Nowadays, many rivers cause floods due to some problems caused by strong precipitation, uneven urbanization and drainage systems. These floods cause large losses of life and property because of fast and uneven urbanization and lack of infrastructures in regions where the population is dense. In the Bafra Basin where the Kizilirmak Delta is located, it has been flooding many times in the past years due to its topographic, geologic, geomorphologic, hydrological and hydrogeological properties. Especially in the next years, it is possible that floods will be occur with increasing of extreme rainfall depends on the effects of global climate change. The main objective of this study was to assess of the flood risk in the Bafra basin. An analytical hierarchy process (AHP) was combined with a geographic information system (GIS) to examine several criteria, such as geology/hydrogeology, topography, rivers, precipitation, soil structure, land use / cover and topographic wetness index (TWI). Each criterion was evaluated with the aid of AHP and was mapped by GIS. Thus, the areas vulnerable to flood risk were identified. It was determined that the most effective parameter for possible floods is the topographic wetness index which expresses the water saturation of the ground according to pair-wise comparison matrices of evaluation criteria. The flood risk assessments show that the around of the lakes in the Kizilirmak Delta have high flood risk. It has also been determined that these areas are compatible with spatial data of floods in the past years.