



## RESOURCES HIMALAYA FOUNDATION (NEPAL)

*Building Climate Change Resilience Capacity of Mountain People in Nepal*

Resources Himalaya intends to serve as a catalyst for conservation and development in Nepal, providing science-based information synthesized for rigorous development and action research. To increase the resilience capacity of local communities, Resources Himalaya will (1) conduct training for Vulnerability Assessment of Climate Change for local government, community and local NGOs/CBOs; (2) prepare Local Adaptation Plan Guidelines and pilot a Local Adaptation Plan; and (3) disseminate this information to the central decision-making and planning bodies. The pilot Local Adaptation Plan will provide a case study for the development of future adaptation plans throughout Nepal.

## THE RESEARCH FOUNDATION FOR SUNY (MONGOLIA-ALTAI)

*Climate Change in the Altai Mountains*

SUNY-College of Environmental Science and Forestry (ESF) will evaluate climate change in the Altai Mountains of Mongolia, specifically looking at the emerging problem of snow leopard interactions with local communities. The research will use results from field surveys of snow leopard distribution and existing poaching presence to develop lateral agreements between local herders and a local NGO, Arkhar; to develop an ecotourism scheme in the Altai Mountains. The goal is to support conservation efforts while simultaneously providing an opportunity for economic growth in these remote communities. SUNY-ESF is a specialized college within the State University of New York System with a 90-year history of research and education related to understanding ecosystems and applying that understanding to the management of land, resources, and the natural environment.

## GEO-SCIENCE INNOVATIONS (NEPAL)

*Investigation of the Seti River Disaster (May 5, 2012) and Assessment of Past and Future Mountain Hazards facing Pokhara, Nepal and Upstream Communities*

Geo-Science Innovations, a center for geo-science research, training, and technical innovations for a variety of geological and landscape formation problems in Nepal, seeks to understand the cause of the May 5, 2012 Seti River outburst in Nepal. It will then develop a concept structure for an effective and sustainable warning system to mitigate the impact of future disasters. The research will develop a current inventory of geological risks and evaluate the history of prior mass flows, floods, rockslides, and avalanches in the region. Based on this information, an assessment of future hazards will inform a conceptual, Geographic Information Systems (GIS)-based framework to evaluate risk and develop a functional, cost-effective warning system. This warning system will be rooted in the knowledge and participation of the local communities and will seek to mitigate the impact of future disasters.

FOR MORE INFORMATION ABOUT THE CLIMBER-SCIENTIST GRANTS PROGRAM AND FUTURE SOLICITATIONS UNDER THE CCRD PROGRAM PLEASE CONTACT:

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# CLIMBER-SCIENTIST GRANTS PROMOTE CLIMATE RESILIENCE IN THE HIGH MOUNTAINS

High Mountain Glacial Watershed Program

The Climber-Scientist Small Grants program provides field-based, hands-on research opportunities to scientists and practitioners working in high mountain regions. Particular focus is placed on information regarding the impacts of climate change, interaction between highland and lowland communities, and methods for protecting fragile alpine ecosystems. An important element of the USAID-funded Climate Change Resilient Development (CCRD)\* project, the goal of the Small Grants program is to advance the understanding of climate adaptation in priority sectors, geographic areas, and sensitive landscapes.

Under CCRD, the High Mountain Glacial Watershed Program (HMGWP) was established to help increase awareness of the critical importance of high mountain watersheds. It is a Community of Practice fostered by the Adaptation Partnership, launched by the US, Spain, and Costa Rica in 2010.

CCRD announced the competitive solicitation for the Climber-Scientist Small Grants in May 2012, and eleven grants were awarded in July 2012.



## ADAM FRENCH (UNIVERSITY OF CALIFORNIA, SANTA CRUZ)

*Integrated and Participatory Risk Management in Peru's Lake Parón Glacier Basin*

Building on his extensive experience in Peru's Cordillera Blanca, Adam French's project will help local communities in the Santa River watershed to build technical skills in hazard assessment and risk management, and in methods for meteorological and hydrologic data collection. The project's focus is the development of a community-driven, participatory data collection and monitoring program in the Lake Parón glacial basin. It will provide vital information about the region's shifting hydrologic regime, which will strengthen highland-lowland linkages that foster networks of cooperation to sustainably manage vital hydrologic resources in the region.



## ULYANA NADIA HORODYSKYJ (UNIVERSITY OF COLORADO-BOULDER)

*Quantifying Supraglacial Lake Changes: Contributions to Glacial Ice Volume Loss and Runoff Inputs to Rivers in Nepal and Tibet*

Ulyana Nadia Horodskyj's research seeks to improve our understanding of the changes occurring in debris-covered Himalayan glaciers due to the impact of lakes that form on glacier surfaces (or supraglacial lakes). Through diverse data collection techniques, including the comparison of historical and real-time imagery, LiDAR (laser) landscape surveys, time-lapse photos, and isotopic foot-printing, this project will provide new insight to the changes in water flow patterns and resources occurring in glaciers, with a particular focus on the impact of supraglacial lakes. Local Sherpas and Tibetans living in the study regions will be trained in data collection and hazard mitigation. Elementary and middle school curricula will be developed to increase awareness and understanding of the changing water resources among children.

\* CCRD is implemented by International Resources Group (IRG).





**RAÚL AUGUSTO LOAYZA MURO (UNIVERSIDAD PERUANA CAYETANO HEREDIA)**

*Natural acid and metal leaching in Andean headwaters: an interdisciplinary approach to evaluate water quality and potential sources for remediation in a climate change context in the Cordillera Blanca (Peru)*

Raúl Augusto Loayza Muro's project will monitor the highland-lowland impacts of climate change and pollution on a glacial watershed in the Cordillera Blanca mountains of Peru. It will specifically evaluate the impacts of natural acid and metal drainage on water quality and biodiversity. By monitoring the physical chemical characteristics and insect population diversity within a watershed, it will increase understanding of the linkages between climate change, water quality, and biodiversity. Based on this new knowledge, the project will experiment with different native plant species to develop new solutions to monitor and remediate water pollution, particularly pollution from increased natural acid and metal leaching.



**STEPHANIE SPRAY (HARVARD UNIVERSITY)**

*Snow River Film Project, Nepal*

Stephanie Spray's Snow River project is a feature-length film that will document the complex relationships among local communities in three regions of Nepal – the Khumbu, Hinku, and Hongu – and the surrounding Himalayas. Snow River, from the literal translation of the Nepali word for glacier (hiun nadi), will focus on local communities' perceptions of and relationships to nearby glacial environments, which contribute culturally to local identity and physically to regional water resources. These glacial environments, some of which hold potentially dangerous glacial lakes and unstable dams, may threaten local life and livelihoods. The film will recall traditions of landscape and portraiture in painting and film. Focusing on intimate portraits of individuals whose lives and identities are clearly rooted in a place that is rapidly changing, Snow River humanizes the impacts of climate change.



**LAURA READ (TUFTS UNIVERSITY)**

*Community Water Management in the Tres Cuencas Commonwealth*

In this science-to-practice project, Laura Read will collaborate with Peru's Tres Cuencas Commonwealth to support its goal to develop technical solutions for water and climate challenges. The project has three main components: First, a multi-media portfolio that includes a hydrological, social, political, and economic profile of each community in the Tres Cuencas Commonwealth will be created. Second, an educational water allocation game will be constructed and used as a decision-support tool for communities. Third, the feasibility of a regional mobile telecom network to support project communication and report real-time hydrologic and climate data will be assessed and developed. This combination of activities is expected to provide the Tres Cuencas Commonwealth with the necessary tools to more effectively and collaboratively manage water resources.

**SHAH RAEES KHAN (UNIVERSITY OF MANITOBA)**

*Understanding Vulnerabilities to Environmental Hazards in Mountain Areas: A Case Study of Climate Change Analysis on Livelihoods in Northern Pakistan*

Shah Raees Khan will investigate the strategies communities in northern Pakistan have developed to adapt to emerging vulnerabilities due to climate change. The study will compare the risks and subsequent responses of four communities with a particular focus on the impacts of climate change on livelihood practices, especially the effects of seasonality on crops, the unpredictability of the crop harvest, and other changes in farming practices. The research outputs will help the communities improve planning for environmental mitigation and adaptation at the village level and increase their capacity to understand climate change-induced risks and hazards, identifying best strategies and practices.



**ETH ZURICH (SWITZERLAND)**

*Including the Sherpa Factor in Water Resources Projections in the Nepalese Himalaya*

The University of Zurich's Institute of Environmental Engineering (ETH) is increasing its efforts to address global issues related to poverty, hunger, and climate change impacts. This ETH project will combine quantitative observations in the field with the knowledge of local communities to better predict future water resources in the glaciated watersheds of Nepal. It will train local people in the Langtang Basin in advanced monitoring techniques for the observation of climate and hydrological changes. This observational data will then be combined with local knowledge of perceived changes in the natural system to inform a glacio-hydrological model that will help predict future changes in snow, glacier mass balance, and runoff in the region. Local communities can then use the model-generated information to inform their water management decisions.

**ATREE (INDIA-NEPAL)**

*Climate change in Kanchenjunga TCA: Vulnerabilities and Adaptive Capacities*

The mission of the Ashoka Trust for Research in Ecology and the Environment (ATREE) is to bring together researchers for interdisciplinary, applied work related to conservation, policy development, and capacity building of governmental and non-governmental organizations to solve environmental problems. This ATREE project will develop a framework for climate-resilient development and adaptation to climate change risks in the Kanchenjunga Transboundary Conservation Area (KTCA) in Nepal. The project has four components: (1) stakeholder perception assessments, (2) knowledge synthesis including climate modeling, (3) capacity building of local organizations, and (4) improving the capacity of policy makers. A Regional Climate Awareness Forum will be established to act as a vital policy advocacy organ that works with government agencies and communities to develop climate-aware strategies.