



Dans le cadre du projet «Centre d'Excellence Africain» financé par la Banque Mondiale et le Gouvernement du Burkina Faso, l'Institut International d'Ingénierie de l'Eau et de l'Environnement (2iE) lance une campagne de recrutement de doctorant(e)s dans les domaines de l'Eau, l'Environnement et l'Agriculture.

PhD THESIS PROJECT 2015

>Ref: Thesis proposal N°ED/01/2016

Project Title	«Impacts of climate change on urban flooding in the Sahel : Case study of Ouagadougou, Burkina Faso»
Keywords	Urban flooding, climate change, flood management, modeling, socio-economic impacts, Sahel, Burkina Faso
Context and challenges	Recent years have been marked by both an increase in severe flood events and an increased frequency of intense rainfall in the Sahel. However, there is a lack of knowledge and data on floods in West Africa concerning the causes, consequences, and probability of flooding. Additionally, with urban flooding across Africa projected to become more severe through a combination of climatic and socio-economic factors, there is a pressing need to include detailed information on the projected impacts of climate change at the city scale. Currently little or no consideration of climate change impacts is contained within the urban expansion planning process, yet adequate management and planning could significantly increase the resilience of urban areas and reduce the human and economic costs of flooding. Furthermore, the continual involvement of stakeholders and decision makers involved in city planning and flood management is necessary for target flood mitigation and informed policy planning. Currently, in the case study region, the Burkina Faso Ministry of Urban Planning and Habitat is developing an urban plan "Grand Ouaga" that requires flood management information.
General Objective	This study will evaluate the impacts of projected climate change on urban flooding in the Sahel to inform flood management, using Ouagadougou, Burkina Faso as a case study.
Specific Objectives	The specific objectives are as follows : <ul style="list-style-type: none">• Characterize the hydrology and land use of the study region• Determine the socio-economic impacts of floods in the study region



Expected Results and outcomes	<ul style="list-style-type: none">• Model the hydrology and climate of the region• Develop climate change scenarios at the local level for the study region• Develop an urban flooding model for the study region and test climate change scenarios <p>The results of this study are as follows :</p> <ul style="list-style-type: none">• Database of flood related information for the study region (hydrological data, socio-economic impacts, geo-spatial information)• Mathematical representations of hydrology and climate for the study region with accompanying climate change scenarios• Identification of flood vulnerability using the urban flooding model and climate change scenarios• Policy recommendations based on model results
Host Laboratory	<p>- Laboratory for Hydrology and Water Resources (LEAH), 2iE - Centre for Ecology and Hydrology (CEH), Wallingford, UK</p>
Supervision	<p>Prof. Harouna KARAMBIRI, 2iE Dr. James MILLER, CEH, UK Dr. Abdoulaye DIARRA, 2iE Dr. Maïmouna BOLOGO/TRAORE, 2iE Dr FOWE TAZEN, 2iE</p>
Starting Date	<p>March 1st, 2016</p>
Candidate Profile	<ul style="list-style-type: none">▪ Research Master degree in water, climate, and hydrology sciences and techniques▪ Strong capacity in tools for climate and hydrological modeling▪ Strong capacity and desire to perform field work (instrumentation, measurement and collection of data)▪ Autonomous, dynamic, good interpersonal relations▪ Fluency in English is requested
To Apply	<ul style="list-style-type: none">▪ Motivation letter▪ Curriculum vitae▪ Photocopies of Master degree or equivalent▪ Photocopies of transcript from Master degree or equivalent

Applicants are requested to mention the reference of the PhD Project and the topic: **Completed document should be sent only by email latest by FEBRUARY 29th, 2016** at :

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