

4.3.1 Introduction

Hydrology is an important feature in consideration of development of an area. Mymensingh is located beside Brahmaputra river. Mymensingh region has developed by deposition of Brahmaputra river system. Newly developed flood plain area is agriculture prominent. Hydrology is an influential factor for agricultural development of this flood plain area. Mymensingh town and its north western and north east side is at comparatively elevated other than south east and south western side.

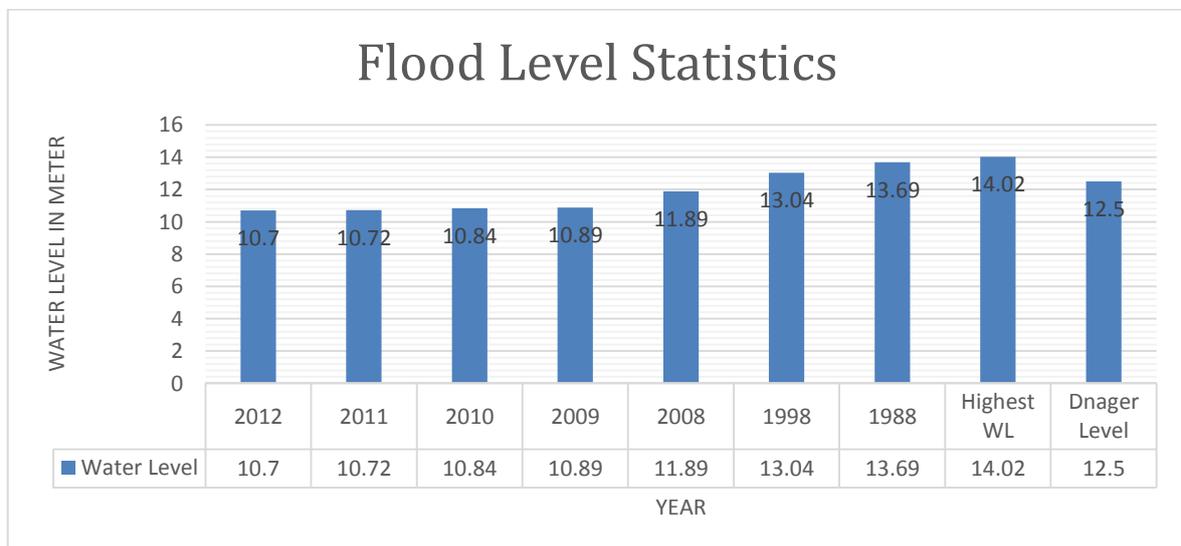
4.3.2 Methodology

Data has been collected using both secondary and primary data. Topographic map has been prepared by stereo satellite image. Flood information has been collected from Bangladesh Water Development Board. Rainfall data has been collected Bangladesh Meteorological Department. Data has been collected from annual flood reports, website etc of concerned department.

Digital Elevation Model (DEM) has been prepared using elevation data to identify flood prone and flood free area. Flood level regarding 2008 to 2012 and major flood hazard of 1988 and 1998 and recorded highest flood level as well as danger level has been shown in maps. Daily maximum rainfall from 2003 to 2012 has been used to identify rainfall pattern.

4.3.3 Findings

Map of highest flood level, flood water danger level and flood water level maps of different year have been prepared. Flood level statistics shows that, 14.02 is highest water level and 12.5 is danger level for flood.



(Source: Annual Flood Report, 2008-2012, Bangladesh Water Development Board)

Figure 1: Flood level statistics of different years

Flood level information during 1988 to 2012 at shows that, flood level has been degrading year by year and in 2012 flood level was 10.7 meter which was lowest in last 24 years record. Flood in 1988 and 1998 crossed danger level of flood and reached at 13.69 and 13.04 meter water level.

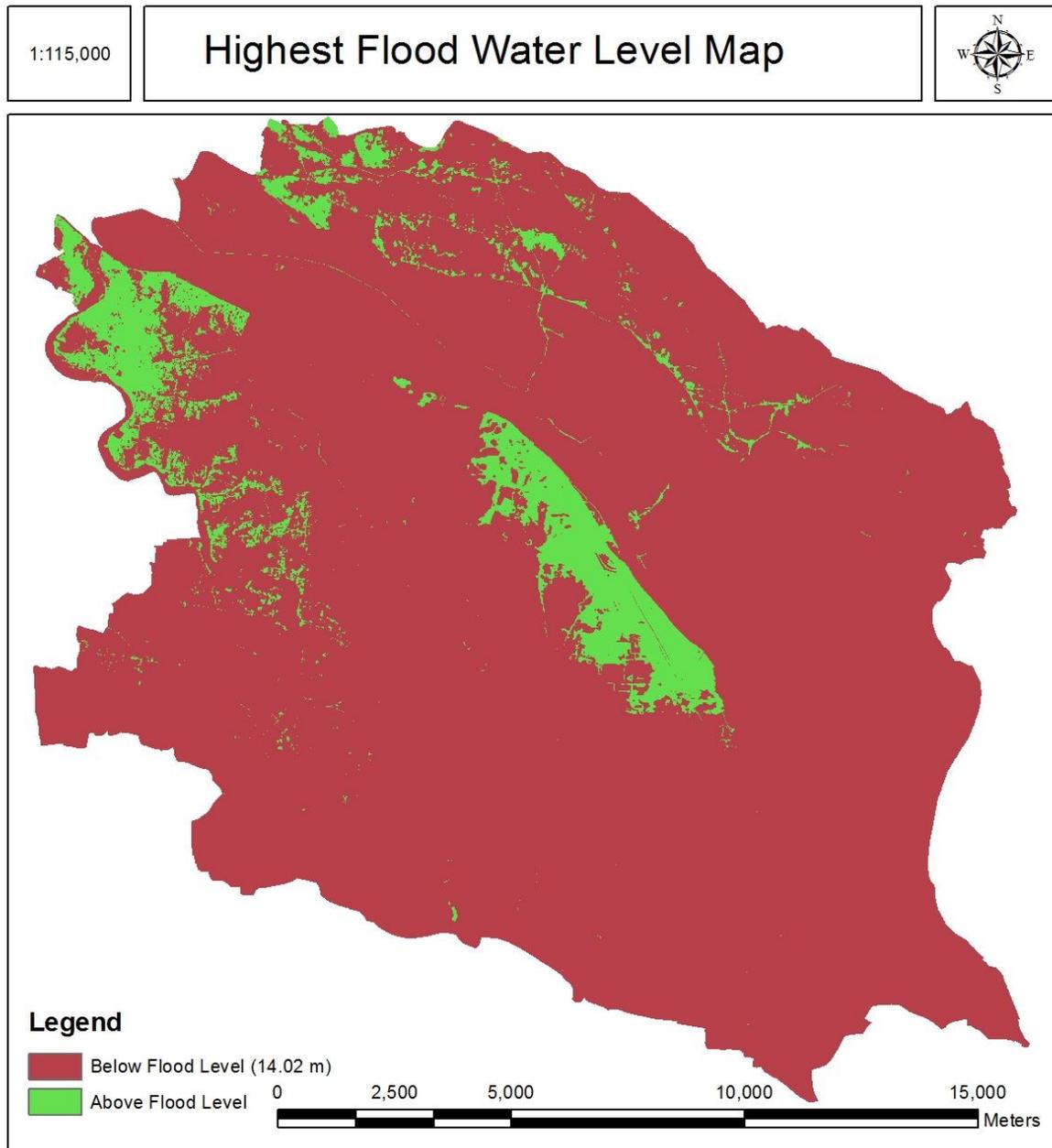


Figure 2: Highest flood water level map

Highest flood water level reached at the point of 14.02 in mymensingh. Most of the area mentioned as red color in figure 2 inundated during flood. Rest of the area displayed as green color in figure 2 were above flood level. Mostly Mymensingh municipal area and; northern a upper north- western area was not affected during the flood when water level reaches at highest in mymensingh. Southern part and south-western part of Mymensingh were badly affected during that flood.

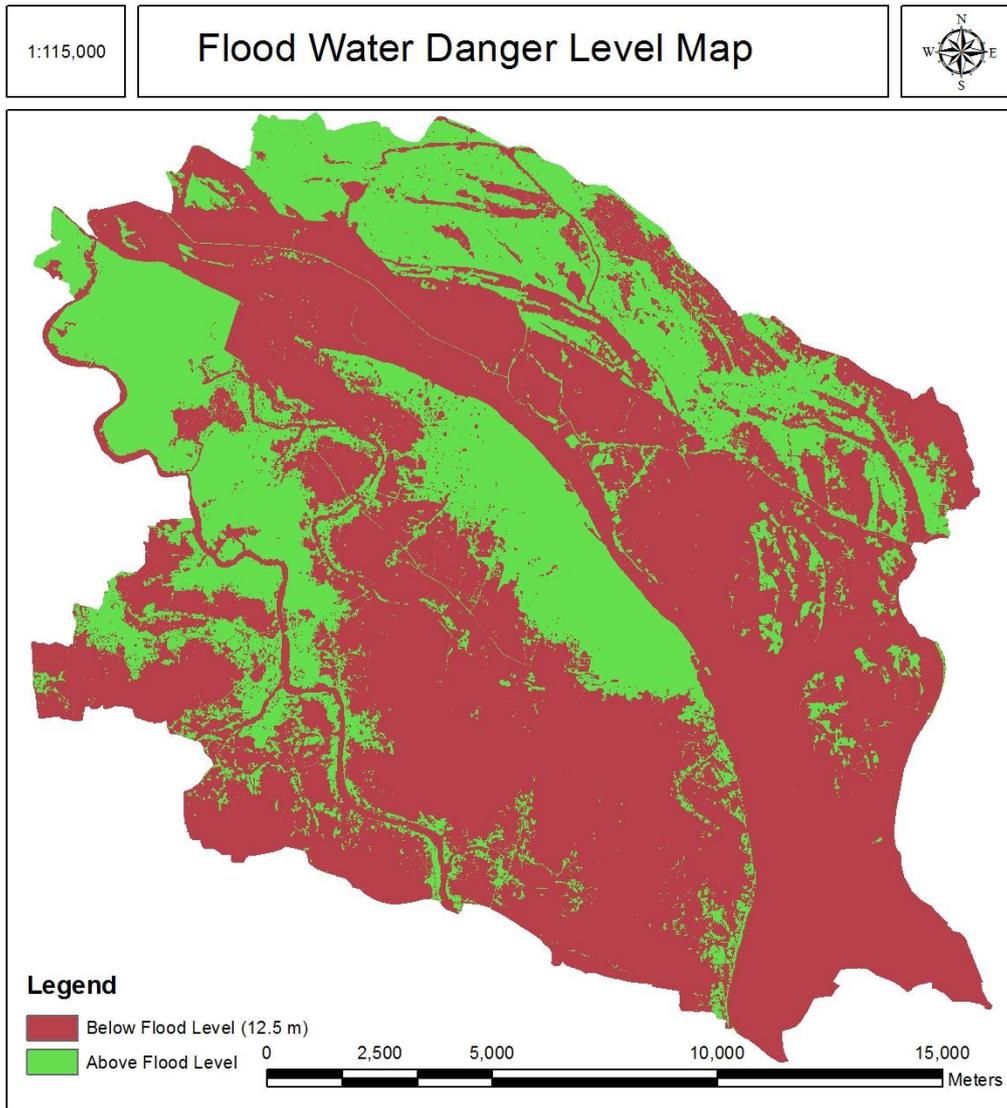


Figure 3: Flood water danger level map

12.5 meter water level has been identified as danger level for flood in Mymensingh. Figure 3 displays mostly Mymensingh municipal area (located at center position of map); northern part and western part of Mymensingh are located as such that is above 12.5 meter of flood water danger level which is mention with green color in map (Figure 3). This map also describes that, most of the places in Mymensingh are located below flood water danger level and encompasses almost all over the Mymensingh. Especially south region and south eastern part of Mymensingh has been identified as flood eater danger zone.

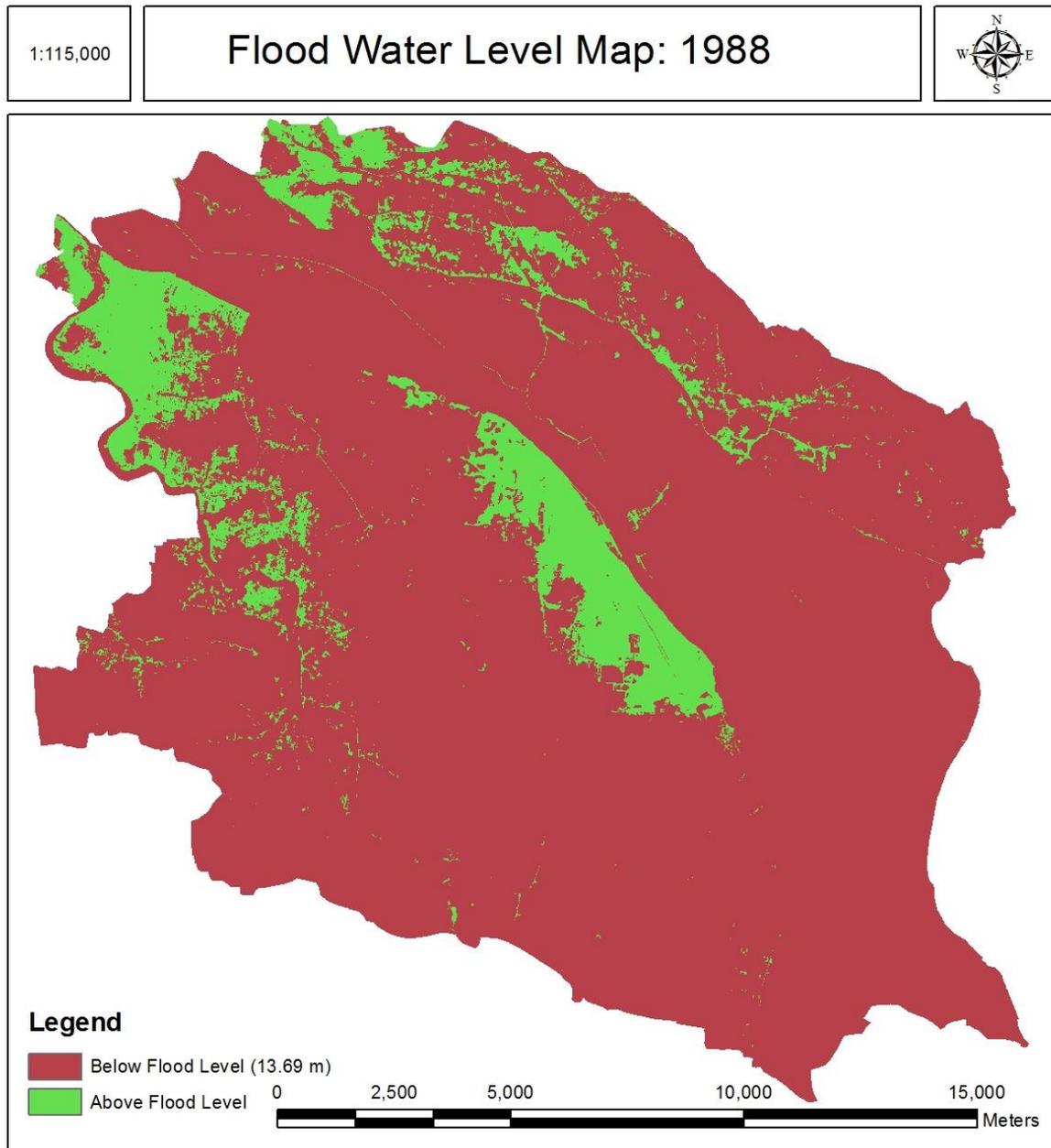


Figure 4: Flood water level map of 1988

Figure 4 displays flood water level map in 1988 of Mymensingh. This map shows, most of the part of Mymensingh inundated during the flood of 1988. Mymensingh municipal area (center of the map) and some part of north western and northern side were above flood level.

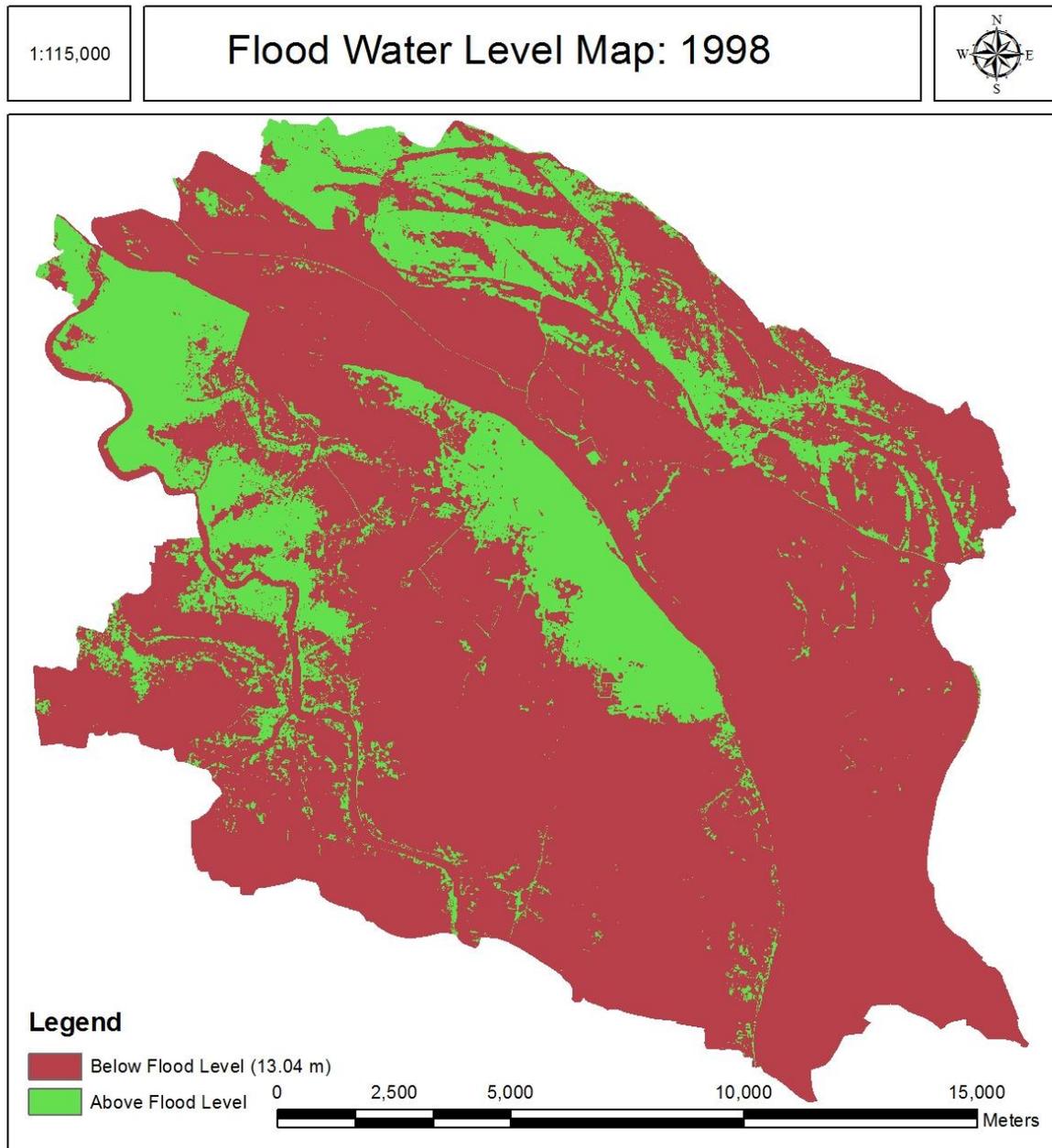


Figure 5: Flood water level map of 1998

Figure 5 displays flood water level map in 1998 of Mymensingh. This map shows, mostly southern and south eastern part of Mymensingh inundated during the flood of 1998. Mymensingh municipal area (center of the map) and some part of north western and northern side were above flood level.

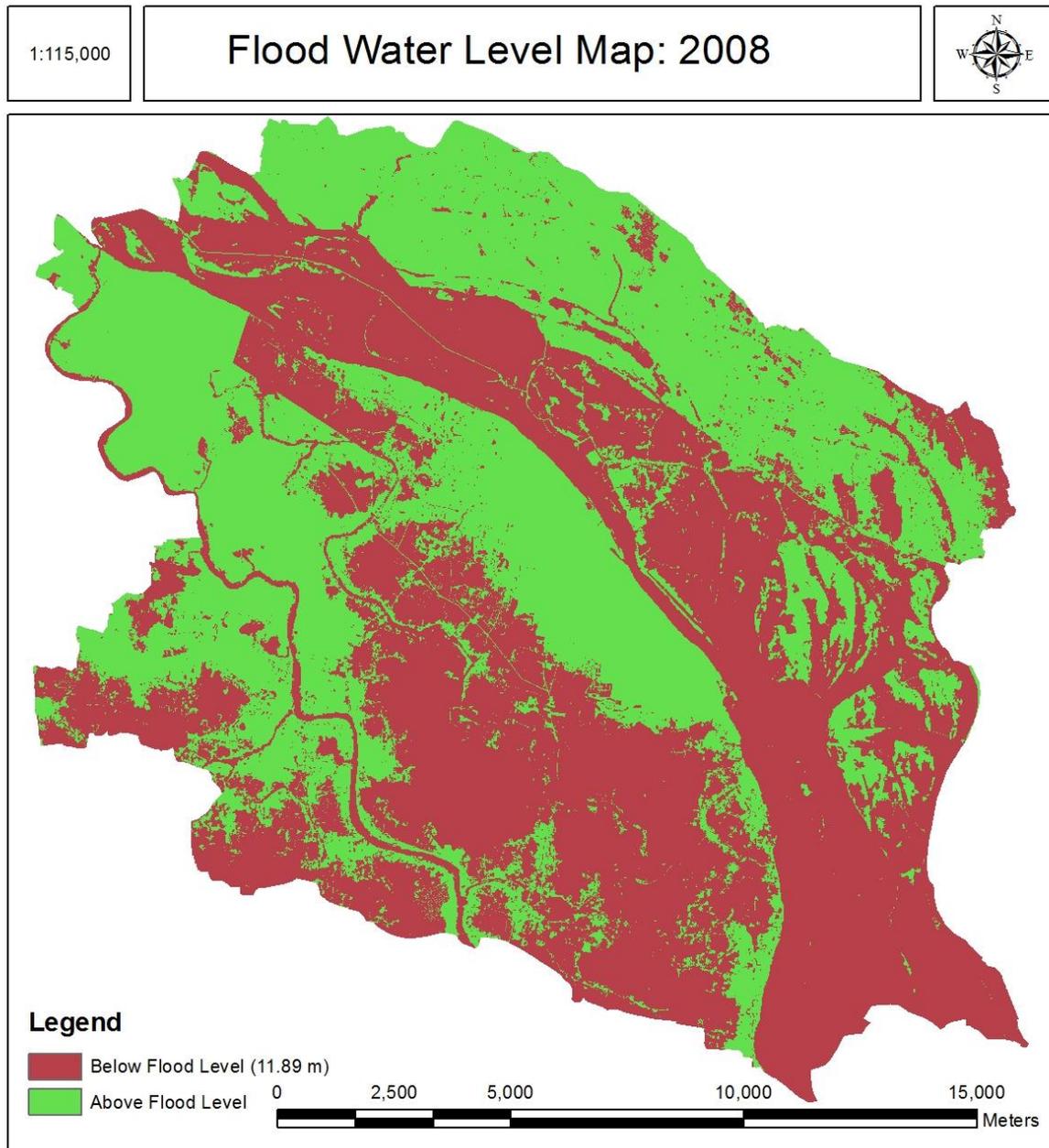


Figure 6: Flood water level map of 2008

Figure 6 displays flood water level map in 2008 of Mymensingh. This map shows, in comparison with flood of 1988 and 1998 lesser area of Mymensingh inundated during the flood of 2008. Most of the part of northern side was below flood level. Old Brahmaputra course was severely affected during this flood.

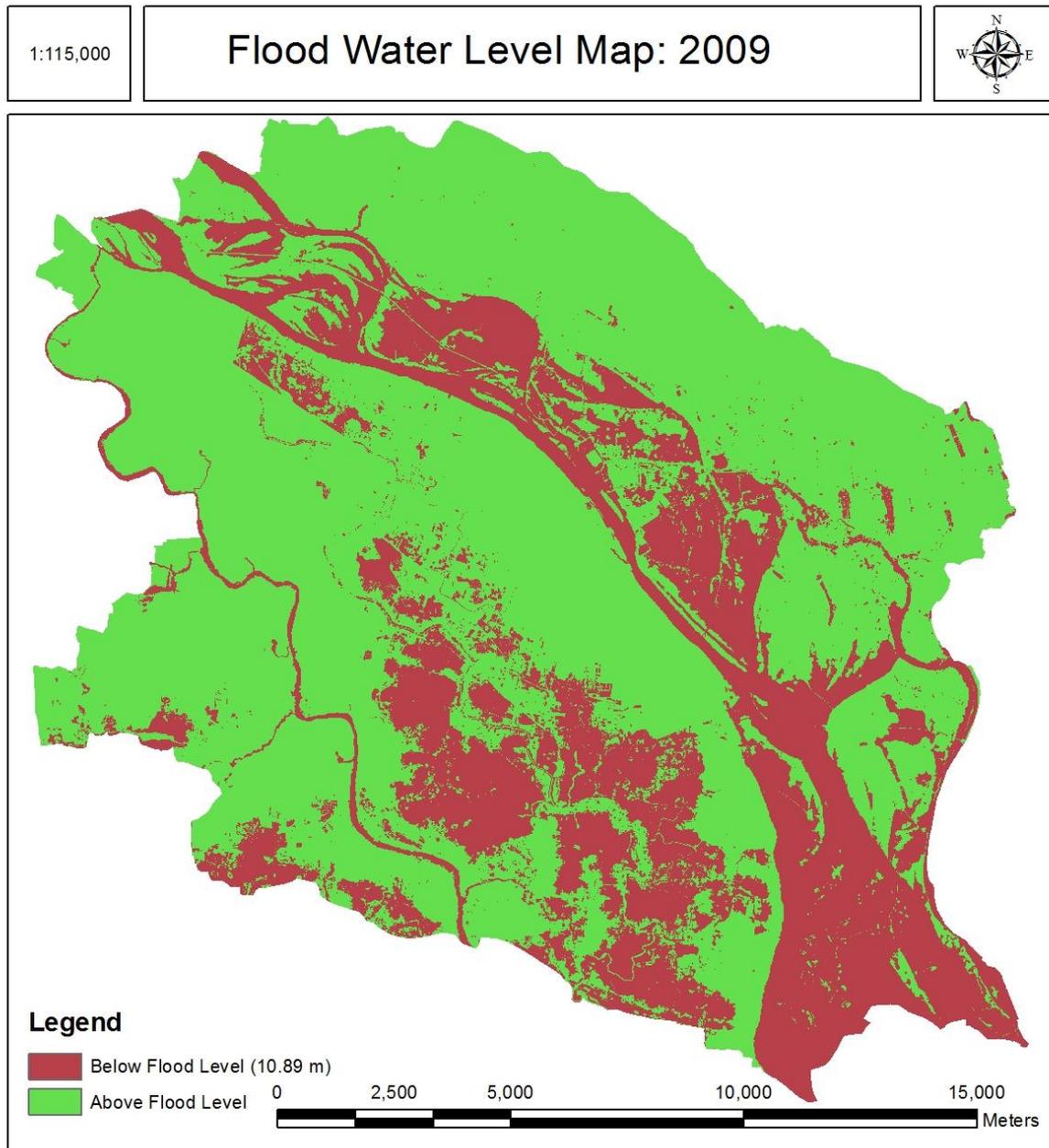


Figure 7: Flood water level map of 2009

Figure 7 displays flood water level map in 2009 of Mymensingh. This map shows, most of the part of Mymensingh was not affected during the flood of 2009. Old Brahmaputra course was the affected area during this flood. Besides, some part of northern side inundated on scattered manner.

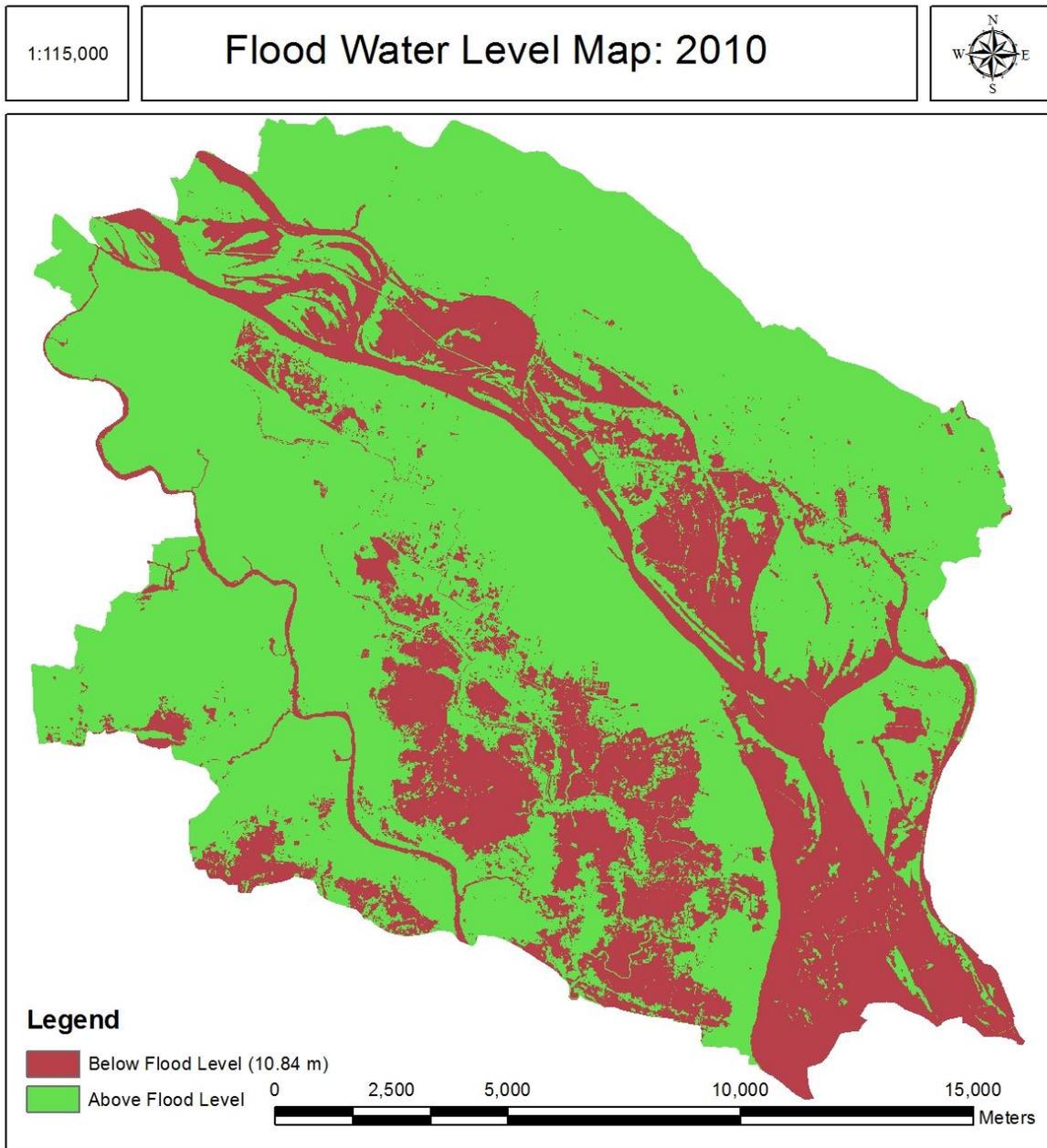


Figure 8: Flood water level map of 2010

Figure 8 displays flood water level map in 2010 of Mymensingh. This map shows, most of the part of Mymensingh was not affected during the flood of 2010. Old Brahmaputra course was the affected area during this flood. Besides, some part of northern side inundated which was below flood level.

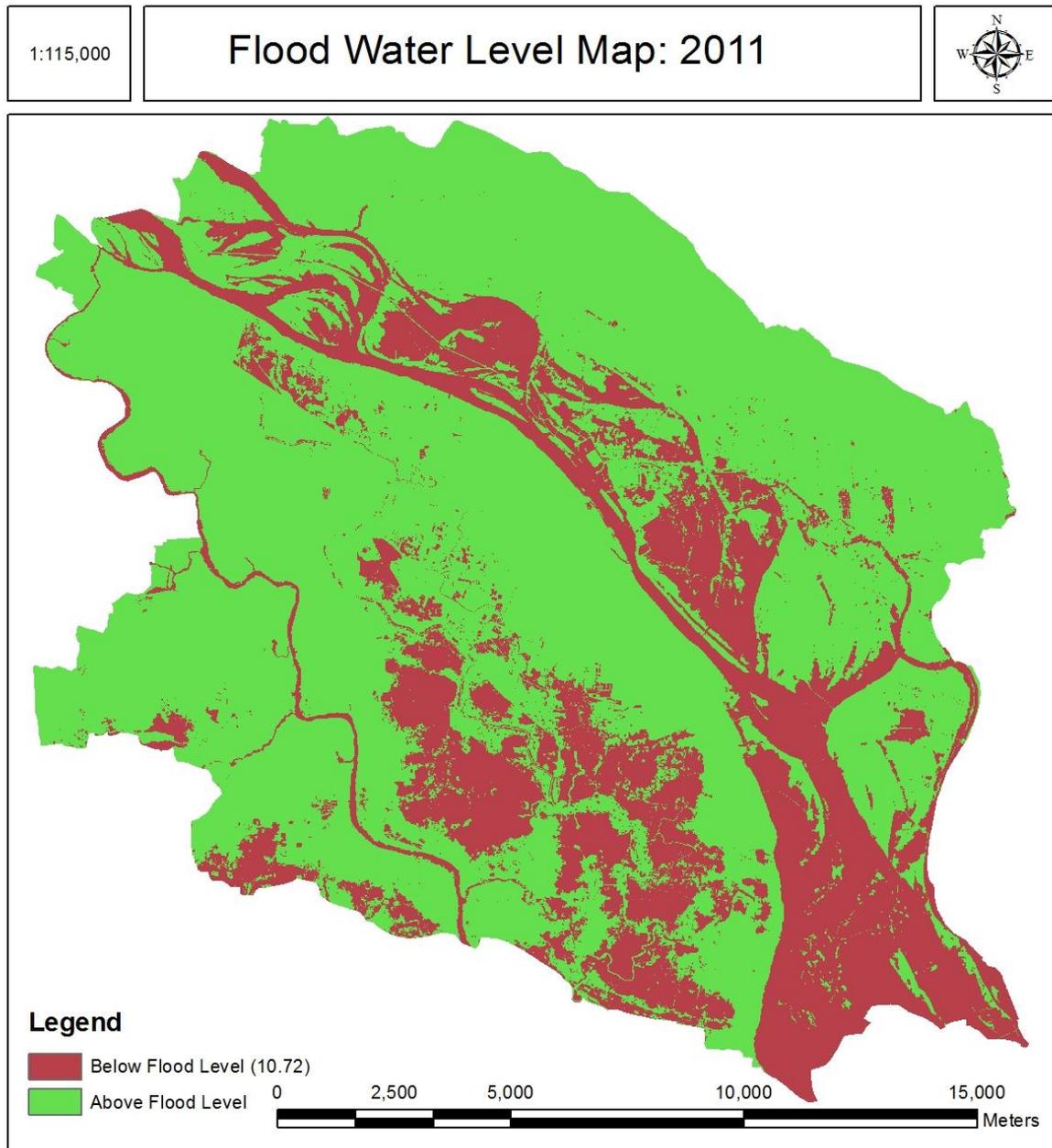


Figure 9: Flood water level map of 2011

Figure 9 displays flood water level map in 2011 of Mymensingh. This map shows, most of the part of Mymensingh was not affected during the flood of 2011. Old Brahmaputra course was the affected area during this flood. Northern side of Mymensingh was also badly affected during this flood.

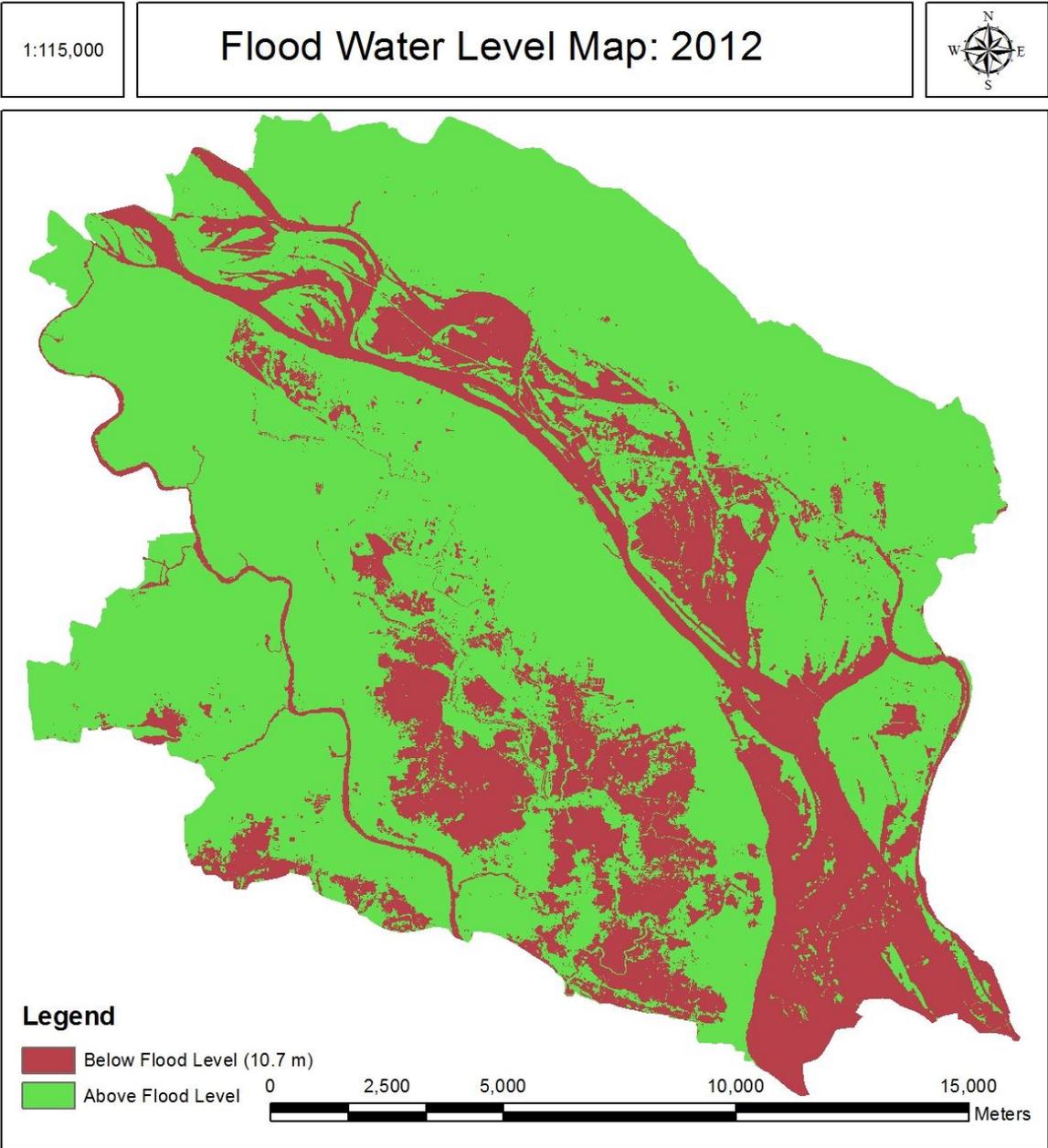


Figure 10: Flood water level map of 2012

The scenario of flood in 2012 is almost same as 2011. Most of the part of Mymensingh was not affected. Old Brahmaputra course was the affected area during this flood. Northern side of Mymensingh was also badly affected during this flood (Figure 10).

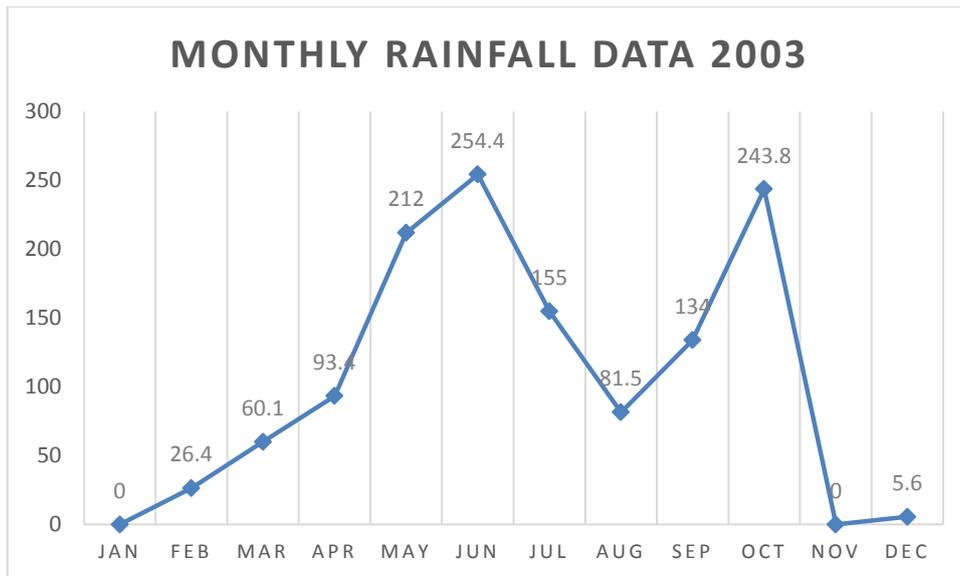


Figure 11: Monthly rainfall data of 2003

Figure 11 displays that, in 2003 rainfall were highest on June and after decreasing in August it again reaches at second highest point of the year on October. Rainfall decreases at lowest point twice on that year (January and November).

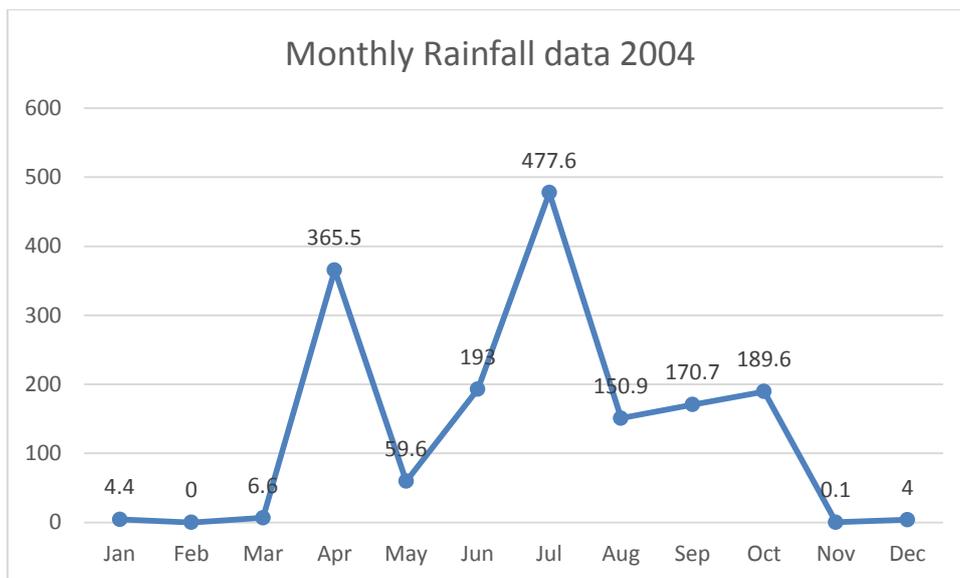


Figure 12: Monthly rainfall data of 2004

Figure 12 displays that, in 2004 rainfall were highest on July. On April Rainfall significantly appeared. Rainfall decreases at lowest point on February. Rainfall was also lower on November and December.

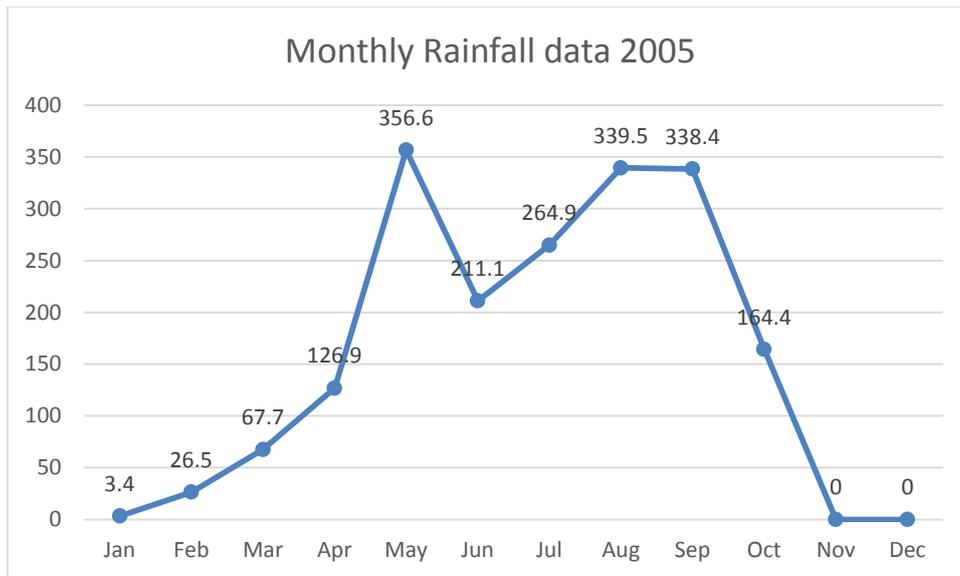


Figure 13: Monthly rainfall data of 2005

Figure 13 displays that, in 2005 rainfall was highest on May and after decreasing on June it again reaches at second highest point of the year on August. Rainfall decreases at lowest point on November and December.

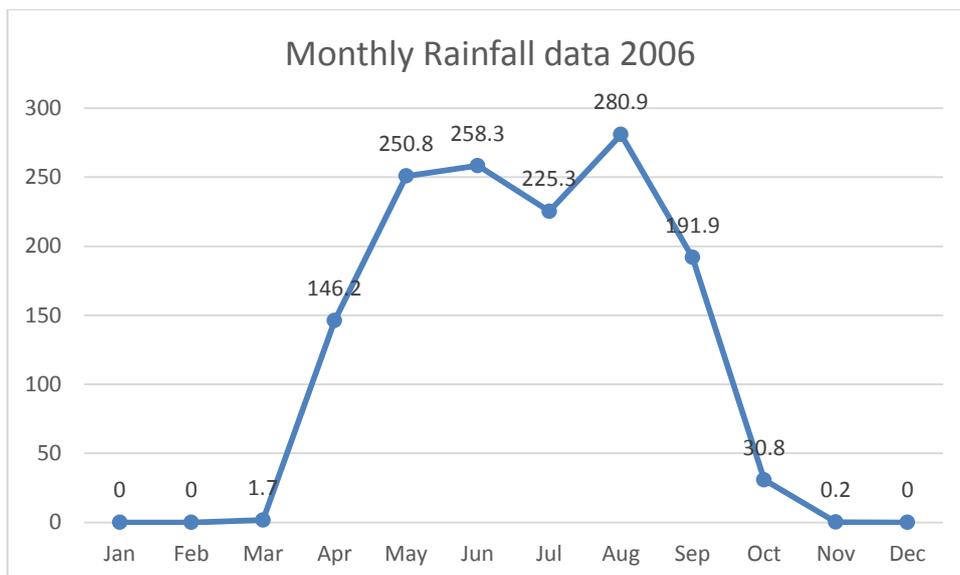


Figure 14: Monthly rainfall data of 2006

In 2006 rainfall was highest on August. May, June and July was also seem to be raining at massive level. From January to March and November to December rainfall was a few (Figure 14).

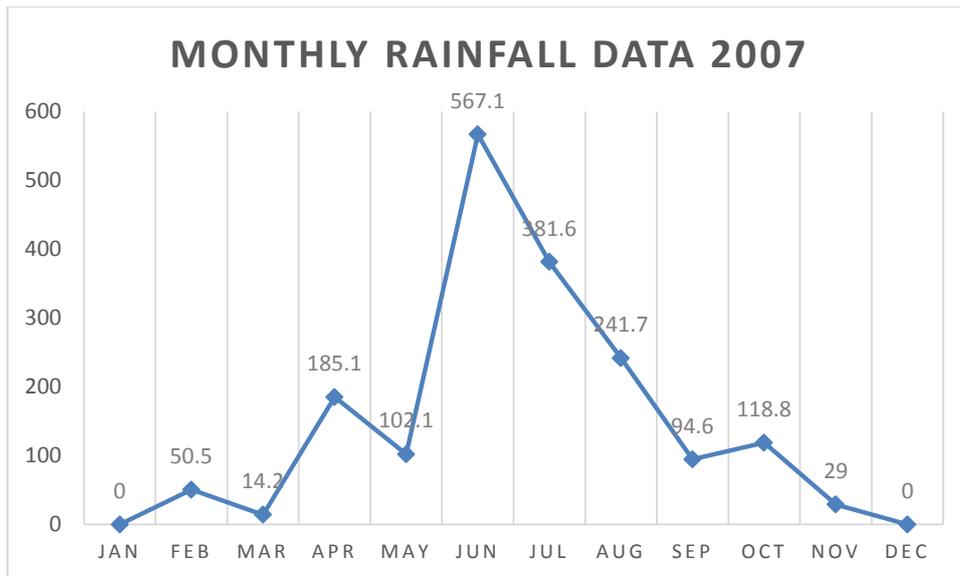


Figure 15: Monthly rainfall data of 2007

In 2007 rainfall occurred significantly on June. Rest of the month of this year did not face severe rainfall (Figure 15).

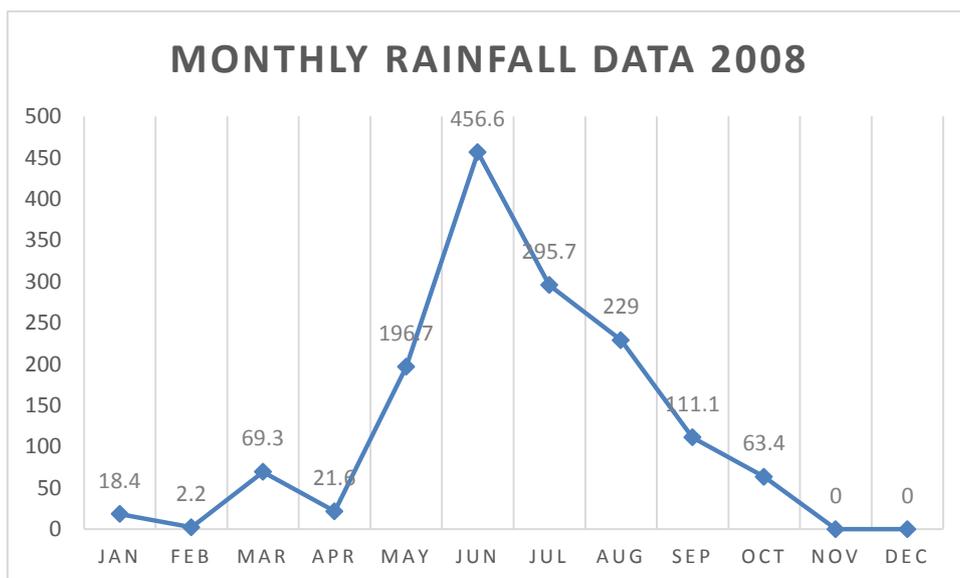


Figure 16: Monthly rainfall data of 2008

In 2008 rainfall scenario was almost same as like previous year of 2007. On June rain occurred at highest level of this year. No rain fell during November and December (Figure 16).

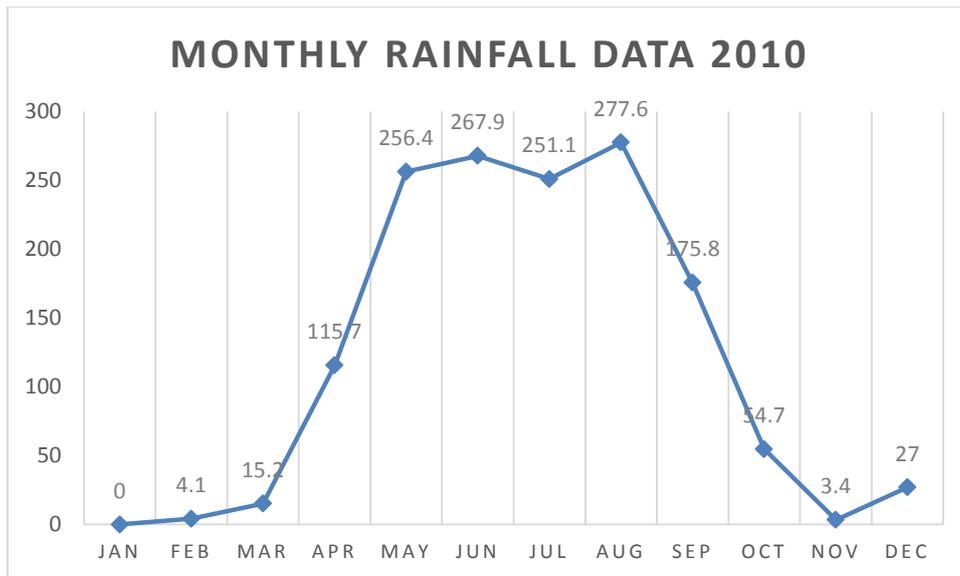


Figure 17: Monthly rainfall data of 2010

In 2010 rainfall occurred severely from May to August. A few rainfall occurred during the month of on April and September (Figure 17).

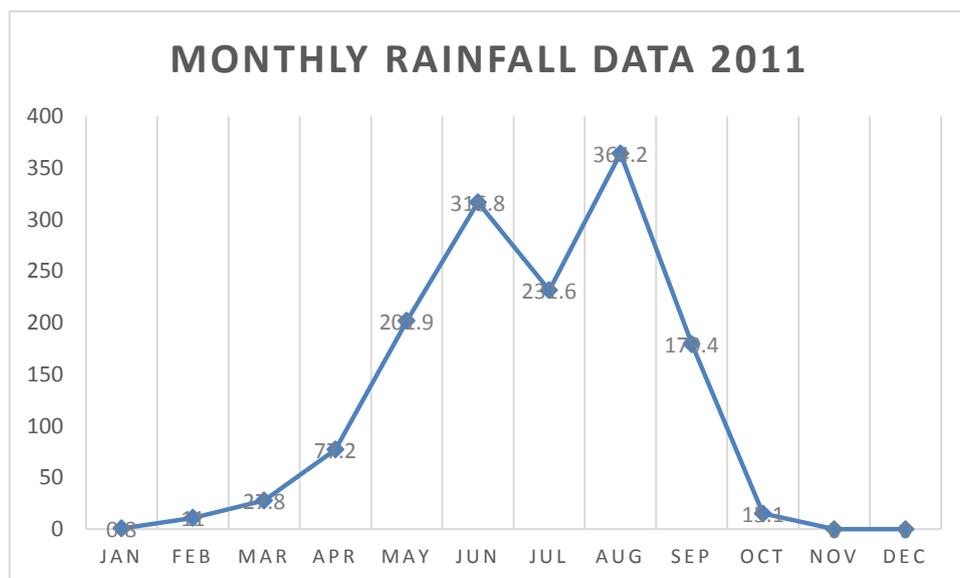


Figure 18: Monthly rainfall data of 2011

In 2011 mostly it rain during August. January and October to December was the month when rainfall was nil (Figure 18).

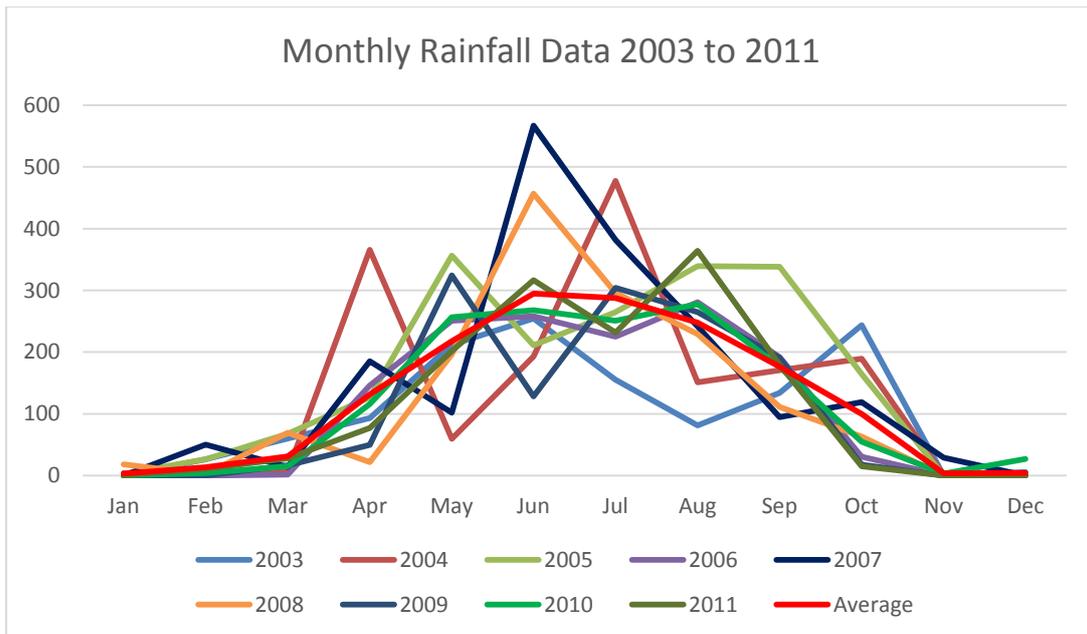


Figure 19: Monthly rainfall data of 2003 to 2011

Figure 19 displays that, in the month of January to March and November to December no or a few rainfall occurs. On other months there is rainfall more or less in every year mentioned in graph. Average rainfall line displays that, on June to July rainfall seems to be occurred severely almost every mentioned year. Sometimes it rains heavily in the month of April, May, August and September.

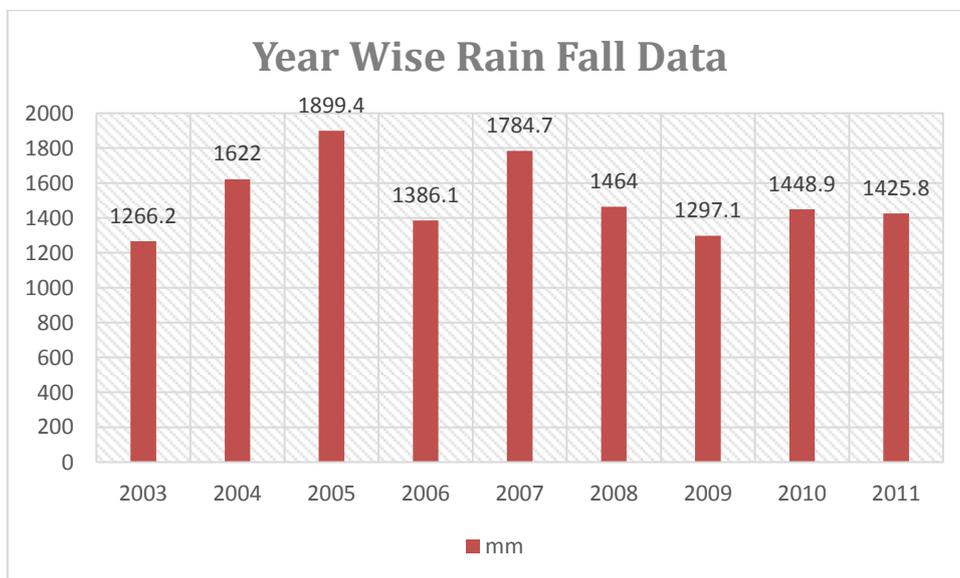


Figure 20: Year wise rainfall data

Above graph (Figure 20) displays that, in the year of 2005 there was highest rain in recent decade. 1899.4 mm rainfall was recorded in this year. 2004 and 2007 was also the year of greater rainfall and recorded rainfall was 1622 and 1784.7 respectively. Among the years rain was lowest in 2003 which was 1266.2 mm.

4.3.4 Conclusion

Flood water level map from 1988 to 2012 is showing that severe effect of flood has been degrading year by year. In 2012, flood water level map is describing that most of the area are above danger flood level, whereas during 1988 to 2008 most of the area were flood prone. Rain occurs heavily during the month of June and July followed by March in almost every year. During January to February and November to December no or a few rain seems to fall in Mymensingh.