

Georeferencing Assignment: Muslim Population in India

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India's over 200 year colonial past ended in the year 1947 when it got its independence from the British Empire. This independence, however, was marred by the phenomenon of partition, when what was then considered India, was partitioned into two nation states – India and Pakistan. Pakistan was established as an Islamic Nation out of the concern that Muslims would suffer as a minority community in a Hindu dominated India, and so deserved their own nation. Thus, many of those parts of India that were heavily dominated by Muslim populations, were declared to lie within Pakistani territory. Pakistan was created as two disjointed territories – West Pakistan (what is modern day Pakistan) and East Pakistan (what is modern day Bangladesh). Partition led to riots and violence all over northern India, with millions of refugees being forced to leave their homes and flee across the border to escape persecution. Millions of Muslims in what became India, fled to Pakistan, and Hindus in what became Pakistan, fled to Indian territory. Simultaneously however, many Muslims chose to stay back in India, as it was established as a secular nation with no state religion.

This assignment attempts to use Georeferencing to examine the differences in the spread of the Muslim population in India, pre and post-partition.

The georeferenced map is a 1909 Map of India sourced from Wikimedia Commons that uses graduated colour to depict the proportion of the Muslim population across different territories in British India. This map was created by the Imperial Gazetteer of India in 1909, J.G. Bartholomew. The most heavily Muslim dominated regions even in 1909 are depicted to be what are modern day Pakistan and Bangladesh, which explains why the nation state of Pakistan was created in the unique disjointed way that it was. The map was georeferenced onto a modern day World Map shape file, as well as a shape file of contemporary Indian states. Scaling, shifting and control points were used to reference the map as accurately as possible. There was some difficulty in getting north-east India and the south-western border perfectly aligned.

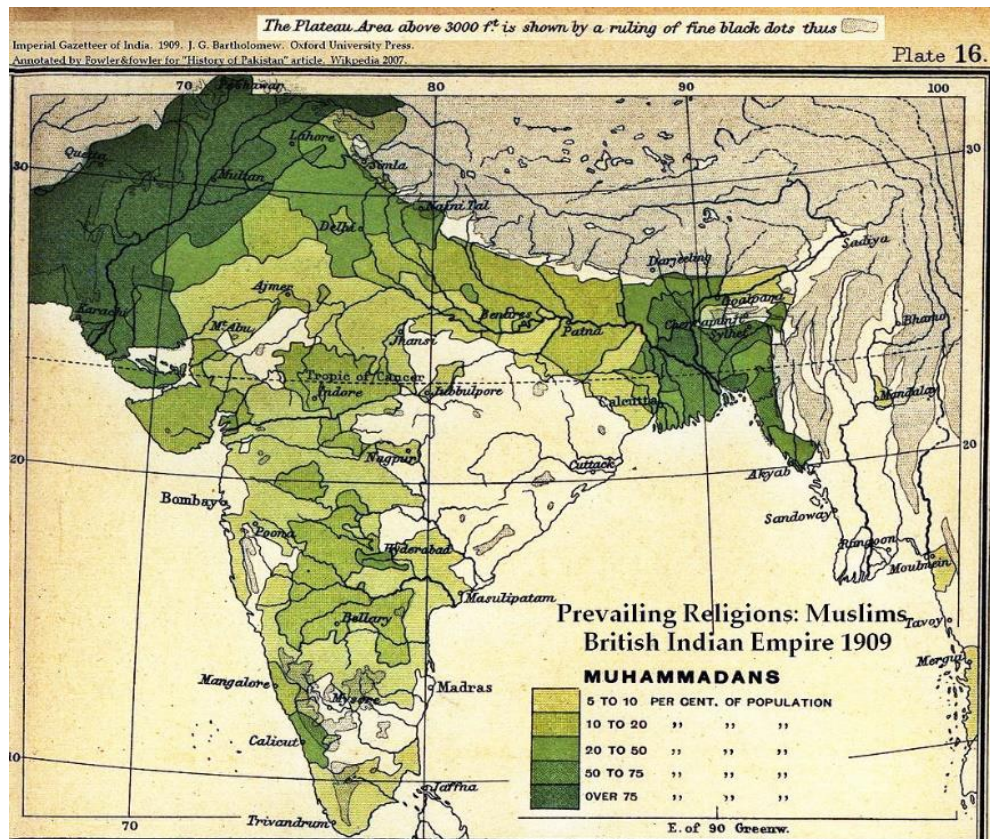
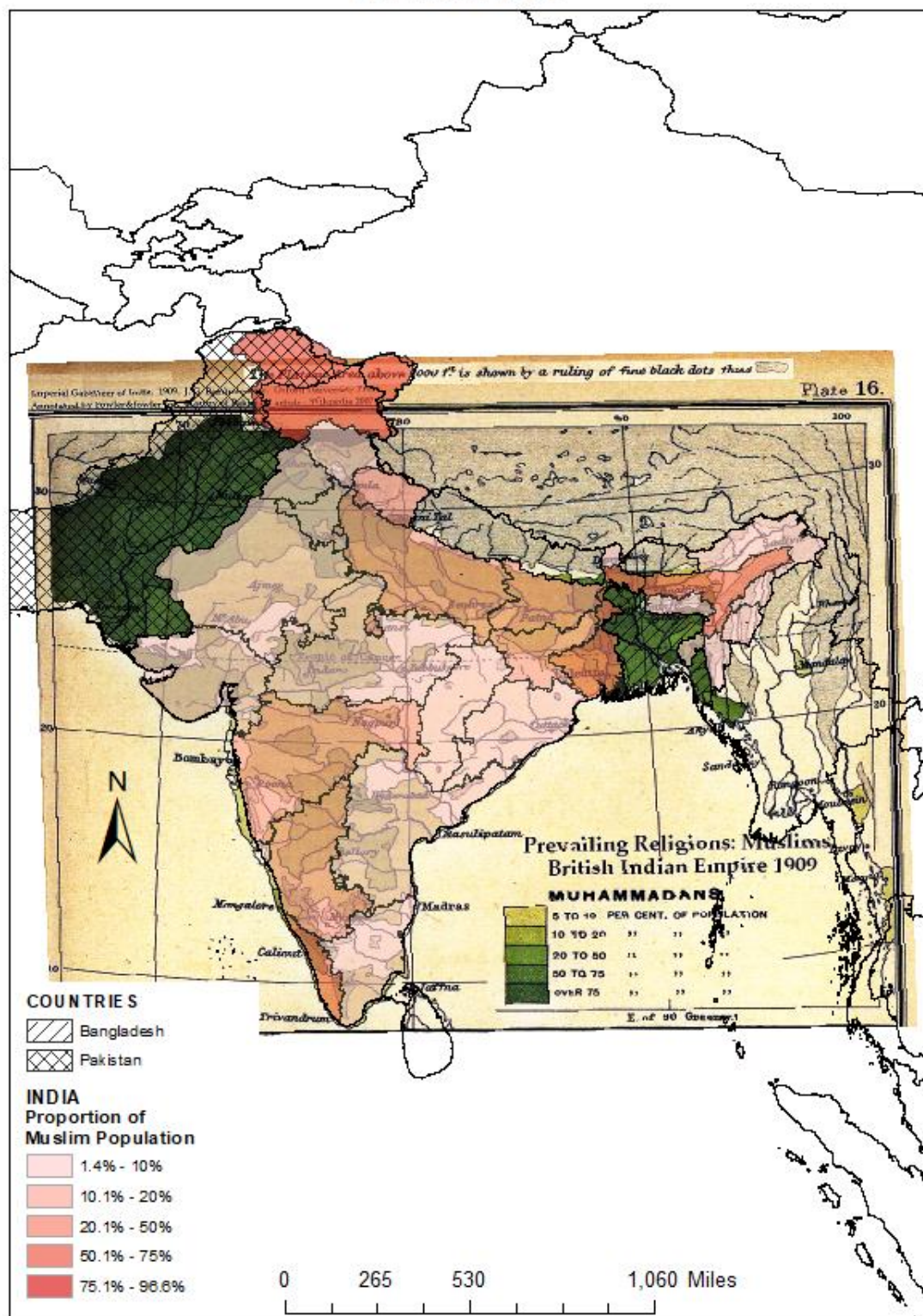


Figure 1 – 1909 Map depicting the Muslim population proportion

The data for contemporary India was found using the Census of India, 2011 which provides the statistics on the proportion of the Muslim population by state. This was depicted within the Indian shape file, using graduated colors and defined intervals. The intervals were defined to match the intervals that were used in the 1909 map to ensure consistency. This map was made 40% transparent to allow for the 1909 map to be visible underneath, so that the Muslim population spread could be compared.

The outcome of this exercise is depicted as a layout below. Contemporary Pakistan and Bangladesh have been demarcated as mentioned in the legend. It is important to note that the Indian shapefile and World Map shape file do not agree on whether to categorize the northern most part of the Indian state of Jammu and Kashmir, as India or Pakistan. Though the world map categorizes it as Pakistani territory as the region is occupied by Pakistan at present, the Indian government continues to consider the area as part of India.

Muslim Population in India: 2011 v. 1909



1909 Map Source: Wikimedia Commons
2011 Data Source: Census of India, 2011

As of 2011, Muslims make up 14.2% of the Indian population. The 1909 map does not depict the Jammu and Kashmir region, which remains one of the most Muslim dominated states in India. However, this exercise allows us to see some interesting spatial patterns. Regions like south-western India and north-central India that had a substantial but minority Muslim population in 1909, continue to maintain a substantial Muslim minority. Since these regions are not neighboring Pakistan or Bangladesh, they were not the most heavily affected by partition, and that may explain why the Muslim population is not very different pre and post-partition.

North western India, on the other hand, shows a substantial contrast in terms of the Muslim population pre and post partition. The modern Indian states of Punjab, Rajasthan and Gujarat were regions with over 20% of the population being Muslim. As per the 2011 data however, these numbers have dropped to the below 10% range. This region was one of the most affected by the violence and forced migration of partition due to its proximity to the Pakistan border. Majority of Muslim households thus fled across the border, and Hindus from Pakistan settled in these regions. My family was one of the many refugee Hindu families to come from across the border into India. Seeing their story depicted through this subtle but powerful map is moving.

It is interesting that a similar pattern is not witnessed in the Indian regions neighboring Bangladesh (what was East Pakistan before Bangladesh were established in 1971). The population of Muslims remains substantial in these regions, as of 2011. Part of this may be explained by the fact that migration from Bangladesh into India, for better economic opportunities, is a very common phenomenon. The border is not as heavily guarded as that with Pakistan, as India and Bangladesh share a non-confrontational and positive diplomatic relationship. Thus, illegal immigration is common and is in fact a political issue in states like Bengal and Assam in this region.

Georeferencing allowed us to compare Indian demographics across an almost 100 year period, over which nation states were born. In a subtle way, it allowed us to arrive at a better understanding of the present, by allowing us to see the past and present together, in one frame. Using points, polygons and line segments, it revealed an underlying story of a region, its changing boundaries and the movement of its people. The method, however, also comes with its limitations.

Maps made at different points of time do not perfectly align, and so some disparity is possible. More importantly, since geographies change dramatically over a period of time, two maps may not be easily comparable. In 1909 India did not exist, and neither did the modern states that make up India. Instead there existed the British Empire and Princely States, that no longer exist in 2011. Thus, we had to settle for a more regional comparison in this exercise, since the boundaries were largely incomparable across the two maps.

Nevertheless, georeferencing allowed for the story of changing boundaries and demographics to be told in a compelling and visual manner.