



# IHDP Open Meeting 2009

7th International  
Science Conference on the  
Human Dimensions of  
Global Environmental Change

26-30 April 2009  
World Conference Center Bonn  
UN Campus  
Bonn, Germany

## The Social Challenges of Global Change

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Time: Monday 27 April, 16:00 - 17:30. Session: A210

### Environmental Education and Training

Location: TNT Suessmuth Room

Convenor: Paul Stern, The Social and Environmental Research Institute, Greenfield

Wise management of environmental resources requires a combination of knowledge and practice. These presentations explore efforts to build needed knowledge of environmental systems and their management, and to connect knowledge to action. They explore both formal, professional knowledge and indigenous knowledge, and together they raise important issues about how to develop these kinds of knowledge, link them to each other, and put them into action in resource management and adaptation to climate change.

The presentations by Attari and by Shkaruba and Falaleeva look at professional training for experts: in the Middle East where capacity is weak and in Belarus where institutional problems affect both the training of experts and the ability to link it to action. Pascual and his colleagues describe a project of technical training for farmers. The presentations by Esia-Donkoh and Awusabo-Asare and by Magcale-Macandog and Abucay explore the indigenous knowledge of farmers and the conflicts that can arise between indigenous and external knowledge and belief systems. Finally, Espaldon's presentation looks at indigenous knowledge in the context of the need for communication to link external knowledge about climate change to indigenous knowledge and practices in order to promote sound adaptation.

### Professional Trainings: an Integral Part of Capacity Building for Water Sector in Iran

Presenter: Jalal Attari, Power and Water University of Technology, Iran, Islamic Republic of

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Training of professional staff is vital for capacity building especially in developing countries. This is more highlighted in the middle east region where water is scarce and often the skilful human work force for planning and implementation of Integrated Water Resources Management (IWRM) does not exist at the required level. Iran has acknowledged this need since two decades ago and has started to educate students and train staff required for planning, design, construction and management of water projects at the Power and Water University of Technology (PWUT) in Tehran.

In this paper, the role of professional trainings in capacity building for IWRM in Iran has been introduced. Relevant experience of PWUT, as the largest professional training center in the Middle East region, has been discussed in detail. Furthermore, an insight to the objectives and curriculum of a capacity building project for water and wastewater sector in Iran is provided, which has been recently started by the joint venture of UNESCO-IHE and PWUT.

It is believed that the lessons learnt from the above-mentioned experience is useful for providing more effective professional trainings and institutional capacity building in water sector in Iran. Such an experience can be replicated not only in the countries located in the Middle East but also some other developing countries.

## Change and Continuity: Using Indigenous Knowledge to Achieve Environmental Sustainability in Ghana

Presenter: Kobina Esia-Donkoh, University of Cape Coast, Ghana

Authors: Kobina Esia-Donkoh (1), Kofi Awusabo-Asare (1)

*University of Cape Coast, Central, Ghana (1)*

Global efforts to address environmental challenges have begun to adopt Indigenous Knowledge (IK) to inform policies in environmental protection and management for sustainable development. Encompassing the skills, experiences and insights of people, IK has been used over the years to maintain the environment. The study guided, by the Constellations of Cosmivision Related Knowledge Model assesses indigenous practices that have been adopted to sustain the environment in selected communities in the Central Region of Ghana. Data were derived from in-depth interviews with community leaders, elders and other opinion leaders; focus group discussions with selected youth; and a descriptive survey with teachers. Beliefs, rituals and practices comprised the core tenets of indigenous knowledge about farming and fishing in Ghana. Although critical in environmental management, current indigenous knowledge is being challenged by external beliefs and knowledge systems, internal dynamics and climatic change. The paper argues that the prospects of indigenous knowledge to sustain the environment will depend on its resilience and adaptation and possibility of integrating it into the curriculum of the formal school system.

**Keywords:** Indigenous knowledge, climate change, environmental sustainability, adaptive measures, Ghana

## Understanding and Conserving Indigenous Knowledge on Sustainable Natural Resource Management in the Cordilleras Region of the Philippines

Presenter: Damasa Magcale-Macandog, University of the Philippines Los Banos, Philippines

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*University of the Philippines Los Banos, College, Laguna, Philippines (1)*

The Cordilleras Region of the Philippines has a rich diversity of indigenous knowledge on sustainable resource man-



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agement. It is the basis for agriculture, food preparation, health care and environmental conservation. This paper aims to integrate the lessons learned from the local people's knowledge on natural resource management. Strategic options on environmental communication and education will be drawn from these findings.

Natural resource management strategies practiced by various communities were documented using a variety of Participatory Rural Appraisal (PRA) tools and literature survey. Some of the practices in the Cordilleras like Muyong by the Ifugao's and Batangan in Mountain Province have sustain the lives of the people by providing steady source of food, construction materials, firewood/fuel and medicine while maintaining forest biodiversity in the region. Shifting cultivation, known as Uma system or patch farming, is a traditional crop production system practiced in the Cordilleras to rejuvenate soil fertility. Another indigenous soil fertility management practice in the Mountain Province is Payew where sunflower cuttings is incorporated and allowed to decompose in the rice paddy fields during the rice growing season.

Natural resource management practices in the Cordilleras have sustained the diversity of forest resources and lives of the local people. Policy makers, scientists and researchers must recognize and include the role of local people's knowledge in management decisions of the country's fragile environmental resources. Development of information exchange campaign (IEC) materials translated into local dialects is vital so that other communities can learn from these indigenous practices.

## Knowledge Systems in Upland Farming Practices: Implications for Climate Change Adaptation in the Philippine Uplands

Presenter: Maria Victoria Espaldon, University of the Philippines Los Baños, Philippines

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*School for Environmental Science and Management, Los Banos, Laguna, Philippines (1)*

The paper focuses on the importance of multiple knowledge systems on enhancing the adaptive capacity of farming communities in the Philippines. It discusses the epistemologies of knowledge that are pertinent to strengthen the resilience of small farmers and farming households, who are one of the most vulnerable groups in the event of climatic variabilities, climatic extremes and climate change. It focuses on the results of the survey conducted among the upland farmers in Mindanao to examine the sources of knowledge and adaptation strategies to changing climate. It also features the stories of agroforestry and vegetable farmers and how these systems evolved as response to both changing climate and market demand. The paper illustrates how agroforestry can be a viable adaptation strategies that can be replicated in other geographical areas of similar biophysical and socioeconomic conditions. It also brings to the discussion the need for effective communication system to disseminate the knowledge systems related to climate change in order to promote sound adaptation strategies.



## Capacity Development in Adaptive Water Management: Experiences and Lessons Learned at Farmers' Water School in Northern Philippines

Presenter: Carlos Miniano Pascual, Mariano Marcos State University, Philippines

Authors: Carlos Miniano Pascual (1), Samuel Contreras (2), Teresita Sandoval (2), Melinda Mangabat (3)

*Mariano Marcos State University, Batac City, Philippines (1), Bureau of Soils and Water Management, Manila, Philippines (2), Agricultural Training Institute, Batac Cit, Philippines (3)*

A collaborative project between and among academic, research, training and local government units was conducted to empower farmers to enhance their agricultural production through management and protection of groundwater resources in two watersheds in northern Philippines. A multi-cycle approach through establishment of a farmer water school (FWS) was conceived to educate, strengthen agricultural technicians, farmer water users in the two watersheds were concepts, principles of adaptive water management (AWM) on groundwater were taught to trainers.. With the innovative training of the senior author of this paper in IHDP's IHDW: Trainer's Training on Adaptive Water Management in New Delhi in October 2008, a number of modules were used as important references in the development of local modules during the FWS conducted just recently. The first level 8-day training of trainers in the FWS conducted revealed successful interest among prospective trainers and recommended for expansion. Crop planning, implementation of agreed plans, monitoring of groundwater recharge and evaluation will be implemented as an intervention measures to quantify and qualify using some sustainable indicators on socioeconomics and technical aspects of the project within one hydrological cycle using hydro-ecosystem and human-ecosystem analyses. Formulation of local modules on AWM, best practices and lessons learned on establishing the first FWS will be discussed. Participatory and active involvements of all stakeholders in the two watersheds are important and critical issues to attain the expected output of the project. Such FWS can be expanded and duplicated elsewhere to also invoke adaptive management on environmental and natural resources for sustainability.

## Professional environmental education in Belarus: first steps towards a new science-policy interface or traditional practices in a modern guise?

Presenter: Anton Shkaruba, Central European University, Hungary

Authors: Anton Shkaruba (1), Maria Falaleeva (2)

*Central European University, Hungary (1), IVM, Vrije Universiteit, Amsterdam, Netherlands*

In Belarus environmental researchers have strong influence on formulation and implementation of environmental policies, mostly because other institutions beyond the government are not trusted by decision-makers and broader public; even environmental NGOs are active only if their focus is on research. Just like many other things associated with top-down modes of governance, this one is likely to remain unchanged for long, and therefore should be considered in strategies targeting institutional/political reform in Belarus. An important implication is that the development of national expertise in environmental studies and integration of Belarusian academia into the international research community are crucial for the improving the country's environmental performance. Building on lessons learned from an IHDP-endorsed EC TEMPUS project, we seek to analyse structural problems of professional envi-



ronmental education in Belarusian universities.

Notwithstanding a number of internationally-funded capacity-building initiatives supporting the development of Bologna standards, the major problem of the environmental education remains an undeveloped mechanism for interaction between science, education and employees: employers are unqualified to identify necessary objectives and competences, while educators do not have skills to do this on their own. Present patterns of interaction are supported by the lack of competitive environments, where universities fight for applicants and researchers/educators have to develop networks to share knowledge. In Belarus, where universities do not have to compete, segregation works better for raising governmental subsidies. Before this is realised and addressed by the national government and international donors, any attempts to improve the situation will fail to sustain themselves over any longer term.