ICIMOD Sustalndus PhD Fellowship

Call for Application

Background

The Sustalndus PhD Fellowship is part of Sustalndus – a project targeting a specific climate change hotspot: the Indus River basin. The project contributes to science that supports Sustainable Development Goals (SDGs) and sustainable water management in the transboundary basin. The fellow will be enrolled at Utrecht University, the Netherlands, and based in the International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal.

The Indus basin is a global climate change hotspot, characterized by a rapidly growing population and strong economic development, which naturally give rise to an exponential increase in water and energy demands. Given the arid climate in the densely populated and heavily irrigated plains and the geopolitical tensions between the riparian states, the road towards achieving SDGs in the basin is extremely challenging. Sustalndus is a four-year international collaborative research project, which was started in 2019 by a consortium of Utrecht University, Wageningen University and Research, ICIMOD, Pakistan Agricultural Research Council, Leadership for Environment and Development (LEAD) Pakistan, and Climate Adaptation Services (Netherlands). The project will develop a modelling toolkit and pathways that contribute to SDGs 2, 6, and 7 (related to food, water, and energy, respectively) in the transboundary Indus River basin. These SDGs will be translated to Indusspecific SDGs (IDGs), and the feasibility of achieving them and trade-offs between them will be quantified. The project assesses the combined impact of climate and socioeconomic changes on water-dependent food and energy resources. It also determines specific interventions that are most successful in increasing the adaptive capacity at a local scale. Combining results from field-scale research with a top-down basinscale modelling approach, the project assesses the scalability, trade-offs, and synergies between the three SDGs at the basin scale and develops adaptation pathways to balance the SDGs for the entire Indus basin.

The Sustalndus research team consists of one postdoctoral researcher and three PhD researchers. This Call for Applications is for one PhD fellow to be hosted by ICIMOD.

PhD project description

The PhD fellow will assess the basin-scale water and energy nexus in the Indus basin using a modelling toolkit to be developed for the basin (based on the SPHY and LPJml distributed hydrological models). The fellow’s first task will be to prepare an inventory and conduct modelling of the existing, planned, and potential (both technically and economically) hydropower generation capacity in the upper Indus. The second task will be to assess how this capacity will be influenced by future climate change, which leads to shifts in flows available to generate hydropower. This assessment will consider socioeconomic factors and restraints to determine potential hydropower revenues and fulfillment of downstream energy demands in terms of generation capacity and timing. This analysis will specifically focus on the interlinkages of hydropower with irrigation, geopolitical tensions, grid access, and energy market. Outcomes of the assessment will be used by the project’s other researchers and vice versa.
Terms and Conditions

- The position will be executed in a “sandwich” fashion, in partnership between ICIMOD and Utrecht University:
  - The PhD researcher will enter a contract agreement with and based at ICIMOD
  - The fellow will be registered at Utrecht University
  - The fellow will obtain a PhD degree from Utrecht University upon successful completion of the project and successful defence of the PhD thesis
- A scientist from each organization will officially serve as co-advisors for the fellow.
- The fellow will be primarily based at ICIMOD’s headquarters in Kathmandu, Nepal, throughout the duration of fellowship.
- The PhD fellow will spend periods of time at Utrecht University and attend conferences and research team meetings elsewhere outside of Nepal.
- The fellowship period is four years. The fellowship agreement will be on an annual basis, to be renewed every year subject to the fellow’s performance.
- Data and knowledge products generated under this fellowship programme are subject to ICIMOD’s data policy.

Requirements

ICIMOD aims to accept one PhD fellow, who should meet the following mandatory requirements:

- Postgraduate degree in hydrology, physical geography, civil engineering, or another relevant science, to be completed before 1 May 2019
- Quantitative research skills, including hydrological modelling, remote sensing, and GIS
- Demonstrable programming skills, preferably in R or Python programming language
- Knowledge of the local energy sector, with particular focus on hydropower
- Strong interest in the topics to be investigated under the Sustalndus project, preferably demonstrated by previous work on similar topics
- Strong command of both written and spoken English
- Excellent analytical, technical, and communication skills
- Motivated, communicative, and proactive
- Independent work attitude and positive team spirit

Application Procedure

During the first round, applicants are invited to apply via the HUC Online Portal with the following documents:

- A motivation letter
- A curriculum vitae, including contact details of two referees
- Two letters of recommendation

During the second round, shortlisted candidates will be invited for a Skype interview. For the interview, the candidates will be asked to present a short research proposal related to Sustalndus based on the overall proposal that will be provided.
Timeline

- The application deadline is 17:00 Kathmandu Time, 25 April 2019.
- The announcement of the awarded fellow will be made on 25 May 2019.
- The awarded PhD fellow is expected to commence the fellowship no later than 15 June 2019.

Remuneration and Benefits

- An allowance of USD 1,000 per month will be provided
- Expat PhD Fellows will receive additional USD 200 per month for accommodation and travel cost at the time of joining and repatriation will be reimbursed.
- The PhD fellow will be reimbursed for international travel costs incurred on trips required by the fellowship.

For more information, please send an email to huc@icimod.org

About the organizations

ICIMOD is a regional intergovernmental learning and knowledge-sharing centre serving eight regional member countries in the Hindu Kush Himalaya (HKH) – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan. It aims to serve the region through information and knowledge generation and sharing to find innovative solutions to critical mountain problems. It facilitates knowledge exchange in its thematic areas of Livelihoods, Ecosystem Services, Water and Air, and Geospatial Solutions to address common issues in regional member countries as well as from transboundary perspectives.

Utrecht University has great ambitions for its teaching quality and study success rates. This also applies to its clear research profiles that are centred on four themes: Sustainability, Life Sciences, Dynamics of Youth, and Institutions. Utrecht University plays a prominent role in our society and contributes to the discourse on topical and future societal issues.

The Faculty of Geosciences offers education and research concerning the geosphere, biosphere, atmosphere, and anthroposphere. With 2,600 students (BSc and MSc) and 600 staff members, the Faculty is organized into four Departments: Physical Geography, Earth Sciences, Human Geography and Spatial Planning, and Sustainable Development.

The Department of Physical Geography provides BSc and MSc programmes on Earth Sciences. Within this department, research groups conduct rigorous fundamental research that focuses on natural hazards; natural and human-induced morphodynamics and sedimentary processes; and patterns and products in coastal, fluvial, and terrestrial environments and their response to global change. The department has expertise in the spatio-dynamic, integrated modelling of soil water-vegetation dynamics, earth observation, geostatistics, data-assimilation methods, and global-scale hydrological modelling in the context of global change.
**PhD position in Climate-smart innovations and the water-food nexus in the Indus basin**

We are looking for a PhD candidate to work within the SustaIndus project on “Targeting a climate change hotspot: science to support the SDGs and sustainable water management in the transboundary Indus river basin. SustaIndus is a four year international research project by Utrecht University, Wageningen University & Research and CAS from the Netherlands, ICIMOD, Pakistan Agricultural Research Council, LEAD Pakistan. The core research team consists of one post-doctoral researcher and three PhD researchers.

**The SustaIndus project**

The Indus basin is a global climate change hotspot, characterized by a rapidly growing population and strong economic development. This is associated with an exponential increase in water and energy demands. Given the arid climate in the densely populated and heavily irrigated plains and the geopolitical tensions between the riparian states, the road towards achieving the Sustainable Development Goals (SDGs) for water, energy and food is extremely challenging. In SustaIndus a modelling toolkit and pathways will be developed that contribute to the SDGs 2, 6, 7 (food, water, energy) in the transboundary Indus river basin. In the project the SDGs will be translated to Indus specific SDGs (IDGs), and the feasibility and the trade-offs between them will be quantified. The project assesses the combined impact of climate and socio-economic changes on water dependent food and energy resources. We assess which specific interventions are most successful to increase the adaptive capacity at the local scale. Combining results from field scale research with a top-down basin-scale modelling approach we assess the scalability, the trade-offs and synergies between the three SDGs at basin-scale and develop adaptation pathways balancing the SDGs for the whole Indus basin.

**The PhD Project**

The PhD researcher will assess how climate smart innovations at field scale can contribute to achieving SDGs at basin scale. A first task is to evaluate the efficacy of solar-driven climate smart agricultural innovations, by literature review -collecting insights from other regions in the world- and by analysing existing pilot sites. For different innovations, the water and energy saving potential will be assessed in combination with direct (e.g. reduced costs) and indirect benefits (e.g. new opportunities to grow crops off-season). In addition, field trials focused on solar-powered groundwater pumps at different sites will be initiated and monitored in collaboration with PARC. A comprehensive analysis will be conducted including a water and energy balance and full cost-benefit analysis. To achieve an improved understanding of the uptake potential, barriers and bridges will be identified through a survey. Different existing business models for uptake will be assessed. Outcomes of the PhD researcher’s work will be used by the other researchers within the project. The PhD project will be conducted in close collaboration with other PhD researcher and the Post doc.
Requirements

We are looking for a candidate with:

- a recent master degree in for example agricultural engineering, hydrology, climate sciences or geography to be completed before 1 May 2019
- strong quantitative skills, with experience in data analysis, the use of Stata, R, or SPSS, and familiarity with the use of climate, hydrological or agricultural model output.
- experience in research design (quantitative and/or qualitative), agricultural field research and socio-economic research techniques
- interest in the topics to be investigated in the Sustalndus project, preferably demonstrated by previous work on similar topics such as climate smart agriculture.
- knowledge of the local agricultural sector, with particular focus on irrigation
- willingness to spend significant periods at Wageningen University, The Netherlands, as well as to attend conferences and research team meetings abroad
- willingness and opportunity to work in Pakistan.
- proven strong oral and written communication skills in English, especially regarding to academic writing and presentation

We offer

- A fully funded PhD position at Wageningen University for 48 month as a sandwich PhD student.
- As a sandwich PhD student you will spend 18 month of your degree at Wageningen University. 30 months are spent conducting research within the project in Pakistan at the Pakistan Agricultural Research Center.
- You will spend the first 6 months at Wageningen University to develop your research proposal and follow a tailor-made education and training programme. You will also spend the last 6 months at Wageningen University to finish your PhD thesis. Depending on progress, training and supervision needs in between trips to Wageningen University will be organised.
- The scholarship offers €1400/month during your stay in the Netherlands and €700/month during your stay in Pakistan. Health Insurance in The Netherlands, travel, visa and tuitions costs will be covered by the project.

Application procedure

To apply:

Applications should be submitted before 15th of April by email to Fulco.Ludwig@wur.nl and Christian.Siderius@wur.nl, including the following information:

1. An application letter explaining your motivation:
   Indicate clearly in your letter why you are interested in this position and how your experience links to the position requirements.

2. An essay (1000 words maximum) on the relevance of the water-energy-food nexus at farm-level in South Asia

3. A detailed CV including personal details (name, contact details), academic training, work experience and a list of publications. Please include language skills, computing and (academic) software skills and research for development networks.

4. Scanned copies of academic diplomas (bachelors and masters) and associated lists of marks/qualifications for courses followed. Diplomas will be validated by NUFFIC.
5. Names and addresses (including telephone and email) of three referees who are knowledgeable about the candidate’s professional qualifications

**We strongly encourage female candidates to apply**

Indicative starting date is 1 June 2019

More information:
On the PhD programme at Wageningen University: [https://www.wur.nl/en/Education-Programmes/PhD-Programme.htm](https://www.wur.nl/en/Education-Programmes/PhD-Programme.htm)

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