



Levels of risk and vulnerability associated with floods and adaptation to climate change in urban and peri-urban areas of the Binational Basin Puyango - Tumbes

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Basin Binational Transboundary Puyango - Tumbes, covering territories of northern Peru and southern Ecuador, is the center of the impacts El Niño, specifically the Tumbes Region, presents critical conditions of vulnerability that permanently expose its people and production systems to natural events.

The research was conducted with the aim of reducing vulnerabilities and prevent disaster risks; It was identified and defined the study area, determining the possible risk scenarios (rain, storms and floods).

To do so, risk index was applied by flooding, this model allowed from a holistic perspective assess the level of risk of flooding in the Tumbes region and marginal urban localities.

It was established the relative size of threat (T), being of size 3 (high), establishing that it is representative flooding also ability to damage (D) of threat in locations of Aguas Verdes (Zarumilla) and Barrio San Jose (Tumbes), since the peri-urban flooding in this area cause a strong impact, determining a matrix of significance for threats, being very significant selection criteria.

Levels of risk and vulnerability, were determined by the model of risk indices, being the highest (0,58), corresponding to stratum 1 (Sector San Jose, Bellavista, Aguas Verdes) and the low (0,35), layer 2 corresponding to (center of the city of Tumbes, top).

With regard to the consequences, economic losses, operational involvement (collapse of water and sewage system), environmental pollution (presence of sewage, propelling epidemics) was determined.

It was determined that the driving factors that increase the risk level are climate, the geographical location of the study area, the proximity to the equator and the mangrove area, the depth of groundwater level and soil salinization.

At the urban level, vulnerability as intrinsic factor of the risk was associated with not only exposure of the material context and / or physical susceptibility of the elements exposed to be affected, but also weaknesses, social fragility and lack of capacity community response study areas.

Keywords: threat, vulnerability, climate change, flood risk index