Vulnerability analysis using a stake oriented GIS: The Ivry-la-Bataille case study (Eure basin, France).

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Vulnerability assessment is a major issue in flood risk analysis. In many cases it is based on economical modelling but rarely on experience return from real flooding event. Further more, stakes parameters are often very rough regarding to it space and time dynamics. This communication will present a stake oriented vulnerability assessment at local scale using a GIS approach.

The Ivry-la-Bataille case (Eure's valley, Paris Basin) is a very exposed municipality presenting a high housing development during a thirty years period between two major flood events (i.e. 44 and 31 years return) that have occurred in 1966 and 1995. This housing development has been made without any official urban management plan and didn't include flood zone limits that are mapped since 1967 by the state equipment services. Thus, the risk is well documented (for average recurrences), the stakes are identified (but not quantified) whereas the vulnerability is not analyzed in its economic component or its space-time dynamics.

In this communication, we present some solutions developed to set up a GIS to assess individual housing vulnerability. The implementation is based on the experience return of the 1995 flood and realized at operational scale. The methodology used associate an architectural survey to an individual inquiry in the entire flooded area in order to create and to fulfil a GIS database. The goal is to set a risk diagnosis for the existing urbanisation (i.e. stakes and vulnerability) and provide a decision-making tool that helps local authorities in building a crisis management plan including options of prevention and optimization of the emergency reactions at the operational scale.