Floodplain is an area of land adjacent to a stream or river that stretches from the banks of its channel to the base of the enclosing valley walls and usually experiences flooding during periods of high discharge. Floodplains which consist of flood-way and flood fringes are natural flood basins with varied ecological functions and socioeconomic importance, such as: flood protection, water quality improvement, removing excess sediment and nutrients, recharged aquifers, improved wildlife habitat, recreational industries, forestry management and carbon sequestration, provides natural buffers to streams from farm and ranch operations and many more. However, despite these varied ecological functions of floodplain areas of Port Harcourt Metropolis, urbanization and the quest for development have led to serious encroachment into the floodplains in the form reclamation and erection of buildings. The fundamental questions that arise are: how vulnerable are these structural developments to disaster risks associated with floodplains? What is the level of risks associated with erecting buildings on these floodplains? How acceptable are these risks? Providing answers to these questions forms the focus of this paper.