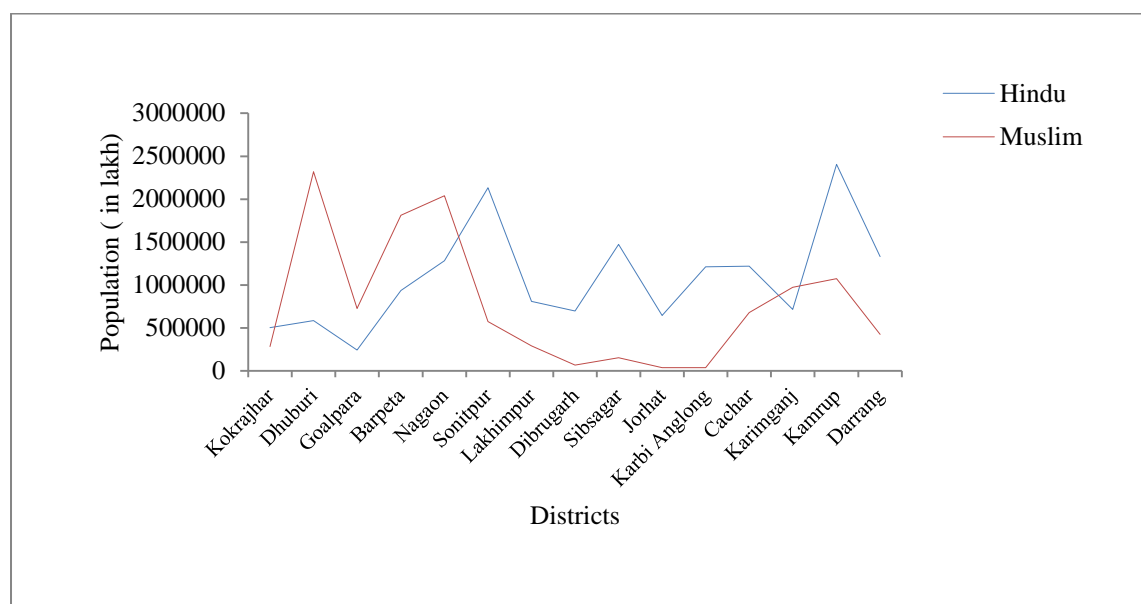
Source: Census Report of India, Government of India, 2011

Fig.6.9: Projected Population for selected 15 districts of Hindu and Muslim in 2041



Source: Census Report of India, Government of India, 2011

Fig.6.10: Projected Population for selected 15 districts of Hindu and Muslim in 2051

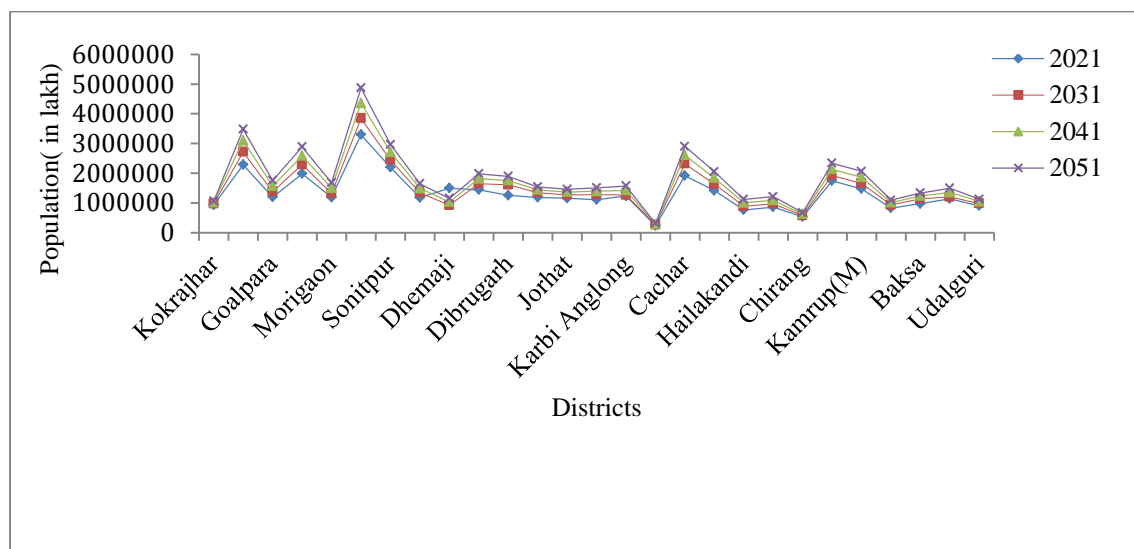


Source: Census Report of India, Government of India, 2011

The significant point is that, in the Muslim majority districts like Dhuburi, Nagaon, Karimganj etc. the growth is higher than the other districts. It reflects the same execution on fertility rate of Muslim. In this regard we may believe that the border districts of Assam like Dhuburi, Kokrajhar etc. have faced a large scale illegal migration [7, 54] from the Bangladesh. It is one of the causes of higher growth rate of population.

It has been observed that the overall growth rate of Muslim population is significantly higher than Hindu. In the districts of Jorhat and Sibsagar the growth of population Muslims are not rapid. On the other hand the growth rate of Muslim is high in Barpeta, Nagaon and Dhuburi districts. Moreover, the growth rate of Hindu is declining in Jorhat and Kokrajhar districts.

Similarly, the total population for 27 districts have been estimated which is shown in Fig.6.11.

Fig.6.11: District wise projected population for four decades

Source: Census Report of India, Government of India, 2011

From the above figure it is observed that the Nagaon district has the highest population in the projected years while the district like Dima Hasao has the lowest population.

6.3 Conclusion

It has been observed from above analysis that a rapid change in demography of Assam is taking place. In Goalpara district the Muslim population has increased from 43 percent in 1951 to 57.52 to 2011. In Darrang district it has increased from 17 percent in 1951 to 64.34 percent in 2011. Hence, the statistical analysis shows that the Hindus in different districts of Assam fall below the 50 percent mark as per 2011 Census report which is represented in Table 1.4 of Chapter 1.

It may also be found that the growth of Muslim population is far above than the growth of Hindu population. So far the growth of Muslim population during 1971-2001 at district level is concerned all the districts are witnessing very high population growth than Hindu. It is also significant that high growth of Muslim population in Assam may be due to the consequence of large scale Muslim migration from other state [55]. So, we would like to repeat the demand of female education in

general. It is more alarming that the literacy rate among the Muslim women is low. The early marriage of the Muslim women and the lack of family planning among them are the signs of their social, economic and educational backwardness [57]. It is a key point to be noted that the projected population in general is highest in Nagaon district.

In the work of Conrad Hackett (at PEW research center)[42], it was reported that India was expected to have largest population of Muslim in the world. By 2050 it will become 311 million. In the official report of Population Reference Bureau, it has also been observed that by 2051 the population of Assam will become 4, 62, 82,000 which support our findings. It is worthwhile to notice that our exertion on the projection of population that has been made by Least Square Method is quite agreed with this result. We would like to mention again that the districts where TFR (as mentioned in Fig. 2.5) is large, the projected population of Muslim are also high in those districts. It indicates that the district where Muslim population is high, the decadal growth rate is also high, (Table 2.1). It is also seen that the proportion of Muslim population to the total population is expected to increase to 37.46 percent in 2021 while it is not same for Hindu. The proportion of Hindu will be 58.25 percent, which is in decreasing trend.

The successive future plans for the districts of Assam need to take account for the size of population projected for year till 2051. There is also an argument that due to the historical links and physical proximity the migration may take place mainly from Bangladesh. The state Assam has 262 km border with Bangladesh out of which 92 km is revering [54], therefore migration from Bangladesh to a Assam is much easier. In this regard one has to take preventive measure for illegal migration. Since, Bangladesh is a Muslim dominant country, to know on religious change it demands more works on the cause and impact of cross border migration.