Using a dataset on reported loss and damage from floods across the Indian states between 1953 and 2011, this paper empirically tests whether the states are becoming flood-resilient with increasing human development and income. Although voluminous studies have been carried out across the world to examine the role of disaster specific and the generic adaptation measures in mitigating damages from climate extremes, there are limited empirical studies in the Indian context, particularly those that conducted an analysis among the flood-affected states and used a dataset of more than 50 years. Employing zero-inflated negative binomial and fixed effects models, this study comes up with two major findings. *First*, an increasing trend is observed for the reported loss and damage indicators not only in India but also across the flood-affected states. *Second*, human development and income do not significantly reduce the impact from floods, indicating that the states are not becoming flood-resilient with present development. Therefore, the paper suggests that the ongoing development strategies must take into account climate risk and address the persistent adaptation deficit. These findings could have larger policy implication since climate change could enhance frequency and intensity of such events in the foreseeable future.