PhD position at UNESCO-IHE on "Socio-Hydrological Dynamics in Bangladesh"

CALL FOR APPLICATIONS

UNESCO-IHE is the largest international postgraduate water education facility in the world and is based in Delft, the Netherlands. The Institute confers fully accredited MSc degrees and PhD degrees in collaboration with partner universities in the Netherlands. Since 1957 the Institute has provided postgraduate water education to more than 14,500 water professionals from over 160 countries. The Institute has a permanent staff population of 180 of whom 90 are scientific staff and around 250 guest lecturers from academia and industry contribute to the educational programmes. Each year around 750 water professionals from all over the world attend the various educational programmes at UNESCO-IHE.

The UNESCO-IHE Institute for Water Education is searching for an excellent candidate for a 4-year PhD position focusing on the analysis of the impacts of bio-physical processes on societal dynamics (e.g. migration) in Bangladesh.

PROJECT DESCRIPTION

A PhD work will be conducted within the interdisciplinary research project "Hydro-Social Deltas: Understanding flows of water and people to improve policies and strategies for disaster risk reduction and sustainable development of delta areas in the Netherlands and Bangladesh", funded by NWO-WOTRO within the programme "Urbanizing Deltas of the World". This project will be carried out by a consortium consisting of 5 partners, namely, Unesco-IHE (project coordinator), Wageningen University, Deltares, Bangladesh Centre for Advanced Studies, and the Bangladesh Flood Hazard Research Centre.

Hydro-Social Deltas focuses on hydro-social dynamics in the urbanising Netherlands Ganges-Brahmaputra-Meghna delta (Bangladesh) and urbanised Netherlands Rhine-Meuse-Scheldt delta (Netherlands). It aims to: i) better understand the interplay between hydrological and social processes in urbanizing deltas, ii) develop novel methods to cope with the dynamic nature of environmental (including climate) disaster risk and its spatial distribution, and iii) support the development of new
policies for flood risk reduction, addressing rural-urban migration (in Bangladesh) and demographic trends (in the Netherlands), notably through building stakeholder capacity and strengthening local governance capacities. This project will analyse the interactions and feedbacks between water and human systems via empirical and comparative analyses and unpack flows of migration and demographic change. The advanced understanding of the complex web of interactions between dynamic physical and social process will help improve current policies for disaster risk reduction and urban development in delta areas.

DESCRIPTION OF PHD RESEARCH

The PhD student will identify and analyse changes to hydrological processes as a result of the land use and climate changes. Bio-physical studies have showed how human interventions (e.g. upstream diversion and coastal polders) have significantly contributed to the variation in water salinity, tidal water level and flooding in this region. While social studies showed that these bio-physical changes, such as saline intrusion and flooding (e.g. cyclone Aila), are in turn shaping patterns of human settlements and triggering migration. However, these studies always look at one or the other side of the interplay between bio-physical and social processes. Interactions and feedbacks remain unexplored. The initial test site will be the char lands region of Bangladesh. In this area, the dynamics of charland changes (erosion and accretion), flood patterns, human population patterns and the human interactions with the environment will be investigated by means of a spatial analysis. Distributed data of human settlements will be derived from census data as well as sources of global data, such as LandScan and the high resolution (around 100m) AsiaPop. The Gridded Population of the World (GPW), for instance, allows the analysis of population patterns in Bangladesh from 1990 to 2010. The spatio-temporal correlation with the occurrence of bio-physical events (such as flooding, river erosion, salt water intrusion) will allow testing hypothesis about the interactions between human and water systems in the Bangladesh delta.

The PhD study will be conducted in close cooperation with a parallel PhD work at Wageningen University, also funded by the Hydro-Social Deltas project, focusing on similar issues from a social science viewpoint. The research will be carried out at the premises of UNESCO-IHE in Delft, The Netherlands. The candidate will spend a considerable part of his/her PhD in Bangladesh, within what is colloquially termed as a "sandwich construction" PhD (i.e. initial and final months of the PhD are spent in the Netherlands to develop the research proposal and write the dissertation, but middle months/period is spent in Bangladesh). Exact division of time spent in NL vs. BGD is based on academic requirements, and discussion between the PhD and their Academic Committee.

PHD FELLOWSHIP INFORMATION

- The PhD fellow will work directly with one of the Project leaders for UNESCO-IHE, Dr. Luigia Brandimarte, and will be hosted by the Environmental Engineering and Water Technology Department of UNESCO-IHE in Delft, The Netherlands.
- The PhD fellow will be in charge of the activities and deliverables of the project under the supervision of Dr. Luigia Brandimarte.
- The PhD fellow will be expected to publish the obtained results in peer reviewed journals and to present the results at international conferences.
• The PhD position is full time, and is funded by a fellowship that covers the tuition fee, health insurance, travel, visits to conferences and the monthly tax-free allowance of approximately 1200 Euros a month.

• Yearly performance appraisal will be conducted.

• The expected starting date is 1 September 2014 and the duration of the project is 4 years. Candidates are expected to have completed their PhD, including the final defense, within this time period.

• During the first 6 months of the PhD, the successful is expected to develop his/her own full research proposal, which must pass approval by academic board/PhD committee.

REQUIREMENTS

The candidates should have:

• MSc degree (average mark: 80% or above) in a discipline relevant to the topic (e.g., Water Science and Engineering, Geography, Earth Sciences)
• High fluency in Bengali and English (written and spoken)
• Experience in hydrological modelling and GIS
• Motivation to work in a multidisciplinary and multicultural environment
• The PhD fellow must be proficient in both oral and written English and Bengali
• The PhD fellow must be able to work independently and as a member of a team; she/he must be creative, flexible, and eager to learn and to expand his/her scientific network

APPLICATION

Applications should be in English, include a curriculum vitae and a motivation letter, and be sent by email to Ms. Jos Bult (j.bult@unesco-ihe.org), secretary of the Integrated Water Systems and Governance Department of UNESCO-IHE Institute for Water Education.

The deadline for applications is 15 April 2014 (closing date). Short-listed candidates will be contacted by 16 June 2014, with final interviews held before 16 July. It is expected that the candidate will be selected and have begun their work by September 1, 2014.

More information about the contents of the study can be requested by email:

• Luigia Brandimarte, PhD (l.brandimarte@unesco-ihe.org), Main supervisor of the PhD work
• Michelle Kooy, PhD (m.kooy@unesco-ihe.org), Coordinator of the Hydro-Social Deltas project