

Titre, résumé et mots clés du sujet du projet doctoral en anglais : Titre : EVALUATION OF THE DETERMINANTS OF EXPOSURE AND VULNERABILITY TO FLOOD RISK : TOWARD THE DESIGN OF SYNTHETIC INDICATORS, THE CASE OF THE CITY OF NIAMEY INNIGER.

Résumé : EVALUATION OF THE DETERMINANTS OF EXPOSURE AND VULNERABILITY TO FLOOD RISK : TOWARD THE DESIGN OF SYNTHETIC INDICATORS, THE CASE OF THE CITY OF NIAMEY, NIGER. Keywords : Vulnerability, Exposure, Niger river, Niamey, Flood.

Project description :

The Sahel is one of the regions of the world most sensitive to climate change (IPCC, 2007). Climate change in West Africa (1990-2010) has been noted by total warming, hot spells and increasing rainfall (IPCC, 2013). Today, natural disasters, particularly hydro-climatic ones, are worsening every year. The consequences of climate change are multiple. However, hydro-climatic risks are the most common. Among these risks, floods remain a major risk worldwide. Floods are today at the heart of the disaster risks facing Niger ; they are the most important threat in terms of natural disasters in Niger after droughts (Decroix et al 2012). The sharp increase in the risk associated with flooding is partly linked to migration to cities, implying the development of precarious housing in over-exposed areas. Floods do not only affect these already vulnerable populations, it is the entire urban management system that is shaken (Diongue, 2014). The importance of the associated issues has led to policies focused on reducing exposure: prevention, forecasting and risk culture. Nevertheless, in a city in flux, facing major difficulties, reducing exposure often seems illusory. In such cases, risk mitigation relies on better control of vulnerability (Trebossen et al., 2007). Finally, in the context of Niamey, the populations do not wait for the intervention of the public authorities to fight against these floods and their multiple consequences. Each household tries to preserve its house, either by modifying its environment or by acting on the buildings themselves to protect them from water, creating another layer of governance, more local and poorly coordinated with official levels (Bechler et al, 2000). While climate change partly explains the increase in flooding episodes, several studies have concluded that heavy rainfall and deforestation on the slopes have contributed to recurrent floods that have had considerable repercussions in the socio-economic and environmental sectors; since 2010 a geomorphological change in the alluvial plain of the Niger River has also been observed (Bouzou et al 2016). In Niamey, the floods are not exclusively related to technical and administrative management problems. Their analysis reveals social inequalities that are expressed by a discriminatory occupation of urban space. They reveal, to use socially constructed processes (see Renn 2008). In this way, floods pose a social science problem associated with the identification of what leads some population to be overexposed, in particular more vulnerable populations. It will therefore be a question, within the framework of this thesis, of working both on a qualitative (interview and thematic analysis) and quantitative (principal component analysis, the establishment of synthetic indicators and diagnostic modalities) methodological front.

Theme / Domain / Context:

Adaptation to climate change, risk studies, risk governance.

Risk governance in the context of climate change.

During the last ten years, the floods of the Niger River have become more and more destructive. The issue of vulnerability and exposure of those affected by this recurring hazard arises today in an acute issue both from the point of view of diagnosis and corrective action.

Goals :

Identify the determinants of vulnerability and exposure for the inhabitants of Niamey affected by the floods following the seasonal floods. Using a statistical method, construct synthetic indicators of vulnerability and exposure that can be transposed to other cities in developing countries (Sahelians in priority).

Method :

A mixed quali-quantitative approach will be adopted, with a quantitative focus. A series of fieldwork iterations will take place :

Iteration (1) face to face interviews (30) within a district heavily affected by flooding, interviews will be analysed in terms of social representations of the determinants of exposure and vulnerability.

Iteration (2) identification of a set of data at household and administrative unit level in order to perform analysis of the main component of vulnerability factors, exposure and their proxy. Iteration (3) establishment of an observation key (plots, household, yard) and statistical analysis of the correlation between keys developed and synthetic indicators.

Expected results:

Determinants of exposure and vulnerability identified and linked to planning and town planning policy options.

Keys words : Vulnerability, Exposure, Niamey, Niger River, Flood