Bac Kan is a province located in the northeast, Vietnam, where landslides occur frequently and seriously affect human life and the natural environment. To reduce these effects, there should be scientific assessment of region landslide risk. In particular, the establishment of landslide hazard maps have proven to be an effective approach. In this paper, we used analytic hierachy process and bivariate statistical analysis method for landslide susceptibility mapping. In the first stage, a landslide inventory map was prepared using high resolution satellite images (IKONOS, SPOT-5) and field survey. In the second stage, causative factor such as slope, weathering, landcover, geomorphology, fault density, geology, surface roughness, land cover, distance from road, precipitation, were used as thematic layers in the analysis. The final map were diviede into 5 zones: very low, low, moderate, high, and very high susceptibility for landsliding, according to the map, approximately 20% of the study area was identified as very high and high-susceptibility and concentrated in the north of study area, where the forest cover was severely reduced.