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USAID-HEI 2016 Concept Note
University of Arizona
International Research Institute for Climate and Society
International Centre for Climate Change and Development

TITLE:

The Integration of Demand-Driven Climate Science Applications into Development Programming: A Climate Adaptation Strategy for Bangladesh

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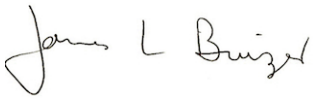
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OTHER ORGANIZATIONS:

This proposal has not been submitted to other organizations. However, it will build off of funding from a current grant from NOAA under its International Research and Applications Program. Further, complementary work is being proposed as part of the Climate Services for Resilient Development (CSRD) – Bangladesh initiative, led by the Asia Development Bank and the USAID.

SIGNATURE:



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Concept Note: Technical Approach
May 31, 2016

Introduction

Due to its high population density and deltaic geography, Bangladesh faces seemingly insurmountable environmental and socio-economic challenges due to its extremely variable and changing climate. While the densely inhabited coastal areas along the Bay of Bengal constitute a vulnerability "frontline" due to sea-level rise, saltwater intrusion, storm surges, and cyclones, in fact the entire country is exposed to changing patterns of climate variability that produce droughts in some regions and extreme flooding in others. At CoP21 in Paris, and previously in the U.S., as stated in the Executive Order on Climate Resilient International Development issued by U.S. President Barak Obama on September 23, 2014 , Government plans and priorities and donor programming, including USAID in Bangladesh, have become heavily focused on climate adaptation—how the country will be able to manage changing trends in climate variability, minimize the loss and damage due to climate change, and build new forms of community and household resilience.

While climate change is often presented as a long-term macro-scale process, its reality is manifested and experienced as real-time, local level alterations in climate variability (e.g. precipitation and temperature patterns, cyclone events) or as slow onset events (e.g. saltwater intrusion). Such variability affects agricultural productivity, pest incidence, fish reproduction cycles, farmland erosion, and water quality, among many other livelihood impacts. Climate change also threatens the vulnerable mangrove ecology of the unique Sundarbans forest, its biodiversity and the livelihoods of communities that depend on it. Further, impacts being experienced by humans can also be linked directly to losses of "ecosystem services" related to environmental degradation and loss of biodiversity. These will be explored and address within the proposed work.

In response to a number of severe flooding events over the last few years, the country has made considerable progress in developing early warning systems based on short-term weather forecasts. While there is considerable scope to develop further the accuracy and lead-times of these early warning systems, they constitute only one limited component of a climate risk management strategy. A more comprehensive set of historical, current, and prospective climate information products and services is required for disaster risk management and climate adaptation programming.

Currently, Bangladesh lacks the operational climate service capability needed to inform broader development strategies for building resilience to climate variability and change. The Bangladesh Meteorological Department (BMD) has started to develop some functionality already on an experimental basis, but for climate services to be effective in the country, a network of relevant stakeholders will need to be established. Defining the roles and responsibilities of organizations in a national framework for climate services should therefore be seen as an important early priority.

This proposal builds upon the recent advances in climate science and the increasing value of climate services as risk-reducing decision support aids. There is accumulated evidence that enhanced information on climate variability and change allows households and communities to better respond and adjust over the short-run and to adapt over the longer-run. The global state of climate science is rapidly evolving in terms of its range and quality of climate application products, and the current challenge is to effectively harness this enhanced scientific capability to address the needs of those who are in fact directly affected by variability and change. A recent partnership between the University of Arizona and the International Research Institute for Climate and Society (IRI) at Columbia University has developed a climate information system that links a local needs-based demand for climate information with the scientific capacity to generate that information and integrate it into communities with vulnerable livelihoods. It is proposed here that this system, known as the IRAP approach, be introduced into the broader development programming of USAID/Bangladesh that relates to climate change adaptation.

Central to the potential success of IRAP is its institutional ownership within Bangladesh. This ownership is located in a diverse institutional network anchored by Bangladeshi universities that have established a corpus of research experience in climate adaptation and have a history of collaboration with international, government, and non-government entities in climate adaptation activities.

Objectives

The overall objective of this proposal is to create the institutional capacity to effectively integrate climate information into livelihood decision-making on a national level.
To achieve this objective, the following steps are planned:

1. Establish an ***International Climate Adaptation Network*** based on long-term sustained partnerships between US universities (Arizona and Columbia), the International Centre for Climate Change and Development (ICCCAD), Bangladeshi universities (Independent University of Bangladesh, the University of Liberal Arts of Bangladesh, Khulna University, Bangladesh Agricultural University, etc.), the Bangladesh Centre for Advanced Studies, and the Bangladesh Meteorology Department (BMD);

2. Integrate the IRAP needs-driven demand approach into climate adaptation programming in USAID/Bangladesh, particularly the Title II MYAPs, FTF projects, and DO 4 projects (e.g. CREL) through the ***Network***-generated set of applied research, capacity-building, and training activities implemented at key focal points around the country;

3. **Enhance the capacity** of the BMD to generate appropriate, demand-driven climate services at the national level;

4. Create a nationwide **climate adaptation repository** within ICCCAD that organizes past research and project reports, including vulnerability assessments climate-related impact evaluations, identifies and assesses technology innovations for adaptation, and monitors the dissemination of climate information products;

5. Use the ***Network*** to promote active international research and increased training capacity on climate change adaptation that provides access to global resources that can solve local problems within Bangladesh.

To achieve these objectives, the IRAP team will work closely with ICCCAD and partner universities, and will build upon the platform developed through the Gobeshona initiative (see www.gobeshona.net), to collaborate with current USAID implementing partners setting up climate information service systems that can be readily integrated into existing project activities. The network partners will design the climate services system using the existing IRAP approach, carry out the necessary information needs assessments, build the capacity of BMD to develop appropriate climate products, and train the relevant field staff in the delivery of climate information to beneficiaries.

Duration of the Activity

This is designed to be a 3-year activity with clear annual milestones. At the end of the three years, it is anticipated that the ***Network*** will be fully sustainable and self-sufficient.

Development Challenge and Proposed Solution

This proposal directly addresses USAID worldwide and mission priorities for climate change adaptation. The value of climate information in adaptation is explicitly stated in U.S. President Obama's September 23, 2014 Executive Order and related Climate Services for Resilient Development program, which sets Bangladesh as target country. At the mission level, the proposal contributes to two of the four Development Objectives (DOs) of the USAID/Bangladesh Country Development Strategy: DO 4 Responsiveness to Climate Change Improved and DO 2 Food Security Improved. The impacts of climate variability and change in Bangladesh are currently affecting lives and livelihoods throughout the country, and the need for climate adaptation tools is both immediate and urgent. Bangladesh presently lacks the technical capacity to provide a full range of climate science applications (beyond cyclone tracking and short-term weather forecasting), and the BMD does not have sufficient expertise to identify and respond to local-level climate needs. This lack of "tailored" climate information products reduces the adaptive capacity of households and communities, particularly those dependent on agriculture, fishing, and forest resource extraction.

This proposal establishes the availability of and access to climate information that has been co-produced to meet the precise needs of its user population. This approach first assesses the impacts of climate variability on the livelihoods of fishers and farmers and what type of climate information could provide them with appropriate support for more nuanced decision-making. The approach then links this information demand to the climate science community and its capacity to provide the desired information, technically and operationally. These products would include data services, monitoring and forecasts and verification at a range of timescales. Finally, the climate application product is packaged and disseminated through multiple channels including user training and workshops to maximize the effectiveness of the product. Under these activities, this approach is to be introduced to large-scale on-going projects designed to enhance climate change adaptation, resilience, and improved food security. In this sense, the proposed

solution offers support of these on-going (and future) programs by providing a climate service resource.

A second component of the proposed solution is to create a centralized "warehouse" of climate adaptation knowledge and expertise in Bangladesh. This critical feature will be developed by ICCCAD and its network of Bangladeshi institutions that will partner with the University of Arizona, Columbia University - IRI, and other international actors to create ***International Climate Adaptation Network***. Numerous studies and project reports have addressed one or another aspects of climate adaptation efforts in Bangladesh, but the proposed ***Network*** will provide a centralized repository, a dynamic program of applied research, and an important information resource for all adaptation programming. Key to this strategy is to build a comprehensive capability for training and capacity development in climate adaptation and the climate information applications. It is intended that the partnerships upon which this ***Network*** is founded will be long-lasting and durable and will be fueled by scholarly exchanges of faculty and students, regular trainings and workshops for NGO and government staff, and important opportunities for innovative ideas and creative problem-solving.

A third component of the work (which is often neglected or tagged on to the last few months of projects) is to plan at the early design stage for the long term sustainability of the work beyond the project period and investing in the partner institutions, particularly ICCCAD at IUB to continue the work in the long term after the project is over. Thus the planning of an exit strategy and legacy plan will be integral to the design phase of the work.

Applicant Suitability

The proposed partnership of HEIs, civil society and government institutions assembles a globally recognized capacity in climate change adaptation. The leadership of ICCCAD, Dr. Saleemul Huq, is one of the world's foremost authorities on climate change adaptation in Bangladesh; Dr. Atiq Rahman, Executive Director of BCAS, is a leading advisor in Bangladesh in setting climate change adaptation policy at the national level. The University of Arizona is a global academic center in climate change adaptation and vulnerability studies, while IRI is a global point of reference for climate science applications and has a strong history of collaboration with the BMD. Added to these core partnerships are Bangladeshi universities actively engaged in climate change adaptation at both the regional and national levels—Khulna University, Bangladesh Agricultural University, and others. This dynamic network has proven leadership, national and international recognition and influence, strong intellectual capacity, and many years of experience.

Type of Support Requested

This proposal requests financial support for personnel and staff effort at both the US and Bangladeshi institutions, international travel (to Bangladesh and to the US), support for training and workshops, and in-country applied research. As importantly, the proposal requests that USAID support and promote the integration of a climate information capacity into ongoing programming, particularly with implementing partners of the FTF, FFP, and adaptation/resilience projects.

Concept Note: Supporting Information

A. Estimated Costs

The proposed activity will require an estimated $1.5 million over 3 years. These resources will finance a limited amount of salary support at the US institutions (Arizona and Columbia), a limited salary support for research, training, and administration at Bangladeshi institutions, with the bulk of the budget destined to in-country research and training, creating the ***Network*** home within ICCCAD, and international exchange. As a preliminary estimate (in US$):

Item	**Year 1**	**Year 2**	**Year 3**	**Total**
Salaries (US)	150,000	150,000	150,000	450,000
Salaries (BD)	100,000	100,000	100,000	300,000
Network Support	50,000	50,000	50,000	150,000
Training/capacity building	50,000	50,000	50,000	150,000
Applied research	50,000	50,000	50,000	150,000
Faculty/student exchange	150,000	150,000	150,000	450,000

B. In-Kind Contributions

US staff salaries: $300,000
Infrastructure and administrative support in Bangladesh: $150,000

C. Description of applicants

The International Research Applications Project (IRAP) is a collaboration of the University of Arizona and the International Research Institute on Climate and Society (IRI) at Columbia University. IRAP is funded for five years by the National Oceanic and Atmospheric Administration (NOAA), and is programmed to be implemented in three regions globally—Caribbean, South Asia, and West Africa. The central objective of IRAP is to enhance community climate resilience through the development of effective and dynamic linkages between the local demand for climate information and the delivery of relevant and appropriate climate Information products. Lead individuals:

US:

James Buizer, Professor, Institute for the Environment, University of Arizona
Timothy Finan, Professor, School of Anthropology
Lisa Goddard, Director, IRI, Columbia University
Simon Mason, Climate Scientist, IRI, Columbia University

Bangladesh:

Saleemul Huq, Director, International Center for Climate Change and Development (ICCCAD) and professor Independent University of Bangladesh

Ahsanul Kabir, Dean and Professor, School of Science, Engineering and Technology, Khulna University
Bangladesh Meteorological Department (BMD), technical director
Atiq Rahman, Executive Director, Bangladesh Center for Advanced Studies
University of Liberal Arts of Bangladesh
Bangladesh Agricultural University